



SYNTON-TECH CORPORATION

METAL FILM MELF RESISTOR MEMF TYPE

File No.:	MEMF-02-Z
Version:	A
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1. SUBJECT

This specification applies on the metal film melf resistors

MEMF type (SMD style) was made by **SYNTON-TECH** Corporation °

2. FEATURES

- SMD style metal resistors.
- Hi accuracy guaranteed (tolerance $\pm 0.1\%$ & T.C.R. $\pm 15\text{PPM}/^\circ\text{C}$)
- Free direction for mounting due to cylindrical design.
- High solder ability due to specially plated electrodes.
- Electrodes strength is higher than flat chip resistors.
- Lower current noise than thick film flat chip resistors.
- Suitable for reflow, flow and iron soldering.

APPROVED	CHECKED	DESIGNED	REMARK	DOCUMENT NO.
Carol	May	Chen		0201010489



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3. EXPLANATIONS OF ORDERING CODE

DESCRIPTION : MEMF 1/4WS 1% 560Ω

SYNTON CODE : MEMF 25S F 561 TR

SERIES
METAL FILM
MELF
RESISTOR
(MEMF TYPE)

POWER
012 : 1/8W
025S : 1/4WS
050S : 1/2WS
050 : 1/2W
100SS : 1WSS
100S : 1WS
200SS : 2WSS

025 S : 1/4W
small Size

(Please see
detail of
Figure1)

TOLERANCE
J : ±5%
G : ±2%
F : ±1%
D : ±0.5%
C : ±0.25%
B : ±0.1%

RESISTANCE
VALUE
4 Digits :
2R2 : 2.20Ω
1000 : 100Ω
1002 : 10K
1003 : 100K

(Please see
detail of
Figure5)

PACKAGE
TR=Tape Reel

(Please see
detail of
Figure 6)



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4. ELECTRICAL CHARACTERISTICS

STYLE	MEMF-12	MEMF-25S	MEMF-50S	MEMF-50	MEMF-100SS	MEMF-100S	MEMF-200SS	
POWER	1/8W	1/4WS	1/2WS	1/2W	1WSS	1WS	2WSS	
Maximum Working Voltage	150V	200V	250V	350V	350V	350V	350V	
Maximum Overload Voltage	300V	400V	500V	700V	700V	700V	700V	
Operating Temp. Range	-55°C ~ +155°C							
Temperature coefficient	1% 2% 5%	±25ppm/°C ; ±50ppm/°C ; ±100ppm/°C						
	0.1% 0.25% 0.5%	±5ppm/°C ; ±10ppm/°C ; ±15ppm/°C ; ±25ppm/°C						
Resistance Range	1% 2% 5%	100Ω ~100KΩ	1.0Ω ~4.7MΩ	0.5Ω ~4.7MΩ	0.5Ω ~4.7MΩ	0.1Ω ~10MΩ	0.1Ω ~10MΩ	0.1Ω ~10MΩ
	0.1% 0.25% 0.5%	10Ω ~560KΩ	10Ω ~560KΩ	10Ω ~560KΩ	10Ω ~560KΩ	10Ω ~560KΩ	10Ω ~560KΩ	10Ω ~560KΩ
0Ω	Max. allowable current	2A	2A	5A	5A	-	-	-
	Max. working voltage	150V	200V	250V	350V	-	-	-
	Max. overload voltage	300V	400V	500V	700V	-	-	-
	Resistance range	Under 5mΩ						

Figure 1



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5. DERATING CURVE

The rated power at the temperature in excess of 70°C shall be derated in accordance with figure2

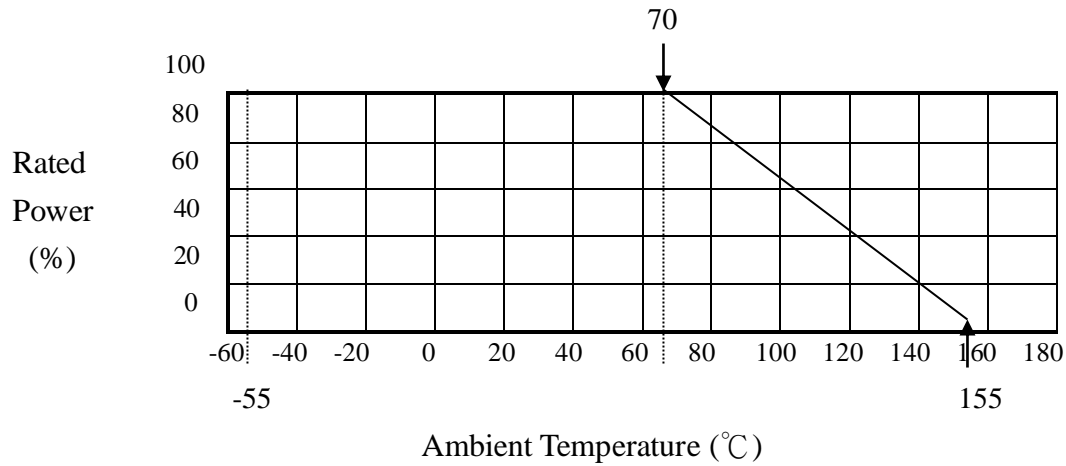
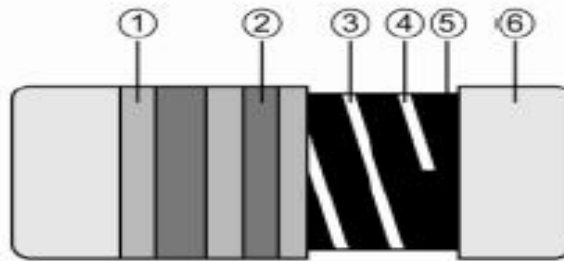


Figure2

6. CONSTRUCTION



ITEM		MATERIAL
1	Insulation Coating	Epoxy Insulation (Color: Blue)
2	Marking	Epoxy Resin
3	Cutting Line	
4	Ceramic Core	Aluminum Material
5	Resistive Film	Metal Film
6	Terminal	Terminal Material: Fe/Cu/Ni/Sn

Figure3

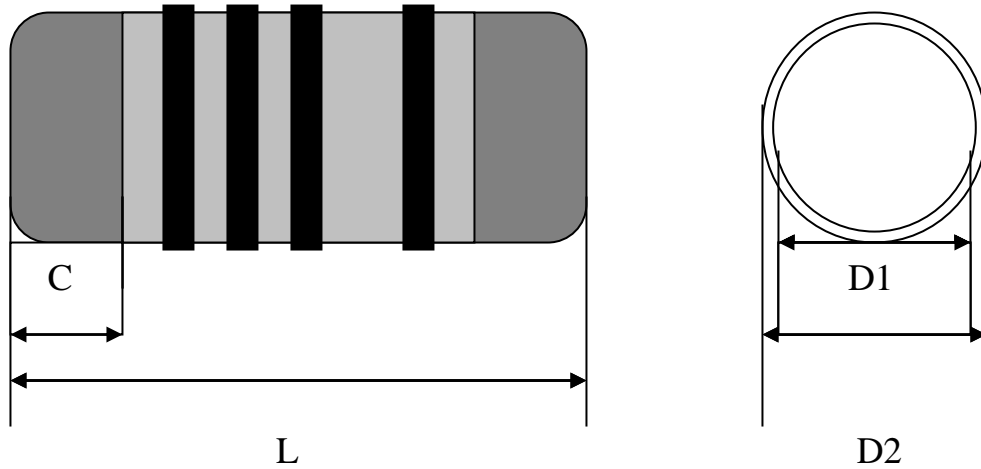


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7. DIMENSIONS



Unit:mm

STYLE	POWER	L	C Min.	D1	D2 Max.
MEMF-12	1/8W	2.0±0.1	0.30	1.25±0.05	1.35
MEMF-25S	1/4WS	3.5±0.2	0.50	1.40±0.15	1.55
MEMF-50S	1/2WS	5.9±0.2	1.00	2.20±0.20	2.40
MEMF-100SS	1WSS	5.9±0.2	1.00	2.20±0.20	2.40
MEMF-50	1/2W	8.5±0.2	1.50	3.20±0.20	3.40
MEMF-100S	1WS	8.5±0.2	1.50	3.20±0.20	3.40
MEMF-200SS	2WSS	8.5±0.2	1.50	3.20±0.20	3.40

Figure4



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8. ENVIRONMENTAL CHARACTERISTICS

No.	Test Item	Performance Requirements	Test Methods (JIS-C-5201-1)										
1	T.C.R	Within specified T.C.R	+25°C/-55°C and +25°C/+125°C										
2	Solderability	More than 95% of the total area of the electrode part shall be covered with new solder	Temperature of solder : 235±5°C Dipping time : 3±0.5 sec										
3	Resistance to solvent	Epoxy Insulation coating can not be peeled	There are 3 circles, each circle takes 1 min.										
4	Resistance to soldering heat	Based on the Iron cap loose standard, the change of the resistance value shall be within ± (0.5%+0.05Ω)	Temperature :260°C±5°C Dipping time :10±1 sec										
5	Short time overload	The change of the resistance value shall be within ±(0.5%+0.05Ω)	$V=\sqrt{R \times P \times 2.5}$ for 5 sec. V=Rated Voltage R=Resistance Value P=Power Rating <table border="1"> <tr> <td>Power Rating</td> <td>1/8W</td> <td>1/4W</td> <td>1/2W</td> <td>1/2W</td> </tr> <tr> <td>Voltage Max</td> <td>300V</td> <td>400V</td> <td>500V</td> <td>700V</td> </tr> </table>	Power Rating	1/8W	1/4W	1/2W	1/2W	Voltage Max	300V	400V	500V	700V
Power Rating	1/8W	1/4W	1/2W	1/2W									
Voltage Max	300V	400V	500V	700V									
6	Overload	Within specified tolerance	$V=\sqrt{R \times P \times 3}$ for 2.5 sec. V=Rated Voltage R=Resistance Value P=Power Rating <table border="1"> <tr> <td>Power Rating</td> <td>1/8W</td> <td>1/4W</td> <td>1/2W</td> <td>1/2W</td> </tr> <tr> <td>Voltage Max</td> <td>300V</td> <td>400V</td> <td>500V</td> <td>700V</td> </tr> </table>	Power Rating	1/8W	1/4W	1/2W	1/2W	Voltage Max	300V	400V	500V	700V
Power Rating	1/8W	1/4W	1/2W	1/2W									
Voltage Max	300V	400V	500V	700V									
7	Load life in humidity	The change of the resistance value shall be within ±(1%+0.05Ω)	40°C±2°C , 90%~95% RH, 1.5hr ON/0.5hr OFF cycle, total test 1,000hr.										
8	Load life test	The change of the resistance value shall be within ±(3%+0.05Ω)	Constant temperature chamber of 70°C±2°C, DC 1.5hr ON/ 0.5hr OFF cycle, applied continuously for 1,000±48hr.										



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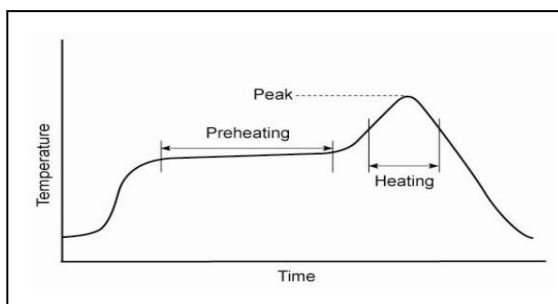
9. CAUTION

- (1) Storage and usage method
- (2) Humidity gives damage to cap solderability, therefore, please keep environment.
Temperature : +5°C~+40°C
Humidity : 55%~75% RH
Storage limited : 12 months
- (3) Please follow the instruction to keep the material when it is unpacked.
- (4) When ambient temperature exceeds a rated ambient temperature, the resistance shall be applied on the derating curve by derating the load power.
- (5) Please avoid join many resistors in series or parallel when apply high voltage or high electric current.
- (6) Molding products by using resin might bring out resistance value change, Please keep away from Molding.
- (7) This products meet the RoHS Compliant.

1. SOLDERING

We recommend the following condition to keep products performance.

- (1) Conditions for reflow



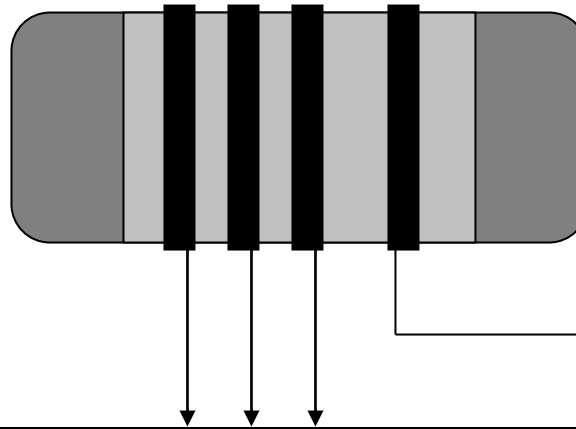
<Reflow soldering (lead-free)>

Status	Temperature	Time
Preheating	180°C max	120 sec. max
Heating	220°C max	60 sec. max
Peak	260°C max	3 sec. max

- (2) Flow soldering (lead-free)
Temperature : 260°C Max
Time : 10 sec. Max



10.COLOR CODING



Color	1st, 2nd, 3rd (Significant Figure)			(Multiplier)
Black	0	0	0	10^0
Brown	1	1	1	10^1
Red	2	2	2	10^2
Orange	3	3	3	10^3
Yellow	4	4	4	10^4
Green	5	5	5	10^5
Blue	6	6	6	10^6
Violet	7	7	7	—
Gray	8	8	8	—
White	9	9	9	—
Gold	—	—	—	10^{-1}
Silver	—	—	—	10^{-2}

- Note: 1. the tolerance 5% with 3 bands for E24 series.
 2. the tolerance 1%, 2% with 4 bands for E-96 & E24 series.
 3. the tolerance 0.1%,0.25% & 0.5% with 4 bands for E-192 series.
 4. The Zero ohm resistor will be denoted by a single black color band only.

Figure5

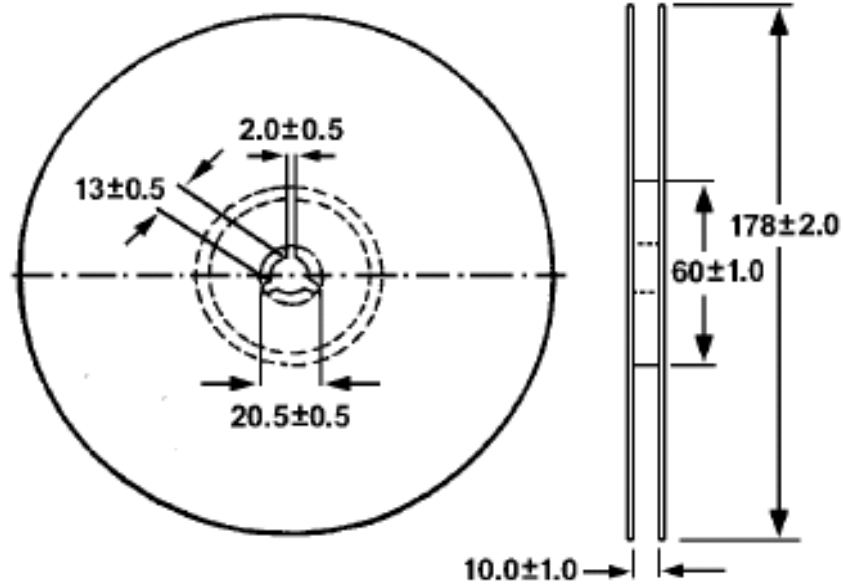


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11. REEL DIMENSIONS



Paper Carrier

A (Max.)	REEL QUANTITY						
	1/8W	1/4WS	1/2WS	1WSS	1/2W	1WS	2WSS
178±2.0mm	3,000PCS		2,000PCS		2,500PCS		

Figure6