

SINLOON®

高精度金屬膜晶圓電阻

MELF - MPM Series

Tolerance: $\pm 0.1\% \sim \pm 1\%$

Precision Metal Film MELF Resistor

FEATURES

- ◆ Low Noise
- ◆ Low T.C.R to 15ppm
- ◆ Precision Tolerance Tight to $\pm 0.1\%$, $\pm 0.25\%$, $\pm 0.5\%$, $\pm 1\%$.
- ◆ Wide Precision Range: $10\Omega \sim 1M\Omega$
- ◆ Lead (Pb)-free and **RoHS** Compliant
- ◆ Compatible with lead (Pb)-free and lead containing soldering processes

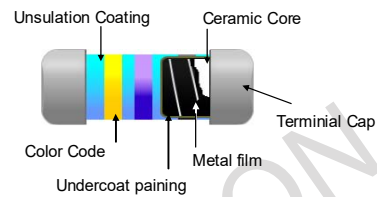
Figure



APPLICATIONS

- ◆ Test and measuring equipment
- ◆ Industrial and medical electronics

STRUCTURE DIAGRAM



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The MPM- Metal film Resistor are made by depositing special treated metal film onto ceramic core in ultra high vacuum. Both ends of the core are plated with precious metal to ensure low noise and small temperature coefficient. MPM Resistor are widely applied in high fidelity stereo, electronic calculators, computers, testing instruments, meters, auto controlled equipment, military devices and aerospace equipment.

ORDERING INFORMATION

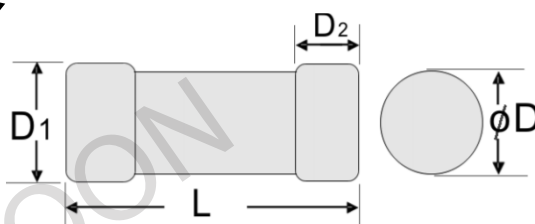
Example: W-MPM01SN1R00BTR (1/8WS 1R0 Tol. $\pm 0.1\%$ TCR ± 15 ppm Tape Reel)

Power 功率	Size 尺寸	Type 型號	T.C.R (ppm/°C)	Resistance (電阻值)		Tolerance 誤差值	Package 包裝	Quantity Tape Reel
				E96	E24			
1/8WS	0201	W-MPM01	N= ± 15 ppm	1R = 1R00	1R = 1R0	B= $\pm 0.1\%$	TR = T/Reel B = Bulk	5K Pcs
1/8W	0204	W-MPM04	C= ± 25 ppm	10R=10R0	10R=100	C= $\pm 0.25\%$		3K Pcs
1/4WS	0204	V-MPM04	D= ± 50 ppm	100R=100R	100R=101	D= $\pm 0.5\%$		3K Pcs
1/4W	0207	V-MPM07	E= ± 100 ppm	1K = 1001	100R=102	F= $\pm 1\%$		2K pcs
1/2WS	0207	U-MPM07		10K = 1002	10K = 103			2K pcs
1WS	0207	S-MPM07		100K=1003	100K=104			2K pcs
1WS	0309	S-MPM09		1M=1-004	1M=105			2.5K pcs
2WS	0411	Q-MPM11		10M=1005	10M=106			2K pcs
3WS	0515	N-MPM15	100M=1006	100M=107	1.5K pcs			

DIMENSION

Unit: mm

Type	Size	Power	L	ΦD	D_1	D_2
W-MPM01	0201	1/8WS	2.0 \pm 0.1	1.3 \pm 0.1	1.4 \pm 0.05	0.55 \pm 0.1
W-MPM04	0204	1/8W	3.5 \pm 0.2	1.45 \pm 0.1	1.6 \pm 0.2	0.70 \pm 0.1
V-MPM04	0204	1/4WS	3.5 \pm 0.2	1.45 \pm 0.1	1.6 \pm 0.2	0.70 \pm 0.1
V-MPM07	0207	1/4W	5.7 \pm 0.2	2.2 \pm 0.1	2.4 \pm 0.3	0.80 \pm 0.2
U-MPM07	0207	1/2WS	5.7 \pm 0.2	2.2 \pm 0.1	2.4 \pm 0.3	0.80 \pm 0.2
S-MPM07	0207	1WS	5.7 \pm 0.2	2.2 \pm 0.1	2.4 \pm 0.3	0.80 \pm 0.2
S-MPM09	0309	1W	8.5 \pm 0.3	3.0 \pm 0.3	3.3 \pm 0.3	1.70 \pm 0.2
Q-MPM11	0411	2WS	10.5 \pm 0.3	4.0 \pm 0.3	4.3 \pm 0.2	2.30 \pm 0.2
N-MPM15	0515	3WS	14.5 \pm 0.3	4.5 \pm 0.3	4.8 \pm 0.2	2.30 \pm 0.2



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RATED SPECIFICATION

Type	Size	Rating Power	Maximun Voltage		Resistance Range (Ω)			T.C.R. (°C)
			Working	Overload	±0.1%	±0.25%	±0.5%	
W-MPM01	0201	1/8WS	150V	300V	50R-56K	50R-56K	50R-100K	±15ppm
W-MPM04	0204	1/8W	150V	300V	100R-56K	100R-56K	100R-100K	±25ppm
V-MPM04	0204	1/4WS	200V	400V	100R-56K	100R-56K	100R-100K	±50ppm
V-MPM07	0207	1/4W	200V	400V	100R-56K	100R-56K	10R-560K	±100ppm
U-MPM07	0207	1/2WS	300V	600V	100R-56K	100R-56K	10R-560K	
S-MPM07	0207	1WS	400V	600V	100R-56K	100R-56K	10R-560K	
S-MPM09	0309	1W	500V	1KV	---	---	10R-100K	±50ppm
Q-MPM11	0411	2WS	500V	1KV	---	---	10R-100K	±100ppm
N-MPM15	0515	3WS	500V	1KV	---	---	10R-100K	

Rated continuous Working Voltage (RCWV) = $\sqrt{\text{POWER RATING} \cdot \text{RESISTANCE VALUE}}$

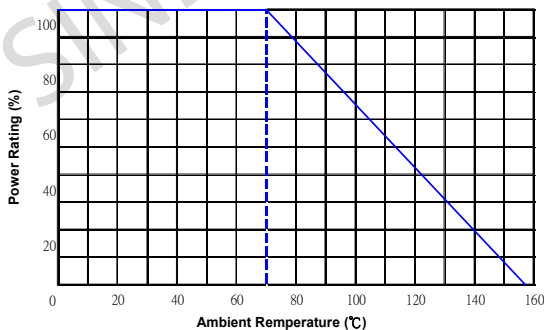
CHARACTERISTICS

Items	Test Method	Characteristics
Operating tem.Range		-55°C ~ +155°C
Temperure Coefficient	JIS-C5202 5.2	±100ppm/°C; ±50ppm/°C; ±25ppm/°C; ±15ppm/°C.
Short Time Overload	Rating voltage * 2.5 or Max.overload voltage for 5 sec Whichever less	±(0.5%+0.05Ω)
Pulse Overload	Rating voltage * 3 or Max.overload voltage for 10,000 cycle (1 sec [ON], 25 sec [OFF]) Whichever Less	±(0.5%+0.05Ω)
Temperure Cycling	-55°C (30min.) / +85°C (30min.) for 5 cycle	±(0.5%+0.05Ω)
Load Life Humidity	40°C±2°C, 90%~95% RH. 1000h, 1.5h [ON] 0.5h [OFF] cycle.	±(1%+0.05Ω)
Load Life	70°C±2°C, 1000h, 1.5h [ON] 0.5h [OFF] cycle.	±(1%+0.05Ω)
Resistance to Soldering Heat	260°C±5°C, 5sec±1sec.	±(0.5%+0.05Ω)
Solderability	235°C±5°C, 2sec±0.5sec.	90% Coverage / Min.
Bending test	Holding point width 90mm, Bending 5mm.	±(0.5%+0.05Ω)
Non-Combustibility	The resistor shall withstand overload test in accordance with article UL-94, V-0 without producing a fire hazard.	
Operating Temperature Range:	-55°C ~ +155°C	

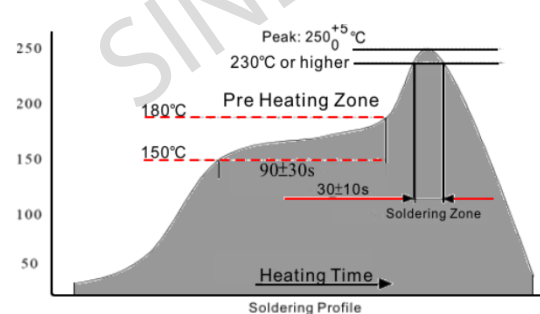
* Rated power is maximum power which can continuously loaded at specified ambient temerrmined 70 °C, however when the ambient temperature exveeds 70 °C, rated power should be determined from the derating curve of below.

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POWER DERATING CURVE



IR Reflow



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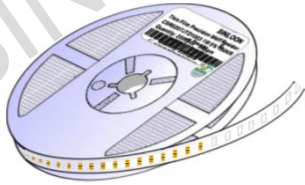
Tolerance: $\pm 0.1\% \sim \pm 1\%$

Precision Metal Film MELF Resistor

□ PACKAGE SPECIFICATION

Part Number Type	Size 尺寸	Rated Power	Quantity (ea)			SINLOON®	
			Tape Reel	Inner Box	Carton		
W-MPM01S	0201	1/8WS	Φ178mm	5000 pcs	50K Pcs	300K Pcs	 品質承諾標誌 QUALITY COMMITMENT
W-MPM04	0204	1/8W		3000 pcs	30K Pcs	180K Pcs	
V-MPM04S	0204	1/4WS		3000 pcs	30K Pcs	180K Pcs	
V-MPM07	0207	1/4W		2000 pcs	20K Pcs	120K Pcs	
U-MPM07S	0207	1/2WS		2000 pcs	20K Pcs	120K Pcs	
S-MPM07S	0207	1WS		2000 pcs	20K Pcs	120K Pcs	
S-MPM09S	0309	1W	Φ330mm	2500 pcs	5K Pcs	25K Pcs	
Q-MPM11S	0411	2WS		2000 pcs	4K Pcs	20K Pcs	
N-MPM15S	0515	3WS		1500 pcs	3K Pcs	15K Pcs	

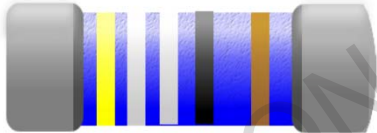
Φ178mm Tape Reel



Inner Box



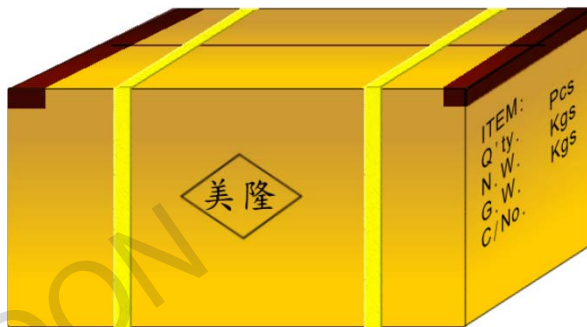
Figure



Φ330mm Tape Reel



Carton Package



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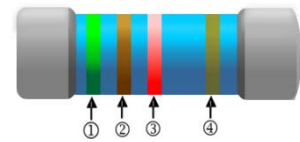
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Precision Metal Film MELF Resistor

Standard Resistor Color Code E24 Series (4 band code)

Color	1st digit	2nd digit	3rd Multiplier	4 Tolerance
Black	0	0	$\times 10^0$	
Brown	1	1	$\times 10^1$	±1% (F)
Red	2	2	$\times 10^2$	±2% (G)
Orange	3	3	$\times 10^3$	
Yellow	4	4	$\times 10^4$	
Green	5	5	$\times 10^5$	±0.5% (D)
Blue	6	6	$\times 10^6$	±0.25% (C)
Violet	7	7	$\times 10^7$	±0.1% (B)
Gray	8	8	$\times 10^8$	±0.05% (A)
White	9	9	$\times 10^9$	
Gold			$\times 0.1$	±5% (J)
Silver			$\times 0.01$	±10% (K)
None				±20% (M)

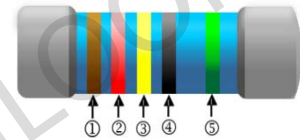
Example : Value : 5.1K Ω ±5%



Standard Resistor Color Code E96 Series (5 band code)

Color	1st digit	2nd digit	3rd digit	4 Multiplier	5 Tolerance
Black	0	0	0	$\times 10^0$	
Brown	1	1	1	$\times 10^1$	±1% (F)
Red	2	2	2	$\times 10^2$	±2% (G)
Orange	3	3	3	$\times 10^3$	
Yellow	4	4	4	$\times 10^4$	
Green	5	5	5	$\times 10^5$	±0.5% (D)
Blue	6	6	6	$\times 10^6$	±0.25% (C)
Violet	7	7	7	$\times 10^7$	±0.1% (B)
Gray	8	8	8	$\times 10^8$	±0.05% (A)
White	9	9	9	$\times 10^9$	
Gold				$\times 0.1$	±5% (J)
Silver				$\times 0.01$	±10% (K)
None					±20% (M)

Example : Value : 12.4Ω ±0.5%



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STANDARD RESISTANCE VALUE IN A DECADE
For Resistance According to IEC Publication 63

E24	E96				Example :	E24 Series: Resistance: 10 0.1R; 1R0; 10R; 100R; 1K; 10K; 100K; 1M; 100M.
10	100	178	316	562		
11	102	182	324	576	E26 Series: Resistance: 102 0.102R; 1.02R; 10.2R; 102R; 1K02; 10K2; 102K; 1M02; 10M2; 102M.	
12	105	187	332	590		
13	107	191	340	604		
15	110	196	348	619		
16	113	200	357	634		
18	115	205	365	649		
20	118	210	374	665		
22	121	215	383	681		
24	124	221	392	698		
27	127	226	402	715		
30	130	232	412	732		
33	133	237	422	750		
36	137	243	432	768		
39	140	249	442	787		
43	143	255	453	806		
47	147	261	464	825		
51	150	267	475	845		
56	154	274	487	866		
62	158	280	499	887		
68	162	287	511	909		
75	165	294	523	931		
82	169	301	536	953		
91	174	309	549	976		

ORDERING RESISTANCE CODE

E96 (±1%)		E24 (±5%)	
Resistance (Ω) Code		Resistance (Ω) Code	
m5=R0005Ω	1K = 1001	m5=R0005Ω	1K=102
5m=R005Ω	10K = 1002	5m=R005Ω	10K = 103
50m=R05Ω	100K=1003	50m=R05Ω	100K=104
100m=R1Ω	1M=1-004	100m=R1Ω	1M=105
1000m=1Ω	10M=1005	1000m=1Ω	10M=106
1R = 1R00	100M=1006	1R = 1R0	100M=107
10R=10R0	1G = 1007	10R=100	1G=108
100R=100R	10G = 1008	100R=101	10G=109

※美隆公司產品規格及其特性參數的改變或更新恕不另行通知。

※Mayloon characteristic parameters of electronic product specification changes or updates without notice to improve。