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1. 適用範圍 Specification

1-1 本承認書僅適用本公司生產之各種繞線型保險絲電阻(1/4W、1/2W、1W、2W)及其小型化之成品規格。
The specification is only suitable for Wire Wound Fusible Resistors (1/4W、1/2W、1W、2W)and there are small size manufactured by SHI MENG ELECTRONIC CO.,LTD.

1-2 參考標準 Applicable specification
本承認書參考《JIS C5202-1990》和《GB/T 5729-2003/IEC 60115-1:2001》、《UL1412》
The specification Applicable specification《JIS C5202-1990》and《GB/T 5729-2003/IEC 60115-1:2001》、《UL1412》

2. 特性 Feature

2-1 施加過負荷電壓時，在規定的時間內熔斷，對電路起保護作用
Overload voltage is applied, the fuse within the prescribed time, the protective effect on the circuit

2-2 不燃性涂料，能承受高温.
Non-flammable coating, could withstand High Temperature

2-3 常见的电阻具有额外的安全功能，无明火或烟雾
Common resistor with additional safety function, no flame or smoke

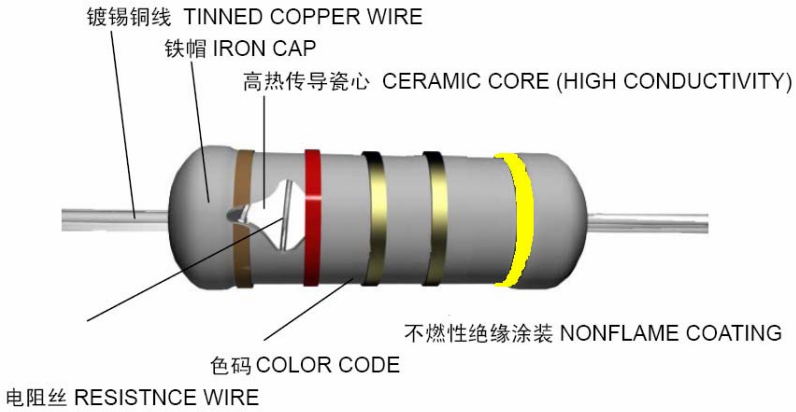
2-4 1/2W 和 1W 通过 UL 安全认证，編號：E339430
1/2W and 1W Safety certification by UL, No: E339430

3. 品名 Part Number

依據其種類，分別注明額定功率、容許差、公稱電阻值和形狀。
According the Resistors type, To mark the Rated power, Tolerance, Resistance value, and forming type.

例(e.g)：	KN	1/2W	J(±5%)	10Ω	T52
	種類	額定功率	容許差	阻值	形狀
	Type	Rated power	Tolerance	Resistance	Forming

4. 結構圖 Construction



5. 術語 Glossary

5-1 種類 Type

以大寫英文字母 “FKN” 表示為繞線電阻器。

Wire Wound Fusible Resistors are marked with “FKN”

5-2 標稱阻值 Rated resistance

Unit: mΩ(10^{-3}Ω) 、Ω、KΩ(10^{3}Ω)等

5-3 電阻值容許差 Resistance tolerance:

J(±5%)、 G(±2%)、F(±1%)

5-4 額定功率：在 70℃環境溫度下進行 70℃耐久性試驗，而且阻值變化不超過該試驗的允許值時所允許的最大功率

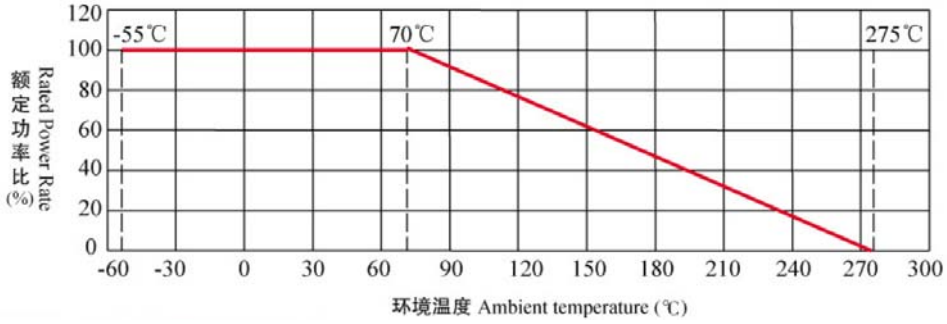
Rated power：At 70 ℃ to 70 ℃ ambient temperature durability test, and the change in resistance does not exceed the value of the test allows the maximum power allowed

5-4-1 以 “W” 代表額定電功率, 如加一英文字母 “S” 即表示小型化，例 1WS，即表示額定功率為 1W 之小型化

The “W” is the rated power, such as adding a letter "S" means that small, for example 1WS, that means a power rating of 1W the small Size

5-4-2 額定功率系適應在周圍溫度 70℃可以連續負載的最大功率,但周圍溫度如超過 70℃時之額定電力則依圖的降功率曲線實施。

Rated power is maximum power which can be continuously loaded at specified ambient temperature 70℃, however when the ambient temperature exceeds 70℃,rated power should be determined form the derating curve



5-5 額定電壓：用標稱阻值和額定功率乘積的平方根計算出來的直流電壓或交流電壓有效值。由於電阻器的尺寸和結構上的原因，在超過一定的高阻值時不允許施加額定電壓，而是應施加最高使用電壓。

Rated voltage: The nominal resistance and power rating calculated by the square root of the product of DC voltage or AC rms voltage .As the resistor size and structural reasons, the high resistance when more than a certain rated voltage is not allowed, but the maximum operating voltage should be applied.

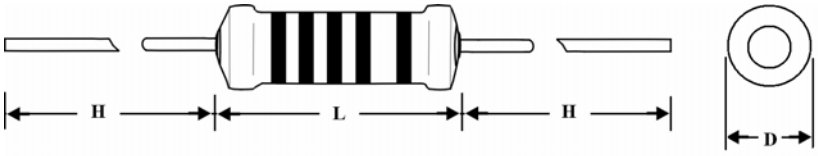
5-6 最高使用電壓：可以連續施加在電阻值兩個引出端上的最大直流或交流電壓有效值，當電阻的額定電壓計算出來大於最高使用電壓時，只能對電阻施加最高使用電壓。

Max continuous working voltage: resistance can be continuously applied to the two terminals on the largest DC voltage or AC rms voltage, when the resistance is greater than the maximum rated voltage is calculated using the voltage, use only the highest voltage applied to the resistance

5-7 電阻溫度係數（TCR）：兩個規定溫度之間的阻值相對變化除以產生這個變化的溫度之差，主要用來衡量電阻值隨溫度變化而變化的特性

Temperature coefficient of resistance (TCR): the resistance between the two provisions relative changes in temperature produces this change by dividing the temperature difference is mainly used to measure the resistance changes with temperature characteristics

6. 尺寸 Dimension

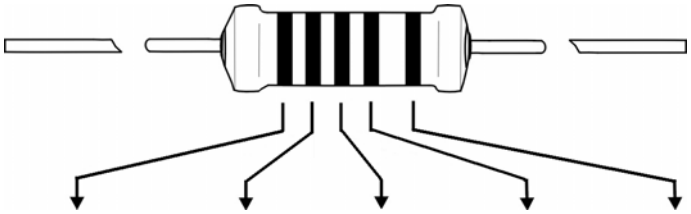


Unit: mm

Type \ Size	L±0.5	D±0.6	H±3	d±0.06	Resistance range	Tolerance
1/4W 1/2WS	6.5	2.4	27	0.43	1Ω~51Ω	F: ±1% G: ±2% J: ±5%
1/2W 1WS	9.2	3.3	26	0.50	1Ω~51Ω	
1W 2WS	11	4.5	22/28/35	0.65	1Ω~100Ω	
2W 3WS	15	5.0	34	0.75	1Ω~100Ω	

注：①引線根部腳漆長度小於 1.5mm
Lead paint the roots of the foot length is less than 1.5mm

7. 色碼 Explanation of color



顏色 Color	第一位數 1ND band	第二位數 2ND band	倍數 Multiple	容許差% Tolerance	區分環 Special logo
Black 黑	0	0	10^0		
Brawn 棕	1	1	10^1	F(±1%)	
Red 紅	2	2	10^2	G(±2%)	
Orange 橙	3	3	10^3		
Yellow 黃	4	4	10^4		表示 FKN
Green 綠	5	5	10^5		
Blue 藍	6	6	10^6		
Violet 紫	7	7	10^7		
Gray 灰	8	8	10^8		
White 白	9	9	10^9		
Gold 金			10^{-1}	J(±5%)	
Silver 銀			10^{-2}		

8. 電氣特性 Characteristics

Item	Size			
額定功率 Rated power	1/4W 1/2WS	1/2W 1WS	1W 2WS	2W 3WS
最高使用電壓 Max continuous working voltage	150V	150V	150V	250V
最高過負荷電壓 Max overload voltage	300V	400V	400V	400V
耐絕緣電壓 Insulation resistance voltage	250V	250V	250V	350V
使用溫度範圍 Operating temp range	-55℃ ~ +275℃			

Note:額定電壓 rated voltage=$\sqrt{\text{功率 power*阻值 resistance value}}$

當計算得出的額定電壓大於最高使用電壓，使用時取兩者較小者

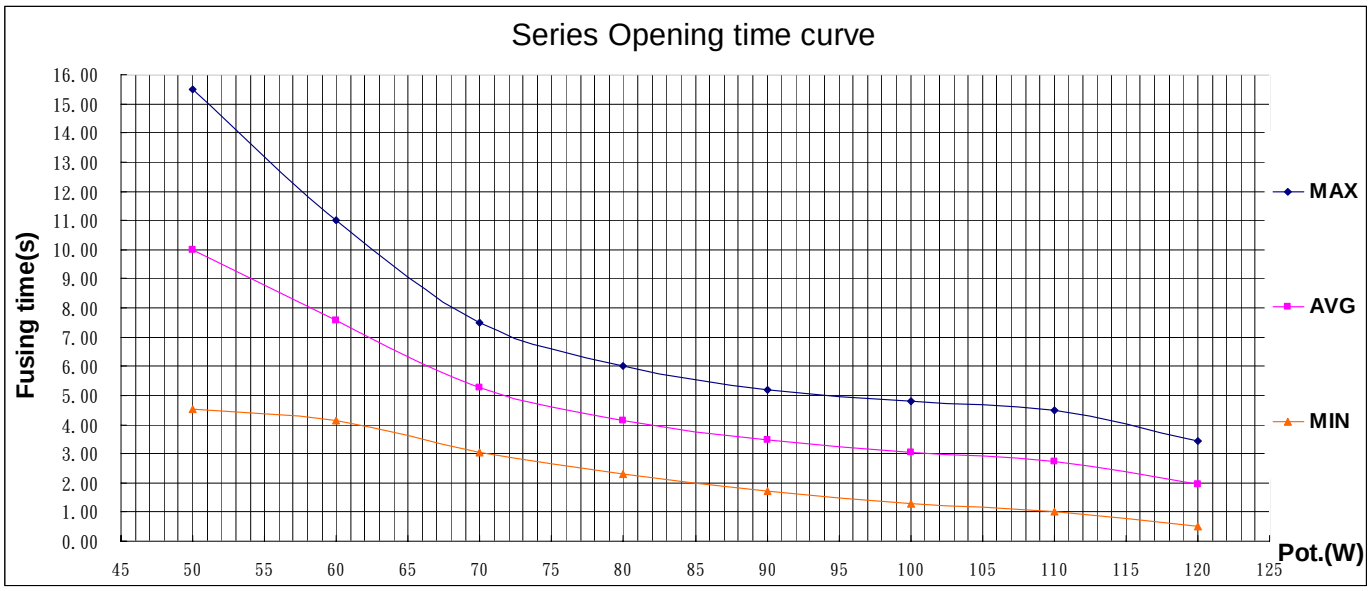
When the calculated rated voltage greater than the maximum operating voltage, whichever is the lesser of use

9. 性能 Performance

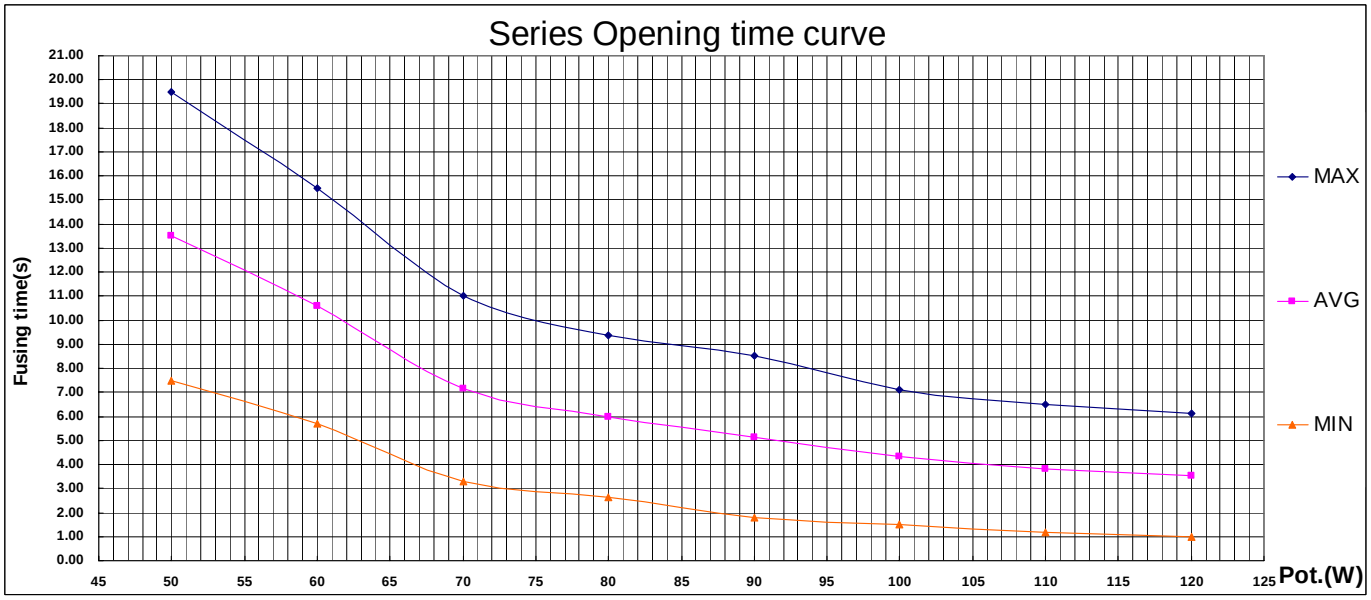
特性項 Characteristics	規格值 Specifications	測試方法 Test methods
溫度係數 T.C.R	±300PPM/℃	$\frac{R2-R1}{R1*(T2-T1)}*10^6$(PPM)/ ℃ R1:常溫(T1)阻抗值. Resistance value at room temperature (T1). R2:常溫+100℃(T2)阻抗值. Resistance value at room temperature+100℃.
溫度壽命 Load life	阻抗值變化±(5%R+0.05Ω).機械特性不可有損傷. Resistance change rate±(5%R+0.05Ω) MAX With no evidence of mechanical damage.	溫度 70±2℃,恆溫箱中,加額定電壓測試1.5小時停止 0.5 小時,連續 1000 小時. Resistance change after 1000hrs operating at rated voltage with duty cycle of 1.5hrs ON 0.5hrs OFF at 70℃±2℃.
短時間過負荷 Short time over load	±(1%R+0.05Ω)	額定電壓*2.5 倍或最高過負荷電壓（取小者）,測試 5 秒 2.5 times the rated voltage or maximum overload voltage (whichever is less), testing 5 seconds
焊錫性 Solder ability	百分之 95 覆蓋於導線上 95% coverage minimum	錫爐溫度:260±5℃ 浸錫時間:3±0.5 sec Test temperatures of solder260±5℃ Dwell time in solder:3±0.5 sec
接頭強度 Join intensity	接點不得有脫落情形 No terminal wire loosening and breakage shall occur.	夾住導線焊接端,並向外翻轉 90 度以上 Bending strength load 90^0 reciprocation twice

熔斷特性 Fusing Characteristics	參考下表特性 (1/4W 曲綫參照 1/2W,2W 曲綫參照 1W)	按照 UL1412 標準

1/2W UL 熔斷曲綫

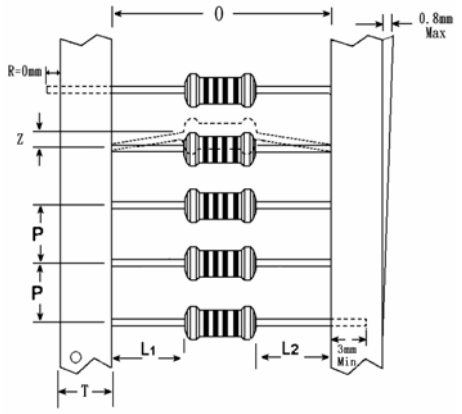


1W UL 熔斷曲綫



10. 成型方式 Forming type

10-1 Tape packing

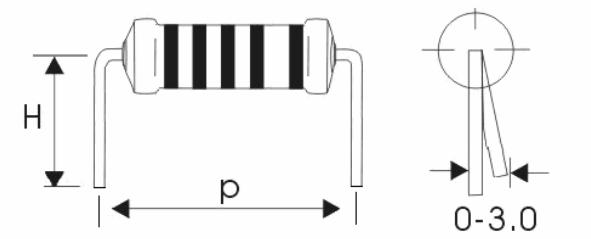


|L1-L2|=1mm Max

Unit: mm

STYLE	TYPE	O	|L1-L2|	P	T	Z	最小包裝數
T-52	1/4W 1/2WS	52±1	1max	5±0.2	5±1	1max	5000pcs
	1/2W 1WS	52±1	1max	5±0.2	5±1	1max	2000pcs
	1W 2WS	52±1	1max	5±0.2	5±1	1max	1000pcs
T-63	1W 2WS	63±2	1max	5±0.5	5±1	2max	1000pcs
T-73	1W 2WS	73±2	1max	5±0.5	5±1	2max	1000pcs
	2W 3WS	73±2	1max	5±0.5	5±1	2max	1000pcs

10-2 M-Type

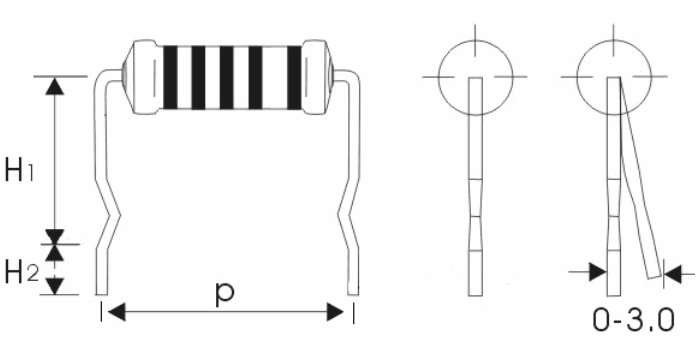


TYPE	P±0.5	H±0.5
1/4W 1/2WS	10	4/6/8/10
1/2W 1WS	12.5	4/6/8/10
1W 2WS	15	10
2W 3WS	20	10

可依客戶所需求尺寸加工製造

It can be man fractured according to the dimension that required by customers

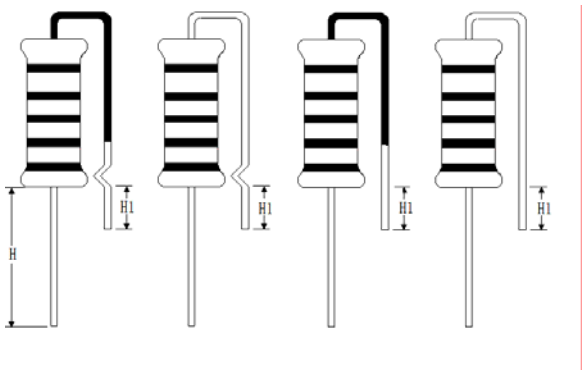
10-3 MK-Type



TYPE	H1±0.5	H2±1
1/4W 1/2WS 1WSS	5/8/13	4/6
1/2W 1WS 2WSS	5/8/13	4/6
1W 2WS	5/8/13	4/6
2W 3WS	5/8/13	4/6

注: 1/4W 最小腳距為 8mm、1/2W 最小腳距為 12.5mm
1W 最小腳距為 15mm、2W 最小腳距為 20mm
3W 最小腳距為 23mm。

10-4 F-Type

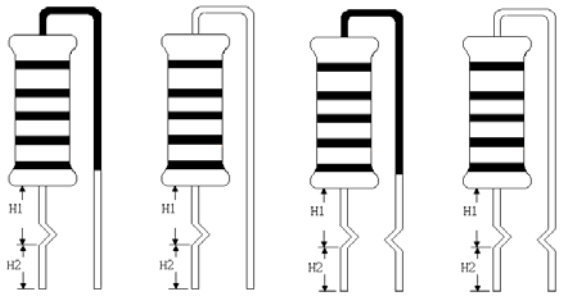


TYPE	H±3	H1±1
1/4W 1/2WS 1WSS	26 Max	4/6/8/10
1/2W 1WS 2WSS	24 Max	4/6/8/10
1W 2WS	22/28 Max	4/6/8/10
2W 3WS	32 Max	4/6/8/10

"H1" "H" 部份可剪，但長度不得小於 3.5mm

"H1" "H" part can be cut, but can't be small than3.5mm

10-5 F-Type 直腳打 K（單雙）



TYPE	H1±0.5	H2±1
1/2W 1WS 2WSS	4/5/6	4/6
1W 2WS	4/5/6	4/6
2W 3WS	4/5/6	4/6

11. 訂貨方式 How To Order

如：繞線型保險絲電阻 1/2W T52 ±5% 10Ω

Example: FKN 1/2W T52 ±5% 10Ω

1	F	K	N	0	0	2	T	5	2	J	0	1	0	0
(1)	(2)			(3)			(4)			(5)	(6)			

代碼 Code	類別 Type
1	Product

代碼 Code	瓦特數 Wattage
004	1/4W
002	1/2W
010	1W
020	2W
030	3W

代碼 Code	含義 meaning
T	Tape / Box
P	Bulk/ Box
Size	
---	Normal size
s	Small size
ss	Super small size
Extent	
52	Tape width 52mm
63	Tape width 63mm
73	Tape width 73mm
Molding Size	
M12510	M 型 12.5*10mm
Mk200130	M 型打 Kin 20*13mm
F00	立式成型，不剪腳
F08	立式成型，剪腳 8mm
F08U	立式涂腳漆成型，剪腳 8mm
F08K1U	立式涂腳漆打 KIN 成型，剪腳 8mm
尺寸方面不一一描述，以此類推	

阻值	Ex.	標示 Mark
低阻兩位小數Ω	0.05Ω	0R05
低阻兩位小數Ω	0.15Ω	0158
個位Ω	1Ω	0109
十位Ω	10Ω	0100
百位Ω	100Ω	0101
個位 K	1K	0102

以此類推

代碼 Code	產品類別 Type
FKN	繞線型保險絲電阻

代碼 Code	容許差 tolerance
F	±1%
G	±2%
J	±5%