

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 FUS Type Fusible Metal Film Resistors	PAGE	6-1

1. 一般事項 General

1.1 適用範圍 Scope

本承認書適用於深圳市新华湘电子有限公司製造之[保險絲型金屬皮膜固定電阻器]。  
This specification is available for Fusible Metal Film Resistors manufactured by ShenZhen xinhuaxiang electronic CO.,LTD

1.2 品質 Quality

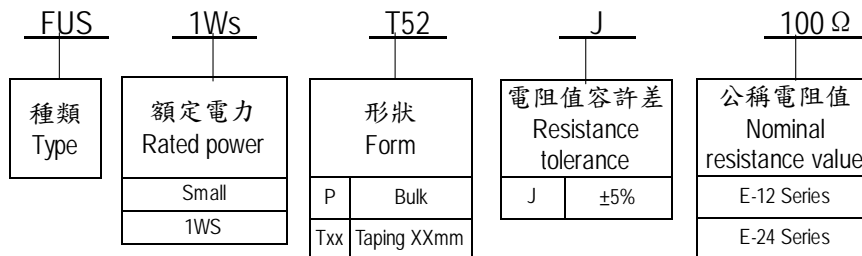
本電阻器的製造係經高品質管理程序，並具有高信賴性的品質保證。  
The resistor is manufactured by highly quality-controlled process and guaranteed high reliability.

1.3 標準試驗狀態 Standard measuring conditions

溫度  $20\pm 2^{\circ}\text{C}$ 、濕度  $65\pm 5\%$ 。  
但在溫度  $5\sim 35^{\circ}\text{C}$ 、濕度  $45\sim 85\%$ 之情況下，仍可給予判定。  
Temperature  $20\pm 2^{\circ}\text{C}$ , Humidity  $65\pm 5\%$ .  
Being no doubt about the judgment, measurements can be made within the following Temperature  $5\sim 35^{\circ}\text{C}$ , Humidity  $45\sim 85\%$ .

1.4 形名 (例) Type designation (example)

依使用種類、額定電力、形狀、公稱電阻值、電阻值容許差而區別，其構造如下：  
The type designation shall be in the following form and as specified.



承認 Approved by	作成 Drawn by

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 Fusible Metal Film Resistors	FUS Type	PAGE 6-2

1.5 額定電力 Rated power

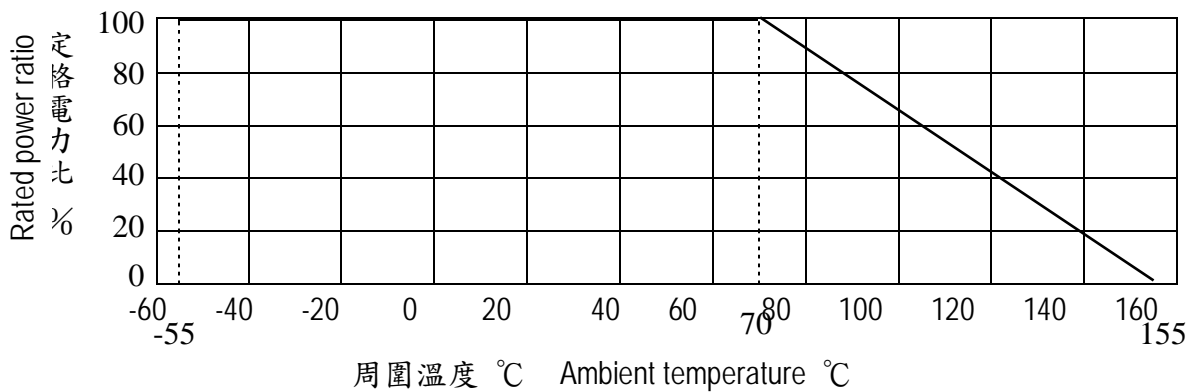
額定電力係適應在周圍溫度 70°C 可以連續負載的最大電力，如表-1；但周圍溫度如超過 70°C 時之額定電力則依圖一的電力輕減曲線實施。

Rated power is maximum power which can be continuously loaded at specified ambient temperature 70°C, however when the ambient temperature exceeds 70°C, rated power should be determined from the derating curve of Fig.1.

表-1 Table-1

種類 Type	額定電力 Rated power	最高使用電壓 Maximum working voltage	電阻值範圍 Resistance range	使用溫度範圍 Operating temperature range
FUS1WS	1W	10V	95Ω ~ 105Ω	-55°C ~ 155°C

圖一 電力輕減曲線 Figure 1 Power derating curve



承認 Approved by	作成 Drawn by

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 FUS Type Fusible Metal Film Resistors	PAGE	6-3

### 1.6 額定電壓 Rated voltage

額定電壓係指對應於額定電力的直流或交流（商用頻率之有效值）的電壓，由下式求得。

The rated voltage shall be the D.C. or A.C. (R.M.S. at power frequency) voltage which corresponds the rated power and the value of which is calculated from the formula below.

$$E = \sqrt{P \cdot R}$$

Where E : 額定電壓 Rated voltage (V)  
P : 額定電力 Rated power (W)  
R : 公稱電阻值 Nominal resistance ( $\Omega$ )

### 1.7 公稱電阻值 Nominal resistance values

公稱電阻值係按表-2 之數乘以  $10^n$  (n 為整數) 之數值，其單位為歐姆( $\Omega$ )。

公稱電阻值之範圍則按表-1 所示。

The nominal resistance values shall be the numerical values given in Table-2 multiplied by  $10^n$  (n is an integer) in the unit of ohm( $\Omega$ ).

The minimum resistance and maximum resistance shall be as given in Table-1.

表-2 電阻值有效數字的標準 Table-2 Standard nominal resistance values

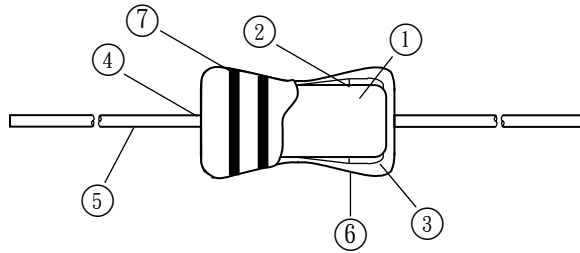
系列名 Name of series	標準公稱電阻值 (為有效數字，單位省略) Standard nominal resistance values (significant figures with the unit omitted)
E-12	1.0, 1.2, 1.5, 1.8, 2.2, 2.7, 3.3, 3.9, 4.7, 5.6, 6.8, 8.2
E-24	1.0, 1.1, 1.2, 1.3, 1.5, 1.6, 1.8, 2.0, 2.2, 2.4, 2.7, 3.0 3.3, 3.6, 3.9, 4.3, 4.7, 5.1, 5.6, 6.2, 6.8, 7.5, 8.2, 9.1

承認 Approved by	作成 Drawn by

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 Fusible Metal Film Resistors	FUS Type	PAGE 6-4

1.8 構造圖 Structure diagram

FUS 系列之保險絲型金屬皮膜電阻器係按下表的材料而構成：  
The construction of resistor (FUS series) shall be as follows：



號碼 No.	構造名稱 Item	內容 Material
1	基體磁器 Ceramic core	使用高含鋁量的瓷器棒。 High alumina ceramic is used.
2	電阻體 Resistance element	電阻體的成份係使用金屬皮膜。 The resistor element shall consist of metal film.
3	端子 Terminal	鐵帽。 Tinned iron cap.
4	連接 Connection	導線對鐵帽須以電氣熔接。 The lead wire, which is plated with solder, shall be mounted to the caps by welding process.
5	導線 Lead wire	焊錫或鍍錫的軟銅線。不含鉛 Soldered or tinned annealed copper wire .Lead free
6	上塗塗裝 Finishing painting	使用矽樹脂塗料。 Silicone resin is used.
7	表示 Indication	色碼。 Color code.

承認 Approved by	作成 Drawn by

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 FUS Type Fusible Metal Film Resistors	PAGE	6-5

項目 Item	規格值 Performance	試驗方法 (依據 JIS C 5202) Test methods (Conform to JIS C 5202)	
焊錫附着性 Solderability	導線至少 95%以上新錫覆蓋。 Covered with new solder by 95% at least.	6.5 項參照 Comply with 6.5 焊錫溫度：235±5°C。 浸錫時間：5±0.5 秒。 Test temperature of solder: 235±5°C Dipping time in solder: 5±0.5s	
耐炎性 Flame retardant	火炎的持續時間：10 秒以下。 Burning duration: within 10 s	7.12 項參照 Comply with 7.12 15 秒, 5 回 15 s, 5 times	
溶斷特性 Fusing characteristic	Resistance Range	Magnification of Power Rating	Fusing Time (Maximum time)
	100Ω	Normal Size Rated Power X 16	溶斷時間 5 秒內 Fusing time is within 5 seconds

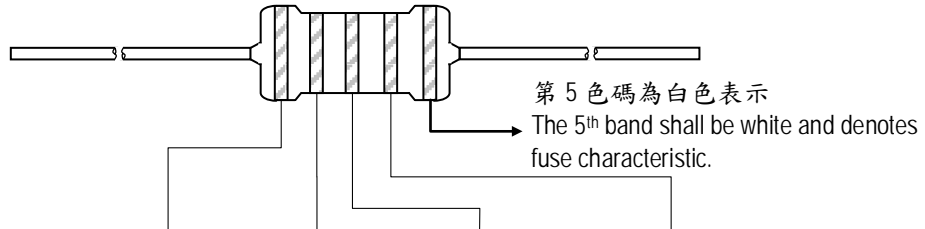
$$\text{熔断电压} = \sqrt{R \times W \times \text{倍数}} = \sqrt{100 \times 1 \times 16} = 40V$$

$$\text{熔断电流} = \text{熔断电压} \div R = 40 \div 100 = 0.4A$$

承認 Approved by	作成 Drawn by

標準書名 Classification	納入仕様書 Specification	Spec No.	FUS.APR-01
品名 Product Name	保險絲型金屬皮膜電阻器 FUS Type Fusible Metal Film Resistors	PAGE	6-6

2. 表示 Indication  
色碼 Color Code



顏色 Color	第1數字 1 <sup>st</sup> figure	第2數字 2 <sup>nd</sup> figure	倍率 Multiplier	誤差率 Tolerance
黑 Black	0	0	10 <sup>0</sup>	
棕 Brown	1	1	10 <sup>1</sup>	
紅 Red	2	2	10 <sup>2</sup>	±2% (G)
橙 Orange	3	3	10 <sup>3</sup>	
黃 Yellow	4	4	10 <sup>4</sup>	
綠 Green	5	5	10 <sup>5</sup>	
藍 Blue	6	6	10 <sup>6</sup>	
紫 Violet	7	7	10 <sup>7</sup>	
灰 Gray	8	8		
白 White	9	9		
金 Gold			10 <sup>-1</sup>	±5% (J)
銀 Silver			10 <sup>-2</sup>	±10% (K)
無 Plain				±20% (M)

承認 Approved by	作成 Drawn by