

塗裝絕緣型 SURGE 固定抵抗器 (SUR)
COAT-INSULATED FIXED ANTI-SURGE RESISTORS

◆ **FEATURE**

High-voltage pulse resistance of glass glaze film
MGF Series (Metal Glaze Resistor)
Is mainly used in AC-DC or pulse circuits and high-voltage equipment.
To provide resistance to high pressure, impact resistance, anti-surge resistors.
MGF series of resistors is designed for a variety of current-pulse inhibition,
Or a very small current to detect the use of the design.



Figure = P

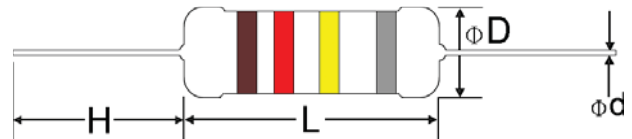
◆ **ORDERING**

Example: SURM1/2WT52K103P

Type	Power	Package	Form	Tolerance	Resistance	Figure
SURC1/2W	1/2W	T = T/Box B = Bulk R = Reel	52mm	J = ±5%	100 = 10Ω	P
SURC1WS	1WS		63mm	K = ±10%	101 = 100Ω	
SURC1W	1W		73mm	M = ±20%	102 = 1KΩ	
SURC2W	2W				103 = 10KΩ	
SURM1/2W	1/2W				104 = 100KΩ	
SURM1W	1W				105 = 1MΩ	
SURM2W	2W					

◆ **EXTERNAL DIMENSIONS**

Type	Dimensions (mm)			
	L	ΦD	H	Φd
SURC1/2W	11.5±1.0	4.5±0.5	35±2.0	0.78±0.03
SURC1WS	9.0±0.5	3.2±0.5	26±2.0	0.65±0.03
SURC1W	15.5±1.0	5.0±0.5	32±2.0	0.78±0.03
SURC2W	17.5±1.0	6.5±0.5	35±2.0	0.78±0.03
SURM1/2W	11.5±1.0	4.5±0.5	35±2.0	0.78±0.03
SURM1W	15.5±1.0	5.0±0.5	32±2.0	0.78±0.03
SURM2W	17.5±1.0	6.5±0.5	35±2.0	0.78±0.03



◆ **RATED POWER**

TYPE	POWER RATING	Max. Vol. Working	Max. Vol. Overload	Dielectric Withstandin g Voltage	Max Anti-SURGE (sec)	Resistance RANGE (Ω)	Operating Temp.
SURC1/2W	1/2W	200V	400V	500V	10KV	3.3Ω ~ 9.9Ω (±20%) 10Ω ~ 10KΩ (±10%)	-40°C ~ ±200°C
SURC1WS	1WS	300V	600V	400V	10KV		
SURC1W	1W	300V	600V	500V	14KV		
SURC2W	2W	400V	800V	500V	18KV		
SURM1/2W	1/2W	200V	400V	500V	10KV	1KΩ ~ 1MΩ (±10%)	
SURM1W	1W	300V	600V	500V	15KV		
SURM2W	2W	400V	800V	500V	25KV		

* Resistance to anti surge: Change shall be ±5% of the per-test values. 1 sec. ON, 1second OFF. 20,00 cycles.

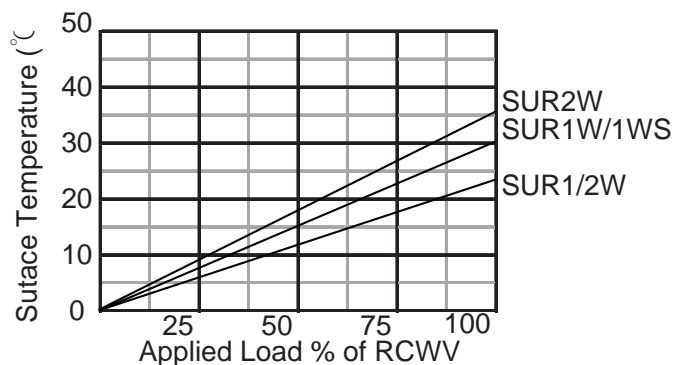
※ 美隆電子產品規格特性參數的改變或更新,將不會另行通知。

※ Mayloon characteristic parameters of electronic product specification changes or updates without prior notice.

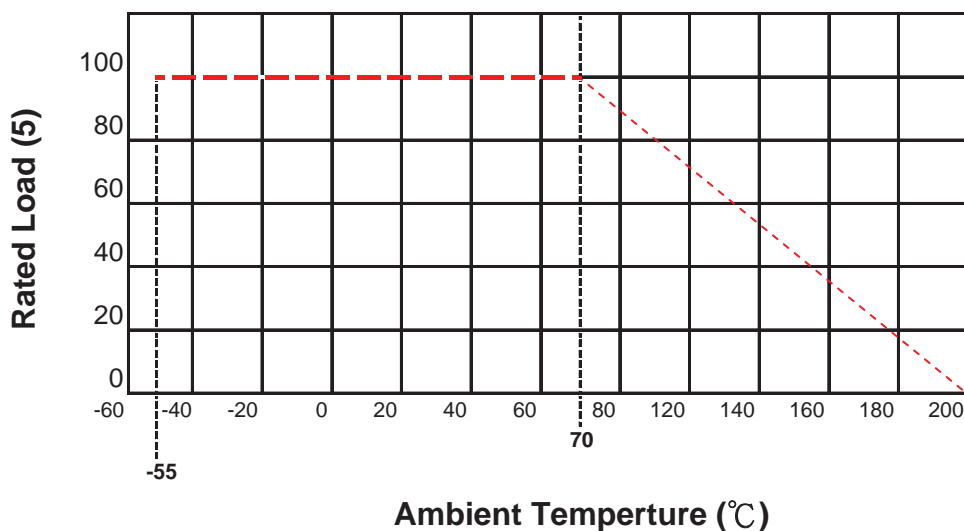


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Surface Temperature rise (表面溫度上升曲線圖)

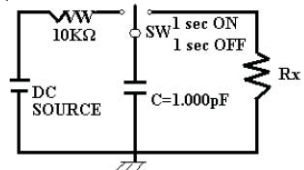


Power Graph



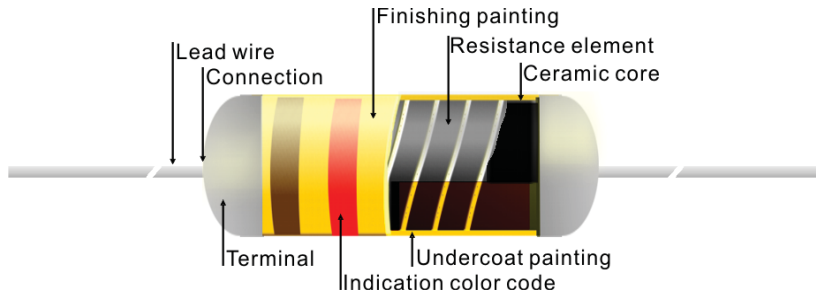
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Performace Specifications:

Test Items	Test Methods	Specifications
Short time overload	Rated voltage x 2.5 of Max. overload Voltage, whichever is lower, for 5 sec.	±(1.0% + 0.05Ω)
Temperature Coefficient (T.C.R.)	Resistance value at room temperature and room temperature +100°C.	SURC<10K= ± 300ppm; SURM ≥ 10K=±200ppm
Anti Surge Charcterisitics (EN60065 Test)	Discharge Test: 10KV 1000pF capacitor Discharge Pulse 50 time. (1 pulse / 5 : 	SURx1/2W 3Ω ~ 6Ω = 10KV 7Ω ~ 10Ω = 7KV 11Ω ~ 10KΩ = 5KV 11KΩ ~ 91KΩ = 7KV >92KΩ = 10KV SURx1WS =10KV SURx1W =10KV SURx2W =10KV ±(20% + 0.05Ω)
Resistance to soldering hest.	260°C±5°C, 10s±1s or 350°C±10°C, 3.5s±0.5s.	±(1.0% + 0.05Ω)
Moisture resistance	40 °C ± 2 °C, 90%~95%RH.1000h. 90min [ON] 30min [OFF]	±(1.0% + 0.05Ω)
Terminal strength	Direct load for 10 sec, in the direction off terminal leads.	Tensile ≥ 2.5kg
Load Life	SURC : 1000hours at rated voltage, 40°C 90min [ON] 30 min [OFF]. SURM : 1000hours at rated voltage, 70 °C 70min [ON] 30min [OFF].	±(1.0% + 0.05Ω)

◆ **STRUCTURE DIAGRAM**

The construction of resistor (SUR Series) shall be Figure.



Item	Material
Ceramic Core	High alumina ceramic is used
Resistance element	The resistor element shall consist of metal glaze film.
Terminal	Tinned iron cap.
Connection	Rhe lead wire, Which is olated with solder, shall be mounted to the caps by welding process.
Lead Wire	Soldered or tinned annealed copper wire.
Undercoat Painting	Electric insulation varnish.
Finishing painting	Epoxy resin is used.
Indiction	Color code.



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脈衝型高壓電阻

SUR Series
SURGE PULSE RESISTORS

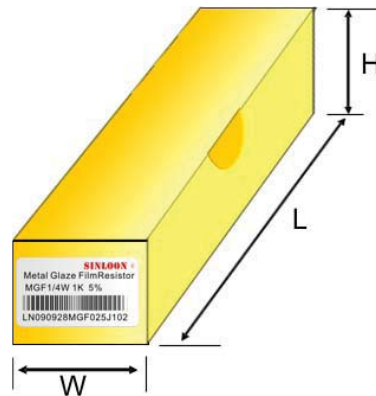
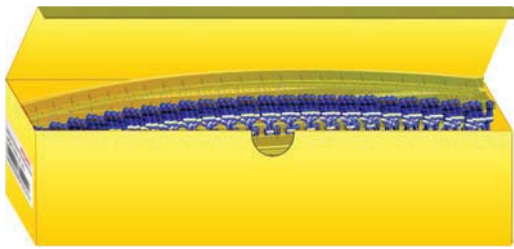
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◆ Painting Resistor body color

(1)	SUR Series	
(2)		

◆ PACKAGE:

Type	Power	Form	Dimensions (mm)		
			L	W	H
SUR	1/2W	T52	262	80	89
SUR	1WS	T52	262	80	89
SUR	1W	T52	262	107	102
		T63	262	107	102
SUR	2W	T52	262	80	105
		T63	262	107	102
		T73	262	107	102



色碼的辨識：													
顏色	黑	棕	紅	橙	黃	綠	藍	紫	灰	白	金	銀	無色
第一位數	0	1	2	3	4	5	6	7	8	9			
第二位數	0	1	2	3	4	5	6	7	8	9			
指數 10^x x=	0	1	2	3	4	5	6	7			-1	-2	
容許誤差											± 5%	10%	20%

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SURGE PULSE RESISTORS

Standard Resistor Color Code (4 band code)

Color	Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White	Gold	Silver
1st digit	0	1	2	3	4	5	6	7	8	9		
2nd digit	0	1	2	3	4	5	6	7	8	9		
Multiplier	$\times 10^0$	$\times 10^1$	$\times 10^2$	$\times 10^3$	$\times 10^4$	$\times 10^5$	$\times 10^6$	$\times 10^7$	$\times 10^8$	$\times 10^9$		
Tolerance		$\pm 1\%$ (F)	$\pm 2\%$ (G)			$\pm 0.5\%$ (D)	$\pm 0.25\%$ (C)	$\pm 0.1\%$ (B)			$\pm 5\%$ (J)	$\pm 10\%$ (K)

Examples:

Fig-1: (E24) Resistor 560R 5%

Tolerance $\pm 5\%$
(3rd) Brown $\times 10$
(2nd) Blue digit 6
(1st) Green digit 5

Green, Blue, brown, silver tolerance band:
 $56 \times 10 = 560$ ohms (560 ohms), with a tolerance of 5%

Fig-2: (E24) Resistor 5.6K 10%

Tolerance $\pm 10\%$
(3rd) Red $\times 100$
(2nd) Blue digit 6
(1st) Green digit 5

Green, blue, red, with silver tolerance band:
 $56 \times 100 = 5.6$ kohms, with a tolerance of 10%

Standard EIA Decade Resistor Value E24 series: (5% tolerance)

10, 11, 12, 13, 15, 16, 18, 20, 22, 24, 27, 30, 33, 36, 39, 43, 47, 51, 56, 62, 68, 75, 82, 91

Standard Resistor Color Code (5 band code)

Color	Black	Brown	Red	Orange	Yellow	Green	Blue	Violet	Gray	White	Gold	Silver
1st digit	0	1	2	3	4	5	6	7	8	9		
2nd digit	0	1	2	3	4	5	6	7	8	9		
3rd digit	0	1	2	3	4	5	6	7	8	9		
Multiplier	$\times 10^0$	$\times 10^1$	$\times 10^2$	$\times 10^3$	$\times 10^4$	$\times 10^5$	$\times 10^6$	$\times 10^7$	$\times 10^8$	$\times 10^9$		
Tolerance		$\pm 1\%$ (F)	$\pm 2\%$ (G)			$\pm 0.5\%$ (D)	$\pm 0.25\%$ (C)	$\pm 0.1\%$ (B)			$\pm 5\%$ (J)	$\pm 10\%$ (K)

Examples:

Fig-3: (E96) Resistor 280R $\pm 1\%$

Tolerance: $\pm 1\%$
Multiplier: $\times 1$
(3rd) digit 0
(2nd) digit 8
(1st) digit 2

Red, Gray, Black, Black, Brown tolerance band:
 $280 \times 1 = 280$ ohms (2800 ohms), with a tolerance of 1%

Fig-4: (E96) Resistor 39.1K $\pm 5\%$

Tolerance: $\pm 5\%$
Multiplier: $\times 100$
(3rd) digit 1
(2nd) digit 9
(1st) digit 3

Orange, White, Brown, Red, Gold tolerance band:
 $390 \times 100 = 39.1$ K ohms (39.1K ohms), with a tolerance of 5%

E96 series: (1% tolerance)

100, 102, 105, 107, 110, 113, 115, 118, 121, 124, 127, 130, 133, 137, 140, 143, 147, 150, 154, 158, 162, 165, 169, 174, 178, 182, 187, 191, 196, 200, 205, 210, 215, 221, 226, 232, 237, 243, 249, 255, 261, 267, 274, 280, 287, 294, 301, 309, 316, 324, 332, 340, 348, 357, 365, 374, 383, 392, 402, 412, 422, 432, 442, 453, 464, 475, 487, 491, 511, 523, 536, 549, 562, 576, 590, 604, 619, 634, 649, 665, 681, 698, 715, 732, 750, 768, 787, 806, 825, 845, 866, 887, 909, 931, 959, 976

