

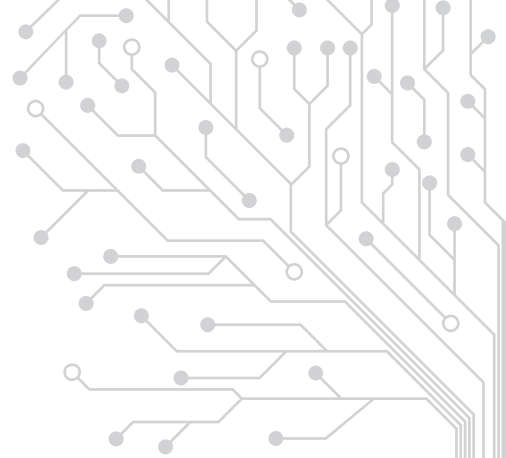


COMPONENTS CATALOG
華德電子零件產品型錄

FUSES CSR

CURRENT SENSING RESISTORS





The Name You Always Trust
就是可以信賴

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2022 AC-CF-A010

About Walter / 華德介紹

In order to become closer to our customers and provide better services, the factory was established in the Yangtze River Delta-Jiangsu Wujiang in the year 2000. The products are not only sold in China but also exported all over the world. In 2006, the company received technical support from Japan's major manufacturers of current sense resistors, and began to develop resistance components, while obtaining certifications from renown manufacturers. In 2015, the company launched power fuses.

Markets includes solar systems, industrial power supplies, communication power supplies, UPS, power batteries, electric vehicles, instrumentation, etc.

2000年設廠於長三角—江蘇吳江，產品不僅內銷中國，更出口世界各地。2006年，獲得日本大廠電流感測電阻相關產品技術支持，開始發展電阻元件，並獲得知名大廠認證。2015年推出電力保險絲，市場涵蓋太陽能系統、工業電源、通訊電源、UPS、電力電池、電動汽車、儀器儀表…等。

Product Development / 產品自開發

Walter possesses advanced R&D capability and holds all intellectual property rights. In an effort to enhance product development capabilities, we recruited senior engineers from the Industrial Technology Research Institute of Taiwan to strengthen Walter's engineering team.

In recent years, Walter increased interactions and partnerships with reputable industry groups such as scholastic organizations from Japan, Taiwan, and Mainland China.

華德所有產品均源於自身研發技術，擁有自主品牌和知識產權。為加快產品開發，公司從台灣工研院引入高級研發人才不斷壯大技術隊伍。

近年來，華德加強與外界技術交流與合作，例如與日本學術機構技術交流，與台灣、大陸多所高等院校在電子化工技術領域保持密切的聯繫和項目合作。

Automated Equipment Production Line / 自動化生產線

90% of the automated production equipment is crafted in-house, which greatly enhances production efficiency and the quality of our products.

90%以上先進自主化生產設備，均根據FUSE生產需要而研發制作，大大提高了我們的生產效率、同時提升了我們的品質。

Planet / 環保理念

Certifications / 相關認證	Factory / 工廠	
	Suzhou / 蘇州	Jiangmen / 江門
ISO 9001	✓	✓
ISO 14001	✓	✓
IATF 16949	✓	✓
IECQ QC080000	✓	

List of Inspection Items / 檢測項目列舉

- Salt spray test / 鹽霧試驗
- Digital microscope test / 電子顯微鏡測試
- Isolation test / 絕緣測試
- Thermal shock / 熱衝擊
- Soldering heat resistance test / 耐焊接測試
- Temperature raising test / 溫升測試
- Environmental test / 環境實驗
- Plated-thickness major material analysis / 鍍層厚度儀及材料分析



Electronic Load Testing Equipment / 電子負載測試機組 (CHROMA)



3D High Rating Microscope (Keyence) / 3D 高倍率立體顯微鏡 (Keyence)



RoHS Elements X-Ray Detector / 島津光譜儀



For SMD type products, simulating IR RELOW testing / 高溫無鉛回流焊機 (晉力達)











	Series No. 型號	Fuse Size 尺寸	Voltage 電壓	Characteristic 特性	Safety Approvals 安規認證	Page No. 頁數	
Surface Mount Fuses / 貼片式保險絲							
	Fuses Selection Guide / 保險絲選用指南					01	
	0603F	1.6x0.8mm	63V / 125V	Fast Acting Type		04	
	0603T	1.6x0.8mm	32V	Time-Lag Type		05	
	1206F	3.2x1.6mm	63V / 125V	Fast Acting Type		06	
	1206T	3.2x1.6mm	63V	Time-Lag Type		07	
	1206HC	3.2x1.6mm	35V / 48V	High Current Type		08	
		6125SF	6.1x2.5mm	65V / 125V	Inrush Type	 	09
6125SH		6.1x2.5mm	125V	High Inrush Type	 	10	
2410F		6.1x2.5mm	125V / 250V	Fast Acting Type	 	11	
2410H		6.1x2.5mm	125V / 250V	High Inrush Type	 	12	
2410LT		6.1x2.7mm	125V / 250V	Time-Lag Type	 	13	
1032SF		10.25x3.2mm	100V / 250V	Fast Acting Type		14	
1032ST		10.25x3.2mm	250V	Time-Lag Type	 	15	
1032HB		10.25x3.2mm	250V	Inrush Type	 	16	
Micro Fuses / 微型保險絲							
		FCP	3.0x7.3mm	125V	Fast Acting Type	 	17
	TCP	3.0x7.3mm	125V	Time-Lag Type		18	
	FEP	3.7x8mm	250V	Fast Acting Type	 	19	
	TEP	3.7x8mm	250V	Time-Lag Type	 	20	
Subminiature Fuses / 超小型保險絲							
	2000	8.5x8mm	250V / 300V	Time-Lag Type	 	21	
	2010	8.5x8.5x4mm	250V / 300V	Time-Lag Type	 	22	
	2020	8.5x5x4mm	250V / 300V / 400V	Time-Lag Type	 	23	
	2020 (SMD Type)	8.5x5x4mm	250V / 300V / 400V	Time-Lag Type	 	24	
	2040	12.4x6.4x9.2mm	250V / 300V	Time-Lag Type(TT)	 	25	

Series No. 型號	Fuse Size 尺寸	Voltage 電壓	Characteristic 特性	Safety Approvals 安規認證	Page No. 頁數
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Ceramic Tube Fuses / 陶瓷管保險絲





































TDP	3.6x10mm	250V	Time-Lag Type		26
ICP	3.6x10mm	250V	Time-Lag Type		27
FSC	5.2x20mm	250V	Fast Acting Type		28
FHP	5.2x20mm	420Vac/Vdc	Fast Acting Type		29
TSC	5.2x20mm	250V	Time-Lag Type		30
TSC+P	5.2x20mm	250V	Time-Lag Type		31
MTP	6.35x31.75mm	250V	Time-Lag Type		32
MTT	6.35x31.75mm	250V	Time-Lag Type		33

Glass Tube Fuses / 玻璃管保險絲



FAP	3.6x10mm	125V / 250V	Fast Acting Type		34
TAP	3.6x10mm	125V / 250V	Time-Lag Type		35
FSD	5.2x20mm	125V / 250V	Fast Acting Type		36
TSD	5.2x20mm	250V	Time-Lag Type		37
TMD	5.2x20mm	125V / 250V	Time-Lag Type		38
CIS/CSP	5.2x20mm	125V / 250V	Fast Acting Type		39
SIC/SIP	5.2x20mm	125V / 250V	Time-Lag Type		40
SLA	5.2x20mm	125V / 250V	Time-Lag Type		41
MGC/MGP	6.35x31.75mm	125V / 250V	Fast Acting Type		42
MDC/MDP	6.35x31.75mm	125V / 250V	Time-Lag Type		43
JGC/JGP	5.2x20mm	125V / 250V	Fast Acting Type		44
JDC/JDP	5.2x20mm	125V / 250V	Time-Lag Type		45
MFS/MFP	6.35x30mm	125V / 250V	Fast Acting Type		46
MDS/MDT	6.35x30mm	125V / 250V	Time-Lag Type		47

	Series No. 型號	Fuse Size 尺寸	Voltage 電壓	Characteristic 特性	Safety Approvals 安規認證	Page No. 頁數
	Power Fuses Selection Guide / 電力保險絲選用指南					48
	WN10	5x20mm	600Vac	Fast Acting Type		49
	WN20	5x20mm	600Vac / 500Vdc / 400Vdc	Time-Lag Type		50
	WN30	5x20mm	500Vdc / 400Vdc	Fast Acting Type		51
	WN40	5x20mm	300Vac/dc	Fast Acting Type		52
	WM10	6x30mm	600Vac/dc	Fast Acting Type		53
	WM20	6x30mm	1000Vac/dc	Fast Acting Type		54
	WM30	6x30mm	660Vac/dc	Fast Acting Type		55
	WM40	6x30mm	660Vac/dc	Fast Acting Type		56
	WM45	6x30mm	500Vac/dc	Fast Acting Type		57
	WM55	6x30mm	250Vac / 150Vdc	Fast Acting Type		58
	MHC/MHP	6x30mm	500Vac/dc	Fast Acting Type		59
	WM70	6x25mm	75Vdc	Time-Lag Type		60
	LFC/LFP	10x38mm	500Vac / 250Vac / 125Vdc	UL248-1/-13		61
	WL12	10x25mm	150Vdc	UL248-1/-13		62
	WL25	10x38mm	600Vac/dc	UL248-1/-13		63
	WL40	10x38mm	1000Vac/dc	UL248-1/-13		64
	WL50	10x38mm	1000Vdc	UL248-19		65
	WL52H (Holder)		1000Vdc / 500Vac / 600Vac	UL4248-19/-13 EN60947-3		66
	WL52H-2P (Holder)		1000Vdc / 500Vac / 600Vac	UL4248-19/-13 EN60947-3		67
	WL52H-3P (Holder)		1000Vdc / 500Vac / 600Vac	UL4248-19/-13 EN60947-3		68
	WL55 / WL55P	10x55mm	1500Vdc	UL248-19		69
	WL60 / WL60P	10x85mm	1500Vdc	UL248-19		70
	WL60H (Holder)		1500Vdc	UL4248-19		71
	WJ30H (Holder)		1500Vdc	UL4248-19		72
	WH30	18x45mm	500Vdc	UL248-1/-13		73
	WH33	18x45mm	500Vac/dc	UL248-1/-13		74
	WH40	18x45mm	700Vac	UL248-1/-13		75
	WH42	18x45mm	700Vac/dc	UL248-1/-13		76
	WH62	18x25mm	150Vdc	UL248-1/-13		77
	WE53	30x50mm	500Vac/dc	UL248-1/-13		78

	Series No. 型號	Fuse Size 尺寸	Voltage 電壓	Characteristic 特性	Safety Approvals 安規認證	Page No. 頁數
Power Fuses / 電力保險絲						
	WD38	37x70mm	1000Vdc	UL248-1/-13		79
	WD63	37x50mm	500Vac/dc	UL248-1/-13		80
	WS32	48x43x55mm	750Vdc	JASOD622 ISO8820		81
	WS35	24x36x58mm	800Vdc	JASOD622 ISO8820		82
	WS37	25x22x57mm	800Vdc	JASOD622 ISO8820		83
	WS40	48x47x72mm	1000Vdc	JASOD622 ISO8820		84
	WS70	48x43x85mm	1500Vdc	JASOD622 ISO8820		85
	WS80	27x22x59mm	1500Vdc	JASOD622 ISO8820		86
	WHFM	37x50mm	690Vac/500Vdc	UL248-1/-13		87
	WHFMM	(37x50mm)x2	690Vac/500Vdc	UL248-1/-13		88
	WHET	18x45mm	690Vac/500Vdc	UL248-1/-13		89
	WLET	18x25mm	240Vac/150Vdc	UL248-1/-13		90
	WLMT	38x30mm	240Vac/150Vdc	UL248-1/-13		91
Thermal Cutoff Fuses / 溫度保險絲						
	Thermal Cutoff Fuses Selection Guide / 溫度保險絲選用指南					92
	TB		250V	Rating 2A		93
	TU		250V	Rating 3A		93
	TE/TG		250V	Rating 10A/15A		94
Current Sensing Resistors / 電流感測電阻						
	Current Sensing Resistors Selection Guide / 電流感測電阻選用指南					95
	STE		Metal Foil Type			99
	STE Auto		Metal Foil Type			100
	HTC/HTE		Metal Foil Type			101
	HTE Auto		Metal Foil Type			102
	HFCL		Metal Foil Type			103
	HFPL		Metal Foil Type			104
	SFCA		Metal Foil Type			105
	MSH		Metal Plate Type			106
	MSHL		Metal Plate Type			107
	MSH-LR		Metal Plate Type			108
	MSE		Metal Plate Type			109
	MSTC/MHTC		Metal Plate Type			110
	MSTJ		Metal Plate Type			111
	Current Sensing Resistors Package Information / 電流感測電阻產品包裝介紹					112

Selection Guide / 選用指南

The purpose of this reference guide is to assist engineers to select fuses that will provide effective circuit protection for designated electronic components or equipment.

為使用戶在設計時，選用合理的保險絲；更好的保護電路、電器元件及設備、特制定保險絲選用指南、供開發工程師參考。

Selector Guide / 選用需考慮的參數

1. Select the proper fuse size according to the available circuit space.
根據用戶在設計電路所安裝保險絲的空間，選用適當尺寸的保險絲。
2. Select the proper fuse shape according to the mounting method of the circuit.
根據用戶在設計電路所需的安裝形式，選用適當形狀特徵的保險絲。
3. Select the proper fuse according to the product's required safety certification standards: such as C-UL, VDE, SEMKO, PSE, CCC, KC, BSI.
根據用戶產品所需的安規認證，決定選用適當安規認證的保險絲。
4. Determine the proper fuse voltage rating according to the applied voltage of the circuit.
根據用戶產品電路的有效電路電壓，決定選用保險絲的額定電壓。
5. Select the appropriate fuse current rating (In) according to the maximum normal working current of the circuit.
根據用戶產品電路的最大正常工作電流，初步選定保險絲的額定電流(In)。
* Considered the fuse decaying factors.
考慮保險絲的安全衰減率。
* Considering the derating of fuse based on the ambient temperature.
考慮保險絲使用環境溫度衰減率。
6. Consider the current pulse / 考慮電流脈衝：
* Calculate the circuit's maximum current pulse I²t value.
計算電路中產生的最大脈衝 I²t 值。
* Calculated the required I²t value of fuse.
計算所需保險絲的 I²t 值。
Time-lag fuse typically is recommended when distinctive current pulse is specified.
若用戶在設計電路中存在脈衝並且有特別要求，一般選用慢熔斷型保險絲。
7. Select the fuse type.
最後選定保險絲的規格。
8. The selected fuse undergoes test runs in the circuit/product.
選用的保險絲規格樣品安裝在電路中正常運行測試。

Selection Steps / 選用步驟

1. Fuse Size & Shape

第一步：選用保險絲的尺寸形狀

The fuse shape and size is determined by the available space within the circuit design and mounting requirements.

Note: please refer to this catalog for fuse characteristics and physical specifications.

選用何種尺寸形狀特徵的保險絲，主要取決於用戶設計電路的空間和電路所需的安裝要求。

注：保險絲的尺寸形狀特徵，參照後面各規格保險絲具體工程圖。

2. Safety Agency Approvals

第二步：選用所需安規認證

Select fuse according to the product's required relevant safety certification approvals.

Note: please refer to this catalog for fuse characteristics and physical specifications.

選用何種安規認證的保險絲，主要取決於用戶產品所需通過的安規認證。

注：保險絲通過的安規認證，參照後面各規格保險絲具體通過的安規認證。

3. Voltage Rating

第三步：選用保險絲的額定電壓

Selected fuse should have a voltage rating greater than or equal to the applied circuit voltage, that is, the applied voltage must be smaller than or equal to rated voltage. For example, a 125V fuse can only be used in a circuit that is smaller than or equal to 125V, thus cannot be used in a 250V circuit. On the other hand, a 250V fuse can be used in the circuit that is smaller than or equal to 250V, thus includes the 125V range.

選用保險絲的額定電壓，需選用大於或等於電路中所使用有效電壓，

即：保險絲只能用在小於或等於使用有效電壓的電路中。

具體為：額定電壓為：125V的保險絲只能用在小於或等於125V的電路中，不能用在250V的電路中。額定電壓為：250V的保險絲只能用在小於或等於250V的電路中，也可以用在125V的電路中。

4. Current Rating (In)

第四步：選用保險絲的額定電流(In)

Current rating (In) = The maximum steady running of current / (Fuse decaying ratio * The applied ambient temperature derating)

保險絲的額定電流In= 迴路最大穩定電流 / (保險絲的安全衰減率*使用環境溫度衰減率)。

Steps For Fuse Selection / 保險絲選用步驟



(1). Safety Decaying Factors / 保險絲的安全衰減因素

Test results may differ between laboratory testing and actual circuit application, due to contacting resistance from different types of fuse clip/holder used and circuit layouts. Please refer to safety decaying factor calculation guide listed below, to ensure proper fuse functioning within 25±5°C.

因保險絲在實際電路使用中與實驗室測試條件的差異(如:客戶在安裝保險絲所使用的保險絲座,保險絲夾產生的接觸電阻和電路中導線橫截面積等差異),要保證保險絲在25±5°C條件下能持續可靠地工作,在選用保險絲需考慮保險絲的安全衰減因素,請參考如下簡易計算公式。

- * **UL standard fuse:**
current rating (In)= the maximum steady current of circuit / 0.75
 美規製品(UL標準): 保險絲額定電流(In)=迴路最大穩定電流 / 0.75
- * **IEC standard fuse:**
current rating (In)= the maximum steady current of circuit / 0.90
 歐規製品(ICE標準): 保險絲額定電流(In)=迴路最大穩定電流 / 0.90
- * **JIS standard fuse:**
current rating (In)= the maximum steady current of circuit / 0.85
 日規製品(JIS標準): 保險絲額定電流(In)=迴路最大穩定電流 / 0.85

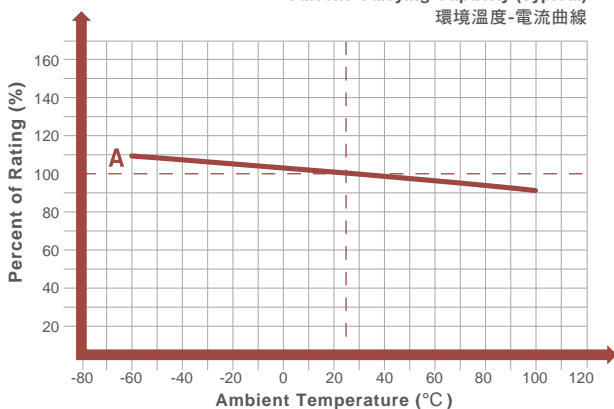
(2). Ambient Temperature Derating / 使用環境溫度衰減率

When working under 25±5°C, the temperature will not affect the rated current value of the fuse. However, when temperature exceeds 30°C, environmental condition dramatically influence the rated current value. Thus, thermal impacts are essential to be considered during fuse selection. Please refer to below chart:

當保險絲在25±5°C環境溫度條件下使用時,保險絲的額定電流值不受環境溫度影響;當保險絲在大於30°C環境溫度下使用時,環境溫度對保險絲額定電流承載能力有很大影響。所以在選用保險絲時一定要考慮環境溫度對保險絲的影響。(見圖示1)

Picture 1 / 圖示1

Chart Showing Effect of Ambient Temperature on Current-Carrying Capacity (Typical)
 環境溫度-電流曲線



Curve A / 曲線 A :

For FF, Fast-Acting and Time-Lag type fuses.
 特快熔斷、快熔斷和慢熔斷保險絲曲線。

After calculating the current rating (In) considering above factors, the proper fuse current rating must be greater than or equal to the current rating (In).

以上計算出保險絲的額定電流In,在選用保險絲時,需選用大於或等於In的最佳額定電流值的保險絲。

5. Pulse

第五步:考慮電流脈衝

The pulse refers to enduring large peaks at short time-interval (less than 10 ms) of instantaneous current (such as surge currents, start-up currents, inrush currents and transients). If the fuse is designated to endure inrush current without operating under normal circumstances, then pulse factors must be considered during the selection process.

電流脈衝是指那些電流峰值大,而持續時間短(小於10ms)的瞬間電流(諸如開機瞬間、電壓變化和其他因素所產生的衝擊電流、起動電流、湧入電流和瞬變電流)。如果要要求保險絲能夠承受正常要求下的電流脈衝而不會熔斷,在選用保險絲時,就一定要考慮脈衝對保險絲的影響。

First, calculate the maximum pulse I²t based on the actual circuit

首先:根據在實際使用電路中產生的最大脈衝、計算出此脈衝的 I²t 值:

$$I^2t = \int_0^t i^2 dt$$

General reference chart provided below (see picture 2) indicates the closest matching pulse waveform and the formula to calculate I²t.

通常是根據所測出的脈衝波形,對照下表(見圖示2)對應最近似的波形,計算出脈衝的 I²t 值。

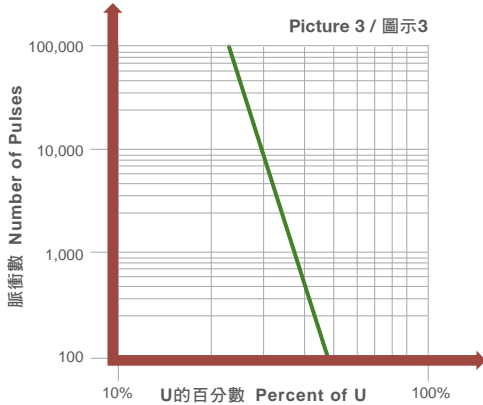
Picture 2 / 圖示2

No. 圖型編號	Waveform 波形	Formulas 計算公式
A		$I^2t = i_a^2 t$
B		$I^2t = (1/3)(i_a^2 + i_a i_b + i_b^2) t$
C		$I^2t = (1/2) i_a^2 t$
D		$I^2t = (1/3) i_a^2 t$
E		$I^2t = (1/5) i_a^2 t$
F		$I^2t = (1/2) i_a^2 t$



Secondly, consider the cycle endurance to select the pulse cycle frequency. (See Picture 3)

接著：利用脈衝循環承受能力，客戶選定能承受該脈衝的次數。(見圖示3)



$U = \text{Ratio (pulse } I^2t \text{ / average melting } I^2t)$

曲線U 表示：脈衝 I^2t 值與所需保險絲的 I^2t 值之比：

Pulse cycle withstand capability :

承受循環脈衝能力：

100,000 pulses	U=22% of Nominal melting I^2t	當U=22%時、能承受100,000次脈衝
10,000 pulses	U=29% of Nominal melting I^2t	當U=29%時、能承受10,000次脈衝
1,000 pulses	U=38% of Nominal melting I^2t	當U=38%時、能承受1,000次脈衝
100 pulses	U=48% of Nominal melting I^2t	當U=48%時、能承受100次脈衝

Note: time-interval (10s) must be given between pulse events to adequately heat sink from the previous event.

注：脈衝與脈衝之間必須留有足夠的時間間隔(10秒)，以使前一過程的熱量能夠散失。

Finally: consider the pulse cycle withstand capability (U) and the pulse I^2t , to calculate I^2t value of the fuse.

最後：利用脈衝循環承受能力和電路中脈衝 I^2t 值，計算所需保險絲的 I^2t 值：
(所需保險絲的 I^2t 值 = 脈衝 I^2t 值 / U)

Average melting I^2t of the fuse needed = Ratio (Pulse I^2t / U)

U = 脈衝 I^2t 值 / 所需保險絲的 I^2t 值

After calculating the average melting I^2t value needed in the circuit and determining the thermal energy melting I^2t value, select a fuse with thermal energy melting I^2t value greater than or equal to the required average melting I^2t value.

計算出所需保險絲的 I^2t 值與保險絲本身的額定熔化熱能 I^2t 值對比：
選用保險絲額定熔化熱能 I^2t 值大於或等於所需保險絲的 I^2t 值的相應規格。

6. Testing in Actual Circuit

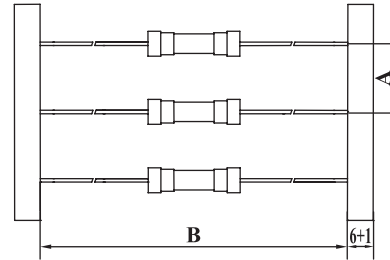
第六步：測試

After determining fuse specifications, samples must be tested in actual circuit to verify functional characteristics. This verification process includes testing under normal and defective working conditions, to ensure fuse can adequately protect the circuit.

選定保險絲的規格後，依據本公司提供之樣品必須安裝在實際電路中進行測試，驗證所選用的保險絲是否合理；此驗證應包括正常工作條件及故障條件下的測試，以確保所選用的保險絲規格能在被保護的電路中正常工作。

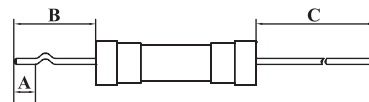
Taping & Forming / 帶狀及彎腳加工尺寸對照表

Fuse Diameter	A(mm)	B(mm)
Φ 3.0	5	52
Φ 3.6	5.6	52
Φ 4.6	10	52
Φ 5.2	10	52

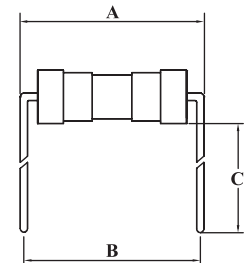


Fuse Size / Type	Φ 3.6(mm)			Φ 4.6(mm)			Φ 5.2(mm)		
	A	B	C	A	B	C	A	B	C
AA	≥ 2.5	≥ 6	≥ 5	≥ 3	≥ 6	≥ 5	≥ 3	≥ 6	≥ 5
AB	≥ 16	≥ 15.4	≥ 3.5	≥ 20.5	≥ 20	≥ 3.5	≥ 26	≥ 25	≥ 4
AC	≥ 16	≥ 11.5	≥ 7	≥ 20.5	≥ 16.5	≥ 7	≥ 26	≥ 21	≥ 6.5
AD	≥ 6	≥ 3.5	≥ 6.5	≥ 6	≥ 5	≥ 6.5	≥ 6	≥ 5	≥ 6.5
AF	≥ 6	≥ 3.5	≥ 5.5	≥ 6	≥ 5	≥ 5.5	≥ 6	≥ 5	≥ 5.5
AG	≥ 4	≥ 3.5	≥ 5.5	≥ 4	≥ 5	≥ 5.5	≥ 4	≥ 5	≥ 5.5

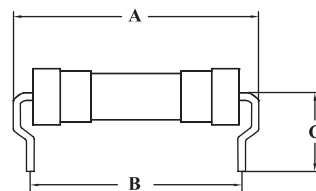
AA:



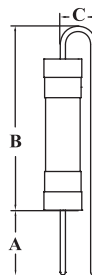
AB:



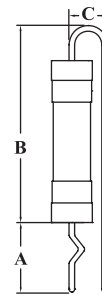
AC:



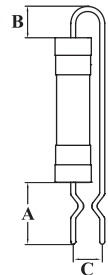
AD:



AF:

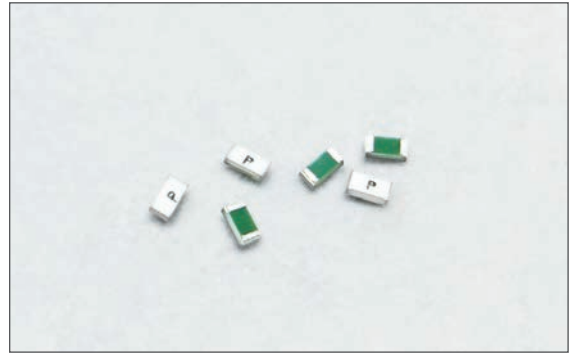


AG:



I-T Characteristics / 時間-電流特性

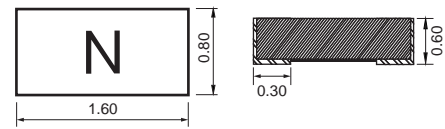
Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
500mA-6A	100%	4 Hrs Min. / 最短4小時
	200%	5s Max. / 最長5秒



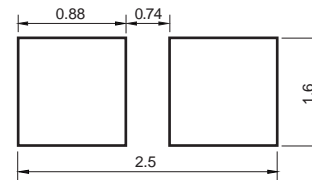
Product Features / 產品特性

Materials 材質	Body / 本體 : Cu / 銅, Sn / 錫 Substrate / 基板 : Alumina ceramic / 氧化鋁陶瓷基板 Electrode / 電極 : Cu / 銅, Ni / 鎳, Sn / 錫 (Termination with nickel and Pure-tin solder plating / 電極端面為鍍鎳及無鉛錫)
Operating Temperature 操作溫度	-55°C to +150°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=2+0/-0.5s, Cover / 覆蓋率 ≥95%, ΔS=2.0mm±0.5mm, magnifier: 20X
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s ΔS=2.0mm±0.5mm
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Compatible with both wave and Solder-reflow / 可用于波峰焊和回流焊制程)
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Recommended Pad Layout



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
500mA	125V DC	50A@125V DC	●
750mA	125V DC		●
1.00A	63V DC	50A@63V DC	●
1.25A	63V DC		●
1.50A	63V DC		●
1.75A	63V DC		●
2.00A	63V DC		●
2.50A	63V DC		●
3.00A	63V DC		●
3.50A	63V DC		●
4.00A	63V DC		●
5.00A	63V DC		●
6.00A	63V DC	●	

I-T Characteristics / 時間-電流特性

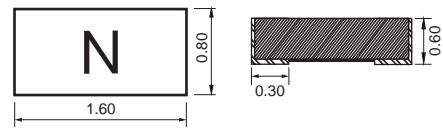
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1A~6A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒
	300%	3s Max. / 最長3秒
1A~1.5A	800%	0.5ms Min. 50ms Max. / 最短0.5毫秒, 最長50毫秒
2A~6A		1ms Min. 50ms Max. / 最短1毫秒, 最長50毫秒



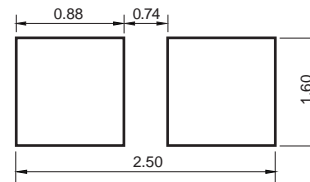
Product Features / 產品特性

Materials 材質	Body / 本體: Cu / 銅, Sn / 錫 Substrate / 基板: Alumina ceramic / 氧化鋁陶瓷基板 Electrode / 電極: Cu / 銅, Ni / 鎳, Sn / 錫 (Termination with nickel and Pure-tin solder plating / 電極端面為鍍鎳及無鉛錫)
Operating Temperature 操作溫度	-55°C to +150°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=2+0/-0.5s, Cover / 覆蓋率 ≥95%, ΔS=2.0mm±0.5mm, magnifier: 20X
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s ΔS=2.0mm±0.5mm
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Compatible with both wave and Solder-reflow / 可用于波峰焊和回流焊制程)
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Recommended Pad Layout

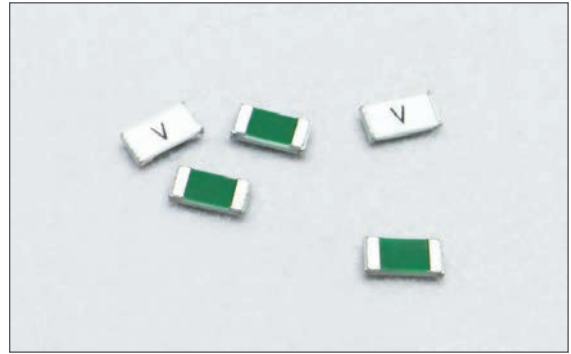


Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
1.00A	32V DC	50A@32V DC	●
1.50A	32V DC		●
2.00A	32V DC		●
2.50A	32V DC		●
3.00A	32V DC		●
3.50A	32V DC		●
4.00A	32V DC		●
5.00A	32V DC		●
6.00A	32V DC	●	

I-T Characteristics / 時間-電流特性

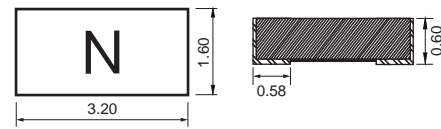
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
500mA~10A	100%	4 Hrs Min. / 最長4小時
	250%	5s Max. / 最長5秒
	350%	1s Max. / 最長1秒



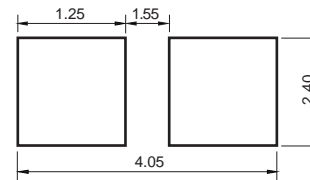
Product Features / 產品特性

Materials 材質	Body / 本體 : Cu / 銅, Sn / 錫 Substrate / 基板: Alumina ceramic / 氧化鋁陶瓷基板 Electrode / 電極 : Cu / 銅, Ni / 鎳, Sn / 錫 (Termination with nickel and Pure-tin solder plating / 電極端面為鍍鎳及無鉛錫)
Operating Temperature 操作溫度	-55°C to +150°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=2+0/-0.5s, Cover / 覆蓋率 ≥95%, ΔS=2.0mm±0.5mm, magnifier: 20X
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s ΔS=2.0mm±0.5mm
Recommended Soldering Parameters 建議錫焊參數	260°C, 10s Max. (Compatible with both wave and Solder-reflow / 可用于波峰焊和回流焊制程)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Recommended Pad Layout

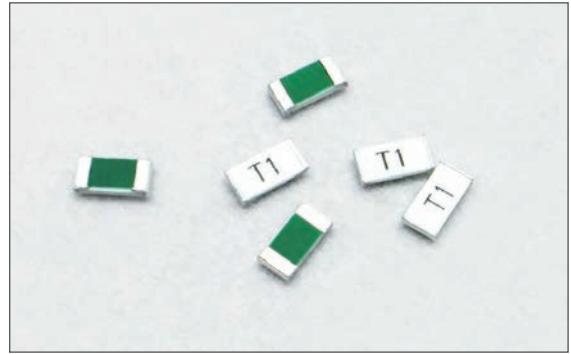


Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
500mA	125V DC	50A@125V DC	●
750mA	125V DC		●
1.00A	63V DC		●
1.25A	63V DC	50A@63V DC	●
1.50A	63V DC		●
1.75A	63V DC		●
2.00A	63V DC		●
2.50A	63V DC		●
3.00A	63V DC		●
3.50A	63V DC		●
4.00A	63V DC		●
5.00A	63V DC		●
6.00A	63V DC		●
7.00A	63V DC		●
8.00A	63V DC		●
10.0A	63V DC		●

I-T Characteristics / 時間-電流特性

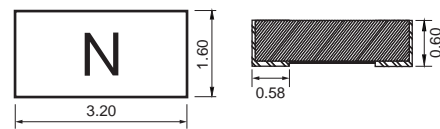
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
500mA~10A	100%	4 Hrs Min. / 最短4小時
	200%	1s Min. 120s Max. / 最短1秒, 最長120秒
	300%	100ms Min. 3s Max. / 最短100毫秒, 最長3秒
	800%	2ms Min. 50ms Max. / 最短2毫秒, 最長50毫秒
	1000%	0.2ms Min. 20ms Max. / 最短0.2毫秒, 最長20毫秒



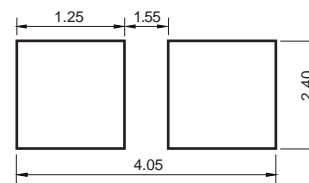
Product Features / 產品特性

Materials 材質	Body / 本體 : Cu / 銅, Sn / 錫 Substrate / 基板: Alumina ceramic / 氧化鋁陶瓷基板 Electrode / 電極 : Cu / 銅, Ni / 鎳, Sn / 錫 (Termination with nickel and Pure-tin solder plating / 電極端面為鍍鎳及無鉛錫)
Operating Temperature 操作溫度	-55°C to +150°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=2+0/-0.5s, Cover / 覆蓋率 ≥95%, ΔS=2.0mm±0.5mm, magnifier: 20X
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s ΔS=2.0mm±0.5mm
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Compatible with both wave and Solder-reflow / 可用于波峰焊和回流焊制程)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Recommended Pad Layout

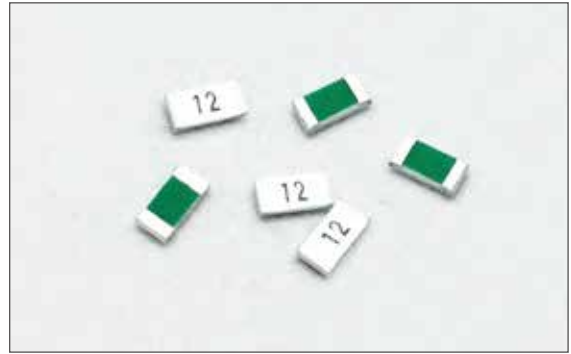


Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
			C _{RU} US
1.00A	63V DC	50A@63V DC	●
1.25A	63V DC		●
1.50A	63V DC		●
2.00A	63V DC		●
2.50A	63V DC		●
3.00A	63V DC		●
3.50A	63V DC		●
4.00A	63V DC		●
5.00A	63V DC		●
6.00A	63V DC		●
7.00A	63V DC		●
8.00A	63V DC		●
10.0A	63V DC	●	

I-T Characteristics / 時間-電流特性

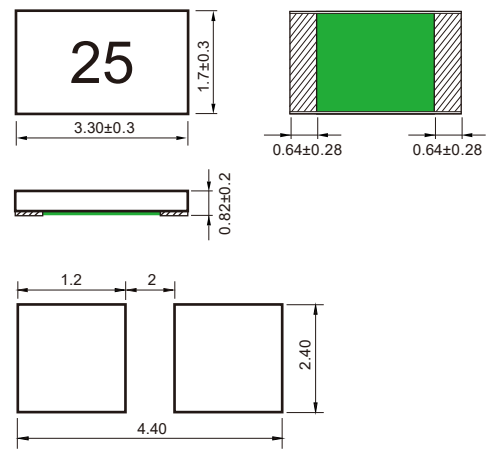
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
12A~30A	100%	4 Hrs Min. / 最短4小時
	350%	5s Max. / 最長5秒



Product Features / 產品特性

Materials 材質	Body / 本體 : Cu / 銅, Sn / 錫 Substrate / 基板: Alumina ceramic / 氧化鋁陶瓷基板 Electrode / 電極 : Cu / 銅, Ni / 鎳, Sn / 錫 (Termination with nickel and Pure-tin solder plating / 電極端面為鍍鎳及無鉛錫)
Operating Temperature 操作溫度	-55°C to +150°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=245°C±5°C, t / 浸錫時間=5s±0.5s, Cover / 覆蓋率 ≥95%, ΔS=2.0mm±0.5mm, magnifier: 20X
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s ΔS=2.0mm±0.5mm
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Compatible with both wave and Solder-reflow / 可用于波峰焊和回流焊制程)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C,相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



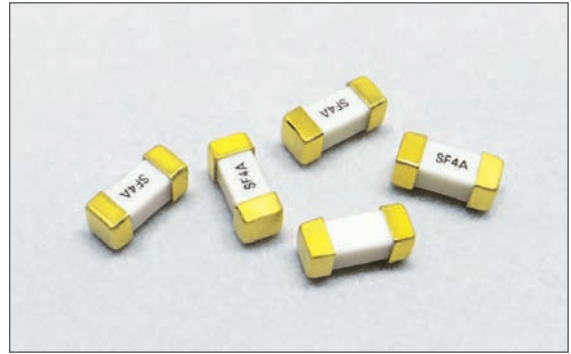
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
12A	32V DC	150A@35VDC	
15A	32V DC		
20A	48V DC		
25A	48V DC	200A@48V DC	
30A	48V DC		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1.0A~20.0A	100%	4 Hrs Min. / 最短4小時
	125%	1 Hr Min. / 最短1小時
	200% (≤10A)	5s Max. / 最長5秒
	200% (>10A)	20s Max. / 最長20秒
	1000%	1ms Min. 10ms Max. / 最短1毫秒, 最長10毫秒

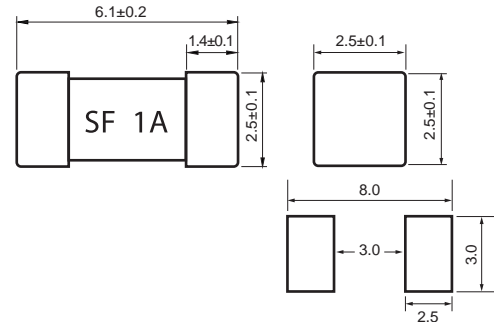
In accordance with UL 248-1/-14 and IEC60127-4 standard / 遵循UL 248-1/-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with gold plated / 黃銅鍍金 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥ 95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ± 1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



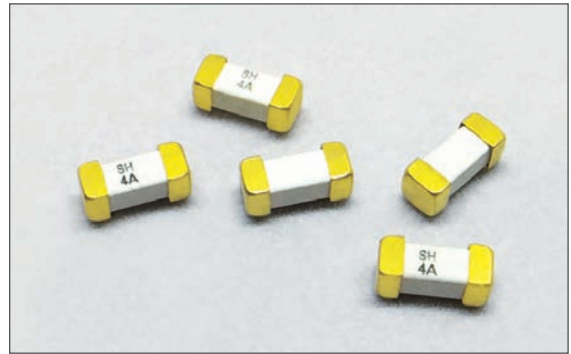
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL [®] US	JET
1.0A	125V AC/160V DC	50A@125V AC 50A@160V DC	●	●
1.25A	125V AC/160V DC		●	●
1.6A	125V AC/160V DC		●	●
2.0A	125V AC/160V DC		●	●
2.5A	125V AC/160V DC		●	●
3.0A	125V AC/160V DC		●	●
3.15A	125V AC/160V DC		●	●
4.0A	125V AC/160V DC		●	●
5.0A	125V AC/160V DC		●	●
6.3A	125V AC/160V DC		●	●
7.0A	125V AC/160V DC		●	●
8.0A	125V AC/160V DC		●	●
10.0A	125V AC/160V DC		●	●
12.0A	65V AC/65V DC	50A@65V AC/DC	●	●
15.0A	65V AC/65V DC		●	●
20.0A	65V AC/65V DC		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1.0A~6.3A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

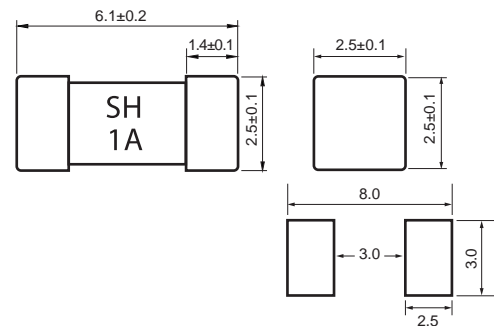
In accordance with UL 248-1/-14 and IEC60127-4 standard / 遵循 UL 248-1/-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with gold plated / 黃銅鍍金 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



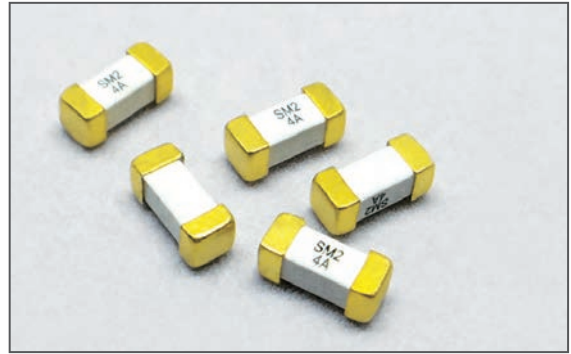
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL [®] US	PS JET
1.0A	125VAC/125V DC	50A@125V AC/DC	●	●
1.25A	125VAC/125V DC		●	●
1.5A	125VAC/125V DC		●	●
1.6A	125VAC/125V DC		●	●
2.0A	125VAC/125V DC		●	●
2.5A	125VAC/125V DC		●	●
3.0A	125VAC/125V DC		●	●
3.15A	125VAC/125V DC		●	●
3.5A	125VAC/125V DC		●	●
4.0A	125VAC/125V DC		●	●
5.0A	125VAC/125V DC		●	●
6.3A	125VAC/125V DC		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1.0A~5.0A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

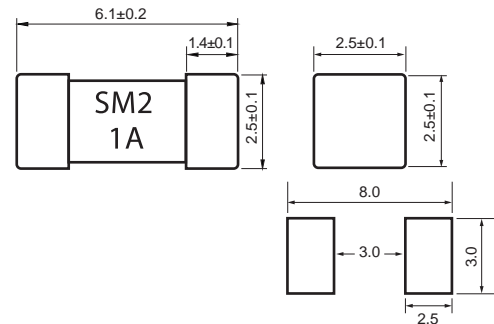
In accordance with UL 248-1/-14 and IEC60127-4 standard / 遵循 UL 248-1/-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with gold plated / 黃銅鍍金 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



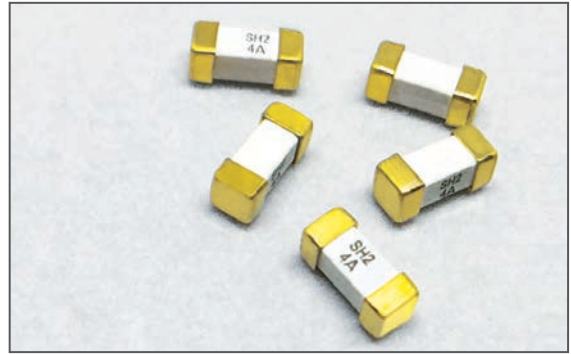
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證			
			UL [®] US	TUV	FS JET	
1.0A	250VAC	UL/TUV 50A@250V AC 50A@125V DC	●	●	●	
1.25A	250VAC		●	●	●	
1.5A	250VAC		●	●	●	
1.6A	250VAC		●	●	●	
2.0A	250VAC		●	●	●	
2.5A	250VAC		●	●	●	
3.0A	250VAC		PSE 50A@125V AC	●	●	●
3.15A	250VAC			●	●	●
3.5A	250VAC			●	●	●
4.0A	250VAC			●	●	●
5.0A	250VAC	●		●	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1.0A~5A	100%	4 Hrs Min. / 最短4小時
	125%	1 Hr Min. / 最短1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min.60ms Max. / 最短10毫秒, 最長60毫秒

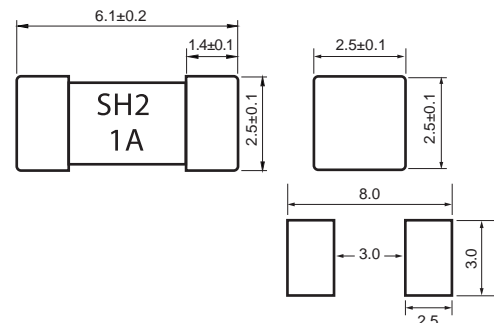
In accordance with UL 248-1/-14 and IEC60127-4 standard / 遵循 UL 248-1/-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with gold plated / 黃銅鍍金 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證			
			UL [®] US	TUV	F5 JET	
1.0A	250VAC	UL/TUV 50A@250V AC 50A@125V DC	●	●	●	
1.25A	250VAC		●	●	●	
1.5A	250VAC		●	●	●	
1.6A	250VAC		●	●	●	
2.0A	250VAC		●	●	●	
2.5A	250VAC		●	●	●	
3.0A	250VAC		PSE 50A@125V AC	●	●	●
3.15A	250VAC			●	●	●
3.5A	250VAC			●	●	●
4.0A	250VAC			●	●	●
5.0A	250VAC	●		●	●	

I-T Characteristics / 時間-電流特性

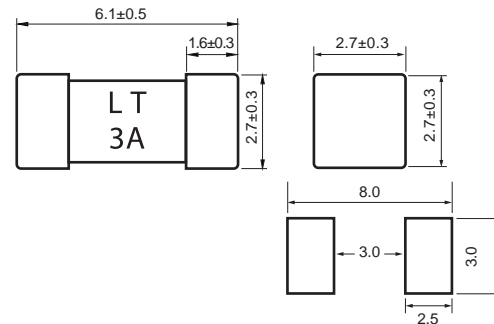
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
0.5A~6.3A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with silver plated / 黃銅鍍銀 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=245°C±5°C, t / 浸錫時間=3+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



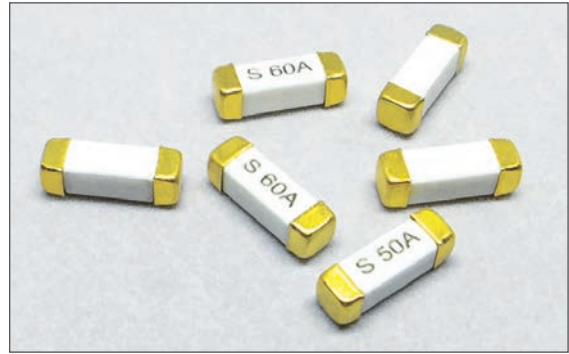
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證				
			UL US	TÜV	PS JET	CQC	
0.5A	250VAC	UL / TUV / CQC 250Vac 50A	●	●	●	●	
1.0A	250VAC		●	●	●	●	
1.25A	250VAC		●	●	●	●	
1.5A	250VAC		●	●	●	●	
2.0A	250VAC		●	●	●	●	
2.5A	250VAC		●	●	●	●	
3.0A	250VAC		●	●	●	●	
3.15A	250VAC		UL 125Vdc 80A	●	●	●	●
3.5A	250VAC			●	●	●	●
4.0A	250VAC			●	●	●	●
5.0A	250VAC	●		●	●	●	
5.0A	250VAC	●		●	●	●	
6.3A	250VAC	●		●	●	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
20A~60A	100%	4 Hrs Min. / 最短4小時
	200%	60s Max. / 最長60秒
	1000%	1ms Min. / 最短1毫秒

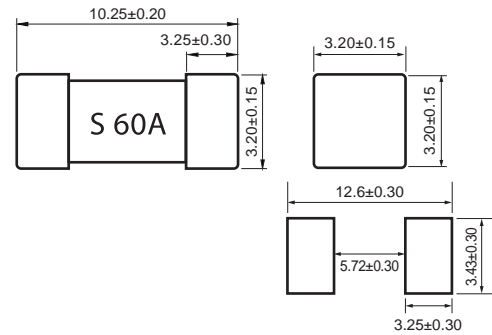
In accordance with UL248-14 and IEC60127-4 / 遵循 UL28-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with gold plated / 黃銅鍍金 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
20A	250VAC / 100VDC	100A@ 250V AC 300A@ 65V AC	●
25A	250VAC / 100VDC	300A@ 100V DC 500A@ 72V DC	●
30A	250VAC / 100VDC	1000A@ 32V DC	●
40A	250VAC / 72VDC	100A@ 250V AC 300A@ 65V AC	●
50A	250VAC / 72VDC	180A@ 72V DC	●
60A	250VAC / 72VDC	600A@ 60V DC	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
0.5A-5A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒

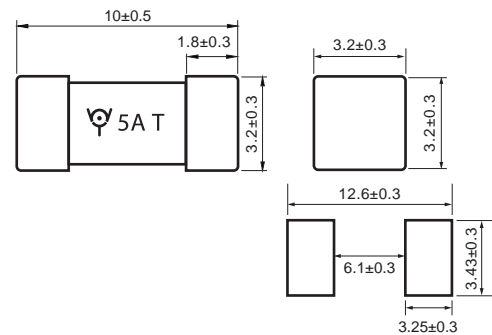
In accordance with UL248-14 and IEC60127-4 / 遵循 UL28-14 和 IEC60127-4



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with silver plated / 銅鍍銀 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=235°C±5°C, t / 浸錫時間=5+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL US	TÜV
0.5A	250VAC	50A@250V AC	●	
0.75A	250VAC		●	
1A	250VAC		●	
1.5A	250VAC		●	
2A	250VAC		●	
2.5A	250VAC		●	●
3A	250VAC		●	
3.15A	250VAC		●	
3.5A	250VAC		●	●
4A	250VAC		●	●
5A	250VAC		●	

I-T Characteristics / 時間-電流特性

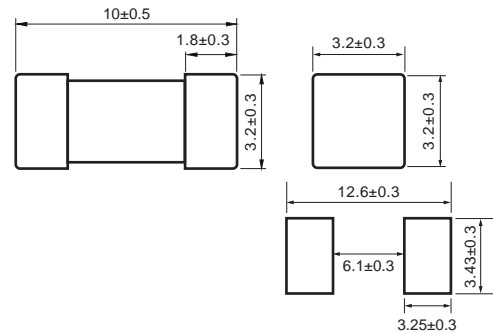
Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
1.25A	125%	4 Hrs Min. / 最短4小時
	200%	60s Max. / 最長60秒
	1000%	10~100ms Min. / 最短10~100毫秒



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Cap / 銅帽: Brass with silver plated / 黃銅鍍銀 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	T / 熔錫溫度=245°C±5°C, t / 浸錫時間=3+0/-0.5s, Cover / 覆蓋率 ≥95%
Resistance to Soldering Heat 耐焊接熱	T / 熔錫溫度=260°C±5°C, t / 浸錫時間=10s ±1s
Recommended Soldering Parameters 建議焊錫參數	260°C, 10s Max. (Solder-reflow / 回流焊)
Storage Conditions 儲存條件	Can be stored for 2 years under tight seal condition at temperature of +10°C~40°C, relative humidity ≤ 75%. 在溫度+10°C~40°C, 相對濕度 ≤ 75% 的密閉條件下可存放 2 年。 At most can be kept 30 days at temperature +10°C~40°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~40°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



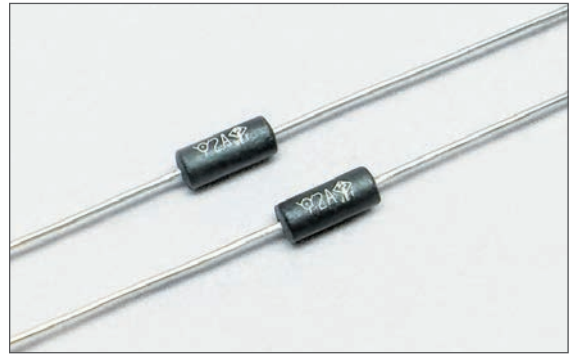
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證			
1.25A	250VAC	200A@250V AC	●	●	●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
160mA-6.3A	100%	4 Hrs Min. / 最短4小時
	200%	5s Max. / 最長5秒
	275%	300ms Max. / 最長300毫秒
	400%	30ms Max. / 最長30毫秒
	1000%	4ms Max. / 最長4毫秒

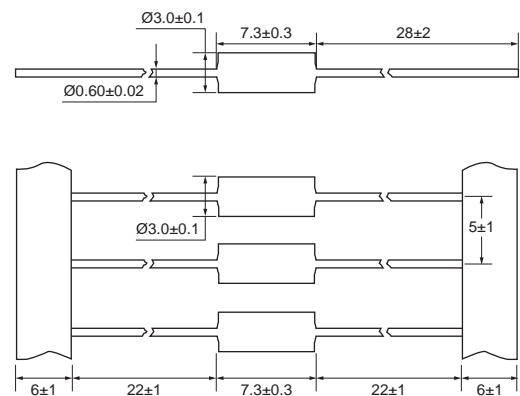
In accordance with IEC60127- 3 standard, sheet2 / 遵循 IEC60127-3, 規格單2



Product Features / 產品特性

Materials 材質	Body / 本體: Plastic / 塑料 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



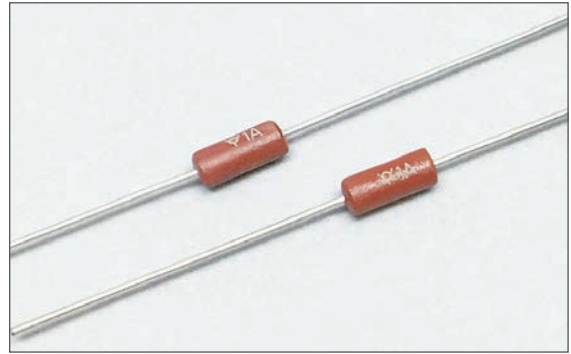
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證				
			UL US	DVE	VDE	CCC	PS JET
160mA	125V	160mA-5A 50A@125V AC/DC	●	●		●	
200mA	125V		●	●		●	
250mA	125V		●	●		●	
315mA	125V		●	●		●	
400mA	125V		●	●		●	
500mA	125V		●	●		●	
630mA	125V		●	●		●	
800mA	125V		●	●		●	
1.00A	125V		●	●		●	●
1.25A	125V		●	●		●	●
1.60A	125V		●	●		●	●
2.00A	125V		●	●		●	●
2.50A	125V		●	●		●	●
3.15A	125V		●	●		●	●
4.00A	125V		●	●		●	●
5.00A	125V	●	●		●	●	
6.30A	125V	6.3A 63A@125V AC/DC	●		●	●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流百分比	Opening Time 熔斷時間
160mA~6.3A	100%	4 Hrs Min. / 最短4小時
	200%	60s Max. / 最長60秒
	1000%	10ms Min. / 最短10毫秒

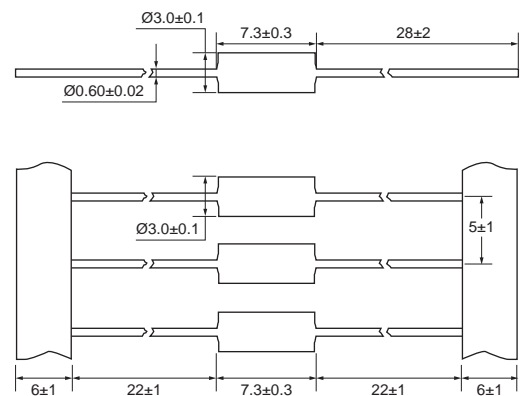
In accordance with UL 248 -1 / -14 standard / 遵循 UL 248-1/-14



Product Features / 產品特性

Materials 材質	Body / 本體 : Plastic / 塑料 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



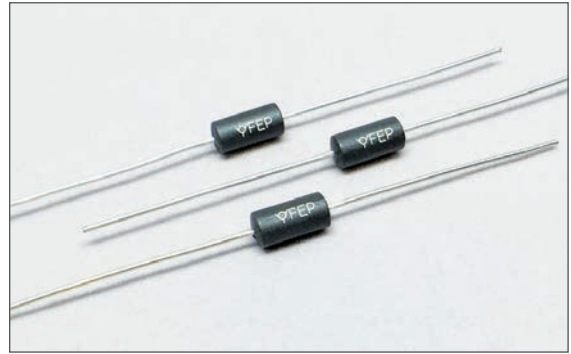
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
160mA	125V	160mA~6.3A 50A@125V AC/DC	●
200mA	125V		●
250mA	125V		●
315mA	125V		●
400mA	125V		●
500mA	125V		●
630mA	125V		●
800mA	125V		●
1.00A	125V		●
1.25A	125V		●
1.60A	125V		●
2.00A	125V		●
2.50A	125V		●
3.15A	125V		●
4.00A	125V		●
5.00A	125V	●	
6.30A	125V	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
250mA-6.3A	100%	4 Hrs Min. / 最短4小時
	200%	5s Max. / 最長5秒
	275%	300ms Max. / 最長300毫秒
	400%	30ms Max. / 最長30毫秒
	1000%	4ms Max. / 最長4毫秒

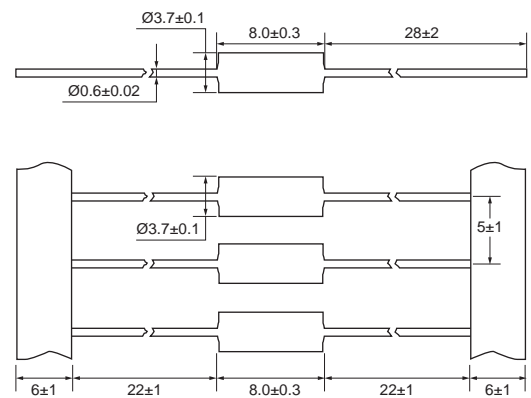
In accordance with IEC60127- 3 standard, sheet2 / 遵循 IEC60127-3, 規格單2



Product Features / 產品特性

Materials 材質	Body / 本體 : Plastic / 塑料 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C-60°C, relative humidity ≤ 75%. 在溫度+10°C-60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C-60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C-60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



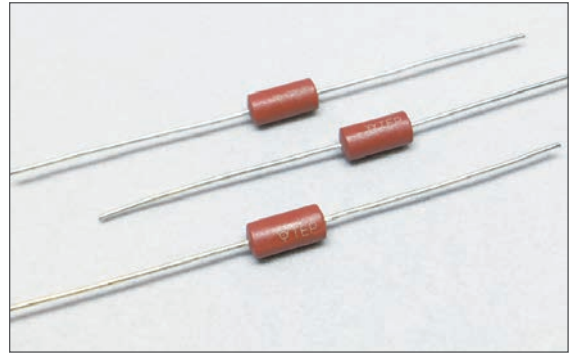
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL	TÜV
250mA	250V	250mA-6.3A 50A@250V AC	●	
315mA	250V		●	
400mA	250V		●	
500mA	250V		●	●
630mA	250V		●	●
800mA	250V		●	●
1.00A	250V		●	●
1.25A	250V		●	●
1.60A	250V		●	●
2.00A	250V		●	●
2.50A	250V		●	●
3.15A	250V		●	●
4.00A	250V		●	●
5.00A	250V		●	●
6.30A	250V	●	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
250mA~6.3A	150%	1 Hr Min. / 最短1小時
	210%	2Min Max. / 最長2分鐘
	275%	400ms Min. 10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150ms Max. / 最短20毫秒, 最長150毫秒

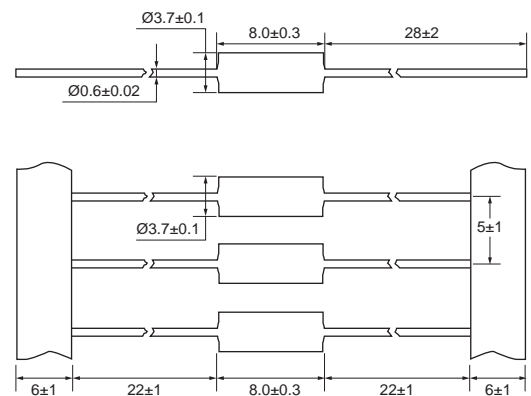
In accordance with IEC60127-3 Standard, sheet 2&4 / 遵循 IEC60127-3, 規格單2&4



Product Features / 產品特性

Materials 材質	Body / 本體 : Plastic / 塑料 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



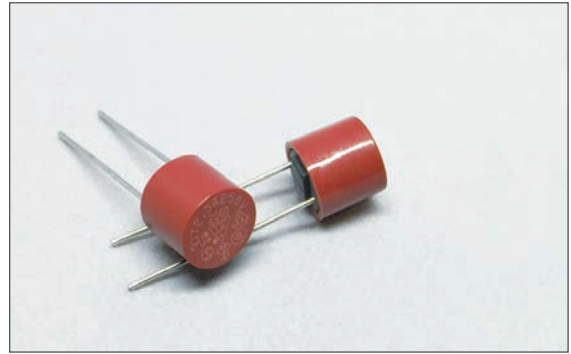
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
			UL	TUV	CCC
250mA	250V	250mA~ 3.15A 35A@250V AC	●	●	●
315mA	250V		●	●	●
400mA	250V		●	●	●
500mA	250V		●	●	●
630mA	250V		●	●	●
800mA	250V		●	●	●
1.00A	250V		●	●	●
1.25A	250V		●	●	●
1.60A	250V		●	●	●
2.00A	250V		●	●	●
2.50A	250V		●	●	●
3.15A	250V		●	●	●
4.00A	250V		4.0A~6.3A 10IN@250V AC	●	●
5.00A	250V	●		●	●
6.30A	250V	●		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	150%	1 Hr Min. / 最短1小時
	210%	2 Min Max. / 最長2分鐘
	275%	400ms Min. 10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150ms Max. / 最短20毫秒, 最長150毫秒

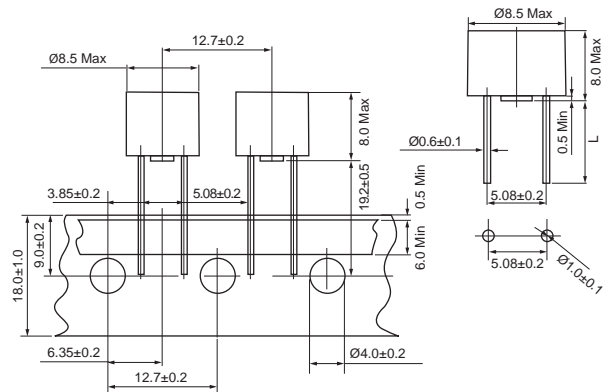
In accordance with IEC60127-3 standard, sheet4 / 遵循 IEC60127-3, 規格單4



Product Features / 產品特性

Materials 材質	Body / 本體: Thermoplastic / 耐熱性塑料 UL94 V-0 Lead / 引線: Tinned copper wire / 鍍錫銅線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 1s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 3s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 1~2s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Long Leads / 長引線: L=19.2±0.5mm
Short Leads / 短引線: L=4.5±0.5mm

Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證						
			UL [®] US	DVE	VDE	S	K	CCC	PSP JET
100mA	250V/300V	100A@250V AC	●	●		●	●	●	
125mA	250V/300V		●	●		●	●	●	
160mA	250V/300V		●	●		●	●	●	
200mA	250V/300V		●	●		●	●	●	
250mA	250V/300V		●	●		●	●	●	
315mA	250V/300V		●	●		●	●	●	
400mA	250V/300V		●	●		●	●	●	
500mA	250V/300V		●	●		●	●	●	
630mA	250V/300V		●	●		●	●	●	
800mA	250V/300V		●	●		●	●	●	
1.00A	250V/300V	50A/300V AC & 100A/300V AC	●	●		●	●	●	●
1.25A	250V/300V		●	●		●	●	●	●
1.60A	250V/300V		●	●		●	●	●	●
2.00A	250V/300V		●	●		●	●	●	●
2.50A	250V/300V		●	●		●	●	●	●
3.15A	250V/300V		●	●		●	●	●	●
4.00A	250V/300V		●	●		●	●	●	●
5.00A	250V/300V		●	●		●	●	●	●
6.30A	250V/300V	●	●	●	●	●	●	●	

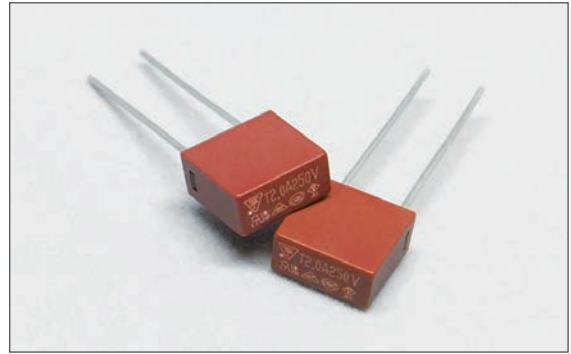
Remark: For CCC, 35A or 10In whichever is greater, tested with AC for the low breaking capacity test.

For UL[®] US, DVE, VDE, S, PSP, JET, 100A at 300V AC and 50A at 300V AC.

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA-6.3A	150%	1 Hr Min. / 最短1小時
	210%	2 Min Max. / 最長2分鐘
	275%	400ms Min. 10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150s Max. / 最短20毫秒, 最長150毫秒

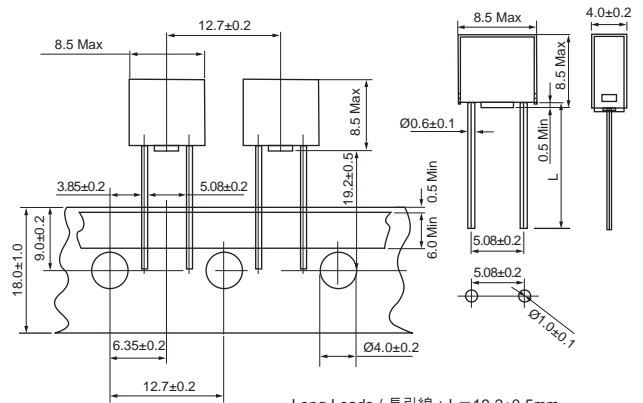
In accordance with IEC60127-3 standard, sheet4 / 遵循 IEC60127-3, 規格單4



Product Features / 產品特性

Materials 材質	Body / 本體: Thermoplastic / 耐熱性塑料 UL94 V-0 Lead / 引線: Tinned copper wire / 鍍錫銅線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 3s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 1~2s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Long Leads / 長引線: L = 19.2±0.5mm
Short Leads / 短引線: L = 4.5±0.5mm

Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證						
			UL US	VDE	TÜV	S	K	CCC	FEP JET
100mA	250V/300V	100A@250V AC & 130A@250V AC	●	●		●	●	●	
125mA	250V/300V		●	●		●	●	●	
160mA	250V/300V		●	●		●	●	●	
200mA	250V/300V		●	●		●	●	●	
250mA	250V/300V		●	●		●	●	●	
315mA	250V/300V		●	●		●	●	●	
400mA	250V/300V		●	●		●	●	●	
500mA	250V/300V		●	●		●	●	●	
630mA	250V/300V		●	●		●	●	●	
800mA	250V/300V		●	●		●	●	●	
1.00A	250V/300V	50A@300V AC & 100A@300V AC	●	●		●	●	●	●
1.25A	250V/300V		●	●		●	●	●	●
1.60A	250V/300V		●	●		●	●	●	●
2.00A	250V/300V		●	●		●	●	●	●
2.50A	250V/300V		●	●		●	●	●	●
3.15A	250V/300V		●	●		●	●	●	●
4.00A	250V/300V		●	●		●	●	●	●
5.00A	250V/300V		●	●		●	●	●	●
6.30A	250V/300V		●	●		●	●	●	●
8.00A	250V/300V		●	●	●	●	●	●	●
10.0A	250V/300V	●	●	●	●	●	●	●	

Remark: For , 130A at 250V AC and 100A at 250V AC ;

For , 50A at 300V AC

For , 100A at 300V AC

Subminiature Fuses 2020 Series / 8.5x5x4 mm (Square), Time-Lag Type



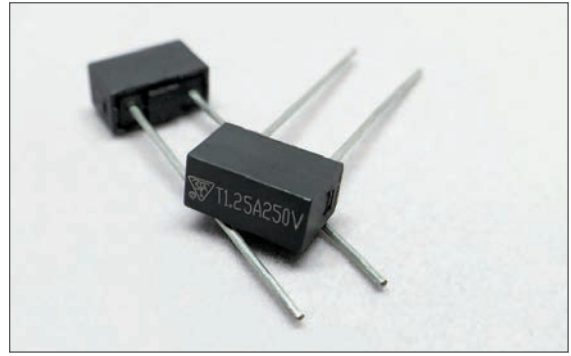
I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	150%	1 Hr Min. / 最短1小時
	210%	2 Min Max. / 最長2分鐘
	275%	400ms Min. 10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150s Max. / 最短20毫秒, 最長150毫秒

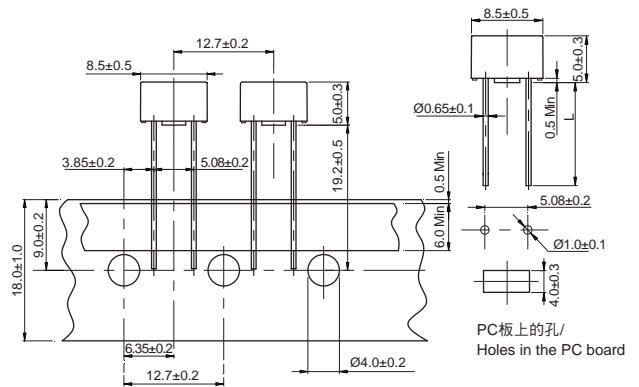
In accordance with IEC60127-3 standard, sheet4 / 遵循 IEC60127-3, 規格單4

Product Features / 產品特性

Materials 材質	Body / 本體 : Thermoplastic / 耐熱性塑料 UL94 V-0 Lead / 引線 : Tinned copper wire / 鍍錫銅線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 1s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 3s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 1~2s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密封條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。



Dimensions / 尺寸圖 (Unit / 單位:mm)



Long Leads / 長引線 : L = 19.2±0.5mm
Short Leads / 短引線 : L = 4.5±0.5mm

Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證				
			UL [®] US	DE	K	CCC	PS JET
100mA	250V/300V/400V	160A@250V AC 130A@300V AC 50A@400V AC	●	●	●	●	
125mA	250V/300V/400V		●	●	●	●	
160mA	250V/300V/400V		●	●	●	●	
200mA	250V/300V/400V		●	●	●	●	
250mA	250V/300V/400V		●	●	●	●	
315mA	250V/300V/400V		●	●	●	●	
400mA	250V/300V/400V		●	●	●	●	
500mA	250V/300V/400V		●	●	●	●	
630mA	250V/300V/400V		●	●	●	●	
800mA	250V/300V/400V		●	●	●	●	
1.00A	250V/300V/400V		●	●	●	●	●
1.25A	250V/300V/400V		●	●	●	●	●
1.60A	250V/300V/400V		●	●	●	●	●
2.00A	250V/300V/400V		●	●	●	●	●
2.50A	250V/300V/400V		●	●	●	●	●
3.15A	250V/300V/400V		●	●	●	●	●
4.00A	250V/300V/400V		●	●	●	●	●
5.00A	250V/300V/400V		●	●	●	●	●
6.30A	250V/300V	●	●	●	●	●	
6.30A	400V	●	●	●	●	●	

Remark: For UL[®] US 160A at 250V AC

For DE K CCC PS JET 100A at 250V AC

For UL[®] US 130A at 300V AC

For DE PS JET 100A at 300V AC and 50A at 300V AC

For UL[®] US DE 50A at 400V AC

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	150%	1 Hr Min. / 最短1小時
	210%	2 Min Max. / 最長2分鐘
	275%	400ms Min. 10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150s Max. / 最短20毫秒, 最長150毫秒

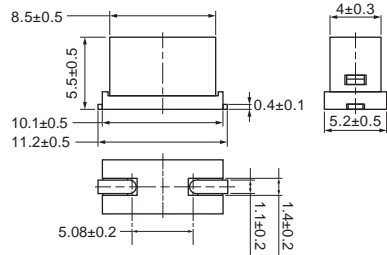
In accordance with IEC60127-3 standard, sheet4 / 遵循 IEC60127-3, 規格單4



Product Features / 產品特性

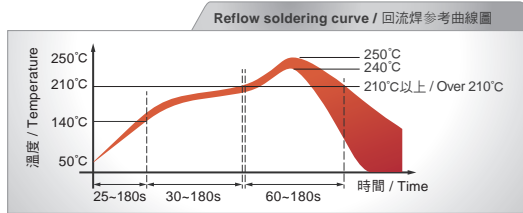
Materials 材質	Body / 本體: Thermoplastic / 耐熱性塑料 UL94 V-0 Termination / 端子: Tin plated copper / 鍍錫銅線 SMT components / 貼裝構件: Thermoplastic / 耐熱性塑料 UL94 V-0
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	250°C, ≤3s. (Reflow soldering / 回流焊)
Resistance to Soldering Heat 耐焊接熱	250°C, ≤30s. (Reflow soldering / 回流焊)
Recommended Soldering Parameters 建議錫參數	Reflow soldering / 回流焊 Soldering temperature / 錫爐溫度: 250°C Max Solder dwell time / 焊接時間: ≤30s
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Recommended Size of the Pad / 焊墊尺寸建議

t : 元件焊墊金屬層厚度(min.) / Thickness of pad metal(min.)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證				
			UL US	VDE	CCC	CCC	JET
100mA	250V/300V/400V	160A@250V AC 130A@300V AC 50A@400V AC	●	●	●	●	
125mA	250V/300V/400V		●	●	●	●	
160mA	250V/300V/400V		●	●	●	●	
200mA	250V/300V/400V		●	●	●	●	
250mA	250V/300V/400V		●	●	●	●	
315mA	250V/300V/400V		●	●	●	●	
400mA	250V/300V/400V		●	●	●	●	
500mA	250V/300V/400V		●	●	●	●	
630mA	250V/300V/400V		●	●	●	●	
800mA	250V/300V/400V		●	●	●	●	
1.00A	250V/300V/400V		●	●	●	●	●
1.25A	250V/300V/400V		●	●	●	●	●
1.60A	250V/300V/400V		●	●	●	●	●
2.00A	250V/300V/400V		●	●	●	●	●
2.50A	250V/300V/400V		●	●	●	●	●
3.15A	250V/300V/400V		●	●	●	●	●
4.00A	250V/300V/400V		●	●	●	●	●
5.00A	250V/300V/400V		●	●	●	●	●
6.30A	250V/300V		●	●	●	●	●
6.30A	400V		●	●	●	●	●

Remark: For UL US 160A at 250V AC

For VDE CCC JET 100A at 250V AC

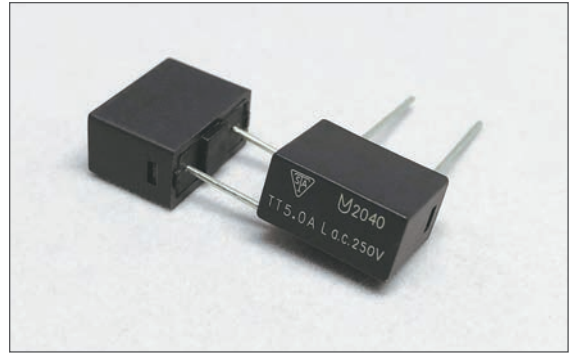
For UL US 130A at 300V AC

For VDE JET 100A at 300V AC and 50A at 300V AC

For UL US VDE 50A at 400V AC

I-T Characteristics / 時間-電流特性

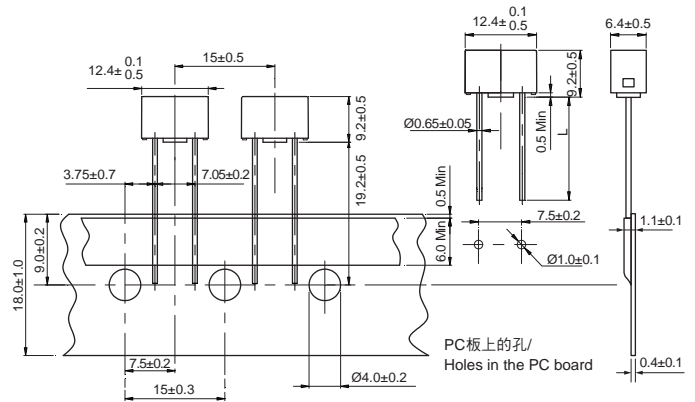
Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
800mA-6.3A	125%	1 Hr Min. / 最短1小時
	200%	2 Min Max. / 最長2分鐘
	1000%	100ms Min. / 最短100毫秒
		1s Max. / 最長1秒



Product Features / 產品特性

Materials 材質	Body / 本體: Thermoplastic / 耐熱性塑料 UL94 V-0 Termination / 端子: Tin plated copper / 鍍錫銅線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 1s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 3s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 1~2s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C-60°C, relative humidity ≤ 75%. 在溫度+10°C-60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C-60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C-60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Long Leads / 長引線: L=19.2±0.5mm
Short Leads / 短引線: L=4.5±0.5mm

Electrical Characteristics / 電氣特性

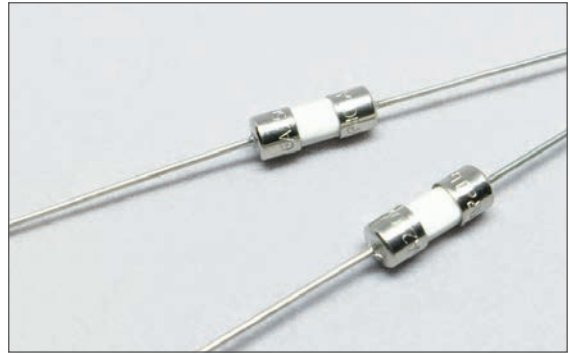
Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
			UL US	TUV	Cec
800mA	250V / 300V	150A@250V AC 100A@300V AC	●	●	●
1A	250V / 300V		●	●	●
1.25A	250V / 300V		●	●	●
1.6A	250V / 300V		●	●	●
2A	250V / 300V		●	●	●
2.5A	250V / 300V		●	●	●
3.15A	250V / 300V		●	●	●
4A	250V / 300V		●	●	●
5A	250V / 300V		●	●	●
6.3A	250V / 300V	●	●	●	

Remark: For Cec, 150A at 250V AC

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
250mA-6.3A	150%	1 Hr Min. / 最短1小時
	210%	2Min Max. / 最長2分鐘
	275%	400ms Min.10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150ms Max. / 最短20毫秒, 最長150毫秒

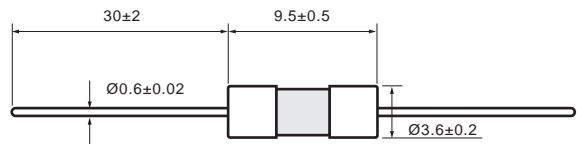
In accordance with IEC60127-3 standard,sheet4 / 遵循 IEC60127-3, 規格單4



Product Features / 產品特性

Materials 材質	Body / 本體 : Ceramic tube / 陶瓷管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



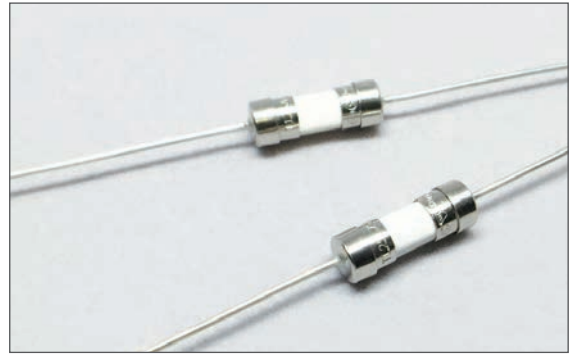
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
			UL [®] US	VDE	CCC
250mA	250V	250mA~3.15A 35A@250V AC	●	●	●
315mA	250V		●	●	●
400mA	250V		●	●	●
500mA	250V		●	●	●
630mA	250V		●	●	●
800mA	250V		●	●	●
1.00A	250V		●	●	●
1.25A	250V		●	●	●
1.60A	250V		●	●	●
2.00A	250V		●	●	●
2.50A	250V		●	●	●
3.15A	250V		●	●	●
4.00A	250V		4A~6.3A 10IN@250V AC	●	●
5.00A	250V	●		●	●
6.30A	250V	●		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
250mA-6.3A	150%	1 Hr Min. / 最短1小時
	210%	2Min Max. / 最長2分鐘
	275%	400ms Min.10s Max. / 最短400毫秒, 最長10秒
	400%	150ms Min. 3s Max. / 最短150毫秒, 最長3秒
	1000%	20ms Min. 150ms Max. / 最短20毫秒, 最長150毫秒

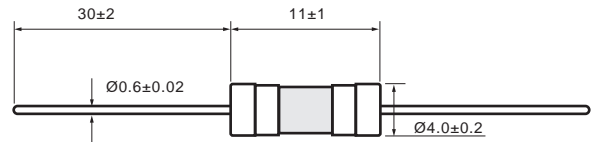
In accordance with IEC60127-3 standard, sheet 2&4 / 遵循 IEC60127-3, 規格單2&4



Product Features / 產品特性

Materials 材質	Body / 本體 : Ceramic tube / 陶瓷管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證				
			UL US	VDE	S	K	CCC
250mA	250V	250mA~3.15A 35A@250V AC	●	●	●	●	●
315mA	250V		●	●	●	●	●
400mA	250V		●	●	●	●	●
500mA	250V		●	●	●	●	●
630mA	250V		●	●	●	●	●
800mA	250V		●	●	●	●	●
1.00A	250V		●	●	●	●	●
1.25A	250V		●	●	●	●	●
1.60A	250V		●	●	●	●	●
2.00A	250V		●	●	●	●	●
2.50A	250V	4A~6.3A 10IN@250V AC	●	●	●	●	●
3.15A	250V		●	●	●	●	●
4.00A	250V		●	●	●	●	●
5.00A	250V		●	●	●	●	●
6.30A	250V		●	●	●	●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
250mA-6.3A	150%	1 Hr Min. / 最短1小時
8A-15A		30min Min. / 最短30分鐘
250mA-15A	210%	30min Max. / 最長30分鐘
250mA-4A	275%	10ms Min. 2s Max. / 最短10毫秒, 最長2秒
5A-6.3A		10ms Min. 3s Max. / 最短10毫秒, 最長3秒
8A-15A	400%	40ms Min. 20s Max. / 最短40毫秒, 最長20秒
250mA-6.3A		3ms Min. 300ms Max. / 最短3毫秒, 最長300毫秒
8.0A-15A	1000%	10ms Min. 1s Max. / 最短10毫秒, 最長1秒
250mA-6.3A		20ms Max. / 最長20毫秒
8.0A-15A		30ms Max. / 最長30毫秒

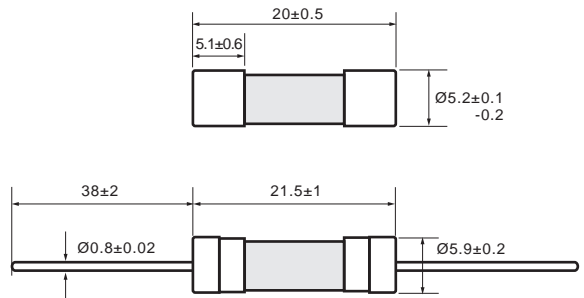
In accordance with IEC60127-2 standard, sheet1 / 遵循 IEC60127-2, 規格單1



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證					
			UL	VDE	CCC	PS	JET	Other
250mA	250V	250mA~15A 1500A@250V AC	●	●	●	●	●	
315mA	250V		●	●	●	●	●	
400mA	250V		●	●	●	●	●	
500mA	250V		●	●	●	●	●	
630mA	250V		●	●	●	●	●	
800mA	250V		●	●	●	●	●	
1.00A	250V		●	●	●	●	●	●
1.25A	250V		●	●	●	●	●	●
1.60A	250V		●	●	●	●	●	●
2.00A	250V		●	●	●	●	●	●
2.50A	250V		●	●	●	●	●	●
3.15A	250V		●	●	●	●	●	●
4.00A	250V		●	●	●	●	●	●
5.00A	250V		●	●	●	●	●	●
6.30A	250V		●	●	●	●	●	●
8.00A	250V		●	●	●	●	●	●
10.0A	250V		●	●	●	●	●	●
12.0A	250V	●	●	●	●	●	●	
15.0A	250V	●	●	●	●	●	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
8A~16A	210%	30min Max. / 最長30分
	275%	40ms Min. 20s Max. / 最短40毫秒,最長20秒
	400%	10ms Min. 1s Max. / 最短10毫秒,最長1秒
	1000%	30ms Max. / 最長30毫秒

In accordance with IEC60127-7 standard / 遵循 IEC60127-7

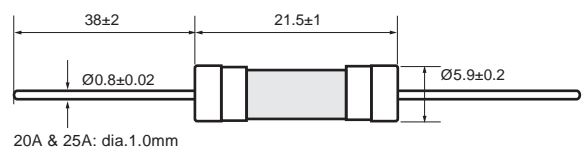


Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)

FHP Series



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL US	TUV
8.00A	420VAC/VDC	300A @ 420V AC/DC	●	●
10.0A	420VAC/VDC		●	●
12.5A	420VAC/VDC		●	●
15.0A	420VAC/VDC		●	●
16.0A	420VAC/VDC		●	●
20.0A	420VAC/VDC		●	●
25.0A	420VAC/VDC		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~6.3A	150%	1 Hr Min. / 最短1小時
8A~16A		30min Min. / 最短30分鐘
200mA~16A	210%	30min Max. / 最長30分鐘
200mA~800mA	275%	250ms Min. 80s Max. / 最短250毫秒,最長80秒
1A~16A		750ms Min. 80s Max. / 最短750毫秒,最長80秒
200mA~800mA	400%	50ms Min. 5s Max. / 最短50毫秒, 最長5秒
1A~3.15A		95ms Min. 5s Max. / 最短95毫秒, 最長5秒
4A~16A		150ms Min. 5s Max. / 最短150毫秒, 最長5秒
200mA~800mA	1000%	5ms Min. 150ms Max. / 最短5毫秒, 最長150毫秒
1A~16A		10ms Min. 150ms Max. / 最短10毫秒, 最長150毫秒

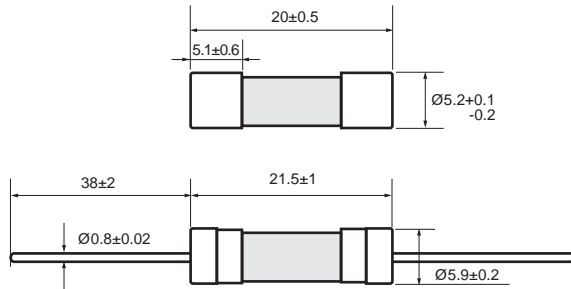
In accordance with IEC60127-2 standard, sheet5 / 遵循 IEC60127-2, 規格單5



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



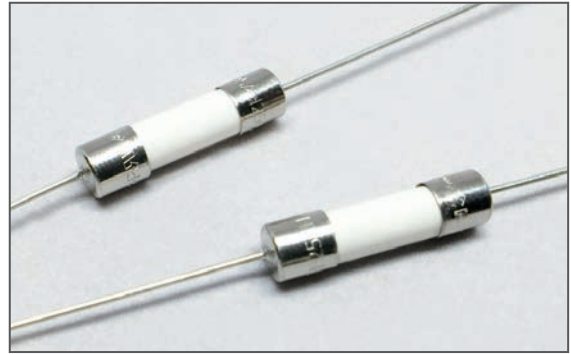
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證																		
			UL	VDE	TUV	CCC	CQC	CCC	CCC	CCC	CCC	CCC									
200mA	250V	200mA~16A 1500A@250V AC	●	●																	
250mA	250V		●	●																	
315mA	250V		●	●																	
400mA	250V		●	●																	
500mA	250V		●	●																	
630mA	250V		●	●																	
800mA	250V		●	●																	
1.00A	250V		●	●																	
1.25A	250V		●	●																	
1.60A	250V		●	●																	
2.00A	250V		●	●																	
2.50A	250V		●	●																	
3.15A	250V		●	●																	
4.00A	250V		●	●																	
5.00A	250V		●	●																	
6.30A	250V		●	●																	
8.00A	250V		●	●																	
10.0A	250V		●	●																	
12.0A	250V		●	●																	
12.5A	250V		●	●																	
15.0A	250V	●	●																		
16.0A	250V	●	●																		
20.0A	250V	●	●																		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~6.3A	150%	1 Hr Min. / 最短1小時
8A~16A		30min Min. / 最短30分鐘
200mA~16A	210%	30min Max. / 最長30分鐘
200mA~800mA	275%	250ms Min. 80s Max. / 最短250毫秒,最長80秒
1A~16A		750ms Min. 80s Max. / 最短750毫秒,最長80秒
200mA~800mA	400%	50ms Min. 5s Max. / 最短50毫秒,最長5秒
1A~3.15A		95ms Min. 5s Max. / 最短95毫秒,最長5秒
4A~16A		150ms Min. 5s Max. / 最短150毫秒,最長5秒
200mA~800mA	1000%	5ms Min. 150ms Max. / 最短5毫秒,最長150毫秒
1A~16A		10ms Min. 150ms Max. / 最短10毫秒,最長150毫秒

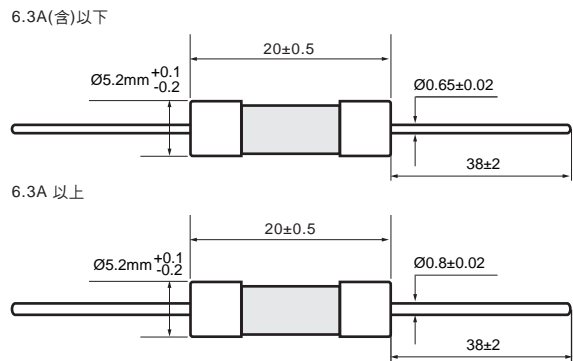
In accordance with IEC60127-2 standard, sheet5 / 遵循 IEC60127-2, 規格單5



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



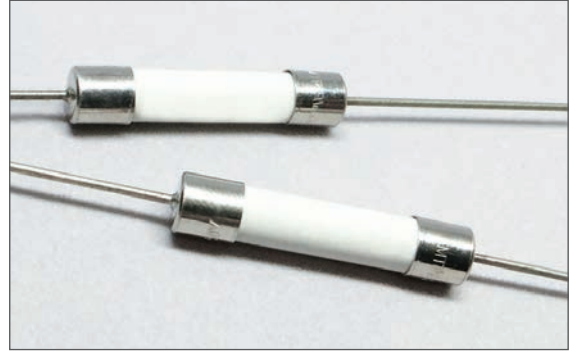
Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證							
			UL US	D'E	TUV	CCC	CQC	PES JET	IC	
200mA	250V	200mA~16A 1500A@250V AC	●							
250mA	250V		●							
315mA	250V		●							
400mA	250V		●							
500mA	250V		●							
630mA	250V		●							
800mA	250V		●							
1.00A	250V		●	●			●		●	●
1.25A	250V		●	●			●		●	●
1.60A	250V		●	●			●		●	●
2.00A	250V		●	●			●		●	●
2.50A	250V		●	●			●		●	●
3.15A	250V		●	●			●		●	●
4.00A	250V		●	●			●		●	●
5.00A	250V		●	●			●		●	●
6.30A	250V		●	●			●		●	●
8.00A	250V		●		◎		●		●	
10.0A	250V	●		◎		●		●		
12.5A	250V	●		◎		●	●	●		
15.0A	250V	●				●	●	●		

◎ Pending / 認證中

I-T Characteristics / 時間-電流特性

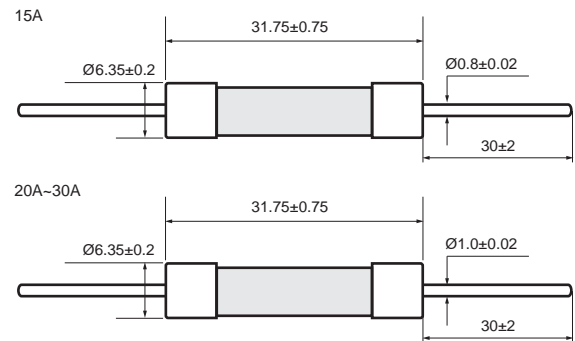
Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
15A、20A、25A、30A	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	150s Max. / 最長150秒



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)

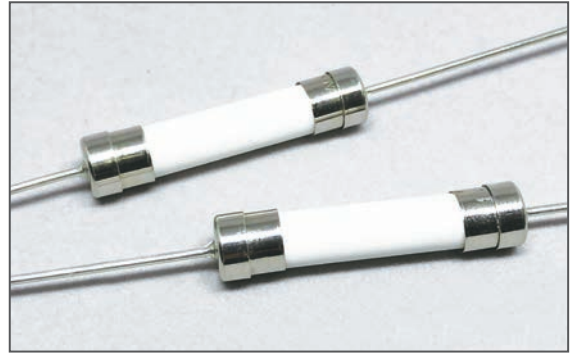


Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
			UL	TUV	PSE JET
15A	250V	UL 15A, 20A~1500A@250V AC	●	●	
20A	250V	25A, 30A~500A@250V AC TUV	●	●	●
25A	250V	15A, 20A~1500A@250V AC 25A, 30A~100A@250V AC	●	●	●
30A	250V	PSE 20A~30A, 500A@250V AC	●	●	●

I-T Characteristics / 時間-電流特性

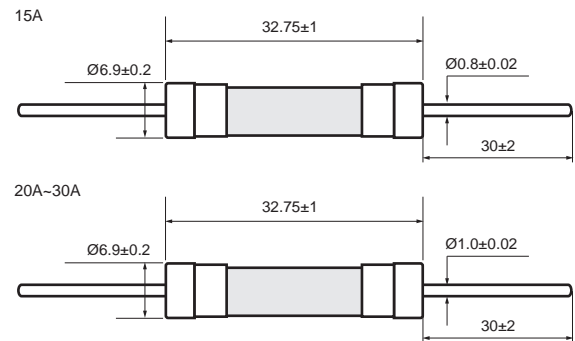
Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
15A、20A、25A、30A	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	150s Max. / 最長150秒



Product Features / 產品特性

Materials 材質	Body / 本體: Ceramic tube / 陶瓷管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
			UL	TUV	CQC
15A	250V	15A, 20A~1500A@250V AC 25A, 30A~1000A@250V AC	●	●	●
20A	250V		●	●	◎
25A	250V		●	●	◎
30A	250V		●	●	◎

◎ Pending / 認證中

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	100%	4 Hrs Min. / 最短4小時
	200%	60s Max. / 最長60秒

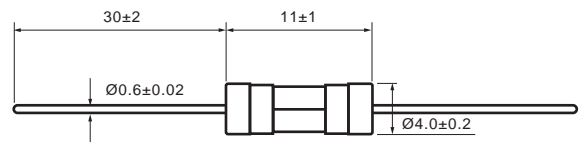
In accordance with UL 248 -1 / -14 standard / 遵循UL 248 -1 / -14



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
			cUL _{us}
100mA	125V/250V	100mA~6.3A 50A@125V/250V AC	●
125mA	125V/250V		●
160mA	125V/250V		●
200mA	125V/250V		●
250mA	125V/250V		●
300mA	125V/250V		●
315mA	125V/250V		●
350mA	125V/250V		●
375mA	125V/250V		●
400mA	125V/250V		●
500mA	125V/250V		●
600mA	125V/250V		●
630mA	125V/250V		●
750mA	125V/250V		●
800mA	125V/250V		●
1.00A	125V/250V		●
1.25A	125V/250V		●
1.50A	125V/250V		●
1.60A	125V/250V		●
2.00A	125V/250V		●
2.50A	125V/250V		●
3.00A	125V/250V		●
3.15A	125V/250V		●
3.50A	125V/250V		●
4.00A	125V/250V	●	
5.00A	125V/250V	●	
6.30A	125V/250V	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	100%	4 Hrs Min. / 最短4小時
	200%	60s Max. / 最長60秒
	500%	90ms Min. / 最短90毫秒
	1000%	10ms Min. / 最短10毫秒

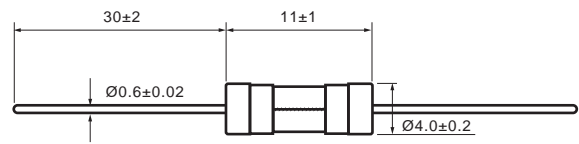
In accordance with UL 248-1 / -14 standards / 遵循UL 248-1 / -14



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
			c(UL)us
100mA	125V/250V	100mA~6.3A 50A@125V/250V AC	●
125mA	125V/250V		●
160mA	125V/250V		●
200mA	125V/250V		●
250mA	125V/250V		●
300mA	125V/250V		●
315mA	125V/250V		●
350mA	125V/250V		●
375mA	125V/250V		●
400mA	125V/250V		●
500mA	125V/250V		●
600mA	125V/250V		●
630mA	125V/250V		●
750mA	125V/250V		●
800mA	125V/250V		●
1.00A	125V/250V		●
1.25A	125V/250V		●
1.50A	125V/250V		●
1.60A	125V/250V		●
2.00A	125V/250V		●
2.50A	125V/250V		●
3.00A	125V/250V		●
3.15A	125V/250V		●
3.50A	125V/250V		●
4.00A	125V/250V		●
5.00A	125V/250V		●
6.00A	125V/250V	●	
6.30A	125V/250V	●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~6.3A	150%	1 Hr Min. / 最短1小時
8A~15A		30min Min. / 最短30分鐘
200mA~15A	210%	30min Max. / 最長30分鐘
200mA~15A	275%	50ms Min. 2s Max. / 最短50毫秒,最長2秒
200mA~6.3A	400%	10ms Min. 300ms Max. / 最短10毫秒,最長300毫秒
8.0A~15A		10ms Min. 400ms Max. / 最短10毫秒,最長400毫秒
200mA~6.3A	1000%	20ms Max. / 最長20毫秒
8.0A~15A		40ms Max. / 最長40毫秒

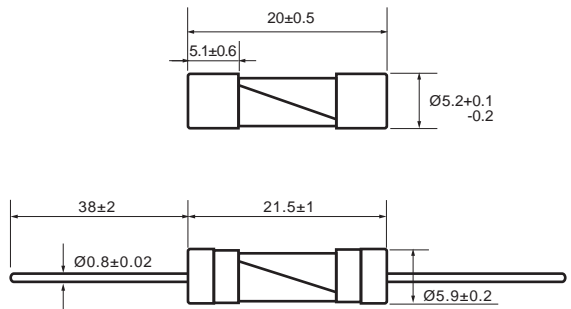
In accordance with IEC60127-2 standard, sheet2 / 遵循IEC60127-2, 規格單2



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證							
			UL US	DVE	VDE	CCC	CQC	KC	JET	
200mA	250V	200mA~3.15A 35A@250V AC	●	●		●	●		●	
250mA	250V		●	●		●	●		●	
315mA	250V		●	●		●	●		●	
400mA	250V		●	●		●	●		●	
500mA	250V		●	●		●	●		●	
630mA	250V		●	●		●	●		●	
800mA	250V		●	●		●	●		●	
1.00A	250V		●	●		●	●		●	●
1.25A	250V		●	●		●	●		●	●
1.60A	250V		●	●		●	●		●	●
2.00A	250V		●	●		●	●		●	●
2.50A	250V		●	●		●	●		●	●
3.15A	250V		●	●		●	●		●	●
4.00A	250V		●	●		●	●		●	●
5.00A	250V		●	●		●	●		●	●
6.30A	250V	●	●		●	●		●	●	
8.00A	125V/250V	4A~15A 10IN@250V AC	●	●			●	●		
10.0A	125V/250V		●	●			●	●		
12.0A	125V/250V		●		●			●		
15.0A	125V/250V		●		●			●		
			●		●			●		

Remark: *FSD 8A~15A approved KC 250V only. **125V Voltage only for UL US, DVE and VDE.

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA-6.3A	150%	1 Hr Min. / 最短1小時
100mA-6.3A	210%	2min Max. / 最長2分鐘
100mA	275%	200ms Min. 10s Max. / 最短200毫秒, 最長10秒
125mA-6.3A		600ms Min. 10s Max. / 最短600毫秒, 最長10秒
100mA	400%	40ms Min. 3s Max. / 最短40毫秒, 最長3秒
125mA-6.3A		150ms Min. 3s Max. / 最短150毫秒, 最長3秒
100mA	1000%	10ms Min. 300ms Max. / 最短10毫秒, 最長300毫秒
125mA-6.3A		20ms Min. 300ms Max. / 最短20毫秒, 最長300毫秒

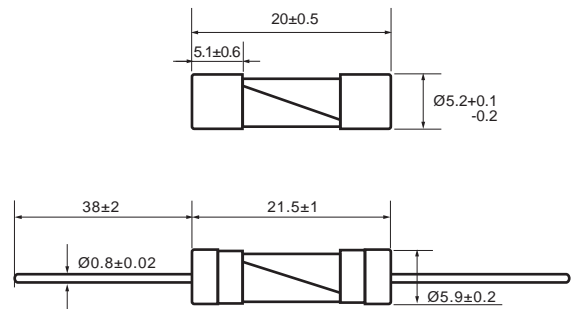
In accordance with IEC60127-2 standard, sheet3 / 遵循IEC60127-2, 規格單3



Product Features / 產品特性

Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證					
			UL [®] US	DVE	UL	CCC	CCC	PS JET
100mA	Obsolete & Replaced by TMD 100mA		●	●	●	●	●	
125mA	Obsolete & Replaced by TMD 125mA		●	●	●	●	●	
200mA	Obsolete & Replaced by TMD 200mA		●	●	●	●	●	
250mA	Obsolete & Replaced by TMD 250mA		●	●	●	●	●	
315mA	Obsolete & Replaced by TMD 315mA		●	●	●	●	●	
400mA	Obsolete & Replaced by TMD 400mA		●	●	●	●	●	
500mA	Obsolete & Replaced by TMD 500mA		●	●	●	●	●	
630mA	250V	630mA~3.15A 35A@250V AC	●	●	●	●	●	
800mA	250V		●	●	●	●	●	
1.00A	250V		●	●	●	●	●	●
1.25A	250V		●	●	●	●	●	●
1.60A	250V		●	●	●	●	●	●
2.00A	250V		●	●	●	●	●	●
2.50A	250V		●	●	●	●	●	●
3.15A	250V	●	●	●	●	●	●	
4.00A	250V	4A~6.3A 10IN@250V AC	●	●	●	●	●	●
5.00A	250V		●	●	●	●	●	●
6.30A	250V		●	●	●	●	●	●
			●	●	●	●	●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~6.3A	150%	1 Hr Min. / 最短1小時
8A~15A		30min Min. / 最短30分鐘
100mA~15A	210%	2min Max. / 最長2分鐘
100mA	275%	200ms Min. 10s Max. / 最短200毫秒,最長10秒
125mA~15A		600ms Min. 10s Max. / 最短600毫秒,最長10秒
100mA	400%	40ms Min. 3s Max. / 最短40毫秒,最長3秒
125mA~15A		150ms Min. 3s Max. / 最短150毫秒,最長3秒
100mA	1000%	10ms Min. 300ms Max. / 最短10毫秒,最長300毫秒
125mA~15A		20ms Min. 300ms Max. / 最短20毫秒,最長300毫秒

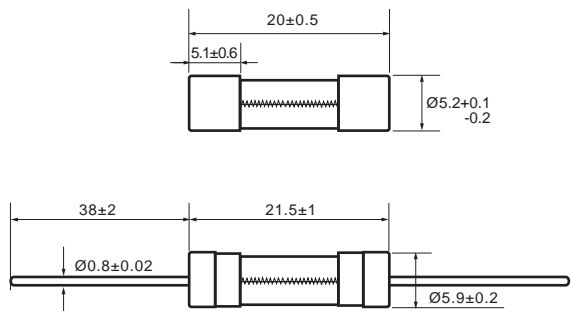
In accordance with IEC60127-2 standard, sheet3 / 遵循IEC60127-2, 規格單3



Product Features / 產品特性

Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證							
				UL [®]	US	DVE	VDE	CCC	CQC	CCC	PS JET
TMD	100mA	250V	100mA~3.15A 35A@250V AC	●	●	●	●	●	●	●	●
TMD	125mA	250V		●	●	●	●	●	●	●	●
TMD	160mA	250V		●	●	●	●	●	●	●	●
TMD	200mA	250V		●	●	●	●	●	●	●	●
TMD	250mA	250V		●	●	●	●	●	●	●	●
TMD	315mA	250V		●	●	●	●	●	●	●	●
TMD	400mA	250V		●	●	●	●	●	●	●	●
TMD	500mA	250V		●	●	●	●	●	●	●	●
TMD	630mA	250V		●	●	●	●	●	●	●	●
TMD	800mA	250V		●	●	●	●	●	●	●	●
TMD	1.00A	250V		●	●	●	●	●	●	●	●
TMD	1.25A	250V		●	●	●	●	●	●	●	●
TMD	1.60A	250V		●	●	●	●	●	●	●	●
TMD	2.00A	250V		●	●	●	●	●	●	●	●
TMD	2.50A	250V	●	●	●	●	●	●	●	●	
TMD	3.15A	250V	●	●	●	●	●	●	●	●	
TMD	4.00A	250V	4A~15A 10IN@250V AC	●	●	●	●	●	●	●	●
TMD	5.00A	250V		●	●	●	●	●	●	●	●
TMD	6.30A	250V		●	●	●	●	●	●	●	●
TMD	8.00A	125V/250V		●	●	●	●	●	●	●	●
TMD	10.0A	125V/250V		●	●	●	●	●	●	●	●
TMD	12.0A	125V/250V		●	●	●	●	●	●	●	●
TMD	12.5A	250V		●	●	●	●	●	●	●	●
TMD	15.0A	125V/250V		●	●	●	●	●	●	●	●

Remark: 125V Voltage only for UL, DVE, VDE and CCC. (1A~10A)

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~10A	100%	4 Hrs Min. / 最短4小時
	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒

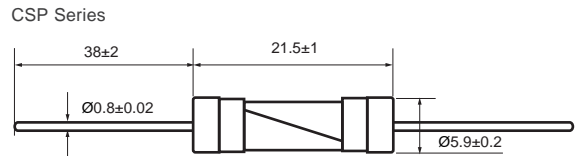
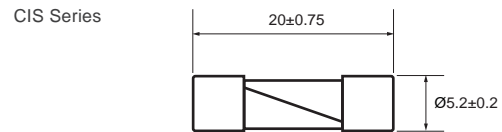
In accordance with UL 248-1 / -14 standards / 遵循UL 248-1 / -14

Product Features / 產品特性

Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。



Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
				UL US	PS JET
CIS/CSP	100mA	125V/250V	100mA~10A 10000A@125V AC	●	
CIS/CSP	125mA	125V/250V		●	
CIS/CSP	150mA	125V/250V		●	
CIS/CSP	160mA	125V/250V		●	
CIS/CSP	200mA	125V/250V		●	
CIS/CSP	250mA	125V/250V		●	
CIS/CSP	300mA	125V/250V		●	
CIS/CSP	315mA	125V/250V		●	
CIS/CSP	350mA	125V/250V		●	
CIS/CSP	375mA	125V/250V		●	
CIS/CSP	400mA	125V/250V	100mA~1A 35A@250V AC	●	
CIS/CSP	500mA	125V/250V		●	
CIS/CSP	600mA	125V/250V		●	
CIS/CSP	630mA	125V/250V		●	
CIS/CSP	750mA	125V/250V		●	
CIS/CSP	800mA	125V/250V	1.1A~3.5A 100A@250V AC	●	●
CIS/CSP	1.00A	125V/250V		●	●
CIS/CSP	1.25A	125V/250V		●	●
CIS/CSP	1.50A	125V/250V		●	●
CIS/CSP	1.60A	125V/250V		●	●
CIS/CSP	2.00A	125V/250V		●	●
CIS/CSP	2.50A	125V/250V		●	●
CIS/CSP	3.00A	125V/250V		●	●
CIS/CSP	3.15A	125V/250V		●	●
CIS/CSP	3.50A	125V/250V		●	●
CIS/CSP	4.00A	125V/250V	3.6A~5A 200A@250V AC	●	●
CIS/CSP	5.00A	125V/250V		●	●
CIS/CSP	6.00A	125V		●	●
CIS/CSP	6.30A	125V		●	●
CIS/CSP	7.00A	125V		●	●
CIS	8.00A	125V		●	●
CIS	10.0A	125V		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA-7A	100%	4 Hrs Min. / 最短4小時
	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

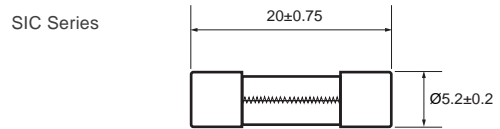
In accordance with UL 248-1 / -14 standards / 遵循UL 248-1 / -14

Product Features / 產品特性

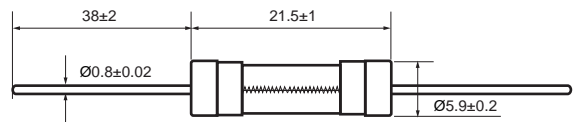
Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。



Dimensions / 尺寸圖 (Unit / 單位:mm)



SIP Series



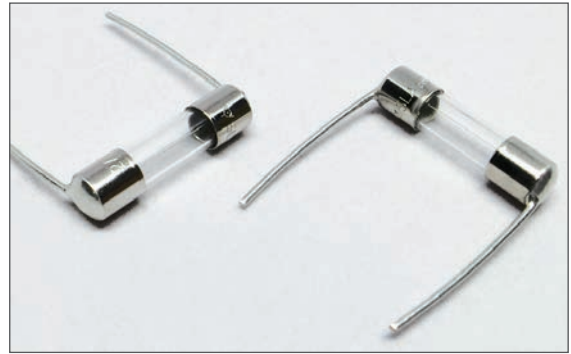
Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
				c(UL) US	PS JET
SIC/SIP	100mA	125V/250V	(SIC Series) 100mA-7A 10000A@125V AC	●	
SIC/SIP	125mA	125V/250V		●	
SIC/SIP	150mA	125V/250V		●	
SIC/SIP	160mA	125V/250V		●	
SIC/SIP	200mA	125V/250V		●	
SIC/SIP	250mA	125V/250V		●	
SIC/SIP	300mA	125V/250V		●	
SIC/SIP	315mA	125V/250V		●	
SIC/SIP	350mA	125V/250V		●	
SIC/SIP	375mA	125V/250V		●	
SIC/SIP	400mA	125V/250V		●	
SIC/SIP	500mA	125V/250V		●	
SIC/SIP	600mA	125V/250V		●	
SIC/SIP	630mA	125V/250V		●	
SIC/SIP	750mA	125V/250V		●	
SIC/SIP	800mA	125V/250V		●	
SIC/SIP	1.00A	125V/250V		(SIP Series)	●
SIC/SIP	1.25A	125V/250V	100mA-5A	●	●
SIC/SIP	1.50A	125V/250V	10000A@125V AC	●	●
SIC/SIP	1.60A	125V/250V	●	●	●
SIC/SIP	2.00A	125V/250V	100mA-1A 35A@250V AC	●	●
SIC/SIP	2.50A	125V/250V	●	●	●
SIC/SIP	3.00A	125V/250V	●	●	●
SIC/SIP	3.15A	125V/250V	1.1A-3.5A 100A@250V AC	●	●
SIC/SIP	3.50A	125V/250V	●	●	●
SIC/SIP	4.00A	125V/250V	●	●	●
SIC/SIP	5.00A	125V/250V	3.6A-5A 200A@250V AC	●	●
SIC	6.00A	125V/250V	●	●	●
SIC	6.30A	125V/250V	●	●	●
SIC	7.00A	125V/250V	●	●	●

I-T Characteristics / 時間-電流特性

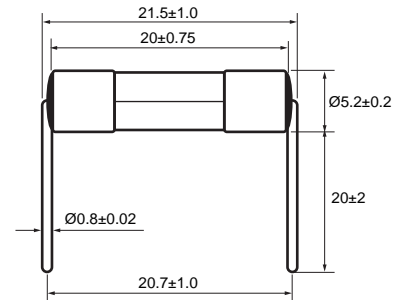
Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~7A	100%	4 Hrs Min. / 最短4小時
	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

In accordance with UL 248-1 / -14 standard / 遵循UL 248-1 / -14



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。



Electrical Characteristics / 電氣特性

Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
			UL US	JET
100mA	125V/250V	100mA~7A 10000A@125V AC	●	
125mA	125V/250V		●	
160mA	125V/250V		●	
200mA	125V/250V		●	
250mA	125V/250V		●	
300mA	125V/250V		●	
315mA	125V/250V		●	
350mA	125V/250V		●	
375mA	125V/250V		●	
400mA	125V/250V		●	
500mA	125V/250V		●	
600mA	125V/250V		●	
630mA	125V/250V		●	
750mA	125V/250V		●	
800mA	125V/250V	●		
1.00A	125V/250V	100mA~1A 35A@250V AC	●	●
1.25A	125V/250V		●	●
1.50A	125V/250V		●	●
1.60A	125V/250V		●	●
2.00A	125V/250V		●	●
2.50A	125V/250V		●	●
3.00A	125V/250V		●	●
3.15A	125V		●	●
3.50A	125V		●	●
4.00A	125V		●	●
5.00A	125V	●	●	
6.00A	125V	●	●	
6.30A	125V	●	●	
7.00A	125V	●	●	
		1.1A~3A 100A@250V AC	●	●
			●	●
			●	●
			●	●
			●	●
			●	●
			●	●
			●	●
			●	●
			●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~15A	100%	4 Hrs Min. / 最短4小時
	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒

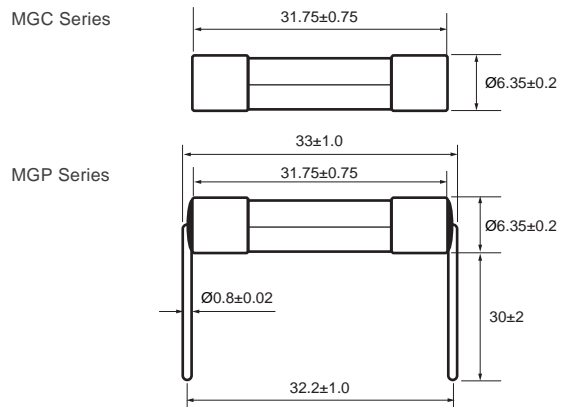
In accordance with UL 248-1 / -14 standards / 遵循UL 248-1 / -14

Product Features / 產品特性

Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密封條件下可存放3年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為95%的非露天下最多可存放30天。



Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
				UL US	PES JET
MGC/MGP	100mA	125V/250V	100mA~15A 10000A@125V AC	●	
MGC/MGP	125mA	125V/250V		●	
MGC/MGP	150mA	125V/250V		●	
MGC/MGP	160mA	125V/250V		●	
MGC/MGP	200mA	125V/250V		●	
MGC/MGP	250mA	125V/250V		●	
MGC/MGP	300mA	125V/250V		●	
MGC/MGP	315mA	125V/250V		●	
MGC/MGP	350mA	125V/250V		●	
MGC/MGP	375mA	125V/250V		●	
MGC/MGP	400mA	125V/250V	100mA~1A 35A@250V AC	●	
MGC/MGP	500mA	125V/250V		●	
MGC/MGP	600mA	125V/250V		●	
MGC/MGP	630mA	125V/250V		●	
MGC/MGP	750mA	125V/250V		●	
MGC/MGP	800mA	125V/250V		●	
MGC/MGP	1.00A	125V/250V		●	●
MGC/MGP	1.25A	125V/250V		●	●
MGC/MGP	1.50A	125V/250V		●	●
MGC/MGP	1.60A	125V/250V		●	●
MGC/MGP	2.00A	125V/250V	1.1A~3.5A 100A@250V AC	●	●
MGC/MGP	2.50A	125V/250V		●	●
MGC/MGP	3.00A	125V/250V		●	●
MGC/MGP	3.15A	125V/250V		●	●
MGC/MGP	3.50A	125V/250V		●	●
MGC/MGP	4.00A	125V/250V		●	●
MGC/MGP	5.00A	125V/250V		●	●
MGC/MGP	6.00A	125V/250V		●	●
MGC/MGP	6.30A	125V/250V		●	●
MGC/MGP	7.00A	125V/250V		●	●
MGC/MGP	8.00A	125V	3.6A~10A 200A@250V AC	●	●
MGC/MGP	10.0A	125V		●	●
MGC/MGP	12.0A	125V		●	●
MGC/MGP	15.0A	125V		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100mA~15A	100%	4 Hrs Min. / 最短4小時
	135%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

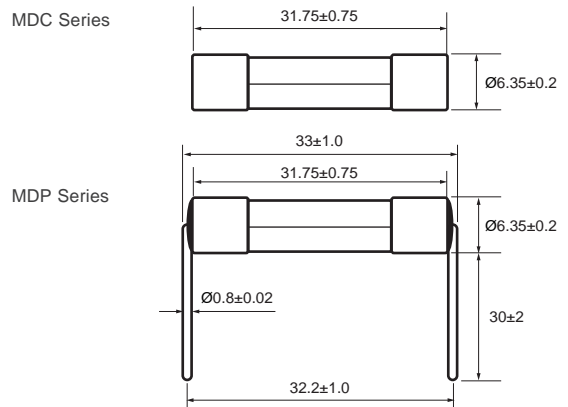
In accordance with UL 248-1 / -14 standard / 遵循UL 248-1 / -14

Product Features / 產品特性

Materials 材質	Body / 本體: Glass tube / 玻璃管 Lead / 引線: Tinned copper wire / 鍍錫銅線 Cap / 銅帽: Brass with nickel plated / 銅鍍鎳 Element / 熔絲: Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫焊參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度: 260°C Max Solder dwell time / 焊接時間: 2~5s Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度: 350±5°C Solder dwell time / 焊接時間: 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密封條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天下最多可存放 30 天。



Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證		
				UL US	PES JET	
MDC/MDP	100mA	125V/250V	100mA~15A 10000A@125V AC	●		
MDC/MDP	125mA	125V/250V		●		
MDC/MDP	150mA	125V/250V		●		
MDC/MDP	160mA	125V/250V		●		
MDC/MDP	200mA	125V/250V		●		
MDC/MDP	250mA	125V/250V		●		
MDC/MDP	300mA	125V/250V		●		
MDC/MDP	315mA	125V/250V		●		
MDC/MDP	350mA	125V/250V		●		
MDC/MDP	375mA	125V/250V		●		
MDC/MDP	400mA	125V/250V	100mA~15A 500A@125V DC	●		
MDC/MDP	500mA	125V/250V		●		
MDC/MDP	600mA	125V/250V		●		
MDC/MDP	630mA	125V/250V		●		
MDC/MDP	750mA	125V/250V		●		
MDC/MDP	800mA	125V/250V		●		
MDC/MDP	1.00A	125V/250V		100mA~1A 35A@250V AC	●	●
MDC/MDP	1.25A	125V/250V			●	●
MDC/MDP	1.50A	125V/250V			●	●
MDC/MDP	1.60A	125V/250V			●	●
MDC/MDP	2.00A	125V/250V	●		●	
MDC/MDP	2.50A	125V/250V	●		●	
MDC/MDP	3.00A	125V/250V	1.1A~3.5A 100A@250V AC		●	●
MDC/MDP	3.15A	125V/250V			●	●
MDC/MDP	3.50A	125V/250V			●	●
MDC/MDP	4.00A	125V/250V			●	●
MDC/MDP	5.00A	125V/250V		●	●	
MDC/MDP	6.00A	125V/250V		3.6A~8A 200A@250V AC	●	●
MDC/MDP	6.30A	125V/250V			●	●
MDC/MDP	7.00A	125V/250V			●	●
MDC/MDP	8.00A	125V/250V			●	●
MDC/MDP	10.0A	125V			●	●
MDC/MDP	12.0A	125V	●		●	
MDC/MDP	15.0A	125V	●		●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
1A-15A	130%	4 Hrs Min. / 最短4小時
	160%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒

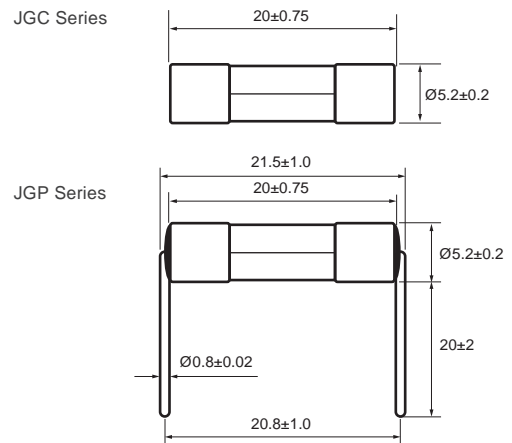
In accordance with METI Ordinance / 遵循METI



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密封條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
JGC/JGP	1.00A	125V/250V	(JGC Series) 1A-15A 100A@125V/250V AC	
JGC/JGP	1.25A	125V/250V		
JGC/JGP	1.50A	125V/250V		
JGC/JGP	1.60A	125V/250V		
JGC/JGP	2.00A	125V/250V		
JGC/JGP	2.50A	125V/250V		
JGC/JGP	3.00A	125V/250V		
JGC/JGP	3.15A	125V/250V		
JGC/JGP	3.50A	125V/250V		
JGC/JGP	4.00A	125V/250V		
JGC/JGP	5.00A	125V/250V		
JGC/JGP	6.00A	125V/250V		
JGC/JGP	6.30A	125V/250V		
JGC/JGP	7.00A	125V/250V		
JGC/JGP	8.00A	125V/250V		
JGC/JGP	10.0A	125V/250V	(JGP Series) 1A-15A 100A@250V AC	
JGC/JGP	12.0A	125V/250V		
JGC/JGP	13.0A	125V/250V		
JGC/JGP	15.0A	125V/250V		
JGC/JGP	15.0A	125V/250V		
JGC/JGP	15.0A	125V/250V		
JGC/JGP	15.0A	125V/250V		
JGC/JGP	15.0A	125V/250V	1A-5A 500A@125V AC	
JGC/JGP	15.0A	125V/250V	6A-15A 100A@125V AC	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
1A~15A	130%	4 Hrs Min. / 最短4小時
	160%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

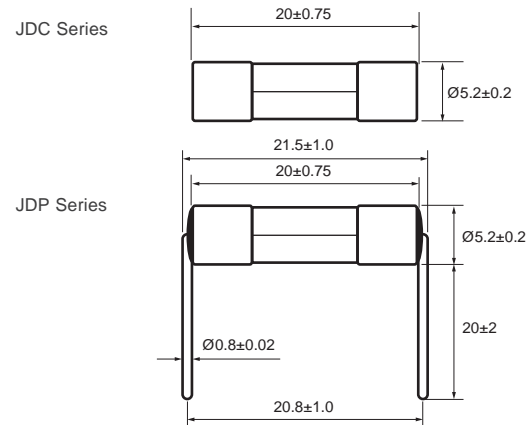
In accordance with METI Ordinance / 遵循METI



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
JDC/JDP	1.00A	125V/250V	(JDC Series) 1A~15A 100A@125V/250V AC	
JDC/JDP	1.25A	125V/250V		
JDC/JDP	1.50A	125V/250V		
JDC/JDP	1.60A	125V/250V		
JDC/JDP	2.00A	125V/250V		
JDC/JDP	2.50A	125V/250V		
JDC/JDP	3.00A	125V/250V		
JDC/JDP	3.15A	125V/250V		
JDC/JDP	3.50A	125V/250V		
JDC/JDP	4.00A	125V/250V		
JDC/JDP	5.00A	125V/250V		
JDC/JDP	6.00A	125V/250V		
JDC/JDP	6.30A	125V/250V		
JDC/JDP	7.00A	125V/250V		
JDC/JDP	8.00A	125V/250V		
JDC/JDP	10.0A	125V/250V	(JDP Series) 1A~15A 100A@250V AC	
JDC/JDP	12.0A	125V/250V		
JDC/JDP	13.0A	125V/250V		
JDC/JDP	15.0A	125V/250V		
JDC/JDP	10.0A	125V/250V		
JDC/JDP	12.0A	125V/250V		
JDC/JDP	15.0A	125V/250V		
JDC/JDP	10.0A	125V/250V	1A~5A 500A@125V AC	
JDC/JDP	12.0A	125V/250V		
JDC/JDP	15.0A	125V/250V		
JDC/JDP	10.0A	125V/250V	6A~15A 100A@125V AC	
JDC/JDP	12.0A	125V/250V		
JDC/JDP	15.0A	125V/250V		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
1A~15A	130%	4 Hrs Min. / 最短4小時
	160%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒

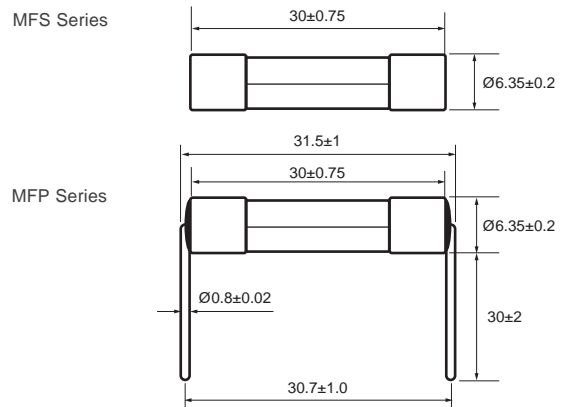
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Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C, 相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
MFS/MFP	1.00A	125V/250V	(MFS Series) 1A~15A 100A@125V/250V AC	PS JET
MFS/MFP	1.25A	125V/250V		
MFS/MFP	1.50A	125V/250V		
MFS/MFP	1.60A	125V/250V		
MFS/MFP	2.00A	125V/250V		
MFS/MFP	2.50A	125V/250V		
MFS/MFP	3.00A	125V/250V		
MFS/MFP	3.15A	125V/250V		
MFS/MFP	3.50A	125V/250V		
MFS/MFP	4.00A	125V/250V		
MFS/MFP	5.00A	125V/250V	(MFP Series) 1A~15A 100A@250V AC	●
MFS/MFP	6.00A	125V/250V		
MFS/MFP	6.30A	125V/250V		
MFS/MFP	7.00A	125V/250V		
MFS/MFP	8.00A	125V/250V		
MFS/MFP	10.0A	125V/250V		
MFS/MFP	12.0A	125V/250V		
MFS/MFP	13.0A	125V/250V		
MFS/MFP	15.0A	125V/250V		
MFS/MFP	15.0A	125V/250V		
MFS/MFP	15.0A	125V/250V	1A~5A 500A@125V AC	●
MFS/MFP	15.0A	125V/250V		
MFS/MFP	15.0A	125V/250V	6A~15A 100A@125V AC	●
MFS/MFP	15.0A	125V/250V		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
1A~15A	130%	4 Hrs Min. / 最短4小時
	160%	1 Hr Max. / 最長1小時
	200%	120s Max. / 最長120秒
	1000%	10ms Min. / 最短10毫秒

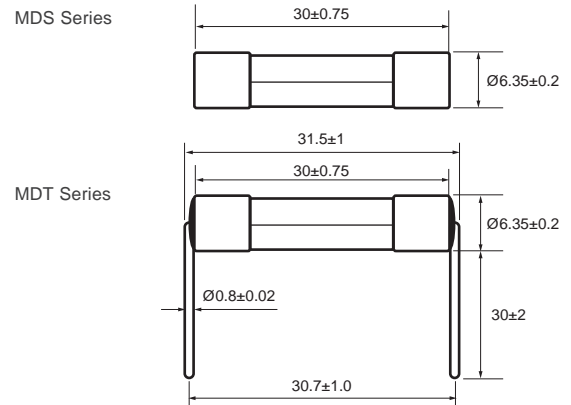
In accordance with METI Ordinance / 遵循METI



Product Features / 產品特性

Materials 材質	Body / 本體 : Glass tube / 玻璃管 Lead / 引線 : Tinned copper wire / 鍍錫銅線 Cap / 銅帽 : Brass with nickel plated / 銅鍍鎳 Element / 熔絲 : Alloy / 合金線
Operating Temperature 操作溫度	-55°C to +125°C (Consider de-rating / 需考慮溫度折減)
Solderability 可焊性	260°C, ≤ 3s. (Wave / 波峰焊) 350±10°C, ≤ 3s. (Soldering iron / 烙鐵焊)
Resistance to Soldering Heat 耐焊接熱	260°C, 10s. (Wave / 波峰焊) 350°C, 5s. (Soldering iron / 烙鐵焊)
Recommended Soldering Parameters 建議焊錫參數	Wave soldering parameter / 波峰焊 Soldering pot temperature / 錫爐溫度 : 260°C Max Solder dwell time / 焊接時間 : 2~5s
	Hand welding parameter / 手工焊 Soldering iron temperature / 烙鐵溫度 : 350±5°C Solder dwell time / 焊接時間 : 5s Max.
Storage Conditions 儲存條件	Can be stored for 3 years under tight seal condition at temperature of +10°C~60°C, relative humidity ≤ 75%. 在溫度+10°C~60°C,相對濕度 ≤ 75% 的密閉條件下可存放 3 年。 At most can be kept 30 days at temperature +10°C~60°C, relative humidity ≤ 95% under covered conditions. 在溫度+10°C~60°C, 相對濕度為 95% 的非露天最多可存放 30 天。

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 型號	Rated Current 額定電流	Rated Voltage 額定電壓	Breaking Capacity 分斷能力	Safety Approvals 安全認證
MDS/MDT	1.00A	125V/250V	(MDS Series) 1A~15A 100A@125V/250V AC	
MDS/MDT	1.25A	125V/250V		
MDS/MDT	1.50A	125V/250V		
MDS/MDT	1.60A	125V/250V		
MDS/MDT	2.00A	125V/250V		
MDS/MDT	2.50A	125V/250V		
MDS/MDT	3.00A	125V/250V		
MDS/MDT	3.15A	125V/250V		
MDS/MDT	3.50A	125V/250V		
MDS/MDT	4.00A	125V/250V		
MDS/MDT	5.00A	125V/250V	(MDT Series) 1A~15A 100A@250V AC	
MDS/MDT	6.00A	125V/250V		
MDS/MDT	6.30A	125V/250V		
MDS/MDT	7.00A	125V/250V		
MDS/MDT	8.00A	125V/250V		
MDS/MDT	10.0A	125V/250V		
MDS/MDT	12.0A	125V/250V		
MDS/MDT	13.0A	125V/250V		
MDS/MDT	15.0A	125V/250V		
MDS/MDT	15.0A	125V/250V		

Definition of Electrical Characteristics and Terms / 電性參數定義

Low Voltage Fuses(IEC 60269) / 低壓保險絲(IEC60269)

This kind fuse with rated breaking capacities of not less than 6KA is intended for protecting power-frequency A.C. circuits of nominal voltages not exceeding 1000V or D.C. circuits of nominal voltages not exceeding 1500V.

此類型保險絲主要應用於電壓不超過1000V的交流電路或電壓不超過1500V的直流電路，且其額定分斷能力不小於6kV。

Rated Voltage / 額定電壓

IEC requires AC voltage tests to be performed at 110% of the rated voltage and power factors between 10 and 20 percent.

IEC規定熔斷器之交流電壓在額定電壓的110%
&功率因素10~20%條件下進行測試

UL requires all fuses should be tested at their rated voltage and power factors between 15 and 20 percent.

UL標準規定所有熔斷器在額定電壓測試須在
功率因素10~20%之條件下進行測試

Temperature Correction Curve Kc (Fig. 1) / 溫度係數Kc

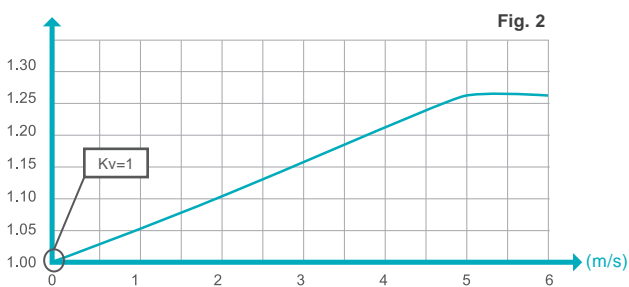
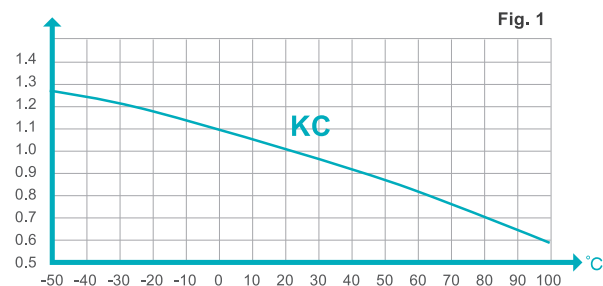
The rated current value of our fuses is based on the ambient temperature in the space below the fuse of 25°C up to 30°Cmax. The following graph gives correction factor Kc for a range of temperatures -50°C to +100°C.

熔斷器的額定電流定義環境溫度為25~30°C，於-50°C~+100°C之溫度曲線如Fig1

Forced Cooling Correction Coefficient Kv (Fig. 2) / 冷卻係數Kv

If forced air is used to cool the fuse in working, the continuous current rating of the fuse may be increased, by Multiplying the rated current by a coefficient Kv. The value of the correction coefficient please refer to following chart.

如採用風冷方式對工作中的熔斷器進行降溫，則熔斷器的額定電流值將會增加，冷卻條件係數Kv可進行額定電流值之修正。



Arc Voltage / 電弧電壓

When fuses fusing will appear arc voltage. The value of arc voltage pick will be the 2 times of the fault voltage(RMS), and the maximum will not exceed 2.5time. The pick value should not exceed of semiconductor announced.

熔斷器熔斷時將產生電弧電壓，電弧電壓峰值為故障電路電壓(RMS)的2倍，最高不超過2.5倍，不應超過半導體元件瞬態阻斷電壓。

Overload Current of Circuit Imax / 過載電流Imax

“Overload” is generally used for excess current flowing in the circuit which is electrically sound. Overload currents are usually not much greater than the normal full-load current of the system. As a rough rule, the overload current is less than 8 or 10 times the current rating.

過載主要針對於正常工作時電路中出現的過電流，一般過載電流並不會遠大於正常滿載電流，正常情況下，過載電流小於8~10倍的額定電流。

Total Clearing I²t / 熔斷能量I²t

The total clearing I2t at rated voltage and at power factor 15% are given in the electrical characteristics. Generally, total I2t including pre I²t and melting I²t.

總和熔斷能量是指額定電壓與功率因素15%的分斷電流(RMS)測試而得，總和熔斷能量包含弧前能量與熔斷能量。

Power Losses P / 功耗P

Watts losses at rated current is given in the electrical characteristics.

Different load current lead to different power losses through the correction factor due to the larger loading the higher resistance.

熔斷器的額定功耗是指在額定電流下的熔斷器功耗。

Short-Circuit Current Rating (SCCR) / 短路電流(SCCR)

SCCRs on components and equipment represent the maximum level of short-circuit current that the component of equipment can withstand and is used for determining compliance with NEC^R 110.10. This rating can be marked on individual components or assemblies.

根據NEC^R 110.10的規定，熔斷器和其他器件所表示的短路電流等級表示它所能夠承受的最大短路電流。

Fuses in Parallel / 並聯熔斷器

When fuses are in parallel, the current rating can be two times the current rating of one fuse in case of two fuses, but it becomes 90% the rating of 1 body multiplied by the number of fuses for 3 or more fuses in parallel once the following conditions are full filled: Distance between the two same length fuses must be 10mm at least but less than 30mm and keep the fuses' resistance within 5%.

當兩個熔斷器併聯，其額定電流能力為單顆熔斷器的2倍，當3個或以上熔斷器併聯，其單顆流通電流能力需為未併聯單顆熔斷器的90%，熔斷器併聯時，熔斷器安裝間距至少10mm但低於30mm，熔斷器冷電阻值差異小於5%。

AC Fuses in DC Circuits / 交流熔斷器用於直流電路中

If AC fuses are used in DC motor and the drive circuit The inductance in a DC circuit limits the rate of current rise. The time spent for the current to reach 63% of the final value is called the time constant, also referred to in terms of L/R. The dimensioning parameters will be the system DC-voltage, the minimum short-circuit current and associated maximum time constant(L/R). Many circuits have the time constant of between 10 ms and 20 ms and IEC specifications require testing between these values.

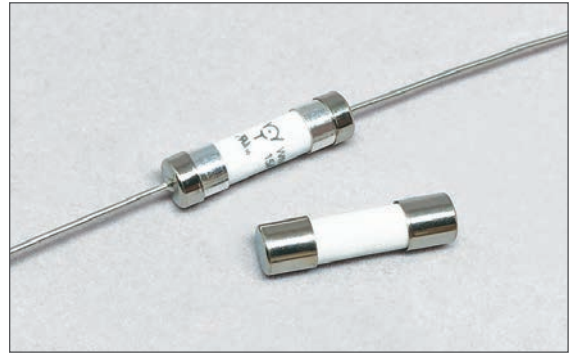
如果交流熔斷器使用在直流電機或直流驅動電路中，直流電路中產生的電感會抑制電流提升值；電流變化至最大終值的63%所消耗時間的對應值稱為時間常數(L/R)，電路中的直流電壓與短路電流皆會影響其時間常數；多數電路中的時間常數為10~20毫秒，此為IEC規範中要求測試的數據。

Selection Criteria of a Semiconductor Fuse / 半導體保險絲選型參考

- Voltage Rating / 額定電壓: Vfuse > Vfault
- Current Rating / 額定電流: Ifuse > Irms
- Total Clearing I²t / 總和I²t: I²t total < I²t semiconductor
- Interrupting / 分斷能力: BCfuse > BCfault
- Arc Voltage / 電弧電壓: Varc fuse < Varc semiconductor

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~600mA	100%	4 Hrs Min. / 最短4小時
1A~20A		4 Hrs Min. / 最短4小時
200mA~600mA	200%	-
1A~20A		120s Max. / 最長120秒
200mA~600mA	400%	120s Max. / 最長120秒
1A~20A		-

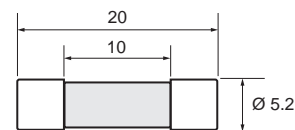


Product Features / 產品特性

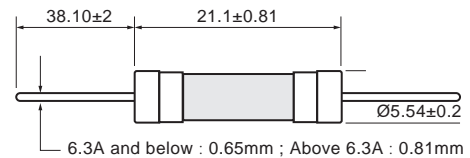
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍 : -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度 : 260±3°C Max Solder dwell time / 焊接時間 : 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度 : 350±5°C Heating time / 焊接時間 : 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WN10-XXX



WN10-XXX-P

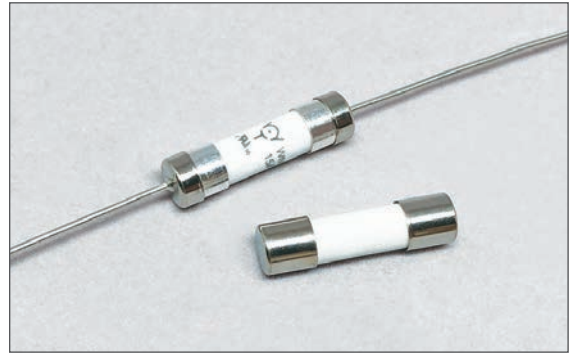


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WN10	WN10-XXX	WN10-XXX-P				
	WN10-0.2	WN10-0.2-P	200mA	600VAC / 1000A	●	
	WN10-0.4	WN10-0.4-P	400mA		●	
	WN10-0.5	WN10-0.5-P	500mA		●	
	WN10-0.6	WN10-0.6-P	600mA		●	
	WN10-1	WN10-1-P	1A		●	●
	WN10-1.6	WN10-1.6-P	1.6A	600VAC / 200A	●	●
	WN10-2	WN10-2-P	2A		●	●
	WN10-2.5	WN10-2.5-P	2.5A		●	●
	WN10-3.15	WN10-3.15-P	3.15A		●	●
	WN10-4	WN10-4-P	4A		●	●
	WN10-5	WN10-5-P	5A		●	●
	WN10-6	WN10-6-P	6A		●	●
	WN10-6.3	WN10-6.3-P	6.3A		●	●
	WN10-8	WN10-8-P	8A		●	●
	WN10-10	WN10-10-P	10A		●	●
	WN10-12	WN10-12-P	12A		●	●
	WN10-15	WN10-15-P	15A		●	●
WN10-20	WN10-20-P	20A	●		●	

I-T Characteristics / 時間-電流特性

Rated Current 額定電流	1.5In	2.1In	2.75In	3.0In	4.0In	10.0In
<1A	1 Hrs Min.	-	-	120s Max.	-	-
1A - 3.15A	1 Hrs Min.	30min Max.	750ms~80s	-	95ms~5s	10ms~150ms
4A - 6.3A	1 Hrs Min.	30min Max.	750ms~80s	-	150ms~5s	10ms~150ms
8A - 20A	30min Min.	30min Max.	750ms~80s	-	150ms~8s	10ms~150ms

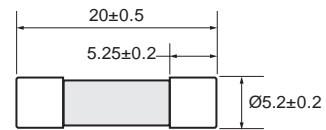


Product Features / 產品特性

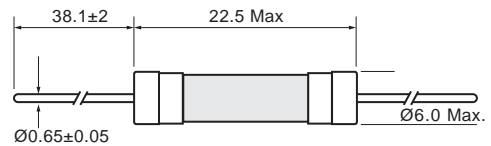
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WN20-XXX(-H)



WN20-XXX-P(-H)



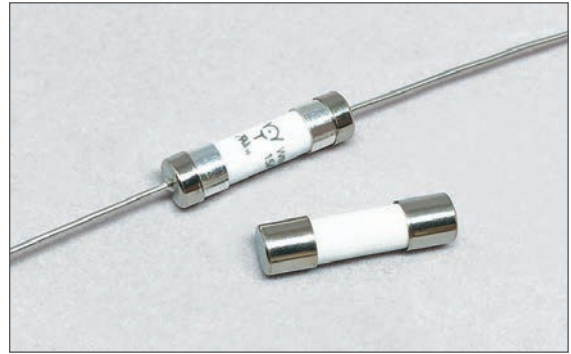
6.3A and below : 0.65mm ; Above 6.3A : 0.81mm

Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號				Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WN20	WN20-XXX	WN20-XXX-P	WN20-XXX-H	WN20-XXX-H-P				
	WN20-0.5	WN20-0.5-P	-	-	500mA	600VAC / 200A 500VDC / 300A 400VDC / 2000A	●	
	WN20-0.63	WN20-0.63-P	-	-	630mA		●	
	WN20-0.8	WN20-0.8-P	-	-	800mA		●	
	WN20-1	WN20-1-P	-	-	1A		●	●
	WN20-1.25	WN20-1.25-P	-	-	1.25A		●	●
	WN20-1.6	WN20-1.6-P	-	-	1.6A		●	●
	WN20-2	WN20-2-P	WN20-2-H	WN20-2-H-P	2A		●	●
	WN20-2.5	WN20-2.5-P	-	-	2.5A		●	●
	WN20-3.15	WN20-3.15-P	WN20-3.15-H	WN20-3.15-H-P	3.15A		●	●
	WN20-4	WN20-4-P	WN20-4-H	WN20-4-H-P	4A		●	●
	WN20-5	WN20-5-P	WN20-5-H	WN20-5-H-P	5A		●	●
	WN20-6	WN20-6-P	-	-	6A		●	●
	WN20-6.3	WN20-6.3-P	WN20-6.3-H	WN20-6.3-H-P	6.3A	●	●	
	WN20-8	WN20-8-P	WN20-8-H	WN20-8-H-P	8A	●	●	
	WN20-10	WN20-10-P	-	-	10A	●	●	
	WN20-12	WN20-12-P	-	-	12A	●	●	
	WN20-15	WN20-15-P	-	-	15A	600VAC / 200A 500VDC / 300A	●	●
WN20-16	WN20-16-P	-	-	16A	●		●	
WN20-20	WN20-20-P	-	-	20A	●		●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~600mA	100%	4 Hrs Min. / 最短4小時
1A~20A		4 Hrs Min. / 最短4小時
200mA~600mA	200%	-
1A~20A		120s Max. / 最長120秒
200mA~600mA	400%	120s Max. / 最長120秒
1A~20A		-

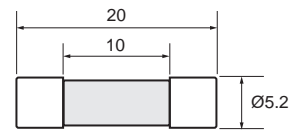


Product Features / 產品特性

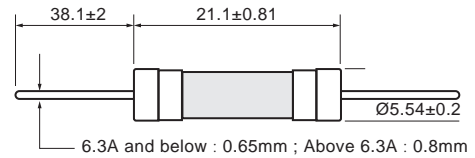
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WN30-XXX



WN30-XXX-P

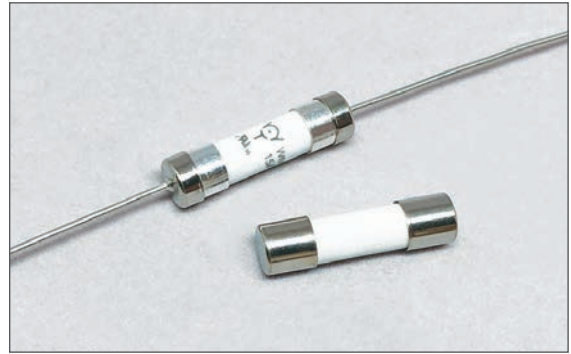


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WN30	WN30-XXX	WN30-XXX-P				
	WN30-0.2	WN30-0.2-P	200mA	500VDC / 300A 400VDC / 2000A	●	
	WN30-0.4	WN30-0.4-P	400mA		●	
	WN30-0.5	WN30-0.5-P	500mA		●	
	WN30-0.6	WN30-0.6-P	600mA		●	●
	WN30-1	WN30-1-P	1A		●	●
	WN30-1.25	WN30-1.25-P	1.25A	500VDC / 300A	●	●
	WN30-1.6	WN30-1.6-P	1.6A		●	●
	WN30-2.5	WN30-2.5-P	2.5A		●	●
	WN30-10	WN30-10-P	10A		●	●
	WN30-12	WN30-12-P	12A		●	●
	WN30-15	WN30-15-P	15A		●	●
	WN30-20	WN30-20-P	20A		●	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
25A	100%	4 Hrs Min. / 最短4小時
	200%	120s Max. / 最長120秒

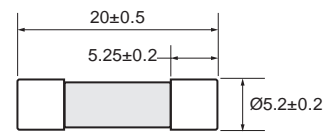


Product Features / 產品特性

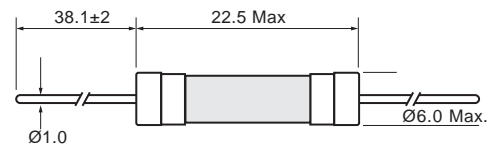
Operating Temperature 操作溫度	<p>Operating temperature / 操作溫度範圍: -40°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。</p>
Storage Conditions 儲存條件	<p>Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。</p>
Installation Way & Parameters 安裝方式及條件	<p>Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max</p>
	<p>Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max</p>

Dimensions / 尺寸圖 (Unit / 單位:mm)

WN40-XXX



WN40-XXX-P

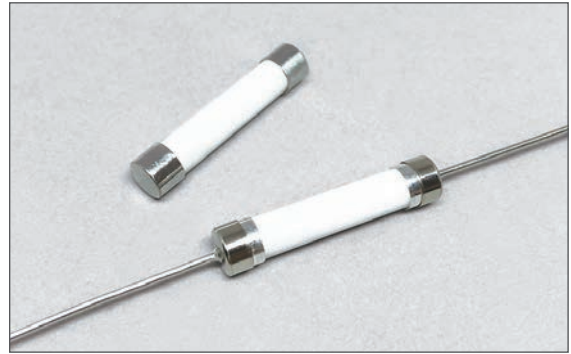


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WN40	WN40-XXX	WN40-XXX-P			
	WN40-25	WN40-25-P	25A	300VAC / 300A 300VDC / 300A	●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~12A	100%	4 Hrs Min. / 最短4小時
	250%	120s Max. / 最長120秒

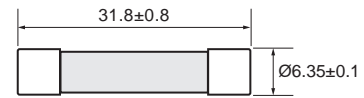


Product Features / 產品特性

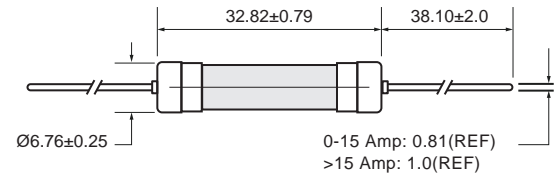
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WM10-XXX



WM10-XXX-P



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WM10	WM10-XXX	WM10-XXX-P				
		WM10-0.2	WM10-0.2-P	200mA	600VAC / 10KA 600VDC / 10KA	●
		WM10-0.25	WM10-0.25-P	250mA		●
		WM10-0.4	WM10-0.4-P	400mA		●
		WM10-0.5	WM10-0.5-P	500mA		●
		WM10-0.6	WM10-0.6-P	600mA		●
		WM10-1	WM10-1-P	1A		●
		WM10-1.25	WM10-1.25-P	1.25A		●
		WM10-1.6	WM10-1.6-P	1.6A		●
		WM10-2	WM10-2-P	2A		●
		WM10-2.5	WM10-2.5-P	2.5A		●
		WM10-3	WM10-3-P	3A		●
		WM10-3.15	WM10-3.15-P	3.15A		●
		WM10-4	WM10-4-P	4A		●
		WM10-5	WM10-5-P	5A		●
		WM10-6	WM10-6-P	6A		●
	WM10-8	WM10-8-P	8A	●		
	WM10-10	WM10-10-P	10A	●		
	WM10-12	WM10-12-P	12A	●		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~3A	100%	4 Hrs Min. / 最短4小時
	250%	120s Max. / 最長120秒

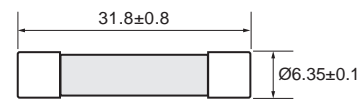


Product Features / 產品特性

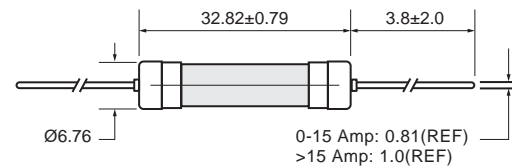
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WM20-XXX



WM20-XXX-P

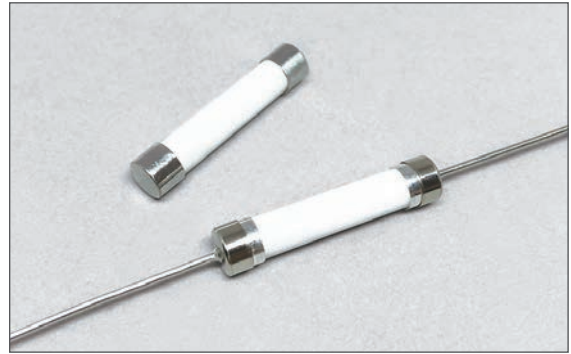


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM20	WM20-XXX	WM20-XXX-P			
	WM20-0.2	WM20-0.2-P	200mA	1000VAC / 10KA 1000VDC / 10KA	●
	WM20-0.25	WM20-0.25-P	250mA		●
	WM20-0.315	WM20-0.315-P	400mA		●
	WM20-0.4	WM20-0.4-P	500mA		●
	WM20-0.5	WM20-0.5-P	600mA		●
	WM20-0.6	WM20-0.6-P	1A		●
	WM20-1	WM20-1-P	1.25A		●
	WM20-1.25	WM20-1.25-P	1.6A		●
	WM20-1.6	WM20-1.6-P	2A		●
	WM20-2	WM20-2-P	2.5A		●
WM20-2.5	WM20-2.5-P	3A	●		
WM20-3	WM20-3-P	3.15A	●		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200mA~30A	100%	4 Hrs Min. / 最短4小時
	250%	120s Max. / 最長120秒

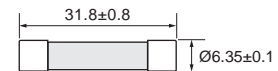


Product Features / 產品特性

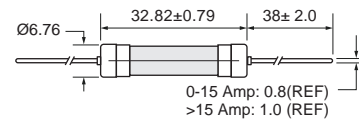
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

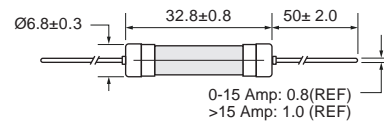
WM30-XXX



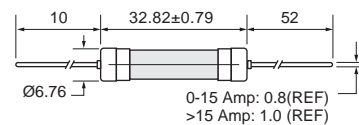
WM30-XXX-P



WM30-XXX-P-L



WM30-XXX-P-SXL



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM30	WM30-XXX	WM30-XXX-P (-P-L / -P-SXL)		660VAC / 1000A 660VDC / 1000A	
	WM30-0.2	WM30-0.2-P (-P-L / -P-SXL)	200mA		
	WM30-0.25	WM30-0.25-P (-P-L / -P-SXL)	250mA		
	WM30-0.315	WM30-0.315-P (-P-L / -P-SXL)	315mA		
	WM30-0.4	WM30-0.4-P (-P-L / -P-SXL)	400mA		
	WM30-0.5	WM30-0.5-P (-P-L / -P-SXL)	500mA		
	WM30-0.6	WM30-0.6-P (-P-L / -P-SXL)	600mA		
	WM30-0.8	WM30-0.8-P (-P-L / -P-SXL)	800mA		
	WM30-1	WM30-1-P (-P-L / -P-SXL)	1A		
	WM30-1.25	WM30-1.25-P (-P-L / -P-SXL)	1.25A		
	WM30-1.6	WM30-1.6-P (-P-L / -P-SXL)	1.6A		
	WM30-2	WM30-2-P (-P-L / -P-SXL)	2A		
	WM30-2.5	WM30-2.5-P (-P-L / -P-SXL)	2.5A		
	WM30-3	WM30-3-P (-P-L / -P-SXL)	3A		
	WM30-3.15	WM30-3.15-P (-P-L / -P-SXL)	3.15A		
	WM30-4	WM30-4-P (-P-L / -P-SXL)	4A		
	WM30-5	WM30-5-P (-P-L / -P-SXL)	5A		
	WM30-6	WM30-6-P (-P-L / -P-SXL)	6A		
	WM30-8	WM30-8-P (-P-L / -P-SXL)	8A		
	WM30-10	WM30-10-P (-P-L / -P-SXL)	10A		
WM30-12	WM30-12-P (-P-L / -P-SXL)	12A			
WM30-12.5	WM30-12.5-P (-P-L / -P-SXL)	12.5A			
WM30-15	WM30-15-P (-P-L / -P-SXL)	15A			
WM30-16	WM30-16-P (-P-L / -P-SXL)	16A			
WM30-20	WM30-20-P (-P-L / -P-SXL)	20A			
WM30-25	WM30-25-P (-P-L / -P-SXL)	25A			
WM30-30	WM30-30-P (-P-L / -P-SXL)	30A			

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
15A~30A	200%	5 min Max. / 最長5分鐘
	300%	10s Max. / 最長10秒

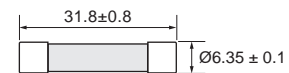


Product Features / 產品特性

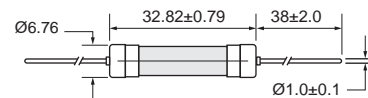
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

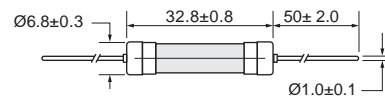
WM40-XXX



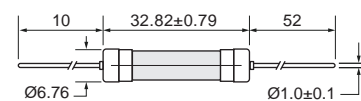
WM40-XXX-P



WM40-XXX-P-L



WM40-XXX-P-SXL

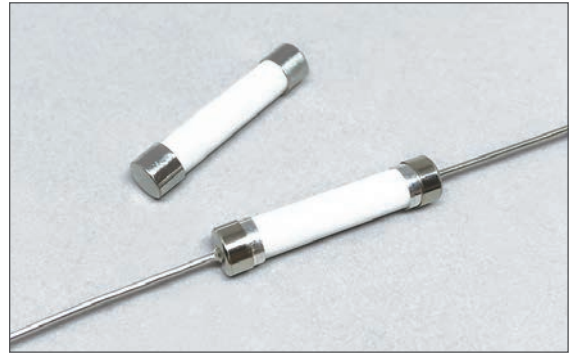


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM40	WM40-XXX	WM40-XXX-P (-P-L / -P-SXL)			
	WM40-15	WM40-15-P (-P-L / -P-SXL)	15A	660VAC / 1000A 660VDC / 1000A	●
	WM40-16	WM40-16-P (-P-L / -P-SXL)	16A		●
	WM40-20	WM40-20-P (-P-L / -P-SXL)	20A		●
	WM40-25	WM40-25-P (-P-L / -P-SXL)	25A		●
	WM40-30	WM40-30-P (-P-L / -P-SXL)	30A		●

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
10A-25A	200%	5 min Max. / 最長5分鐘
30A		-
10A-25A	250%	-
30A		2 min Max. / 最長2分鐘
10A-25A	300%	10s Max. / 最長10秒
30A		-

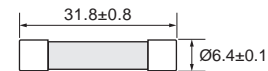


Product Features / 產品特性

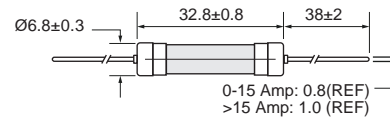
Operating Temperature 操作溫度	<p>Operating temperature / 操作溫度範圍: -50°C~125°C</p> <p>When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses.</p> <p>若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。</p>
Storage Conditions 儲存條件	<p>Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years.</p> <p>在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。</p> <p>Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days.</p> <p>在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。</p>
Installation Way & Parameters 安裝方式及條件	<p>Wave soldering parameters / 波峰焊</p> <p>Solder pot temperature / 錫爐溫度: 260±3°C Max</p> <p>Solder dwell time / 焊接時間: 10s Max</p> <hr/> <p>Hand welding parameters / 手工焊</p> <p>Solder iron temperature / 烙鐵溫度: 350±5°C</p> <p>Heating time / 焊接時間: 5s Max</p>

Dimensions / 尺寸圖 (Unit / 單位:mm)

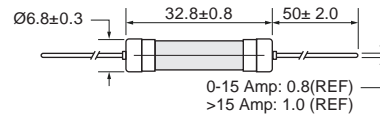
WM45-XXX



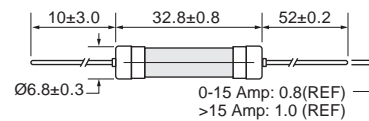
WM45-XXX-P



WM45-XXX-P-L



WM45-XXX-P-SXL

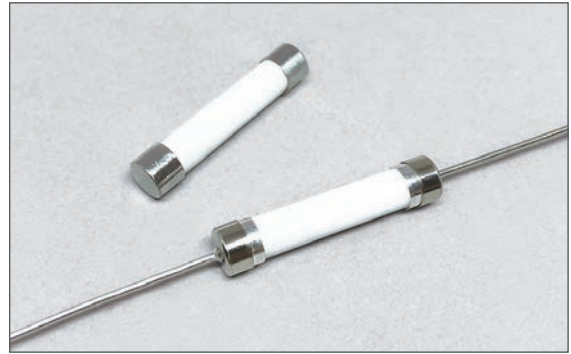


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM45	WM45-XXX	WM45-XXX-P (-P-L / -P-SXL)			
	WM45-10	WM45-10-P (-P-L / -P-SXL)	10A	500VAC / 1000A 500VDC / 1000A	●
	WM45-12	WM45-12-P (-P-L / -P-SXL)	12A		●
	WM45-15	WM45-15-P (-P-L / -P-SXL)	15A		●
	WM45-16	WM45-16-P (-P-L / -P-SXL)	16A		●
	WM45-20	WM45-20-P (-P-L / -P-SXL)	20A		●
	WM45-25	WM45-25-P (-P-L / -P-SXL)	25A		●
WM45-30	WM45-30-P (-P-L / -P-SXL)	30A	●		

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
40A / 50A	100%	4 Hrs Min. / 最短4小時
	250%	120s Max. / 最長120秒

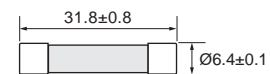


Product Features / 產品特性

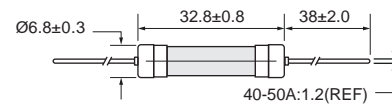
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -40°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

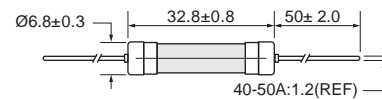
WM55-XXX



WM55-XXX-P



WM55-XXX-P-L

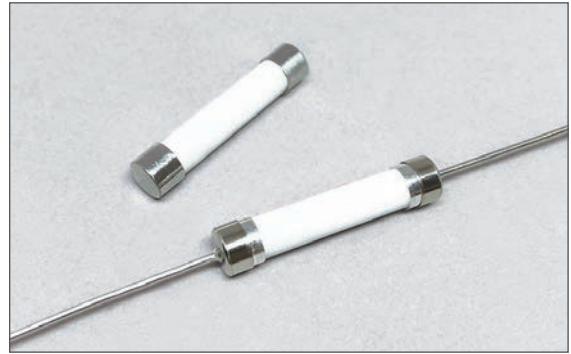


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號			Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM55	WM50-XXX	WM55-XXX-P	WM55-XXX-P-L			
	WM55-40	WM55-40-P	WM55-40-P-L	40A	250VAC / 1000A	
	WM55-50	WM55-50-P	WM55-50-P-L	50A	150VDC / 1000A	

I-T Characteristics / 時間-電流特性

% of Ampere Rating 額定電流%	Opening Time 熔斷時間
150%	30 min Max. / 最長30分鐘
200%	5 min Max. / 最長5分鐘
300%	10s Max. / 最長10秒

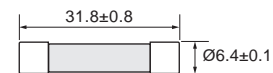


Product Features / 產品特性

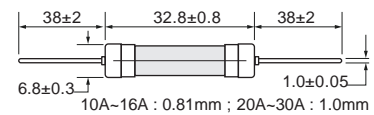
Operating Temperature 操作溫度	<p>Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。</p>
Storage Conditions 儲存條件	<p>Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。</p>
Installation Way & Parameters 安裝方式及條件	<p>Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max</p>
	<p>Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max</p>

Dimensions / 尺寸圖 (Unit / 單位:mm)

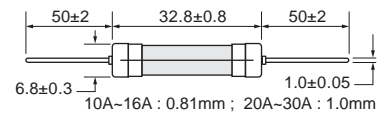
MHC-XXX



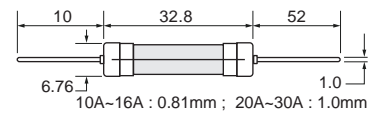
MHP-XXX



MHP-XXX-L



MHP-XXX-SXL

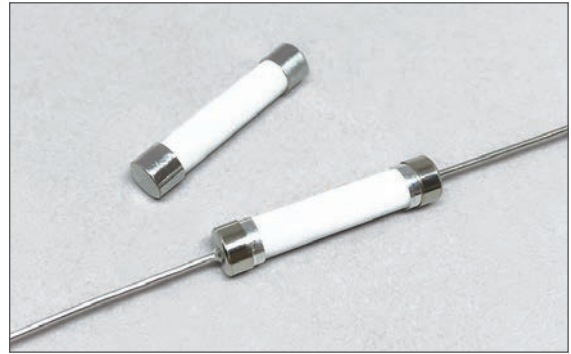


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
MHC MHP	MHC-XXX	MHP-XXX (-L / -SXL)				
	MHC-10	MHP-10 (-L / -SXL)	10A	500VAC / 30KA 500VDC / 20KA	●	●
	MHC-12	MHP-12 (-L / -SXL)	12A		●	●
	MHC-15	MHP-15 (-L / -SXL)	15A		●	●
	MHC-16	MHP-16 (-L / -SXL)	16A		●	●
	MHC-20	MHP-20 (-L / -SXL)	20A		●	●
	MHC-25	MHP-25 (-L / -SXL)	25A		●	●
MHC-30	MHP-30 (-L / -SXL)	30A	●		●	

I-T Characteristics / 時間-電流特性

Ampere Rating 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
5A~25A	100%	4 Hrs Min. / 最短4小時
30A~50A		4 Hrs Min. / 最短4小時
5A~25A	150%	1 Hrs Max. / 最長1小時
30A~50A		-
5A~25A	200%	120s Max. / 最長120秒
30A~50A		120s Max. / 最長120秒

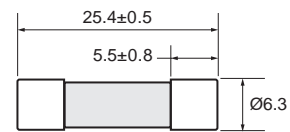


Product Features / 產品特性

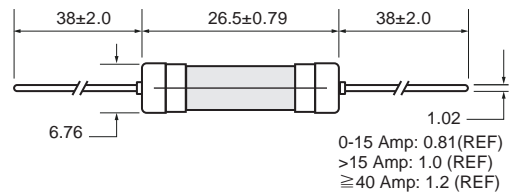
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WM70-XXX



WM70-XXX-P

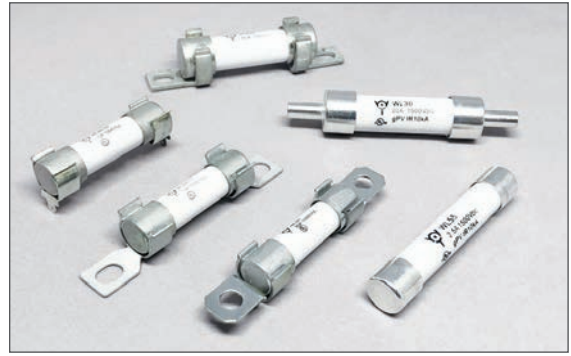


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WM70	WM70-XXX	WM70-XXX-P		75VDC / 2500A	
	WM70-5	WM70-5-P	5A		
	WM70-6	WM70-6-P	6A		
	WM70-10	WM70-10-P	10A		
	WM70-15	WM70-15-P	15A		
	WM70-20	WM70-20-P	20A		
	WM70-25	WM70-25-P	25A		
	WM70-30-ZG	WM70-30-ZG-P	30A		
	WM70-40-ZG	WM70-40-ZG-P	40A		
WM70-50-ZG	WM70-50-ZG-P	50A			

I-T Characteristics / 時間-電流特性

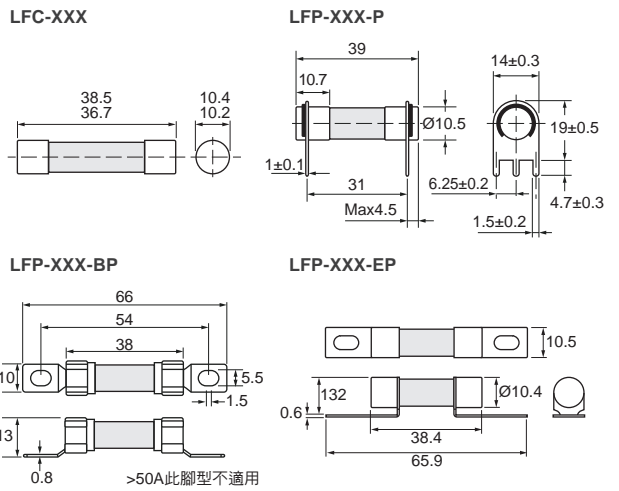
% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200%	2 min Max. / 最長2分鐘



Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

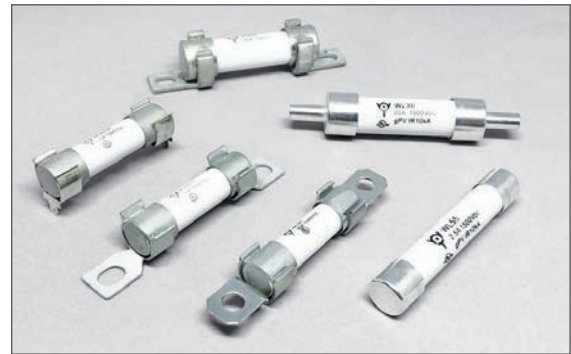


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號				Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
LFC LFP	LFC-XXX	LFC-XXX-P	LFP-XXX-BP	LFP-XXX-EP			
	LFC-31.5	LFC-31.5-P	LFP-31.5-BP	-	31.5A	500VAC / 1500A 125VDC / 1500A	●
	LFC-32	LFC-32-P	LFP-32-BP	-	32A		●
	LFC-40	LFC-40-P	LFP-40-BP	-	40A		●
	LFC-50	LFC-50-P	LFP-50-BP	-	50A	250VAC / 2500A 125VDC / 1500A	●
	LFC-63	LFC-63-P	-	-	63A		●
	LFC-80	LFC-80-P	-	-	80A		●
	-	-	-	LFP-63-EP	63A		●
-	-	-	LFP-80-EP	80A			

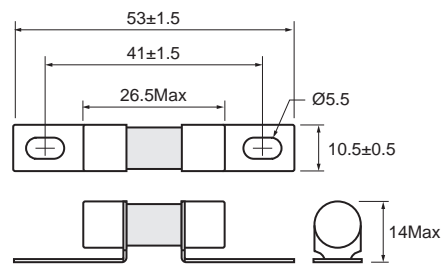
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WL12-XXX-EP

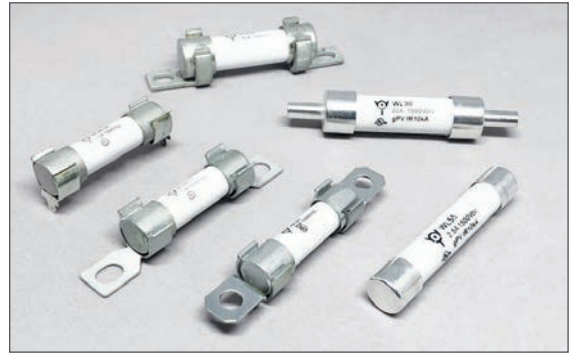


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力
WL12	WL12-XXX-EP		150VDC / 20KA
	WL12-40-EP	40A	
	WL12-50-EP	50A	
	WL12-63-EP	63A	
	WL12-80-EP	80A	

I-T Characteristics / 時間-電流特性

% of Ampere Rating 額定電流%	Opening Time 熔斷時間
100%	4 Hrs Min. / 最短4小時
135%	1 Hrs Max. / 最長1小時
200%	120s Max. / 最長120秒

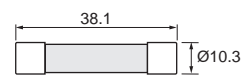


Product Features / 產品特性

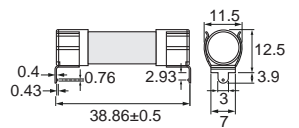
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

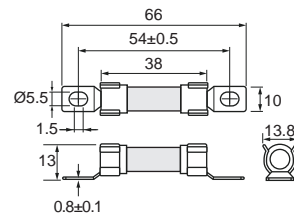
WL25-XXX



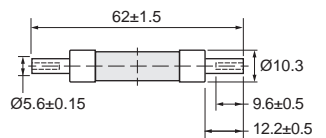
WL25-XXX-P1



WL25-XXX-BP



WL25-XXX-I



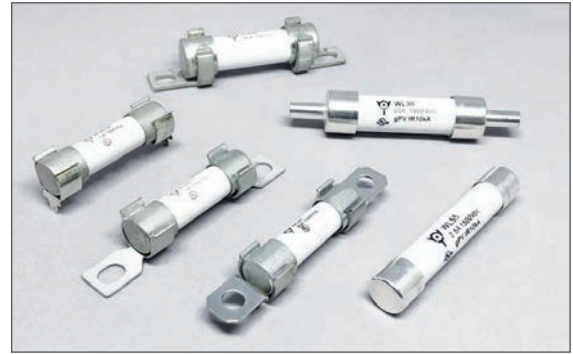
For 10-12AWG (6-4mm²);
Recommended Crimping Tool:
T&B Sta-Kon ERG4002 or equivalent

Electrical Characteristics / 電氣特性

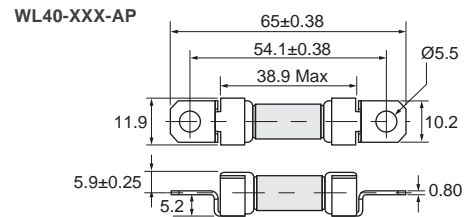
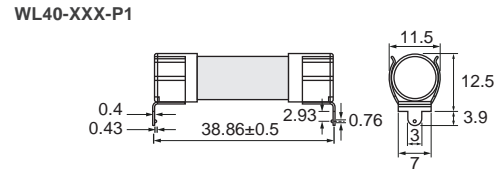
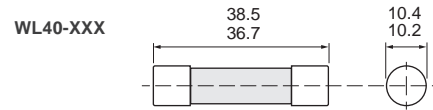
Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WL25	WL25-XXX	WL25-XXX-BP (-I / -P1)			UL [®] US
	WL25-2	WL25-2-BP (-I / -P1)	2A	600VAC / 50KA 600VDC / 50KA	●
	WL25-3	WL25-3-BP (-I / -P1)	3A		●
	WL25-4	WL25-4-BP (-I / -P1)	4A		●
	WL25-5	WL25-5-BP (-I / -P1)	5A		●
	WL25-6	WL25-6-BP (-I / -P1)	6A		●
	WL25-8	WL25-8-BP (-I / -P1)	8A		●
	WL25-10	WL25-10-BP (-I / -P1)	10A		●
	WL25-12	WL25-12-BP (-I / -P1)	12A		●
	WL25-15	WL25-15-BP (-I / -P1)	15A		●
	WL25-20	WL25-20-BP (-I / -P1)	20A		●
WL25-25	WL25-25-BP (-I / -P1)	25A	●		
WL25-30	WL25-30-BP (-I / -P1)	30A	●		

Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺柱安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

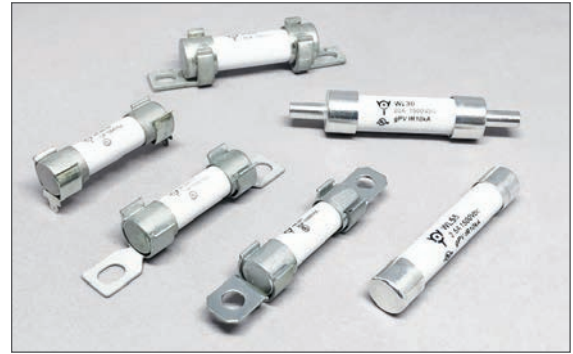


Electrical Characteristics / 電氣特性

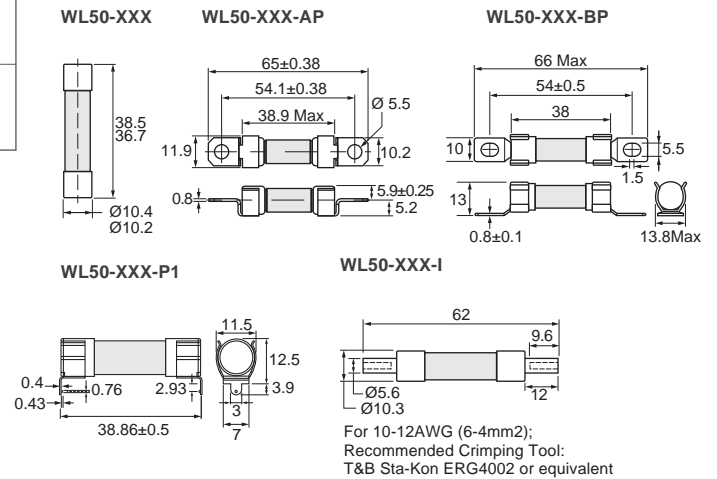
Type 品名	Ordering P / N 料號			Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WL40	WL40-XXX	WL40-XXX-P1	WL40-XXX-AP			
	WL40-0.44	WL40-0.44-P1	WL40-0.44-AP	440mA	1000VAC / 30KA 1000VDC / 30KA	●
	WL40-0.5	WL40-05-P1	WL40-05-AP	500mA		●
	WL40-1	WL40-1-P1	WL40-1-AP	1A		●
	WL40-2	WL40-2-P1	WL40-2-AP	2A		●
	WL40-4	WL40-4-P1	WL40-4-AP	4A		●
	WL40-10	WL40-10-P1	WL40-10-AP	10A		●
	WL40-11	WL40-11-P1	WL40-11-AP	11A		●
	WL40-12	WL40-12-P1	WL40-12-AP	12A		●
WL40-15	WL40-15-P1	WL40-15-AP	15A	●		

Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

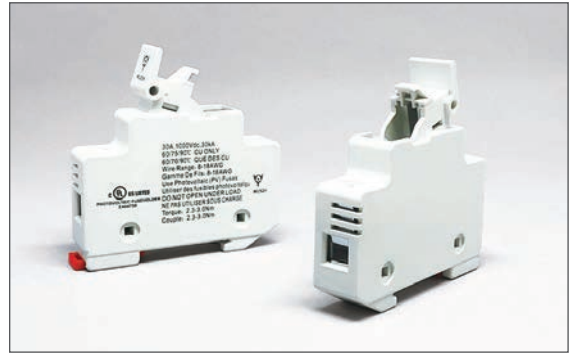


Electrical Characteristics / 電氣特性

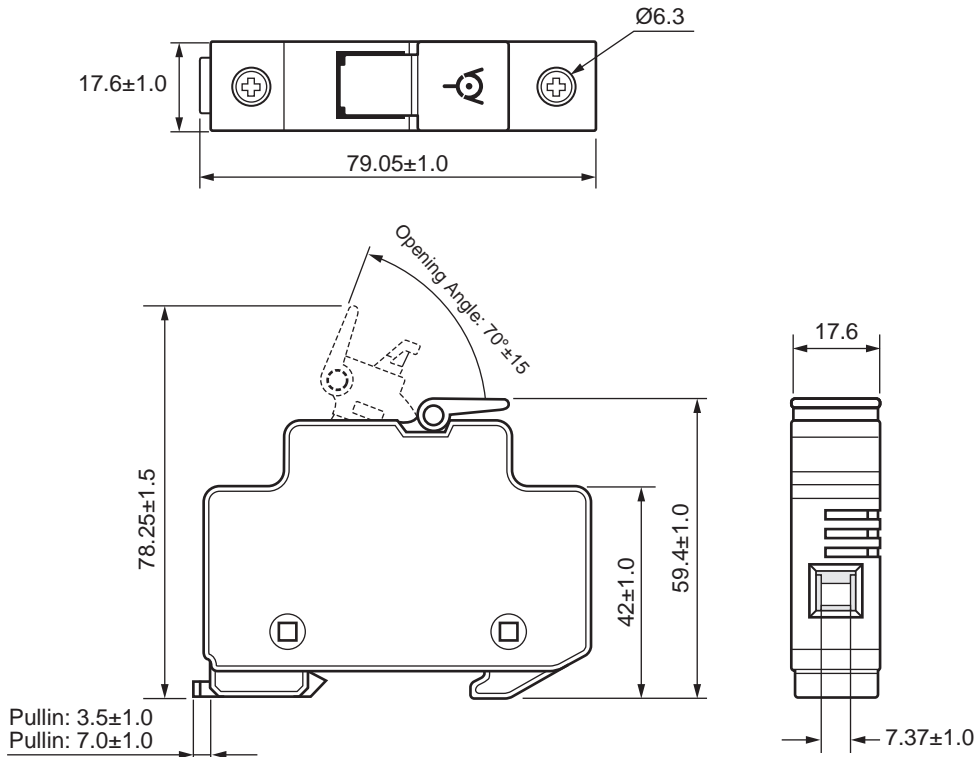
Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WL50	WL50-XXX	WL50-XXX-AP (-BP / -P1 / -I)			UL
	WL50-1	WL50-1-AP (-BP / -P1 / -I)	1A	1000VDC / 30KA	●
	WL50-2	WL50-2-AP (-BP / -P1 / -I)	2A		●
	WL50-3	WL50-3-AP (-BP / -P1 / -I)	3A		●
	WL50-3.5	WL50-3.5-AP (-BP / -P1 / -I)	3.5A		●
	WL50-4	WL50-4-AP (-BP / -P1 / -I)	4A		●
	WL50-5	WL50-5-AP (-BP / -P1 / -I)	5A		●
	WL50-6	WL50-6-AP (-BP / -P1 / -I)	6A		●
	WL50-8	WL50-8-AP (-BP / -P1 / -I)	8A		●
	WL50-10	WL50-10-AP (-BP / -P1 / -I)	10A		●
	WL50-12	WL50-12-AP (-BP / -P1 / -I)	12A		●
	WL50-15	WL50-15-AP (-BP / -P1 / -I)	15A		●
	WL50-16	WL50-16-AP (-BP / -P1 / -I)	16A		●
	WL50-20	WL50-20-AP (-BP / -P1 / -I)	20A		●
WL50-25	WL50-25-AP (-BP / -P1 / -I)	25A	●		
WL50-30	WL50-30-AP (-BP / -P1 / -I)	30A	●		

Product Features / 產品特性

Fuse 對應保險絲	10x38 mm Cylindrical Fuse
Terminal Rating 端子強度	Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar ; Single and Dual Wire ; 75°C and 90°C Cu wire
Voltage & Current & SCCR Rating 最大電壓電流 & 短路電流等級	1000VDC@30KA ,30A max 1100VDC@30KA, 30A max 600VAC@50KA, 32A max 500VAC@10KA, 40A max 500VDC@20KA, 40A max
Wire Range 線徑	#18 to #8 (0.8mm ² to 8.4mm ²)
Torque Ratings 扭矩強度	26.7 Lb-In (3.0N-m) Maximum
Flammability Ratings 防火等級	UL 94-V0, Self-extinguishing
Storage & Operating Temperature Range 儲存與操作溫度範圍	-20°C to +120°C (It's not recommended, but the holder will work well under -40°C without damage)

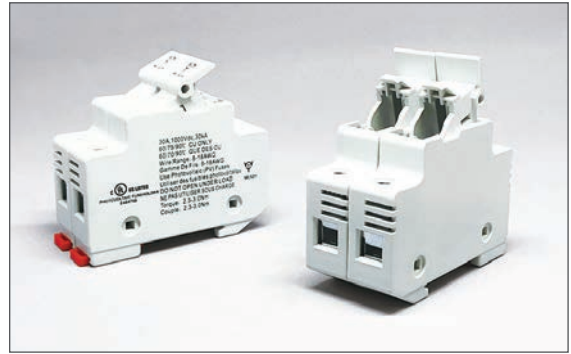


Dimensions / 尺寸圖 (Unit / 單位:mm)

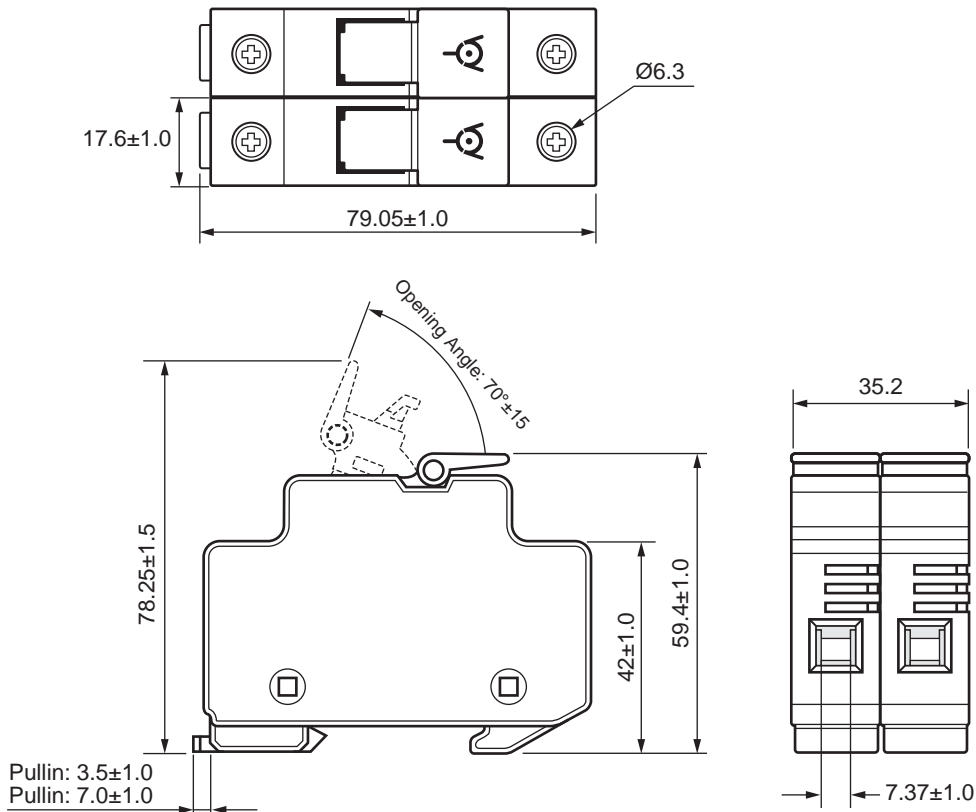


Product Features / 產品特性

Fuse 對應保險絲	10x38 mm Cylindrical Fuse
Terminal Rating 端子強度	Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar ; Single and Dual Wire ; 75°C and 90°C Cu wire
Voltage & Current & SCCR Rating 最大電壓電流 & 短路電流等級	1000VDC@30KA ,30A max 1100VDC@30KA, 30A max 600VAC@50KA, 32A max 500VAC@10KA, 40A max 500VDC@20KA, 40A max
Wire Range 線徑	#18 to #8 (0.8mm ² to 8.4mm ²)
Torque Ratings 扭矩強度	26.7 Lb-In (3.0N-m) Maximum
Flammability Ratings 防火等級	UL 94-V0, Self-extinguishing
Storage & Operating Temperature Range 儲存與操作溫度範圍	-20°C to +120°C (It's not recommended, but the holder will work well under -40°C without damage)

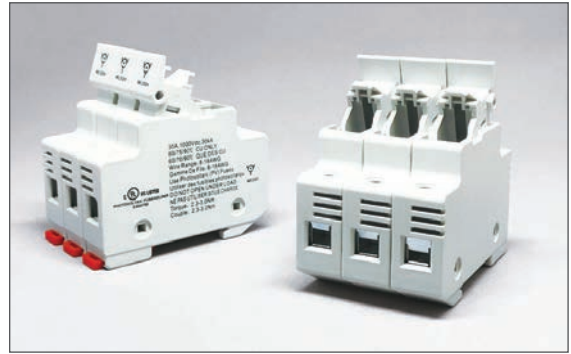


Dimensions / 尺寸圖 (Unit / 單位:mm)

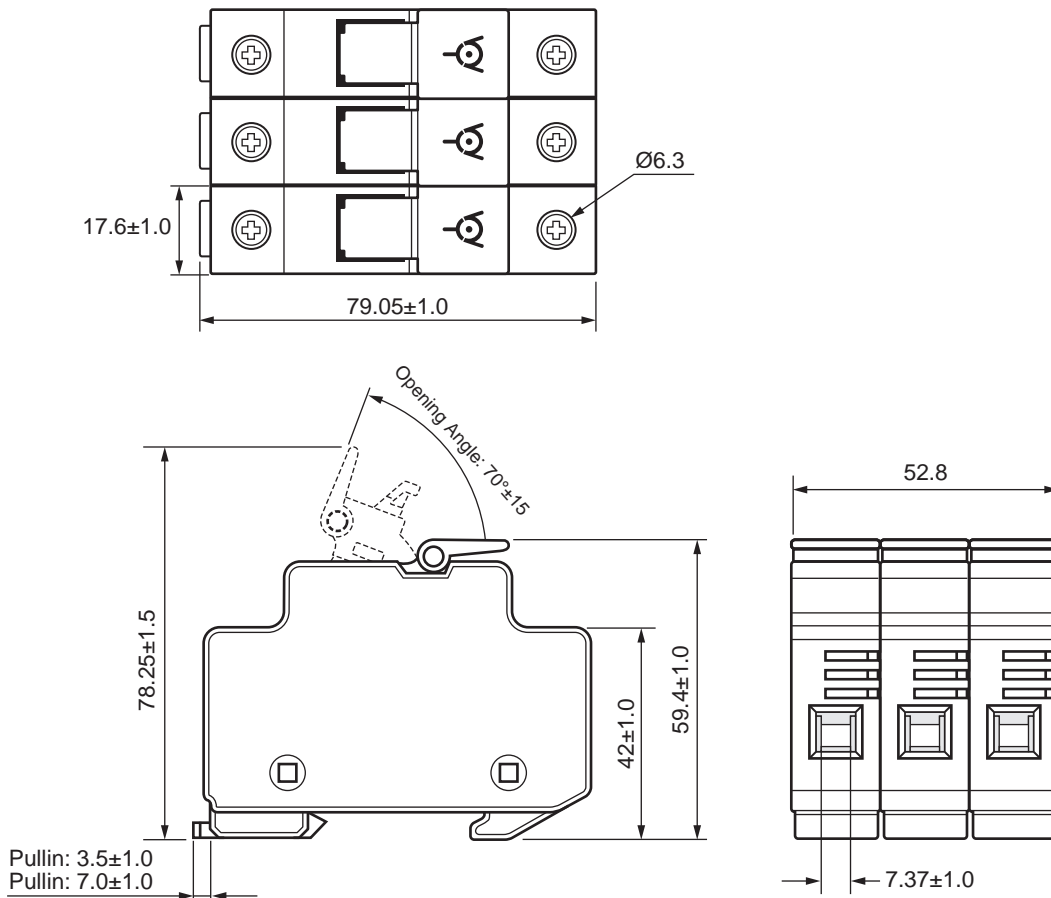


Product Features / 產品特性

Fuse 對應保險絲	10x38 mm Cylindrical Fuse
Terminal Rating 端子強度	Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar ; Single and Dual Wire ; 75°C and 90°C Cu wire
Voltage & Current & SCCR Rating 最大電壓電流 & 短路電流等級	1000VDC@30KA ,30A max 1100VDC@30KA, 30A max 600VAC@50KA, 32A max 500VAC@10KA, 40A max 500VDC@20KA, 40A max
Wire Range 線徑	#18 to #8 (0.8mm ² to 8.4mm ²)
Torque Ratings 扭矩強度	26.7 Lb-In (3.0N-m) Maximum
Flammability Ratings 防火等級	UL 94-V0, Self-extinguishing
Storage & Operating Temperature Range 儲存與操作溫度範圍	-20°C to +120°C (It's not recommended, but the holder will work well under -40°C without damage)

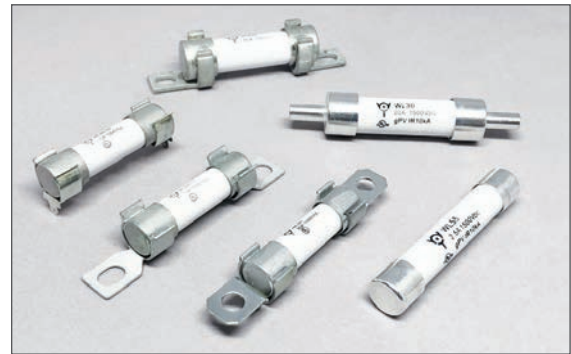


Dimensions / 尺寸圖 (Unit / 單位:mm)



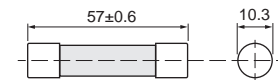
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max
	(Empty space for parameters)

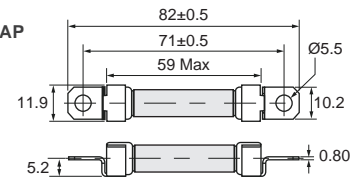


Dimensions / 尺寸圖 (Unit / 單位:mm)

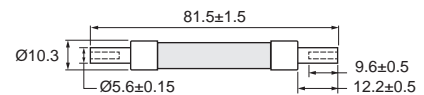
WL55-XXX



WL55P-XXX-AP



WL55P-XXX-I



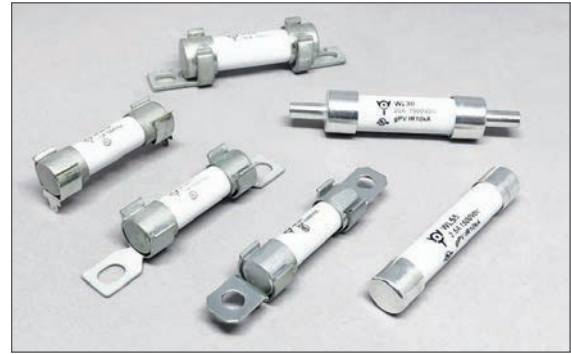
For 10-12AWG (6-4mm²); Recommended Crimping Tool: T&B Sta-Kon ERG4002 or equivalent

Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WL55 WL55P	WL55-XXX	WL55P-XXX-AP (-I)			cUL _{US}
	WL55-2.5	WL55P-2.5-AP (-I)	2.5A	1500VDC / 10KA 1500VDC / 20KA	●
	WL55-3	WL55P-3-AP (-I)	3A		●
	WL55-3.5	WL55P-3.5-AP (-I)	3.5A		●
	WL55-4	WL55P-4-AP (-I)	4A		●
WL55-6	WL55P-6-AP (-I)	6A	●		

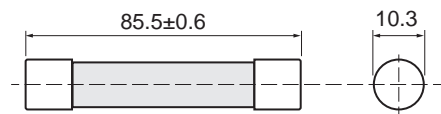
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max

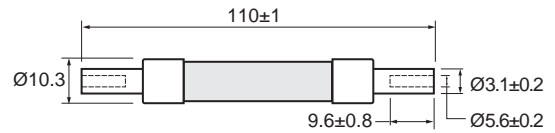


Dimensions / 尺寸圖 (Unit / 單位:mm)

WL60-XXX



WL60P-XXX-I



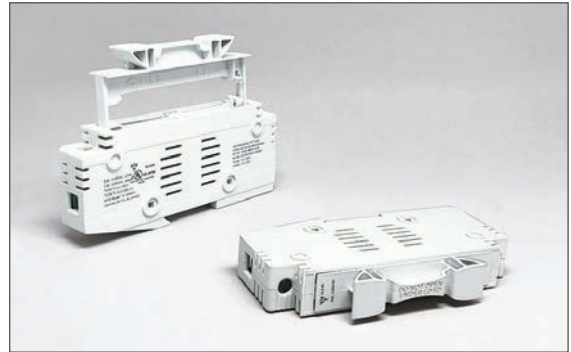
For 10-12AWG (6-4mm²); Recommended Crimping Tool: T&B Sta-Kon ERG4002 or equivalent

Electrical Characteristics / 電氣特性

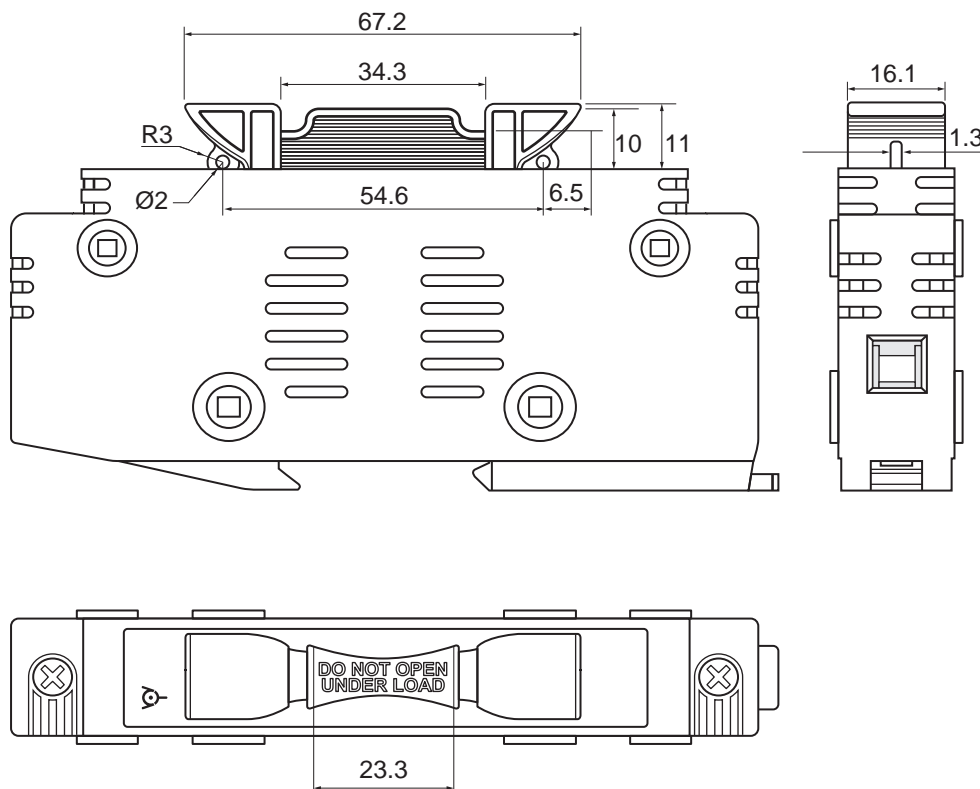
Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WL60 WL60P	WL60-XXX	WL60P-XXX-I			cUL _{US}
	WL60-2	WL60P-2-I	2A	1500VDC / 10KA 1500VDC / 20KA	●
	WL60-4	WL60P-4-I	4A		●
	WL60-10	WL60P-10-I	10A		●
	WL60-12	WL60P-12-I	12A		●
WL60-15	WL60P-15-I	15A	●		

Product Features / 產品特性

Fuse 對應保險絲	10x85mm Cylindrical Fuses
Voltage & Current 短路電流等級	1500VDC, 30A max
SCCR Rating 短路電流等級	30KA @ 1500VDC
Wire Range 線徑	AWG14 to AWG6
Flammability Ratings 防火等級	UL 94-V0

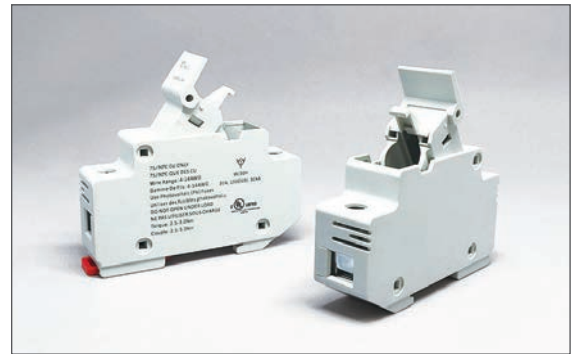


Dimensions / 尺寸圖 (Unit / 單位:mm)

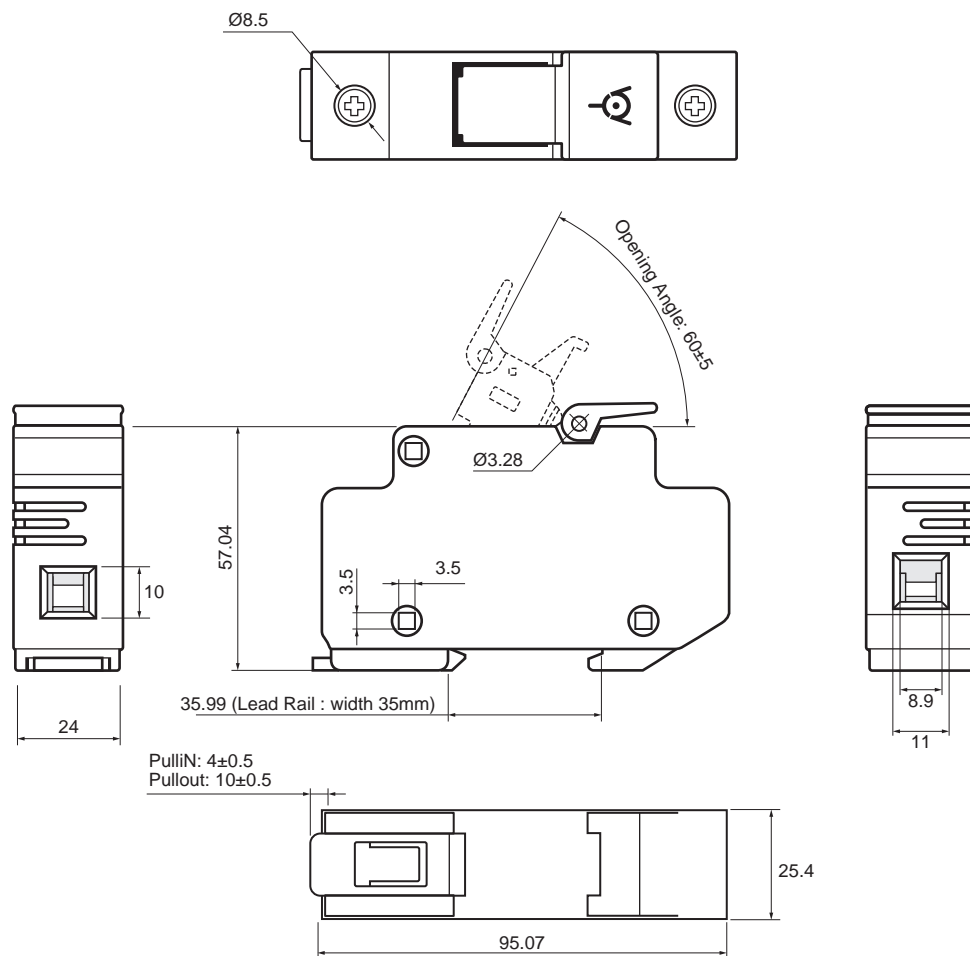


Product Features / 產品特性

Fuse 對應保險絲	14x51 mm Cylindrical Fuse
Terminal Rating 端子強度	Solid, Stranded, Fine Stranded, Spade Lug, Comb Bus Bar ; Single and Dual Wire ; 75°C and 90°C Cu wire
Voltage & Current 最大電壓電流	1500VDC, 30A max
SCCR Rating 短路電流等級	UL 10KA / 1500VDC
Wire Range 線徑	AWG14 to AWG4
Flammability Ratings 防火等級	UL 94-V0
Storage & Operating Temperature Range 儲存與操作溫度範圍	-20°C to +120°C (It's not recommended, but the holder will work well under -40°C without damage)



Dimensions / 尺寸圖 (Unit / 單位:mm)



I-T Characteristics / 時間-電流特性

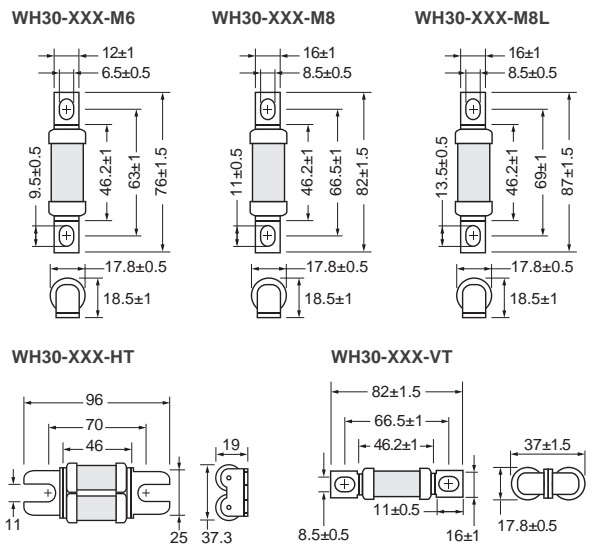
% of Ampere Rating 額定電流%	Opening Time 熔斷時間
200%	1s Min. / 最短1秒
	300s Max. / 最長300秒
300%	0.2s Min. / 最短0.2秒
	30s Max. / 最長30秒
500%	0.1s Min. / 最短0.1秒
	10s Max. / 最長10秒



Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密封條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WH30	WH30-XXX-M6 (-M8 / -M8L)	WH30-XXX-HT(-VT)	500VDC / 10KA	cUL [®] US	
	WH30-10-M6 (-M8 / -M8L)	-			10A
	WH30-15-M6 (-M8 / -M8L)	-			15A
	WH30-20-M6 (-M8 / -M8L)	-			20A
	WH30-25-M6 (-M8 / -M8L)	-			25A
	WH30-32-M6 (-M8 / -M8L)	-			32A
	WH30-35-M6 (-M8 / -M8L)	-			35A
	WH30-40-M6 (-M8 / -M8L)	-			40A
	WH30-50-M6 (-M8 / -M8L)	-			50A
	WH30-60-M6 (-M8 / -M8L)	-			60A
	WH30-70-M6 (-M8 / -M8L)	-			70A
	WH30-80-M6 (-M8 / -M8L)	-			80A
	WH30-100-M6 (-M8 / -M8L)	-	100A		
	WH30-125-M6 (-M8 / -M8L)	-	125A		
	WH30-150-M6 (-M8 / -M8L)	-	150A		
	-	WH30-150-HT (-VT)	150A	500VDC / 10KA	
-	WH30-175-HT (-VT)	175A			
-	WH30-200-HT (-VT)	200A			
-	WH30-225-HT (-VT)	225A			
-	WH30-250-HT (-VT)	250A			

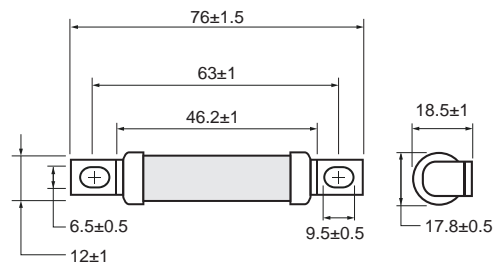
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WH33-XXX-M6



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WH33	WH33-XXX-M6			
	WH33-35-M6	35A	500VAC / 50KA 500VDC / 50KA	●
	WH33-40-M6	40A		●
	WH33-45-M6	45A		●
	WH33-50-M6	50A		●
	WH33-60-M6	60A		●
	WH33-70-M6	70A		●
	WH33-80-M6	80A		●
	WH33-90-M6	90A		●
WH33-100-M6	100A	●		

I-T Characteristics / 時間-電流特性

Rated Current 額定電流	% of Ampere Rating 額定電流%	Opening Time 熔斷時間
5A~100A	300%	0.2s Min. / 最短0.2秒
		30s Max. / 最長30秒
	500%	0.1s Min. / 最短0.1秒
		10s Max. / 最長10秒

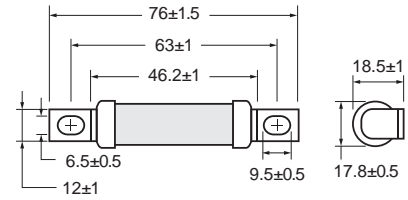


Product Features / 產品特性

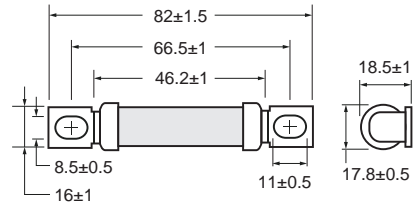
Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍, 在選用保險絲規格時, 需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

Dimensions / 尺寸圖 (Unit / 單位:mm)

WH40-XXX-M6



WH40-XXX-M8



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WH40	WH40-XXX-M6	WH40-XXX-M8		700VDC / 10KA	
	WH40-5-M6	WH40-5-M8	5A		
	WH40-8-M6	WH40-8-M8	8A		
	WH40-10-M6	WH40-10-M8	10A		
	WH40-15-M6	WH40-15-M8	15A		
	WH40-20-M6	WH40-20-M8	20A		
	WH40-25-M6	WH40-25-M8	25A		
	WH40-32-M6	WH40-32-M8	32A		
	WH40-40-M6	WH40-40-M8	40A		
	WH40-50-M6	WH40-50-M8	50A		
	WH40-60-M6	WH40-60-M8	60A		
	WH40-80-M6	WH40-80-M8	80A		
	WH40-100-M6	WH40-100-M8	100A		

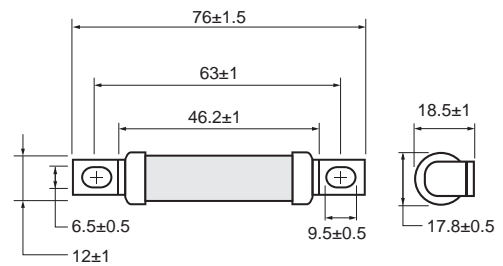
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WH42-XXX-M6



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WH42	WH42-XXX-M6			
	WH42-35-M6	35A		●
	WH42-40-M6	40A		●
	WH42-50-M6	50A		●
	WH42-60-M6	60A	700VAC / 50KA	●
	WH42-70-M6	70A	700VDC / 50KA	●
	WH42-80-M6	80A		●
	WH42-100-M6	100A		●

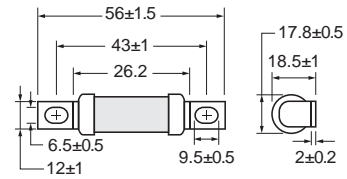
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max

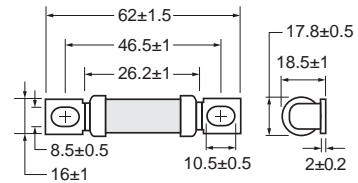


Dimensions / 尺寸圖 (Unit / 單位:mm)

WH62-XXX-M6



WH62-XXX-M8



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證	
WH62	WH62-XXX-M6	WH62-XXX-M8				
	WH62-20-M6	WH62-20-M8	20A	150VDC / 10KA	●	●
	WH62-32-M6	WH62-32-M8	32A		●	●
	WH62-50-M6	WH62-50-M8	50A		●	●
	WH62-60-M6	WH62-60-M8	60A		●	●
	WH62-80-M6	WH62-80-M8	80A		●	●
	WH62-100-M6	WH62-100-M8	100A		●	●
	WH62-125-M6	WH62-125-M8	125A		●	●
	WH62-150-M6	WH62-150-M8	150A		●	●
WH62-200-M6	WH62-200-M8	200A	●		●	

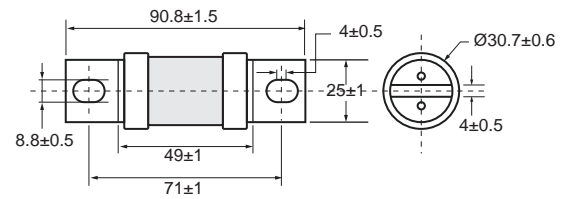
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺柱安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WE53-XXX-CT



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WE53	WE53-XXX-CT			
	WE53-100-CT	100A	500VAC / 50KA 500VDC / 50KA	●
	WE53-125-CT	125A		●
	WE53-150-CT	150A		●
	WE53-175-CT	175A		●
	WE53-200-CT	200A		●

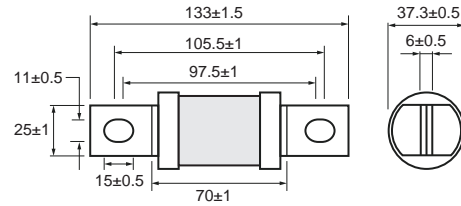
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺柱安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max

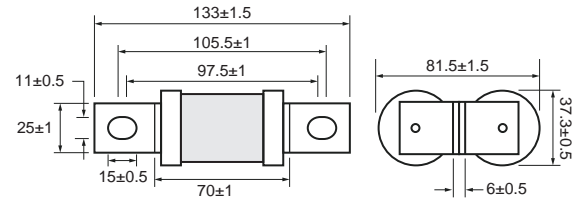


Dimensions / 尺寸圖 (Unit / 單位:mm)

WD38-XXX-CT



WD38-XXX-VT



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WD38	WD38-XXX-CT	WD38-XXX-VT			
	WD38-250-CT	-	250A	1000VDC / 50KA	●
	WD38-315-CT	-	315A		●
	WD38-350-CT	-	350A		●
	-	WD38-400-VT	400A		●
	-	WD38-500-VT	500A		●
-	WD38-600-VT	600A	●		

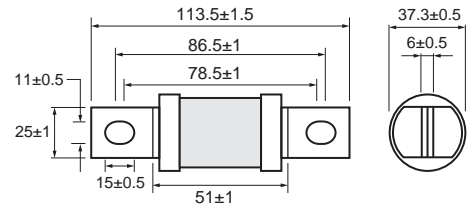
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺栓安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WD63-XXX-CT

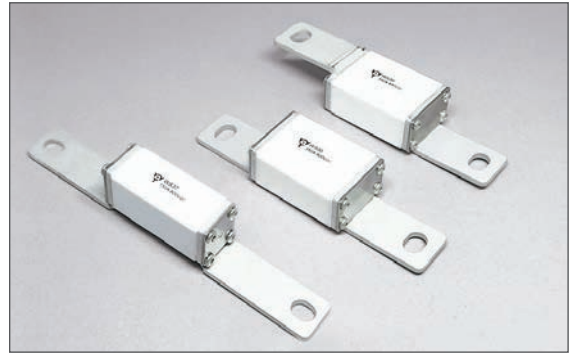


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WD63	WD63-XXX-CT			
	WD63-250-CT	250A		●
	WD63-300-CT	300A	500VAC / 50KA	●
	WD63-350-CT	350A	500VDC / 50KA	●
	WD63-400-CT	400A		●

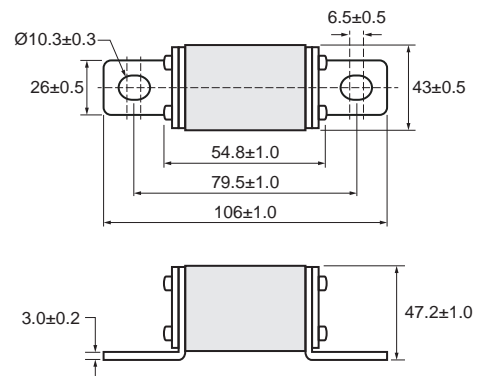
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WS32-XXX-BT

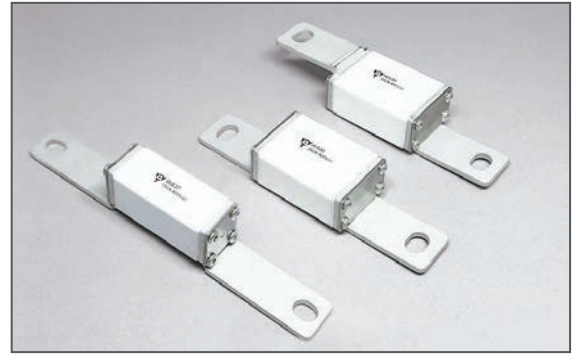


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力
WS32	WS32-XXX-BT		
	WS32-500-BT	500A	750VDC / 20KA
	WS32-550-BT	550A	
	WS32-630-BT	630A	

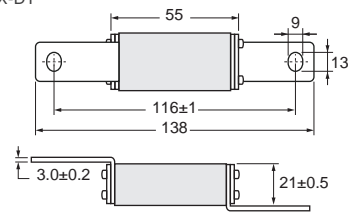
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺柱安裝
	Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max

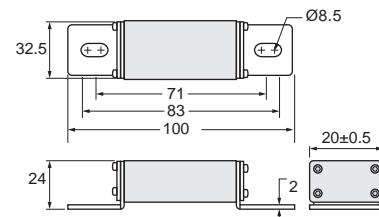


Dimensions / 尺寸圖 (Unit / 單位:mm)

WS35-XXX-DT



WS35-XXX-BT



Recommended tightening torque: 12+/-1 Nm

Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力
WS35	WS35-XXX-DT	WS35-XXX-BT		800VDC / 20KA
	WS35-250-DT	WS35-250-BT	250A	
	WS35-315-DT	WS35-315-BT	315A	
	WS35-350-DT	WS35-350-BT	350A	
	WS35-400-DT	WS35-400-BT	400A	

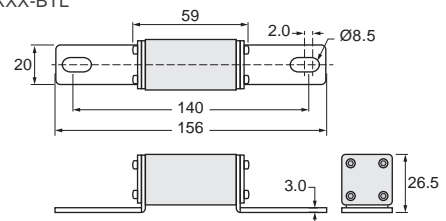
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
Storage Conditions 儲存條件	Under airtight in temperature +10°C~60°C、relative humidity ≤75% can store 3 years. 在溫度+10°C~60°C、相對濕度≤75%的密閉條件下可存放3年。 Without dew in temperature+10°C~60°C、relative humidity be 95% maximum value for 30 days. 在溫度+10°C~60°C、相對濕度為95%的非露天下最多可存放30天。
Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺栓安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max

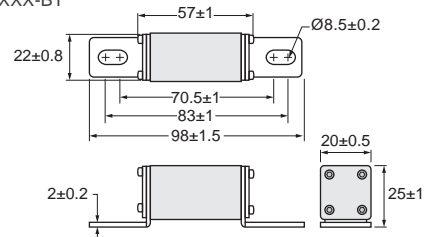


Dimensions / 尺寸圖 (Unit / 單位:mm)

WS37-XXX-BTL



WS37-XXX-BT



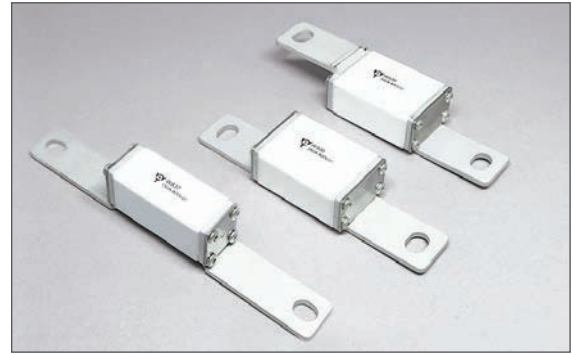
Recommended tightening torque: 12+/-1 Nm

Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號		Rated Current 額定電流	Breaking Capacity 分斷能力
WS37	WS37-XXX-BTL	WS37-XXX-BT		800VDC / 50KA
	WS37-100-BTL	WS37-100-BT	100A	
	WS37-150-BTL	WS37-150-BT	150A	
	WS37-200-BTL	WS37-200-BT	200A	

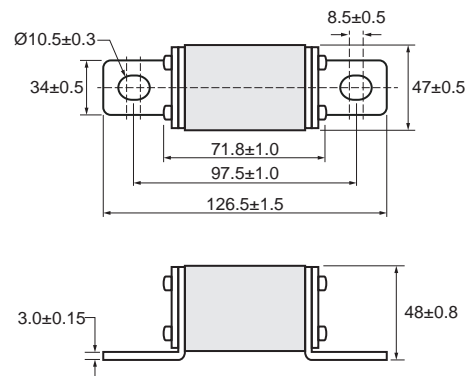
Product Features / 產品特性

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Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊
	Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WS40-XXX-BT

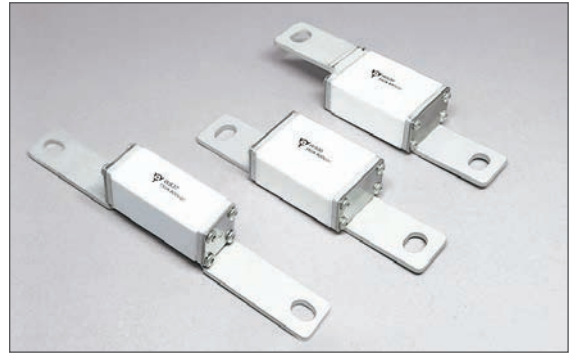


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力
WS40	WS40-XXX-BT		
	WS40-350-BT	350A	1000VDC / 20KA
	WS40-400-BT	400A	
	WS40-450-BT	450A	
	WS40-500-BT	500A	

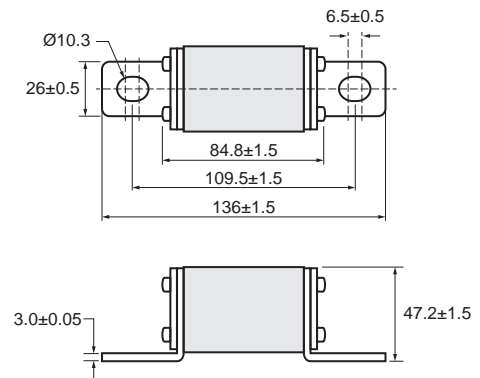
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
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Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度: 260±3°C Max Solder dwell time / 焊接時間: 10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度: 350±5°C Heating time / 焊接時間: 5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WS70-XXX-BT

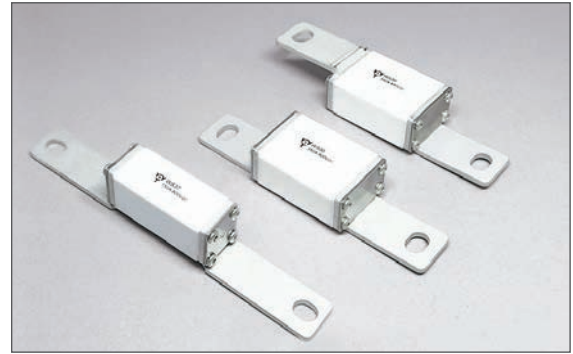


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力
WS70	WS70-XXX-BT		
	WS70-160-BT	160A	1500VDC / 30KA
	WS70-200-BT	200A	
	WS70-250-BT	250A	
	WS70-300-BT	300A	

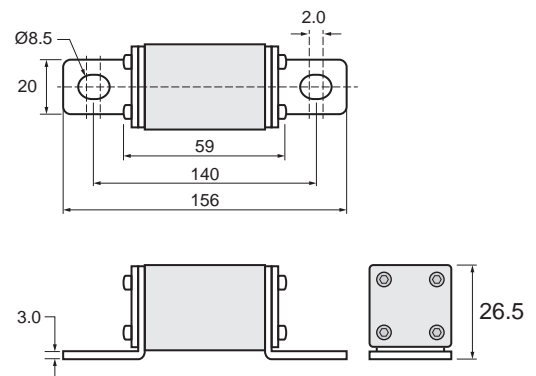
Product Features / 產品特性

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Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝
	Wave soldering parameters / 波峰焊
	Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max
	Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WS80-XXX-BT

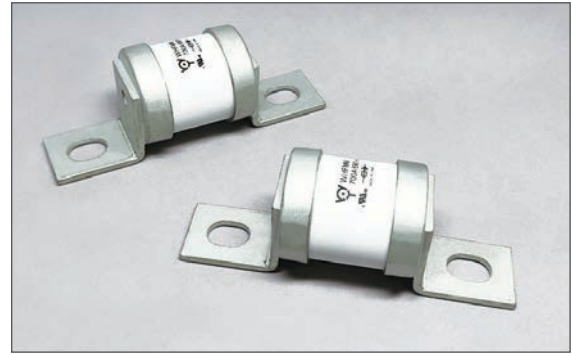


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力
WS80	WS80-XXX-BT		
	WS80-100-BT	100A	1500VDC / 20KA

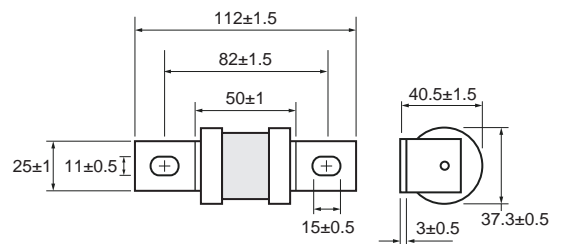
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍：-55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
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Installation Way & Parameters 安裝方式及條件	Stud-mount / 螺絲安裝 Wave soldering parameters / 波峰焊 Solder pot temperature / 錫爐溫度：260±3°C Max Solder dwell time / 焊接時間：10s Max Hand welding parameters / 手工焊 Solder iron temperature / 烙鐵溫度：350±5°C Heating time / 焊接時間：5s Max



Dimensions / 尺寸圖 (Unit / 單位:mm)

WHFM-XXX

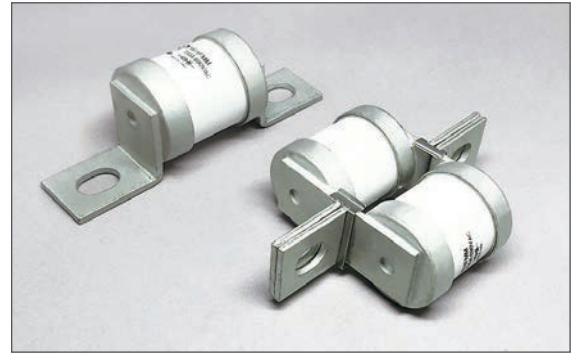


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WHFM	WHFM-XXX			
	WHFM-180	180A	690VAC / 50KA 500VDC / 10KA	●
	WHFM-200	200A		●
	WHFM-225	225A		●
	WHFM-250	250A		●
	WHFM-280	280A		●
	WHFM-315	315A		●
WHFM-350	350A	●		

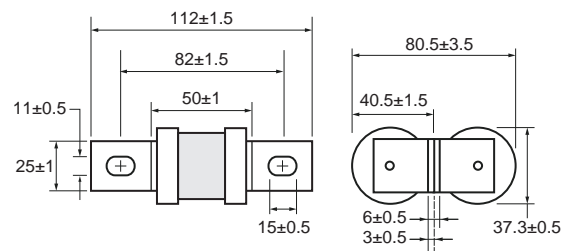
Product Features / 產品特性

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Dimensions / 尺寸圖 (Unit / 單位:mm)

WHFMM-XXX

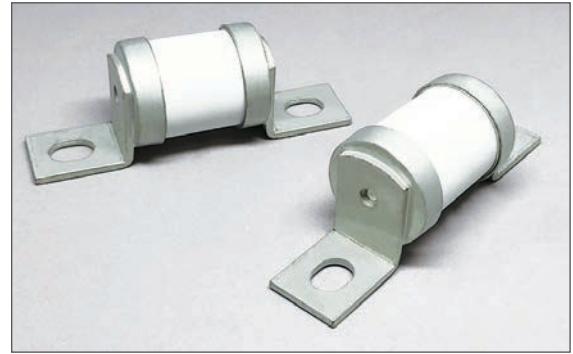


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WHFMM	WHFMM-XXX			
	WHFMM-500	500A	690VAC / 50KA	●
	WHFMM-700	700A	500VDC / 10KA	●

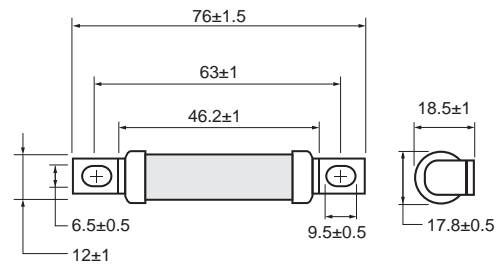
Product Features / 產品特性

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Dimensions / 尺寸圖 (Unit / 單位:mm)

WHET-XXX

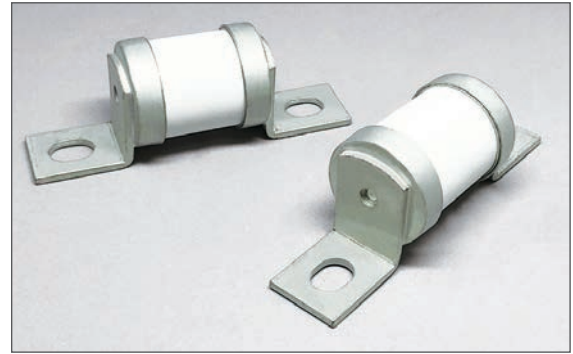


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WHET	WHET-XXX			
	WHET-25	25A	690VAC / 50KA 500VDC / 10KA	●
	WHET-32	32A		●
	WHET-35	35A		●
	WHET-40	40A		●
	WHET-45	45A		●
	WHET-50	50A		●
	WHET-63	63A		●
	WHET-71	71A		●
	WHET-80	80A		●
	WHET-90	90A		●
	WHET-100	100A		●

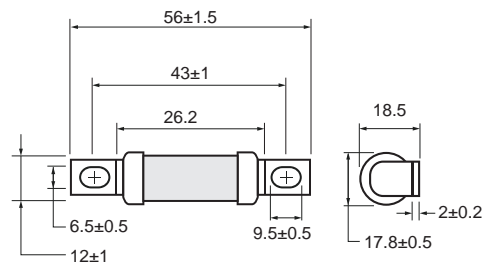
Product Features / 產品特性

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Dimensions / 尺寸圖 (Unit / 單位:mm)

WLET-XXX

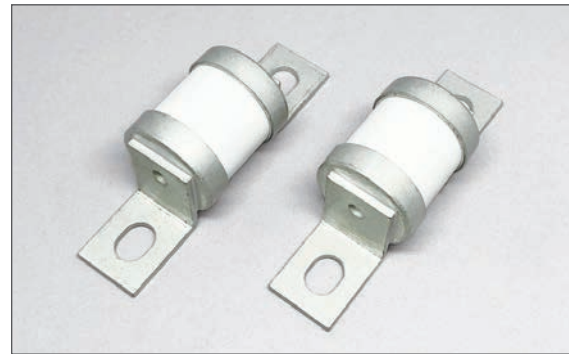


Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WLET	WLET-XXX			
	WLET-25	25A	240VAC / 50KA 150VDC / 10KA	●
	WLET-32	32A		●
	WLET-35	35A		●
	WLET-50	50A		●
	WLET-60	60A		●
	WLET-80	80A		●
	WLET-100	100A		●
	WLET-125	125A		●
	WLET-160	160A		●
WLET-180	180A	●		

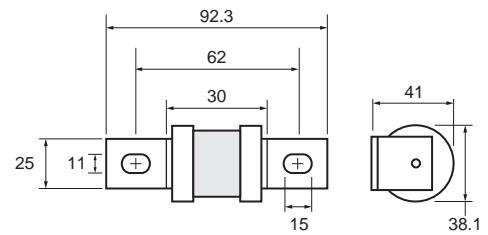
Product Features / 產品特性

Operating Temperature 操作溫度	Operating temperature / 操作溫度範圍: -55°C~125°C When choosing the fuses specification, if the operating environmental temperature beyond the scope from 20~30°C, you should consider the environmental temperature's affection to fuses. 若貴司操作環境溫度超出25±5°C範圍，在選用保險絲規格時，需考慮操作環境溫度對保險絲的影響。
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Dimensions / 尺寸圖 (Unit / 單位:mm)

WLMT-XXX



Electrical Characteristics / 電氣特性

Type 品名	Ordering P / N 料號	Rated Current 額定電流	Breaking Capacity 分斷能力	Safety Approvals 安全認證
WLMT	WLMT-XXX			
	WLMT-250	250A	240VAC / 50KA	●
	WLMT-315	315A	150VDC / 10KA	●
	WLMT-400	400A		●

Selection Guide / 選用指南

(A) Rated Functioning Temperature (T_F, T_r) / 額定動作溫度 (T_F, T_r)

The temperature at which a thermal cutoff changes its state of conductivity to open a circuit with detection current of 10mA or less as it loads. The temperature tolerance is +0,-10°C. 當僅有不大於10 mA的偵測電流作為負載的情況下，使溫度保險絲改變其導電狀態之溫度。此溫度公差在+0,-10°C範圍以內。

(B) Cut-Off Temperature / 實測動作溫度

Cut-off temperature is the actual operating temperature range when the thermal cutoff is made to operate inside a constant temperature oven, whose temperature is raised at the rate of 0.5 to 1°C/min, while detection current of 10mA or lower is applied. 溫度保險絲在以升溫速率為0.5~1°C/min，且以不高於10mA的偵察電流作偵測的烤爐中發生動作時的溫度。

(C) Holding Temperature (T_H, T_h, T_c) / 保持溫度 (T_H, T_h, T_c)

The maximum temperature at which a thermal cutoff can be maintained while conducting rated current for 168 hours without functioning. 在溫度保險絲中，通以額定電流能夠連續維持168小時導通狀態。在此情況下，溫度保險絲所能夠承受的最高不致改變電氣流通狀態的溫度。

(D) Maximum Temperature (T_M, T_m) / 最高極限溫度 (T_M, T_m)

The maximum temperature at which mechanical and electrical properties of a thermal cutoff can be maintained for 10 minutes without resuming conductivity after functioning. 溫度保險絲所能處在的最高溫度，在這個高溫狀態下，溫度保險絲已改變其電氣導通性，溫度保險絲在這個高溫持續達10分鐘而不致破壞其機械性能和電氣特性。

Storage Conditions / 儲存條件

-10°C to +40°C and relative humidity of 30% to 75%. Store where no rapid change of temperature or humidity exist, and no direct sunlight is applied. The location must be free from vibration and shock. 溫度-10°C~40°C，相對濕度30%~75%。存儲在溫度和濕度相對穩定的環境，無陽光直接照射，存儲位無震動。

Packing / 包裝

Poly bag of 100 fuses / 散裝每膠袋100個保險絲
10 poly bags/box: total of 1000 fuses / 每盒10袋共1000個保險絲

Standard / 標準

UL 60691 / IEC 60691

Instruction Manual / 使用說明

Lead wire process / 引線處理

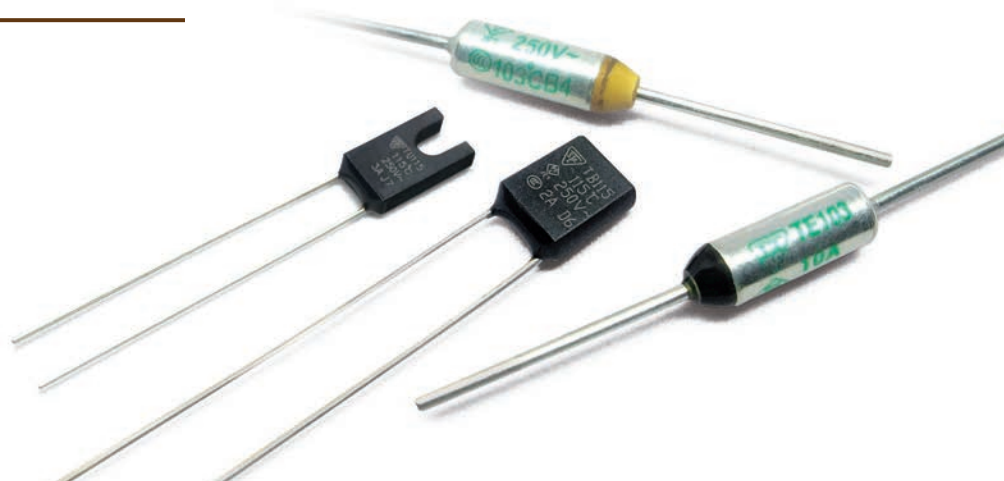
- A . The lead wire should be bent at a distance of 3 mm or more from the fuse body. 引線進行曲折加工時，請先在離本體3mm以上處固定後再進行曲折加工。
- B . Avoid applying excessive force that may pull, push or twist the lead wires. 作業時，不要向引線施加過大的拉力，推力或扭力。

Mounting / 安裝

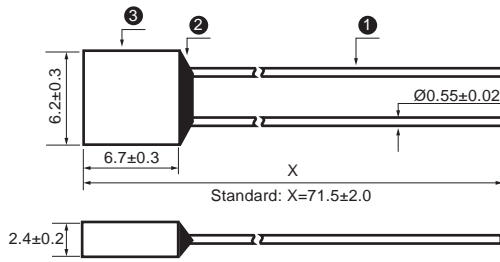
- A . The thermal cutoff can be mounted by soldering, caulking, or welding. 溫度保險絲可以用焊接、鉚合等方式進行安裝。
- B . It is recommended that the connecting position at the lead of resin-sealing side should be 5 mm or more from the body of thermal cutoff. 建議使引線（樹脂封口側）的安裝位置離開本體5mm以上。
- C . Mounting by soldering may cause excessive heat, which results in thermal cutoff malfunctioning. Thus, use heat-radiating clip near the fuse body to allow heat dissipation. Also, soldering time should not exceed below chart specifications. 如果是用焊接方式安裝：為防止焊接時的熱量引發保險絲動作，在焊接時，建議用散熱夾，夾在保險絲外殼附近，以便熱量散發，並在規定的焊錫時間內完成。具體焊錫時間如下表：

Tf Temp Tf 溫度	Lead Distance 引線距離	Soldering Time 焊錫時間			Soldering Conditions 焊錫條件
		10mm	15mm	20mm	
94°C Down / 94°C以下		1S	2S	3S	Soldering Temperature: 300°C 焊錫溫度: 300°C
94°C~100°C		2S	3S	4S	
101°C~130°C		3S	4S	5S	
Over 130°C / 130°C以上		4S	5S	5S	

- D . Thermal cutoff fuse is a heat sensitive device. Mounting by manual soldering iron is recommended. Wave soldering is not recommended. 溫度保險絲為熱敏感元件，安裝時建議用手工過錫或烙鐵焊錫，不建議使用波峰焊。

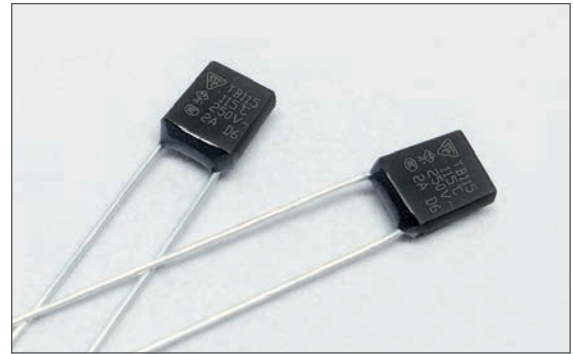


Dimensions / 尺寸圖 (Unit / 單位:mm)



No.	Component / 元件	Material / 材質
①	Lead / 引線	Tinned Copper Wire / 鍍錫銅線
②	Sealing Resin / 封口樹脂	Epoxy Resin / 環氧樹脂
③	Casing / 外殼	Plastic / 塑膠

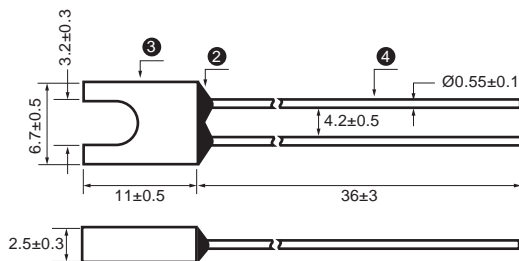
TB Series Rating 2A 250V AC



Electrical Characteristics / 電氣特性

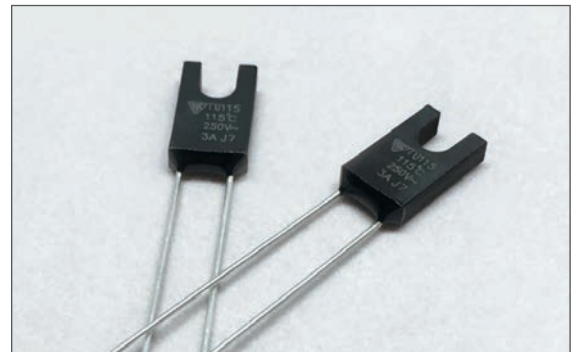
Type 型號	(A) Rated Functioning Temperature 額定動作溫度 (T _F , T _r) (°C)	(B) Cut-Off Temperature 實測動作溫度 (°C)	(C) Holding Temperature Limit 最高維持溫度 (T _H , T _h , T _c) (°C)	(D) Maximum Temperature Limit 最高極限溫度 (T _M , T _m) (°C)	Electrical Rating 電氣額定值	Safety Approvals 安全認證				
					Voltage(V)/額定電壓 (V _{Ac})					
TB102	102	97±2	76	180	250V	●	●	●	●	●
TB115	115	112±3	85	180	250V	●	●	●	●	●
TB125	125	121±3	97	180	250V	●	●	●	●	●
TB130	130	126.5±3	102	180	250V	●	●	●	●	●
TB150	150	146±2	120	180	250V	●	●	●	●	●

Dimensions / 尺寸圖 (Unit / 單位:mm)



No.	Component / 元件	Material / 材質
①	Lead / 引線	CP Wire / CP線
②	Sealing Resin / 封口樹脂	Epoxy Resin / 環氧樹脂
③	Casing / 外殼	Plastic / 塑膠

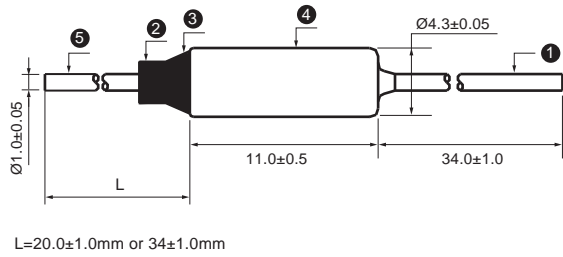
TU Series Rating 3A 250V AC



Electrical Characteristics / 電氣特性

Type 型號	(A) Rated Functioning Temperature 額定動作溫度 (T _F , T _r) (°C)	(B) Cut-Off Temperature 實測動作溫度 (°C)	(C) Holding Temperature Limit 最高維持溫度 (T _H , T _h , T _c) (°C)	(D) Maximum Temperature Limit 最高極限溫度 (T _M , T _m) (°C)	Electrical Rating 電氣額定值	
					電流(A) Voltage	電壓 Voltage
TU115	115	112±3	85	200	3A	250V AC
			80	200	3.5A	125V AC
			80	200	4A	50V DC

Dimensions / 尺寸圖 (Unit / 單位:mm)

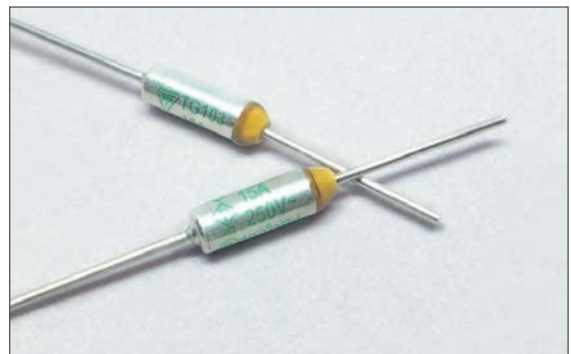


TE Series Rating 10A 250V AC



No.	Component / 元件	Material / 材質
①	Lead 1 / 引線1	Tinned Copper Wire / 鍍錫銅線
②	Isolation Tube / 絕緣管	Ceramic / 陶瓷
③	Sealing Resin / 封口樹脂	Epoxy Resin / 環氧樹脂
④	Casing / 外殼	Silver-Plated Copper / 銅鍍銀
⑤	Lead 2 / 引線2	Silver-Plated Copper / 銅鍍銀

TG Series Rating 15A 250V AC



Electrical Characteristics / 電氣特性

Type 型號	(A) Rated Functioning Temperature 額定動作溫度 (T _F , T _i) (°C)	(B) Cut-Off Temperature 實測動作溫度 (°C)	(C) Holding Temperature Limit 最高維持溫度 (T _H , T _n , T _c) (°C)	(D) Maximum Temperature Limit 最高極限溫度 (T _M , T _n) (°C)	Electrical Rating 電氣額定值 Voltage(V)/額定電壓 (V _{Ac})	Safety Approvals 安全認證				
TE/TG 66	66	64±2	42	200	250V	●				●
TE/TG 77	77	74±2	48	200	250V	●	●	●	●	●
TE/TG 87	87	81±2	52	200	250V	●	●	●	●	●
TE/TG 94	94	91±2	62	160	250V	●	●	●	●	●
TE/TG 99	99	96±2	68	200	250V	●	●	●	●	●
TE/TG 103	103	97±2.5	68	200	250V	●	●	●	●	●
TE/TG 113	113	108±2	81	200	250V	●	●	●	●	●
TE/TG 116	116	111±2.5	83	200	250V	●	●	●	●	●
TE/TG 121	121	118.5±2.5	86	200	250V	●	●	●	●	●
TE/TG 128	128	126±2	100	250	250V	●	●	●	●	●
TE/TG 139	139	135±2	109	200	250V	●	●	●	●	●
TE/TG 142	142	135±2	110	200	250V	●	●	●	●	●
TE/TG 147	147	142±2	117	250	250V	●	●	●	●	●
TE/TG 152	152	150±2	122	250	250V	●	●	●	●	●
TE/TG 169	169	164±2	139	300	250V	●	●	●	●	
TE/TG 184	184	181.5±2	154	300	250V	●	●	●	●	
TE 185	185	181.5±2	154	300	250V	●				
TE/TG 187	187	181.5±2	154	300	250V	●				
TE 216	216	213±2	186	300	250V	●	●	●	●	●
TG 216	216	213±2	186	300	250V		●	●	●	●
TE/TG 240	240	236±2	200	300	250V	●	●	●	●	

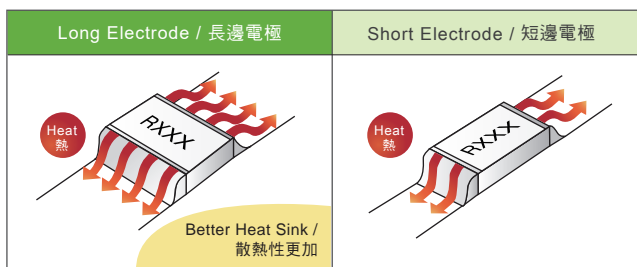
About Current Sensing Resistors / 關於電流感測電阻

Walter Electronic has released a new surface-mount ceramic metal foil 2W resistor current sensing resistor (CSR) in the compact 0201 package size.

華德成功研發出表面貼片式陶瓷金屬箔 2W 精密電流感測電阻 (CSR)，可提供 0201 小尺寸的包裝規格。

Our compact size in the 0805 or 1206 long electrode range up to 1W is an ideal replacement of traditional 2512 thick & thin film resistors. The compact size allows replacement of larger CSR saving space on the circuit board.

為了配合工程師於電路板尺寸上的設計需求，華德 0805 或 1206 長電極 1W 系列可成為傳統 2512 厚/薄膜電阻的最佳替代選擇。小體積的 CSR 可替代耗佔電路板空間的大尺寸 CSR，進而節省電路板空間。



Our products are 100% manufactured in-house from raw material to finish product with exclusive know-how, results in high power and low resistance values.

華德 CSR 系列從原物料到成品製程，全以獨家秘方自行研發及生產，可因此提供高功率且低阻值之產品。

It features ceramic metal foil formation with constantan or manganese resistive element. The resistor offers low inductance value ($H < 5.0nH$) for frequency response under 1GHz, and low thermal EMF ($EMF < 0.5\mu V/^{\circ}C$).

華德 CSR 結構為陶瓷金屬箔與康銅或錳銅電阻元素精心打造而成。其電阻於 1GHz 高頻率下具有低電感值 ($H < 5.0nH$) 和低電偶效應 ($EMF < 0.5\mu V/^{\circ}C$)。

Walter's CSR electrical characteristics are far better than traditional thin and thick film resistors, which can be customized in any resistance range within our specification.

華德 CSR 電器特性遠遠超過於傳統厚/薄膜電阻，可於任何規格範圍內依客戶需求制定阻值。

Instruction Manual / 使用說明

Rigorously tested and adopted by world-leading contract manufacturers, Walter's ultra low-ohmic high precision current sensing resistor (CSR) series is an ideal substitute for traditional wire wound and leaded products, which features:

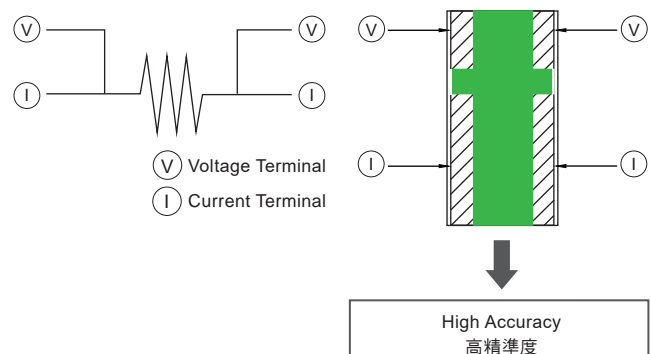
華德產品通過了世界領先品牌製造商的嚴格測試。其超低阻高精密 CSR 系列為傳統繞線及含鉛產品的最佳替代選擇，其特色包含：

- High precision ($\Delta R < 1\%$)
高精密度 ($\Delta R < 1\%$)
- Outstanding TCR ($TCR < 40ppm$)
優勢的 TCR 值 ($TCR < 40ppm$)
- Wide range of sizes (from 0201~5931)
廣泛的尺寸 (從 0201~5931)
- Excellent thermal EMF ($EMF < 0.5\mu V/^{\circ}C$)
卓越的低電偶效應 ($EMF < 0.5\mu V/^{\circ}C$)
- High power rating (1206 size $> 1W$)
高功率 (1206 size $> 1W$)
- High frequency response ($H < 5.0nH$)
高頻率反應 ($H < 5.0nH$)
- High stability (certified 2000hr reliability test surpassing Military Standard 202, Method 107G)
高信賴度 (優於 2000 小時美國軍規 Mil-202, Method 107G 信賴測試標準)
- RoHS/REACH compliant and Halogen free
符合 RoHS/REACH 標準，無鹵素
- Alloy resistive element
電阻合金板
- Flame retardant epoxy, accord to UL94-V0 requirement
防焊層符合 UL94-V0 的要求
- Excellent overload and high pulse handling capability
絕佳的過負載及脈沖能力
- Low inductance ($< 0.05\mu H$ at 10MHz)
低感抗
- Easy to assemble (excellent for surface mount technology)
易於組裝 (適合表面粘著技術)

Walter's 4-terminal Current Sensing Resistors / 華德四端電極電流感測電阻說明

Walter develop 4-terminal current sensing resistors which is high accuracy for the ultra precision application market demand. The designed concept is divided common terminal into current and voltage individually to reduce the interference each other to increase the quality of measured signal.

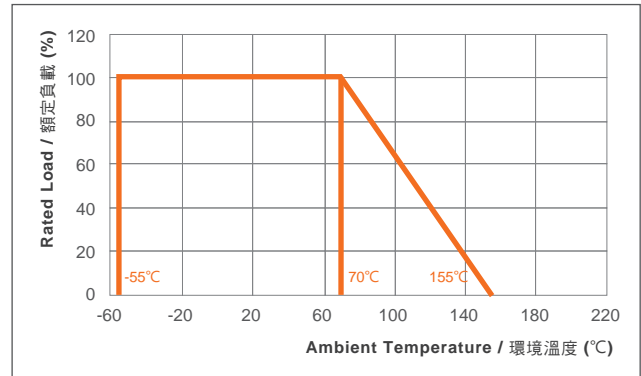
華德針對高精度產品的需求發展出 4 端子 (電極) 產品，將電流與電壓的端子分開，減低兩者間的相互干擾，使得偵測訊號的品質更加提升。



Applications / 應用領域

- Industrial electronics / Power electronics / Power supply / DC/DC-converter / AC/DC-inverter / Battery (sets) / Power management / Motor controller, and etc...
工業電子、電源供應、管理電源轉換器、變頻器、電池(組)、電源管理、馬達控制器...等應用
- Automotive electronics / 汽車電子:
Control systems / Chassis / Power train / Lighting and relevant electronic applications. Other industries include white goods / 3C products / Communication and medical.
控制系統、底座、動力傳動、光源...等電子應用
工業領域包括、白色家電、3C產品、通訊及醫療用途
- Computer & computer peripheral / Cell phone / Communication equipment.
電腦 & 電腦週邊設備、手機、通訊設備

Derating / 功率遞減



Numbering System / 編碼原則

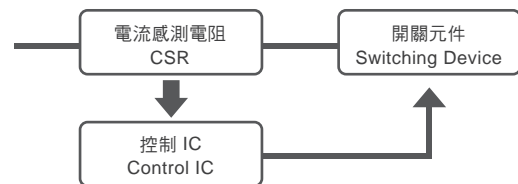
****	****	*	***	R***	*	*
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- Product / 產品別: STE / HTC / HTE / MSH / MSTC
- Type & size / 種類&尺寸: (Ex: 1206, 2512)
- Material (Ex: A=Alloy / S=Special / M=MnCu)
材料 (Ex: A=合金 / S=特殊 / M=錳銅)
- Power rating / 額定功率: Ex.: 0W5=0.5 Watt 1W0=1.0 Watt 2W0=2.0 Watt
- Nominal resistance value / 元件實裝電阻值 (Ex: 10mΩ → R010)
- Resistance tolerance / 元件電阻值誤差: (Ex: F=±1.0%, H=±3.0%, J=±5.0%)
- Special code / 特殊代碼

Ex : STE1206M1W0R010F

STE	1206	M	1W0	R010	F
Product 產品別	Width / 寬: 1.7mm Length / 長: 3.3mm	MnCu 錳銅	Power : 1W 功率為1瓦	Resistance 電阻為10mΩ	Resistance Tolerance 1% 電阻誤差為1%

Working Function / 作用原理



Current sensing resistors (CSR) is a detection device that assists control ICs from current feedbacks in the form of a voltage drop. The current is detected by the monitoring IC and is translated to an easily measured output voltage to determine subsequent actions within the circuitry.

Current sensing resistors (CSR) 即為電流感測電阻元件，是一種在線路中以回饋電壓差到控制IC協助其判定當時電流狀況的偵測元件，當控制IC從CSR端獲取訊號後，則告知其所處電源電路上的元件應該採取的動作或措施。

- CSR transfers measured data to IC units to determine subsequent actions.
其功能乃將量測的訊息傳給IC比較器進而決定後續的動作
- CSR precision is extremely prominent.
因此CSR的精準度相當重要
- We offer high precision ($\Delta R < 1\%$) and high power ($P > 2W$) CSR products.
我們可提供高精度 ($\Delta R < 1\%$) 高功率 ($P > 2W$) 的CSR

Definition of Electrical Characteristics / 電性參數定義

- Pr** : Power rating at 70°C or below
在環境溫度70°C以下時的額定功率
- Ro** : Device normal resistance
元件在室溫下的電阻
- Rt** : Normal resistance tolerance
元件在室溫下的電阻誤差範圍
- Vmax** : Max. Voltage and comply with $V = I \cdot R$
本元件可操作最大電壓 $V = I \cdot R$
- Imax** : Max. Current and comply with $I = \sqrt{P/R}$
本元件可操作最大電流 $I = \sqrt{P/R}$
- TCR** : Temperature coefficient of resistance
電阻溫度係數

Proudly Serving Tier-1 Customers Including / 我們客戶所服務的對象

Delta, HP, Sony, Toshiba, LG, Asus, TECO, Foxconn....., and more
台達, 惠普, 索尼, 東芝, 樂金, 華碩, 東元, 富士康.... 以及其它廠商。

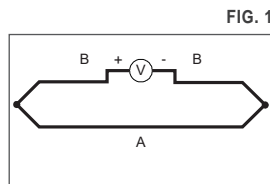
Thermal EMF / 熱電偶效應

Thermoelectric effect, also known as the Seebeck effect occurs when endpoints of two dissimilar type of metals connect to form a closed loop. If temperature difference exists between the two junctions, a current will be produced in the circuit. Thermoelectric effect is mainly due to different types of metal having different numbers of free electrons.

When the two metals connects to formed a loop, the temperature change will cause free electron activities on the contact surface, thus leading to potential difference between the two metals. This potential difference derives from the contact area, temperature differences, and metal types. When temperature is constant on both junctions, the thermal EMF generate by the endpoint remains the same, thus current will not be produced in the loop.

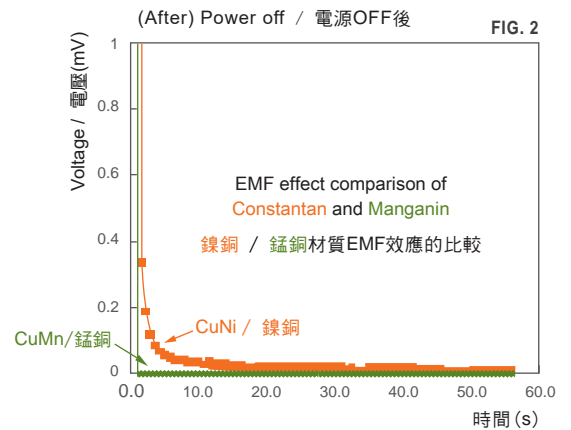
Temperature variance between the two ends results in different size thermal EMF, which generates an electrical current flow from high thermal electromotive force towards low thermal electromotive force. Having low resistance value of thermal EMF in DC circuits is an important consideration, but usually not an issue in AC circuits. For DC applicable battery industry, the influence of EMF effect becomes an important issue.

To reduce the EMF effect when using current sensing resistors (CSR), it is important to select correct material. Manganese and Constantan composites are widely used in the field of electrical material. EMF effect for CSR made from Manganese is weaker than Constantan (FIG.2). For CSR used in battery market, Manganese is preferred over onstantan, since EMF effect disturbs power management IC unit, thus leading to misjudgment.



熱電效應，也稱為席貝克效應--其現象是當二種不同性質金屬端點連接形成一封閉迴路時，若兩端點間有溫度差，則迴路間會有電流產生。此熱電效應主要是因不同種類金屬擁有自由電子數不同，當兩金屬連接形成迴路時，溫度改變會造成接觸面之自由電子運動而使金屬間產生電位差。此電位差由接觸面積、溫度差、與金屬種類來決定，當兩端溫度相同時，端點所產生之熱電動勢相同，故迴路中不會有電流；若兩端間存在溫度差，導致熱電動勢大小不同而產生一電流由高電動勢往低電動勢流動。

低阻值電阻的熱電效應在直流線路應用是很重要的考量因素，但在交流線路應用上就不是很重要的考量因素了。對於使用直流電的電池產業來說，EMF效應的影響就顯得相當重要，為了降低EMF的影響，在使用感測元件，電流感測電阻，的材料選擇上就要相當注意，目前在商品化的材料中，錳銅合金及鎳銅合金是較被廣泛使用的，而以錳銅合金做成元件的EMF效應小於鎳銅合金做成的元件所產生的 (FIG.2)，因此對於電池產業而言，選擇錳銅合金材質做為電流感測的元件優於鎳銅材料做成的元件，EMF效應產生的干擾會造成電源管理IC的訊息誤判，導致錯誤的動作。



Terminal Construction / 端電極結構

When considering current sensing resistors (CSR) electrical properties and safety, non-edge electrode terminal device is more advantageous over edge electrode terminal device. Resistor's actual resistance has to consider its equivalent series resistance of construction as indicated below :
無側邊電極的電流感測電阻在電氣特性及安全性上優於具側邊電極的電流感測電阻實際的電阻必須考慮電阻結構上的等效串聯電阻值，如以下方程式：

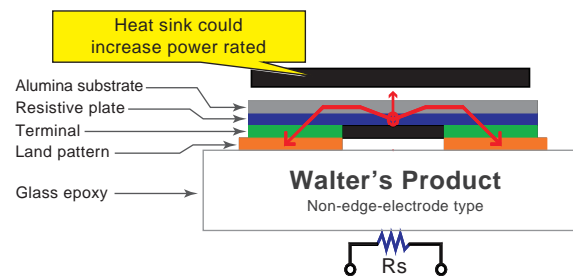
- **RS** : Series resistance / 等效串聯阻抗
[ESR(Equivalent Series Resistance) = $R_L + R_C + R_E$]
- **RL** : Resistance of leads / 引腳的阻抗
- **RC** : Resistance of contacts / 電阻元件與引腳接點的阻抗
- **RE** : Resistance of element / 電阻元件的阻抗

The temperature coefficient of resistance (TCR) Will also include R_L , R_C , R_E effect.
電阻溫度係數亦須考慮等效串聯電阻的每一個影響。

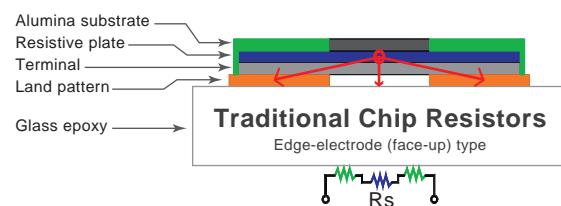
Hence, adopting pedestal terminal structural design will effectively reduce :
因此採用僅有底部端電極結構設計可以有效：

- Lead resistance / 減少接腳的阻抗
- TCR of copper terminal / 減少引腳的TCR
- TCR of solder joint / 減少焊接點的TCR

High thermal conductivity circuit board substrates such as alumina or heat sink is provided in the pedestal terminal structure to optimize high power designs. 採用此一設計時，提供了利用高導溫鋁基板或增加散熱片來提升功率的便利性。



- Walter HTC-series are ONLY suitable for IR reflow soldering process. Walter HTC-系列產品進行組裝加工時僅適用迴流焊製程
- Walter STE / HTE-series are suitable for IR reflow and wave soldering process. Walter STE / HTE-系列產品進行組裝加工時可適用迴流焊及波峰焊製程



- Normal traditional chip resistor device structure (face-up) 一般傳統晶片電阻結構 (具端面電極)

Performance Characteristics / 功能特性

Parameter / 測試參數	Conditions / 條件	Consent Standard / 廠內允收標準
Short time over load 瞬間過載測試	Power=2.5*Pr ; T=25±2°C ; t=5s 測試功率=2.5*Pr ; 環境溫度=25±2°C ; 通電=5秒	± (1.0%+0.5mΩ) IEC60115-1 4.13
High temp. exposure 高溫曝露測試	T=+155±2°C; t=1,000hrs 測試溫度=+155±2°C ; 時間=1,000小時	± (1.0%+0.5mΩ) IEC60115-1 4.25
Low temp. load life 低溫儲存測試	T=-55±2°C ; t=1,000hrs 測試溫度=-55±2°C ; 時間=1,000小時	± (1.0%+0.5mΩ) IEC60115-1 4.25
Moisture load life 高濕負載測試	Vtest=Vmax, ton=90min, toff=30min, T=60±2°C, RH=95%, 1,000hrs(含以上) 測試電壓=最大電壓 ; 測試溫度=60±2°C ; 相對濕度=90% ; 通電90分鐘, 斷電30分鐘 ; 持續1,000小時	± (2.0%+0.5mΩ) IEC60115-1 4.25
Thermal shock 冷熱衝擊測試	[-55°C 30min→ R.T. 3min→ +150°C 30min→ R.T. 3min] by 100 Continuous Cycles [-55°C 30分鐘→室溫3分鐘→ +150°C 30分鐘→室溫3分鐘] 連續循環100次	± (1.0%+0.5mΩ) IEC60115-1 4.19
Load life at 70°C 70°C 負載測試	Vtest=Vmax ; T=70±2°C ; t=90min On t=30min Off; 1,000hrs 測試電壓=Vmax; 測試溫度=70±2°C; 通電90分鐘; 斷電30分鐘; 持續1,000小時	± (2.0%+0.5mΩ) IEC60115-1 4.25
Solderability 可焊性	Dipped into solder at 245±5°C for 3±1s 浸入 245±5°C的錫爐中 ; 持續時間=3±1s ; 觀察電極端錫的覆蓋率	The covered area >95% IEC60115-1 4.17 錫涵蓋面積大於95%
Resistance to solder heat 抗焊接熱測試	20±1s at 275±5°C 放入275±5°C的回焊爐中 ; 持續時間=20±1s	± (1.0%+0.5mΩ) IEC60115-1 4.18
Substrate bending 彎曲測試	Span between fulcrums: 90mm; Bend width: 2mm; Test board: Glass-epoxy board, Thickness=1.6mm by 10 continuous cycles 支點間距=90mm ; 彎曲量=2mm ; 測試基板: 玻纖環氧樹脂材, 板厚: 1.6mm, 進行10個循環	± (1.0%+0.5mΩ) IEC60115-1 4.33
Mechanical shock 機械衝擊測試	a=100G for 11ms, 5 Pulse 衝擊加速度=100G ; 時間=11ms ; 持續5次	± (1.0%+0.5mΩ) IEC60115-1 4.21

Product Selection Guide / 產品選用指南

- Step 1: Select the required resistance values for the circuit.
步驟一: 選擇迴路中所需的電阻值。
- Step 2: Choose resistance value of the most accuracy and minimal error of resistance.
步驟二: 選擇阻值所要的精準度即最小誤差值。
- Step 3: Confirm the regular maximum current that flows into the component from the circuit.
步驟三: 確認迴路流通該元件經常性的最大電流。
- Step 4: Calculate the required minimum rated power of the component. The selected value must be higher than the actual value.
步驟四: 以此電流計算該元件所需具備的最小額定功率, 選擇該元件時其值必須大於實際使用值。
- Step 5: Select size according to available space on the component.
步驟五: 根據設計空間大小選擇所需尺寸。
- Step 6: Consider the thermal electromotive force (EMF)
步驟六: 有無熱電動勢(EMF)的考慮。

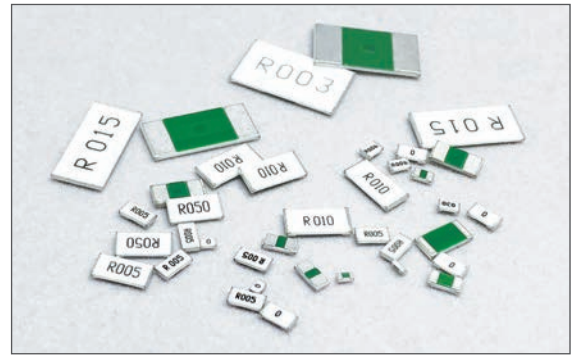
Product Selection Example / 產品選用範例

A design engineer requires current sensing resistors (CSR) to protect the rear end of the power source, and 5 m Ω is required on the circuit design. In addition, the a pplied power management IC is highly sensitivity and allows low resistance error, thus resistance precision lower than 1% should be opted. Furthermore, its regular current-flow is approximately 15A, so the applicab le resistor should endure a power (P) = 1.125W. Finally, this particular system does consider the EMF effect, therefore, MSH2512F2W0R005F is selected.

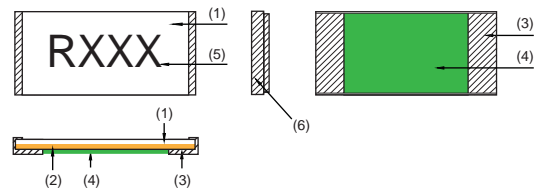
一設計工程師於電源後端OCP保護上須用到電流偵測元件(CSR), 其因電路設計關係需用到5mΩ, 又由於其所用之電源管理IC敏感度較大所容許電阻誤差小, 故須選擇誤差小於1%的電阻精度, 此外其經常性流通電流約在15A, 故此計算該電阻所需承受功耗為P=1.125W, 再者此系統並不考慮EMF效應, 故最後型號選定為MSH2512F2W0R005F。

Product Material / 產品材料

No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (Alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
⑥	Edge electrode / 側邊電極	Sn、Ni、Cu / 錫、鎳、銅



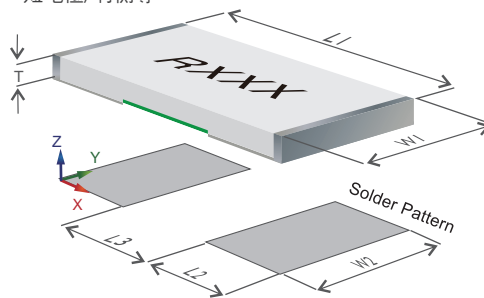
STE-Series



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的 電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
STE-Series	0603-□-W50-R-□□□-□	0.5(1/2)	5-60	±0.5,±1	±50~±100
	0805-□-W75-R-□□□-□	0.75(3/4)	3-200	±0.5,±1	±50~±100
	1206-□-1W0-R-□□□-□	1.0	3-400	±0.5,±1	±50~±100
	2010-□-1W0-R-□□□-□	1.0	2-400	±0.5,±1	±50~±100
	2512-□-2W0-R-□□□-□	2.0	2-400	±0.5,±1	±50~±100
	3921-□-3W0-R-□□□-□	3.0	2-100	±0.5,±1	±50~±100
	4527-□-4W0-R-□□□-□	4.0	2-100	±0.5,±1	±50~±100

STE-Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

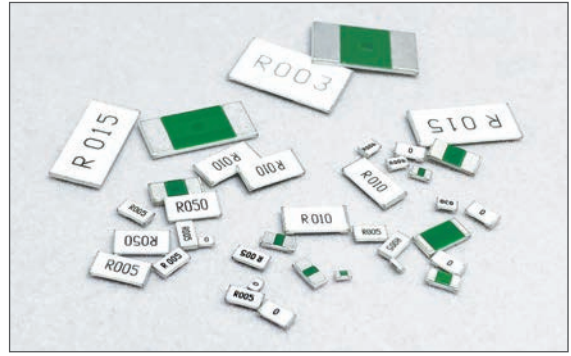
Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
STE-Series	0603	1.7±0.2	0.9±0.2	0.65±0.2	1.35	0.92	0.5
	0805	2.1±0.2	1.35±0.2	0.65±0.2	1.4	1.44	0.8
	1206	3.3±0.2	1.7±0.2	0.65±0.2	1.8	1.84	1.2
	2010	5.1±0.2	2.6±0.2	0.65±0.2	2.65	2.88	2.7
	2512	6.4±0.3	3.2±0.3	0.65±0.2	3.1	3.57	3.1
	3921	11±0.3	5.1±0.3	0.65±0.2	4.5	5.75	5.0
	4527	11.6±1.0	7.1±1.0	0.65±0.2	4.65	8.05	5.2

Current Sensing Resistors

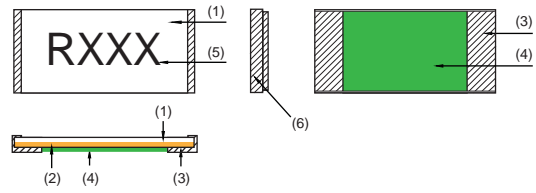
STE-Auto Series / Metal Foil Type

Product Material / 產品材料

No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (Alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn · Ni · Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (green) / 防火級環氧樹脂, 符合UL- 94-V0 要求 (綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求 (黑色)
⑥	Edge electrode / 側邊電極	Sn · Ni · Cu / 錫、鎳、銅



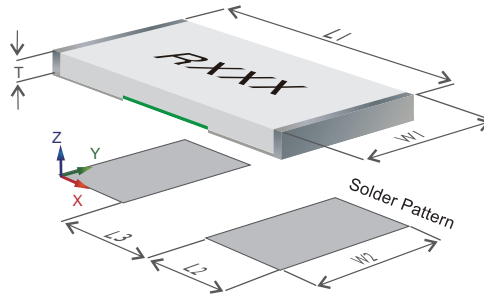
STE-Auto Series



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
STE-Auto Series	0603-□-W50-R-□□□-Auto	0.5	5~20	±0.5,±1	±50~±100
	0805-□-W75-R-□□□-Auto	0.75	5~200	±0.5,±1	±50~±100
	1206-□-1W0-R-□□□-Auto	1.0	3~570	±0.5,±1	±50~±100
	2010-□-1W0-R-□□□-Auto	1.5	5~300	±0.5,±1	±50~±100
	2512-□-2W0-R-□□□-Auto	2.0	50~350	±0.5,±1	±50

STE-Auto Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
STE-Auto Series	0603	1.70±0.2	0.90±0.2	0.65±0.2	1.35	0.92	0.5
	0805	2.10±0.2	1.35±0.2	0.65±0.2	1.40	1.44	0.8
	1206	3.30±0.2	1.70±0.2	0.65±0.2	1.80	1.84	1.2
	2010	5.10±0.2	2.60±0.2	0.65±0.2	2.65	2.88	2.7
	2512	6.40±0.3	3.20±0.3	0.65±0.2	3.10	3.57	3.1

Current Sensing Resistors

HTC/HTE Series / Metal Foil Type

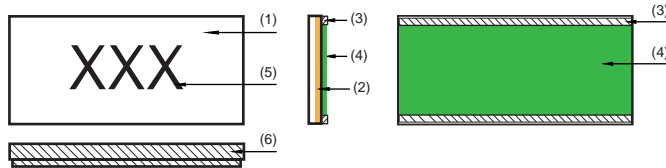


Product Material / 產品材料

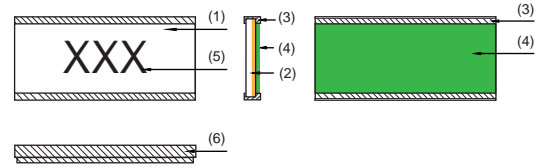
No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
⑥	Edge electrode / 側邊電極	Sn、Ni、Cu / 錫、鎳、銅



HTC-Series



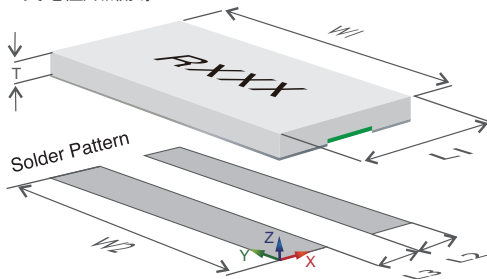
HTE-Series



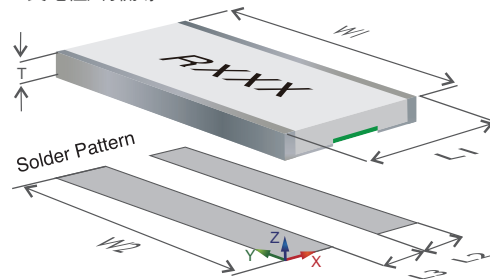
Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
HTC-Series / HTE-Series	0805-□-1W0-R-□□□-□	1.0	1~100	±0.5,±1	±50~±100
	1206-□-1W5-R-□□□-□	1.5	1~100	±0.5,±1	±50~±100
	1508-□-2W0-R-□□□-□	2.0	1~100	±0.5,±1	±50~±100
	2010-□-3W0-R-□□□-□	2.0	1~100	±0.5,±1	±50~±100
	2512-□-3W0-R-□□□-□	3.0	1~100	±0.5,±1	±50~±100
	3008-□-3W0-R-□□□-□	3.0	1~100	±0.5,±1	±50~±100
	3015-□-4W0-R-□□□-□	4.0	1~100	±0.5,±1	±50~±100
	3618-□-4W0-R-□□□-□	4.0	1~100	±0.5,±1	±50~±100
	3921-□-5W0-R-□□□-□	5.0	1~100	±0.5,±1	±50~±100
5931-□-10W0-R-□□□-□	10.0	1~50	±0.5,±1	±50~±100	

HTC-Series
Long electro / edgeless
長電極/無側導



HTE-Series
Long electrode / with edge
長電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
HTC-Series / HTE-Series	0805	1.35±0.2	2.10±0.2	0.65±0.2	1.1	2.3	0.6
	1206	1.7±0.2	3.30±0.2	0.65±0.2	1.3	3.68	0.6
	1508	2.60±0.2	3.8±0.2	0.65±0.2	2.33	4.26	0.85
	2010	2.60±0.2	5.1±0.2	0.65±0.2	2.25	5.75	1.00
	2512	3.20±0.3	6.4±0.3	0.65±0.2	2.35	7.25	1.4
	3008	2.6±0.3	7.6±0.3	0.65±0.2	2.28	8.63	1.0
	3015	3.9±0.3	7.7±0.3	0.65±0.2	2.55	8.74	1.7
	3618	4.6±0.3	9.1±0.3	0.65±0.2	2.7	10.35	2.1
	3921	5.1±0.3	11.1±0.4	0.65±0.2	2.8	12.65	2.4
5931	7.5±0.2	15±0.2	0.6±0.2	1.05	-----	-----	

Current Sensing Resistors

HTE-Auto Series / Metal Foil Type

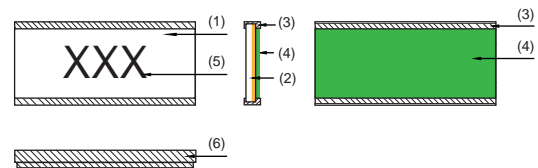


Product Material / 產品材料

No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn · Ni · Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
⑥	Edge electrode / 側邊電極	Sn · Ni · Cu / 錫、鎳、銅



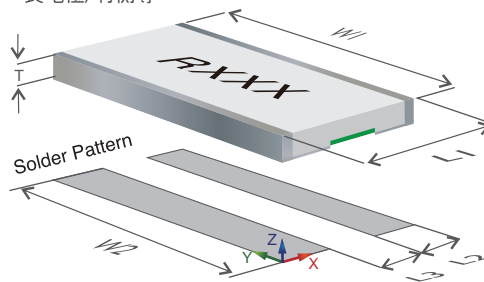
HTE-Series



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
HTE-Auto Series	0805-□-1W0-R-□□□-Auto	1.0	2-500	±0.5,±1	±50~±100
	1206-□-1W5-R-□□□-Auto	1.5	2-100	±0.5,±1	±50~±100
	2010-□-2W0-R-□□□-Auto	2.0	2-100	±0.5,±1	±50~±100
	2512-□-3W0-R-□□□-Auto	3.0	1-100	±0.5,±1	±50~±100
	3008-□-3W0-R-□□□-Auto	3.0	1-100	±0.5,±1	±50~±100

HTE-Auto Series Long electrode / with edge 長電極/有側導

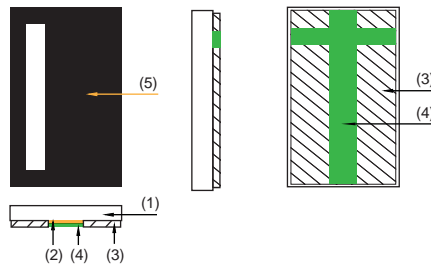
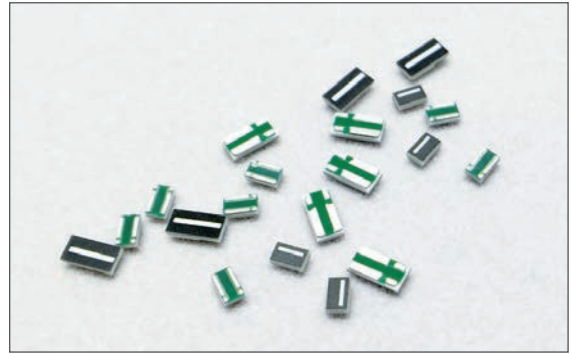


Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
HTE-Auto Series	0805	1.35±0.2	2.10±0.2	0.65±0.2	1.10	2.30	0.6
	1206	1.70±0.2	3.30±0.2	0.65±0.2	1.30	3.68	0.6
	2010	2.60±0.2	5.10±0.2	0.65±0.2	2.25	5.75	1.0
	2512	3.20±0.3	6.40±0.3	0.65±0.2	2.35	7.25	1.4
	3008	2.60±0.3	7.60±0.3	0.65±0.2	2.28	8.63	1.0

Product Material / 產品材料

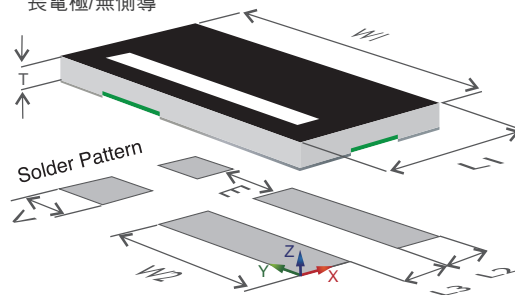
No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn · Ni · Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
HFCL-Series	0603-□-0W33-R-□□□-□	0.33	1~25	±0.5,±1	±50~±200
	1206-□-1W0-R-□□□-□	1.0	0.5~25	±0.5,±1	±50~±200
HFCL-Auto Series	1206-□-1W0-R-□□□-Auto	1.0	0.5~0.75	±3	±150
			1~2	±2	±100
			2.5~4	±1	±100
			5~25	±0.5,±1	±50

HFCL-Series
 Long electro / edgeless
 長電極/無側導

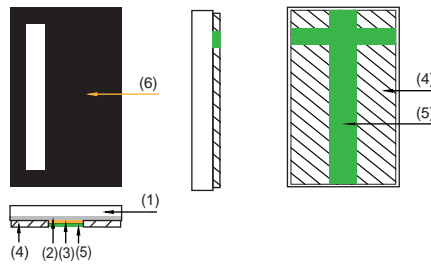
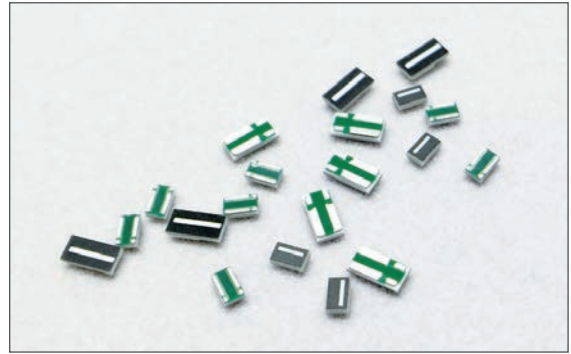


Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min	V	E
HFCL-Series	0603	0.8±0.15	1.6±0.2	0.55±0.1	0.18	0.93	0.5	0.23	0.4
	1206	1.6±0.2	3.2±0.2	0.6±0.2	1.3	2.29	0.6	0.7	0.4
HFCL-Auto Series	1206	1.55±0.20	3.20±0.20	0.50±0.20	1.014	2.29	0.762	0.762	0.381

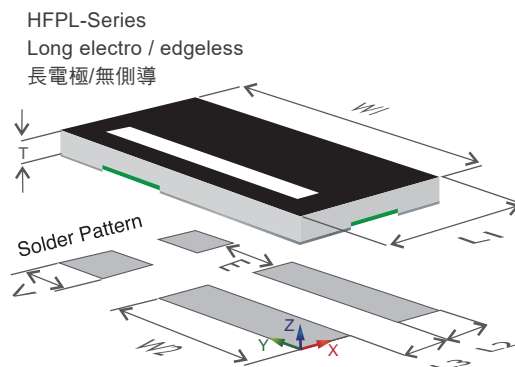
Product Material / 產品材料

No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Epoxy / 環氧樹脂
②	Adhesive / 粘著膠層	Epoxy / 環氧樹脂
③	Resistive element / 電阻本體	Alloy / 合金
④	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
⑤	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑥	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (white) / 防火級環氧樹脂, 符合UL- 94-V0 要求(白色)



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
HFPL-Series	0603-□-0W33-R-□□□-□	0.33	2.5~5	±1%,±2%	±100
	0805-□-0W5-R-□□□-□	0.5	1~2	±1%,±2%,±3%,±5%	±100
	1206-□-1W0-R-□□□-□	1.0	0.5 1~5	±0.5%,±1% ±0.5%,±1%	±100 ±75

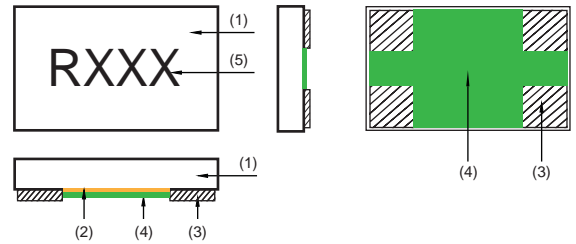
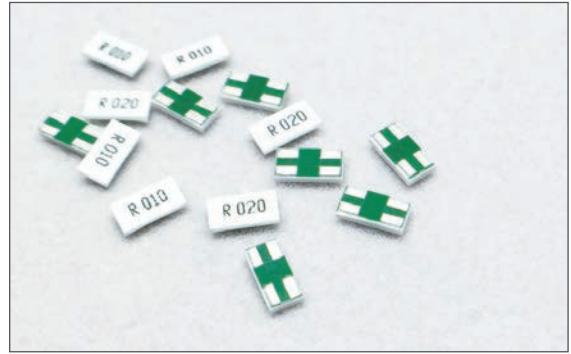


Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min	V	E
HFPL-Series	0603	0.80±0.15	1.60±0.20	0.33±0.10	0.400	1.300	0.350	0.400	0.200
	0805	1.25±0.20	2.00±0.20	0.40±0.20	0.700	1.600	0.500	0.450	0.250
	1206	1.60±0.20	3.20±0.20	Max 0.50 Max 0.35	1.014	2.290	0.762	0.762	0.381

Product Material / 產品材料

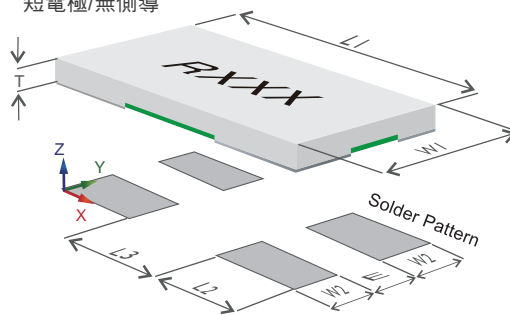
No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Alumina ceramic (alumina 96%) / 氧化鋁陶瓷基板 (氧化鋁含量達 96%)
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn · Ni · Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
SFCA-Series	1206-□-0W5-R-□□□-□	0.5	0.5~100	±0.3, ±0.5, ±1	±25~±50

SFCA-Series
 Short electrode / edgeless
 短電極/無側導

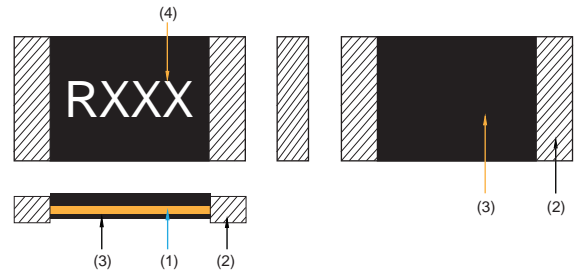
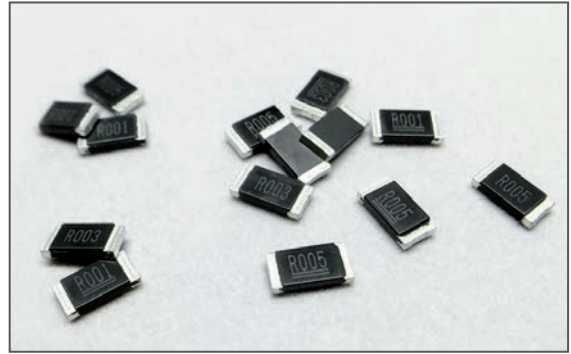


Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min	V	E
SFCA-Series	1206	3.2±0.2	1.6±0.2	0.6±0.2	0.6	0.55	2.0	-----	0.5

Product Material / 產品材料

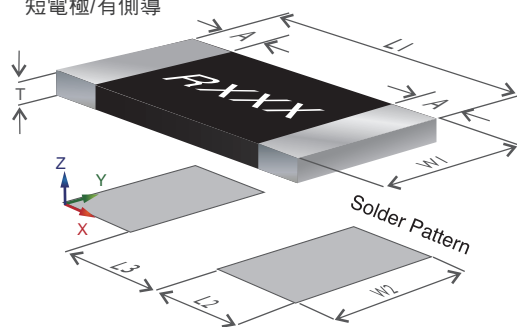
No. 號碼	Material / 材質	Description / 說明
①	Resistive element / 電阻本體	Alloy / 合金
②	Terminal electrode / 端電極 Edge electrode / 側邊電極	Sn、Ni、Cu / 錫、鎳、銅
③	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
④	Marking / 文字標記	Laser marking / 鐳射打標



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSH-Series	1206-□-2W0-R-□□□-□	1.0	5	±0.5, ±1	±75
		1.5	10, 15	±1	±75
	2512-□-2W0-R-□□□-□	2.0	1-50	±1, ±3, ±5	±50~100
	2512-□-3W0-R-□□□-□	3.0	1~4	±1, ±3, ±5	±50~100
	2512-□-3W0-R-□□□-□	3.0	5-50	±1, ±3, ±5	±50~100

MSH-Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

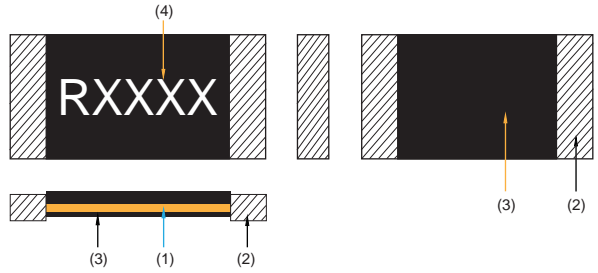
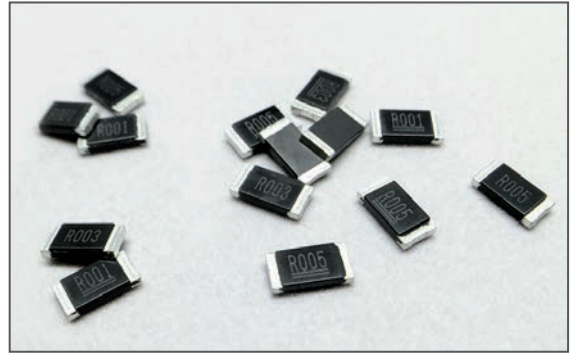
Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
MSH-Series	1206	3.3±0.2	1.6±0.2	0.8±0.2	1.8	1.84	1.2
	2512(2W)	6.4±0.2	3.2±0.2	0.9±0.2	2.11	3.57	3.18
	2512(3W, 1~4mΩ)	6.4±0.2	3.2±0.2	1.1±0.2	2.11	3.57	3.18
	2512(3W, 5~50mΩ)	6.4±0.2	3.2±0.2	0.9±0.2	2.11	3.57	3.18

Current Sensing Resistors

MSHL Series / Metal Plate Type

Product Material / 產品材料

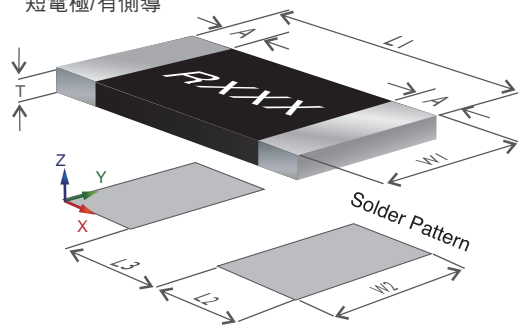
No. 號碼	Material / 材質	Description / 說明
①	Resistive element / 電阻本體	Alloy / 合金
②	Terminal electrode / 端電極 Edge electrode / 側邊電極	Sn、Ni、Cu / 錫、鎳、銅
③	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
④	Marking / 文字標記	Laser marking / 鐳射打標



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSHL-Series	2512-□-2W0-R-□□□-□□	2.0	1/1.5	±0.5,±1	±100
	2512-□-2W0-R-□□□-□		2-10	±0.5,±1	±50
	2512-□-3W0-R-□□□-□	3.0	1-3	±0.5,±1	±50~±100
	2512-□-3W0-R-□□-□□		5-8	±0.5,±1	±50

MSHL-Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

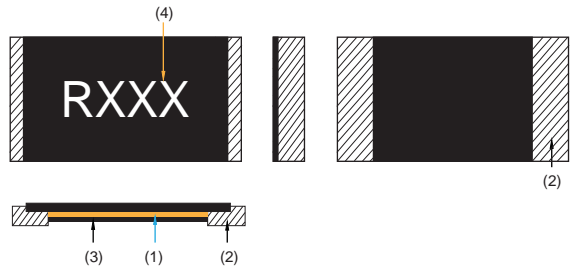
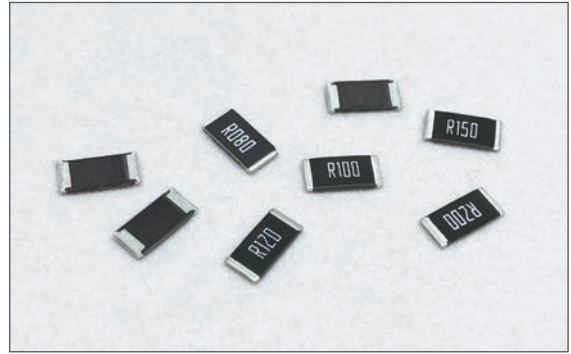
Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
MSHL-Series	2512(2W, 0.50/0.75mΩ)	6.40±0.3	3.20±0.3	0.90±0.2	2.95	3.57	1.50
	2512(2W, 1/1.5mΩ)	6.40±0.3	3.20±0.3	0.90±0.2	2.11	3.57	3.18
	2512(3W, 1~3mΩ)	6.40±0.3	3.20±0.3	1.10±0.2	2.11	3.57	3.18
	2512(3W, 5~8mΩ)	6.40±0.3	3.20±0.3	0.90±0.2	2.11	3.57	3.18

Current Sensing Resistors

MSH-LR Series / Metal Plate Type

Product Material / 產品材料

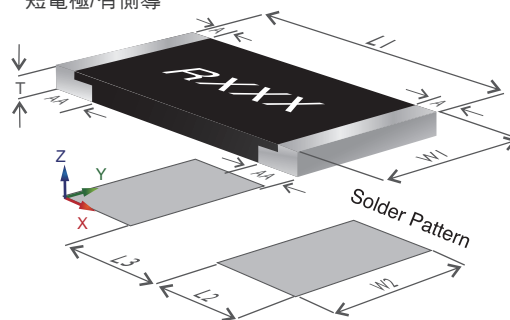
No. 號碼	Material / 材質	Description / 說明
①	Resistive element / 電阻本體	Alloy / 合金
②	Terminal electrode / 端電極 Edge electrode / 側邊電極	Sn、Ni、Cu / 錫、鎳、銅
③	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(black) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
④	Marking / 文字標記	Laser marking / 鐳射打標



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSH-LR Series	2512-□-2W0-R-□□□-LR	2.0	0.50/0.75	±1	±150
			1/1.5	±0.5, ±1	±100
			2~50	±0.5, ±1	±50

MSH-LR Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
MSH-LR Series	2512(0.50/0.75mΩ)	6.40±0.3	3.20±0.3	1.05±0.2	2.95	3.57	1.50
	2512(1/1.5mΩ)	6.40±0.3	3.20±0.3	0.90±0.2	2.95	3.57	1.50
	2512(2~50mΩ)	6.40±0.3	3.20±0.3	0.90±0.2	2.11	3.57	3.18

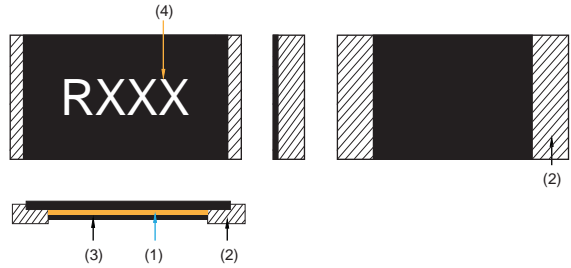
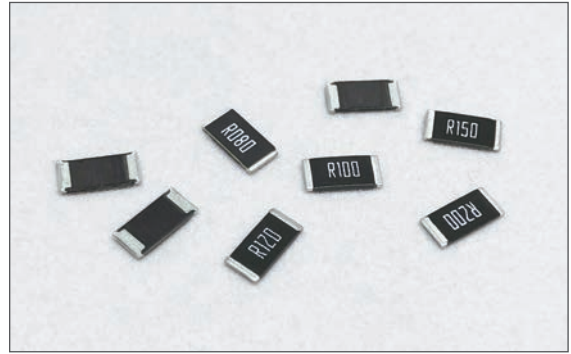
Current Sensing Resistors

MSE Series / Metal Plate Type



Product Material / 產品材料

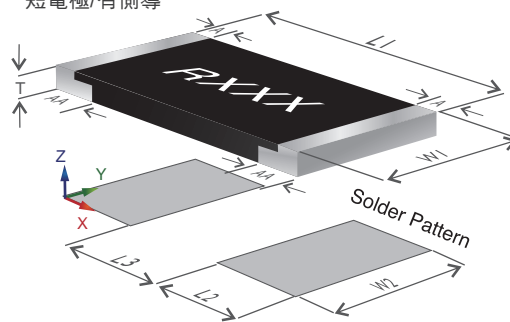
No. 號碼	Material / 材質	Description / 說明
①	Resistive element / 電阻本體	Alloy / 合金
②	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
③	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(黑色)
④	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (white) / 防火級環氧樹脂, 符合UL- 94-V0 要求(白色)



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below 在環境溫度70°C以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSE-Series	2512-□-2W0-R-□□□-□	2.0	0.5~450	±1	±50
	2512-□-3W0-R-□□□-□	3.0	0.5~100	±1	±50
	2725-□-4W0-R-□□□-□	4.0	0.25~3	±1	±50
	2728-□-4W0-R-□□□-□	4.0	4~600	±1	±50
	4527-□-5W0-R-□□□-□	5.0	0.5~500	±1	±50

MSE-Series
Short electrode / with edge
短電極/有側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

Unit(單位): mm	Size / 尺寸	L1		A	AA	T	L2	W2	L3/min
MSE-Series	2512(2W, 0.5mΩ)	6.35±0.26	3.05±0.26	0.2~1	2.20±0.26	0.67±0.26	3.05	3.68	1.27
	2512(2W, 51~100mΩ)	6.35±0.27	3.05±0.26	0.2~1	1.10±0.26	0.56±0.26	1.90	3.68	3.50
	2512(2W, 101~450mΩ)	6.35±0.28	3.05±0.26	0.2~1	0.85±0.26	0.61±0.26	1.90	3.68	3.50
	2512(3W, 0.5mΩ)	6.35±0.26	3.05±0.26	0.2~1	2.20±0.26	0.67±0.26	3.05	3.68	1.27
	2512(3W, 51~100mΩ)	6.35±0.26	3.05±0.26	0.2~1	1.10±0.26	0.74±0.26	1.90	3.68	3.50
	2725(4W, 0.25mΩ)	6.80±0.26	6.35±0.26	0.2~1	2.30±0.26	0.82±0.26	3.18	6.86	1.32
	2725(4W, 0.5mΩ)	6.80±0.27	6.35±0.27	0.2~1	2.30±0.26	0.69±0.26	3.18	6.86	1.32
	2725(4W, 1mΩ)	6.80±0.28	6.35±0.28	0.2~1	1.80±0.26	0.69±0.26	2.34	6.86	3.00
	2725(4W, 1.5~3mΩ)	6.80±0.29	6.35±0.29	0.2~1	1.80±0.26	0.61±0.26	2.34	6.86	3.00
	2728(4W, 4~50mΩ)	6.60±0.26	6.70±0.26	0.2~1	1.20±0.26	0.72±0.26	2.75	7.82	3.51
	2728(4W, 51~450mΩ)	6.60±0.26	6.70±0.26	0.2~1	1.20±0.26	0.84±0.26	2.75	7.82	3.51
	2728(4W, 451~600mΩ)	6.60±0.26	6.70±0.26	0.2~1	1.20±0.26	0.77±0.26	2.75	7.82	3.51
	4527(5W, 0.5mΩ)	11.30±0.50	6.60±0.50	0.2~1	3.00±0.26	0.79±0.26	4.50	8.74	4.50
	4527(5W, 1~5mΩ)	11.30±0.50	6.60±0.50	0.2~1	2.00±0.26	0.67±0.26	3.40	8.74	6.43
	4527(5W, 6~500mΩ)	11.30±0.50	6.60±0.50	0.2~1	2.00±0.26	0.57±0.26	2.93	8.74	7.63

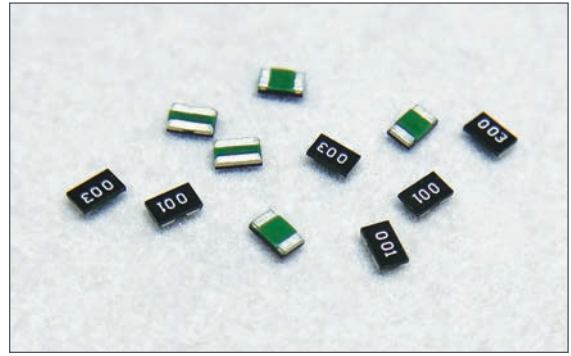
Current Sensing Resistors

MSTC/MHTC Series / Metal Plate Type

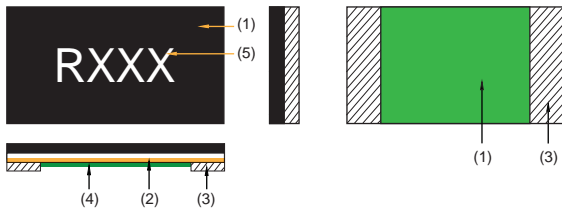


Product Material / 產品材料

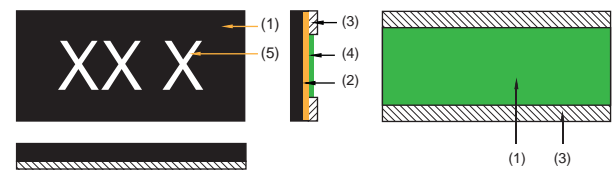
No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Epoxy / 環氧樹脂
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements(green) / 防火級環氧樹脂, 符合UL- 94-V0 要求(綠色)
⑤	Marking coating / 文印防焊層	Flame-retardant epoxy, meets UL- 94-V0 requirements (white) / 防火級環氧樹脂, 符合UL- 94-V0 要求(白色)



MSTC-Series



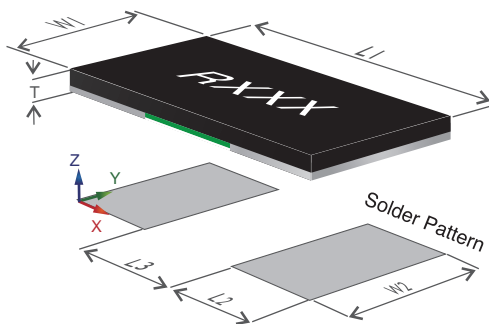
MHTC-Series



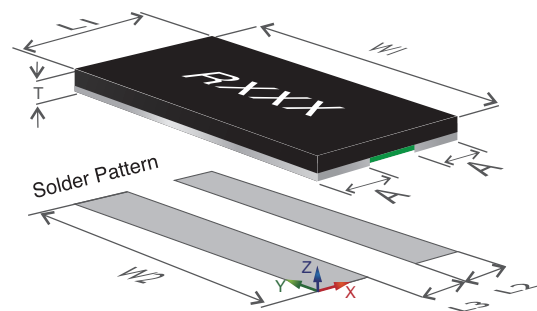
Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below in environment temperature 70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSTC-Series	0201-□-0W2-R-□□□-□	0.2	2.5~20	±1,±3,±5	±100~±150
	0402-□-0W33-R-□□□-□	0.33	2.5~20	±1,±3,±5	±100~±150
	0603-□-0W33-R-□□□-□	0.33	2~20	±1,±3,±5	±100~±150
	0805-□-0W5-R-□□□-□	0.5	1.5~20	±1,±3,±5	±100~±150
	1206-□-1W0-R-□□□-□	1.0	1~20	±1,±3,±5	±100~±150
MHTC-Series	0805-□-1W0-R-□□□-□	1.0	1~1.5	±1,±2	±150
	0805-□-1W0-R-□□□-□	1.0	2~5	±1,±2	±100
	1206-□-1W0-R-□□□-□	1.0	1~5	±1	±50

MSTC-Series
Short electrode / with edge
短電極/無側導



MHTC-Series
Long electro / edgeless
長電極/無側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

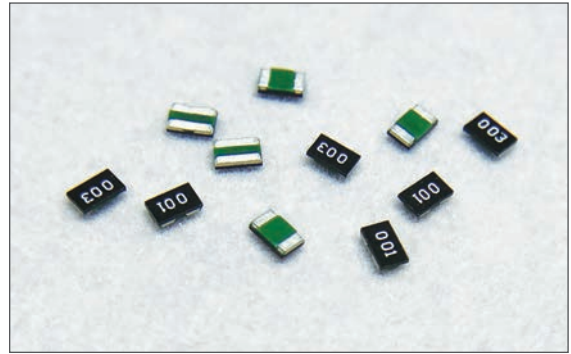
Unit(單位): mm	Size / 尺寸	L1	W1	A	T	L2	W2	L3/min
MSTC-Series	0201	0.6±0.1	0.3±0.1	-----	0.25±0.05	0.15±0.1	-----	-----
	0402	1.0±0.1	0.55±0.1	-----	0.3±0.05	0.23±0.1	-----	-----
	0603	1.6±0.25	0.8±0.25	-----	0.4±0.25	1.35	0.92	0.6
	0805	2.0±0.25	1.25±0.25	-----	0.4±0.25	1.4	1.44	0.8
	1206	3.2±0.25	1.6±0.25	-----	0.4±0.25	1.9	1.84	1.2
MHTC-Series	0805(1W, 1mΩ)	1.25±0.25	2.0±0.25	0.38±0.20	0.4±0.15	0.90	2.3	0.4
	0805(1W, 1.5~5mΩ)	1.25±0.25	2.0±0.25	0.32±0.20	0.4±0.15	0.85	2.3	0.5
	1206(1W, 1mΩ)	1.60±0.25	3.20±0.25	0.35±0.15	Max 0.45	1.30	3.68	0.6
	1206(1W, 1.5~5mΩ)	1.60±0.25	3.20±0.25	0.35±0.15	Max 0.45	1.30	3.68	0.6

Current Sensing Resistors

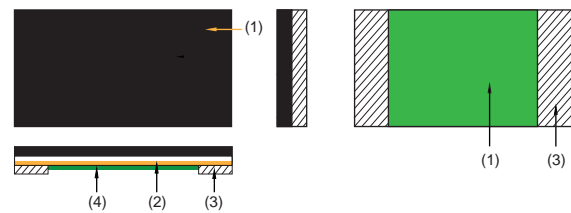
MSTJ Series / Metal Plate Type

Product Material / 產品材料

No. 號碼	Material / 材質	Description / 說明
①	Substrate / 基板	Epoxy / 環氧樹脂
②	Resistive element / 電阻本體	Alloy / 合金
③	Terminal electrode / 端電極	Sn、Ni、Cu / 錫、鎳、銅
④	Protective coating / 保護防焊層	Flame-retardant epoxy, meets UL-94-V0 requirements (green) / 防火級環氧樹脂, 符合UL-94-V0 要求 (綠色)



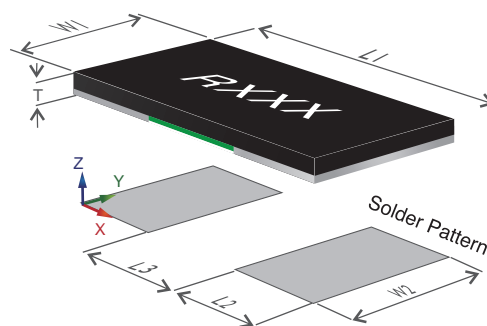
MSTJ-Series



Standard Specification / 規格標準

Product Series	Model 型號	Pr (Watt)	Ro (mΩ)	Rt (%)	TCR (ppm)
		Power rating at 70°C or below in environment temperature 70°C 以下時的額定功率	Device normal resistance 元件在室溫下的電阻	Normal resistance tolerance 元件在室溫下的電阻誤差範圍	Temperature coefficient of resistance 電阻溫度係數
MSTJ-Series	MSTJ0201	1.0	8	>100	70
	MSTJ0402	0.5	20	>100	105
	MSTJ0603	0.2	26	>100	105
	MSTJ0805	0.2	35	>100	105
	MSTJ1206	0.2	40	>100	105

MSTJ-Series
Short electrode / with edge
短電極/無側導



Device and Pad - Layout Dimensions / 元件產品與焊墊建議尺寸

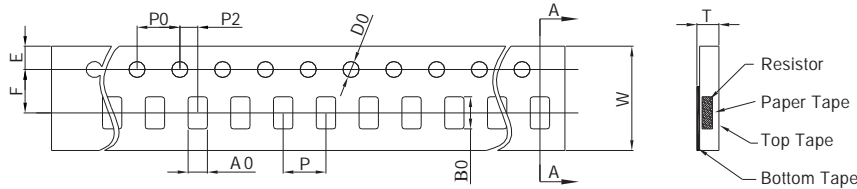
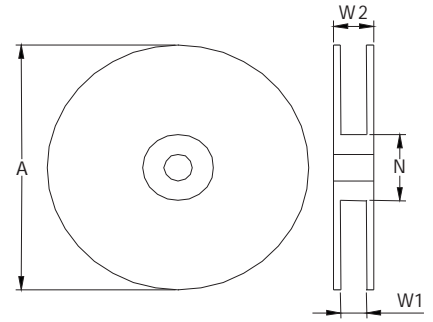
Unit(單位): mm	Size / 尺寸	L1	W1	T	L2	W2	L3/min
MSTJ-Series	0201	0.60±0.03	0.30±0.04	0.25±0.10	0.20	0.33	0.25
	0402	1.00±0.20	0.50±0.20	0.30±0.15	0.60	0.60	0.40
	0603	1.60±0.20	0.80±0.20	0.35±0.20	1.30	0.92	0.60
	0805	2.00±0.20	1.25±0.20	0.40±0.20	1.40	1.44	0.80
	1206	3.20±0.20	1.60±0.20	0.40±0.20	1.80	1.84	1.20

Current Sensing Resistors Package Information / 電流感測電阻產品包裝介紹

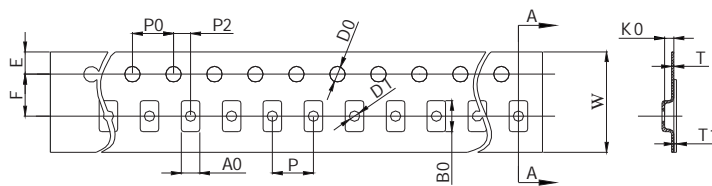
Products Packing Specifications / 產品包裝規格

Type / 型式	Size / 尺寸	Pr (Watt)	Ro (mΩ)	Quantity / 數量
Current Sensing Resistors / SMD	4527/5931	All Models 型號	Reel Packing 圓盤式包裝	1000pcs / pack
	3015/3618/3921			2000pcs / pack
	1508/2010/2512/3008			4000pcs / pack
	0603/0805/1206			5000pcs / pack
	0402			10000pcs / pack

Size / 尺寸	A	N	W1	W2
3921/4527/5931	178±5	60±2	24.3+1/-0	Max.26.5
3008/3015/3618	178±5	60±2	16.3+1/-0	Max.21.0
1508/2010/2512	178±5	60±2	12.3+1/-0	Max.18.4
0603/0805/1206	178±5	60±2	9.0+1/-0	Max.18.4
0402	178±5	60±2	9.0+1/-0	Max.18.4



Size / 尺寸	W	PO	P1	P2	A0	B0	D0	F	E	T
0402	8.00±0.3	4.00±0.10	4.00±0.10	2.00±0.10	0.75±0.20	1.25±0.20	1.50±0.10	3.50±0.10	1.75±0.10	0.50±0.05
0603	8.00±0.3	4.00±0.10	4.00±0.10	2.00±0.10	1.20±0.20	1.98±0.20	1.50±0.10	3.50±0.10	1.75±0.10	0.75±0.20
0805	8.00±0.3	4.00±0.10	4.00±0.10	2.00±0.10	1.60±0.20	2.30±0.20	1.50±0.10	3.50±0.10	1.75±0.10	0.75±0.20



Size / 尺寸	W	PO	P1	P2	A0	B0	D0	F	E1	T	T1	KO
1206	8.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	1.82±0.15	3.53±0.15	1.50±0.10	3.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10
1508	12.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	2.30±0.15	4.10±0.15	1.50±0.10	3.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10
2010	12.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	3.00±0.20	5.60±0.2	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max.0.10	0.80±0.10
2512	12.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	3.40±0.15	6.70±0.15	1.50±0.10	5.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10
3008	16.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	2.30±0.20	8.00±0.2	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max.0.10	0.80±0.10
3015	16.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	4.15±0.15	7.95±0.15	1.50±0.10	5.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10
3618	16.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	4.85±0.20	9.35±0.2	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max.0.10	0.80±0.10
3921	24.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	5.50±0.15	11.50±0.2	1.50±0.10	5.50±0.10	1.75±0.10	0.25±0.10	Max.0.10	0.80±0.10
4527	24.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	7.00±0.20	11.50±0.2	1.50±0.10	5.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10
5931	24.00±0.30	4.00±0.10	4.00±0.10	2.00±0.10	7.50±0.20	15.0±0.15	1.50±0.10	5.50±0.10	1.75±0.10	0.20±0.10	Max.0.10	0.80±0.10

