

APPROVAL SHEET

Product Name : Metal Film Leaded Precision Resistor
Part No. : TMC
Description : Size 0318~1550

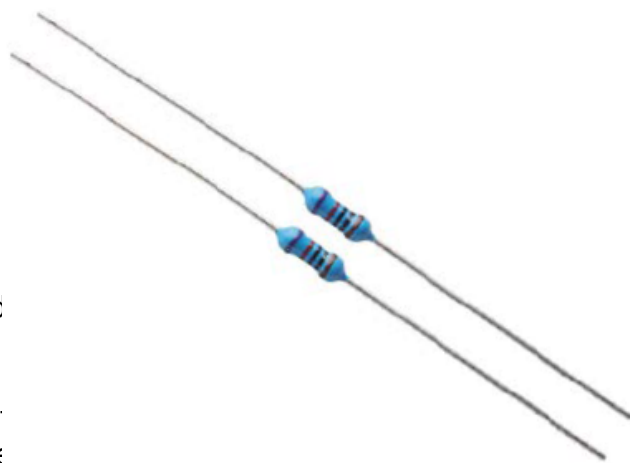
Metal Film Leaded Precision Resistor – TMC Series

■ Applications

- Telecom.
- Measuring and Calibration Equipment.
- Industrial Process Control Systems.
- Audio and Video.

■ Features

- High thermal conductivity and specific gravity rod
- Power Rating : 0.125W~3W.
- Precision tolerance tight to $\pm 0.05\%$.
- Superior electrical TCR performances narrowed
- Epoxy coating, precision metal film, Lead (Pb)-free



■ Part Number Explanation

TMC	0623	B	V	1001	A	C	S
Product Type	Size (Inch)	Tolerance	Power Rating	Resistance	Packaging	TCR (PPM / °C)	Functional
Metal Film Leaded Precision Resistor	0318 0623 0932 1145 1550	A : $\pm 0.05\%$ B : $\pm 0.1\%$ C : $\pm 0.25\%$ D : $\pm 0.5\%$ F : $\pm 1\%$	Standard R : 3W S : 2W T : 1W U : 1/2W V : 1/4W F : 3/5W G : 2/5W W : 1/8W	R100 : 0.1 Ω 0010 : 1 Ω 1000 : 100 Ω 2201 : 2K2 Ω 1001 : 1K Ω 1004 : 1M Ω	A : Ammo B : Bulk T : Taped & Reeled	S : ± 5 B : ± 10 N : ± 15 C : ± 25 D : ± 50 E : ± 100 O : Special	S: Standard

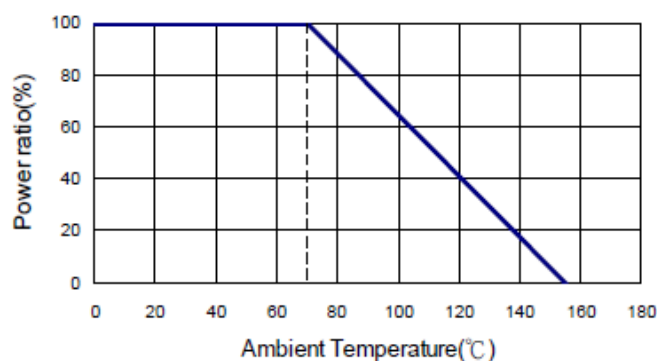
■ Standard Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)
					±0.05%	±0.1%	±0.25%	±0.5%	±1%	
0318	1/8W	-55 ~ +155°C	200V	400V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50
0623	1/4W	-55 ~ +155°C	250V	500V	10Ω – 1MΩ					±5 ±10
					10Ω – 1MΩ		10Ω – 10MΩ			±15 ±25
0932	1/2W	-55 ~ +155°C	350V	700V	10Ω – 1MΩ					±5 ±10
					10Ω – 1MΩ		10Ω – 10MΩ			±15 ±25
1145	1W	-55 ~ +155°C	400V	1000V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50
1550	2W	-55 ~ +155°C	500V	1000V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50

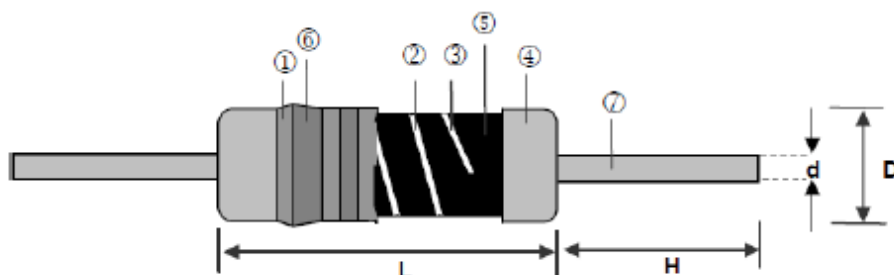
■ High Power Rating Electrical Specifications

Item Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range					TCR (PPM/°C)
					±0.05%	±0.1%	±0.25%	±0.5%	±1%	
0318	1/4W	-55 ~ +155°C	200V	400V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50
	2/5W		250V	500V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50
0623	1/2W	-55 ~ +155°C	300V	600V	10Ω – 1MΩ					±5 ±10
					10Ω – 1MΩ			10Ω – 10MΩ		±15 ±25
	3/5W		350V	700V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25
0932	1W	-55 ~ +155°C	400V	800V	10Ω – 1MΩ					±5 ±10
					10Ω – 1MΩ		10Ω – 10MΩ			±15 ±25
1145	2W	-55 ~ +155°C	500V	1000V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50
1550	3W	-55 ~ +155°C	500V	1000V	-	10Ω – 1MΩ		10Ω – 4.99MΩ		±15
						10Ω – 1MΩ		10Ω – 10MΩ		±25 ±50

■ Derating Curve



■ Construction



- ① Insulation Coating (Epoxy resin)
- ② Trimming Line
- ③ Ceramic Core (Alumina ceramic)
- ④ Electrode Cap (Tinned iron cap)
- ⑤ Resistor Layer (Nickel alloy)
- ⑥ Marking (Epoxy)
- ⑦ Lead Wire (Tinned annealed copper wire)

■ Dimensions

Unit:mm

Type	L	D	H	d	Weight(g) (1000pcs)
TMC0318	3.3±0.5	1.8±0.3	29±2.0	0.45±0.03	90
TMC0623	6.3±0.5	2.3±0.3	28±2.0	0.55±0.03	150
TMC0932	9.0±0.5	3.2±0.5	26±2.0	0.60±0.03	350
TMC1145	11.5±1.0	4.5±0.5	35±2.0	0.78±0.03	770
TMC1550	15.5±1.0	5.0±0.5	32±2.0	0.78±0.03	1040

■ Environmental Characteristics

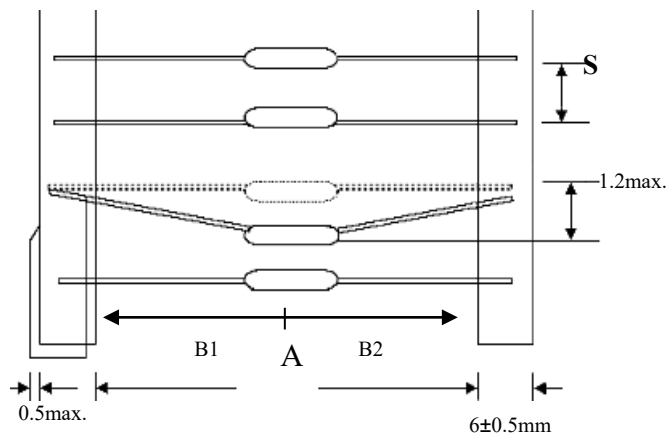
Item	Requirement	Test Method
Short Time Overload	$\pm 0.25\%$	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	$> 1000M\Omega$	Apply $100V_{DC}$ for 1 minute
Endurance	$\pm 0.2\%$	$70\pm 2^{\circ}C$, Max. working voltage for 1,000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	$\pm 0.3\%$	$40\pm 2^{\circ}C$, 90~95% R.H. Max. working voltage for 1,000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	90% min. Coverage	$245\pm 5^{\circ}C$ for 3 seconds
Dielectric Withstanding Voltage	By Type	Apply Max. Overload Voltage for 1 minute
Temperature Coefficient	By Type	Resistance value at room temperature and room Temperature+ $100^{\circ}C$
Pulse Overload	$\pm 0.75\%$	4 times RCWV for 10000 cycles with 1sec "ON" and 25 sec "OFF"
Resistance To Solvent	No deterioration of coatings and markings	Trichroethane for 1 min. with ultrasonic
Terminal Strength	Tensile: $\geq 2.5kg$	Direct Load for 10 sec. In the direction off the terminal leads
Shelf life	$\Delta R = \pm 0.1\%$	12 months at room temperature $25\pm 3^{\circ}C$, 80%RH Max.

- Reference Standards: MIL-STD-202, JIS-C 5201-1
- Storage Temperature: $25\pm 3^{\circ}C$; Humidity $< 80\%RH$

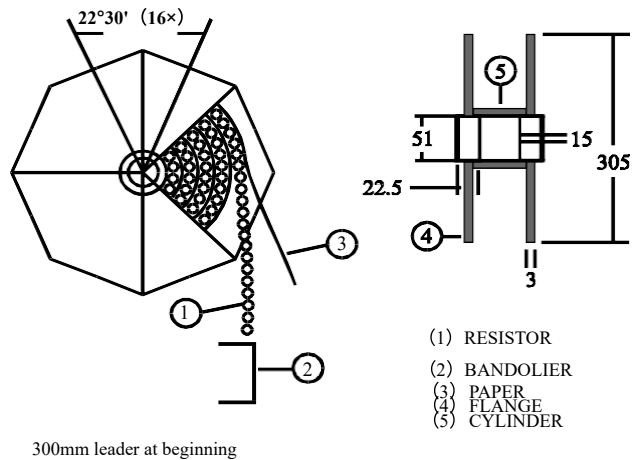
■ Taping/Packing Specifications

Standard Type (Reel & Ammo)

Packing Methods



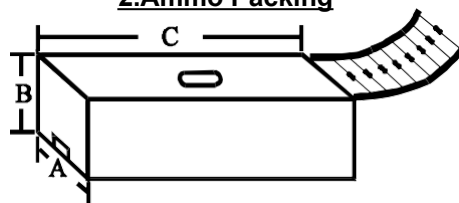
1. Reel Packing



Unit: mm

Packaging Type	Packing Methods			Reel Packing Methods	
	A	B1-B2 Max	S	Across Flange (A)	Qty
0318	52±1	1.2	5	72	5,000
0623	52±1	1.2	5	72	5,000
0932	52±1	1.2	5	72	2,500

2. Ammo Packing



Unit: mm

Packaging Type	Packing Methods			Ammo Packing Methods			
	A	B1-B2 Max	S	A	B	C	Qty
0318	26±1	1.0	5	80	75	264	5,000
0623	26±1	1.0	5	80	105	264	5,000
0932	52±1	1.2	5	80	46	264	1,000
1145	73±1	1.5	5	103	82	265	1,000
1550	73±1	1.5	10	103	96	265	1,000