

APPROVAL SHEET

Product Name : High Precise Metal Film Leaded Precision Resistor
Part No. : TMD
Description : Size 0419~1865

High Precise Metal Film Leaded Precision Resistor-TMD Series

■ Applications

- Medical electronics.
- Measuring and calibration equipment.
- High gain feedback applications.
- Precision Instruments, Avionics.
- Telecom.



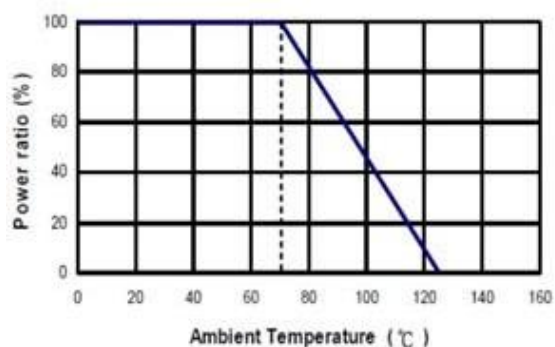
■ Features

- Power Rating :0.125W ~ 1W.
- Precision tolerance tight to $\pm 0.01\%$
- Precision metal film, excellent stability and reliability.
- Superior electrical TCR performances narrowed to $\pm 5 \text{ ppm}/^\circ\text{C}$
- Lead (Pb)-free and RoHS compliant, Covers all general type resistors.

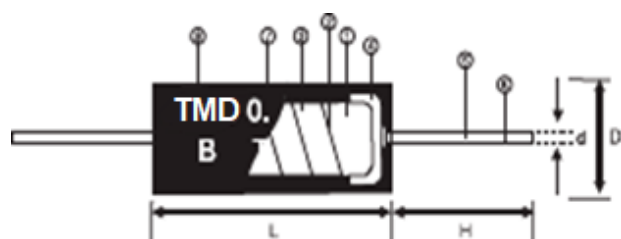
■ Part Number Explanation

TMD	0727	B	V	1001	B	C	S
Product	Size (Inch)	Tolerance	Power Rating	Resistance	Packaging	TCR (PPM/ $^\circ\text{C}$)	Functional
High Precise Metal Film Leaded Precision Resistor	0419 0727 1040 1551 1865	T: $\pm 0.01\%$ Q: $\pm 0.02\%$ A: $\pm 0.05\%$ B: $\pm 0.10\%$	T: 1W Q: 3/4W U: 1/2W V: 1/4W W: 1/8W	0100 : 10 Ω 2201 : 2K2 Ω 1002 : 10K Ω 1001 : 1K Ω 1004 : 1M Ω	A : Ammo B : Bulk	S : ± 5 B : ± 10 N : ± 15 C : ± 25	S: Standard

■ Derating Curve



■ Construction



- ① Ceramic Core (Alumina ceramic)
- ② Trimming line
- ③ Resistor Element (Nickel alloy)
- ④ Terminal (Tinned iron cap)
- ⑤ Connection
- ⑥ Lead Wire (Tinned annealed copper wire)
- ⑦ Molding (Epoxy)
- ⑧ Laser Marking (Epoxy)

■ Dimensions

Type	L	D	H	d	Weight (g) (1000pcs)
TMD0419	4.4±0.3	1.9±0.4	26±3	0.45±0.05	100
TMD0727	7.0±0.3	2.7±0.4	26±3	0.6±0.05	230
TMD1040	10.2±0.3	4.0±0.4	25±3	0.6±0.05	430
TMD1551	15.5±0.3	5.1±0.4	23±3	0.6±0.05	1080
TMD1865	18.2±0.3	6.5±0.4	30±3	0.8±0.05	1850

■ Standard Electrical Specifications

Unit: mm

Item Type	Power Rating (W)	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/°C)
	70°C				±0.01%	±0.02%	±0.05%	±0.1%	
0419	1/8W	-55 ~ +125°C	200V	400V	100Ω-100KΩ				±5
					10Ω-1MΩ				±10、±15、±25
0727	1/4W		250V	500V	100Ω-500KΩ				±5
					10Ω-1MΩ				±10、±15、±25
1040	1/2W		300V	600V	100Ω-500KΩ				±5
					10Ω-1MΩ				±10、±15、±25
1551	3/4W		350V	700V	100Ω-500KΩ				±5
					10Ω-1MΩ				±10、±15、±25
1865	1W		400V	800V	100Ω-500KΩ				±5
					10Ω-1MΩ				±10、±15、±25

Note: Customer may also ask some special STOL or TCR beyond the above range.

■ Environmental Characteristics

Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	Resistance value at room temperature and room temperature+60°C
Short Time Overload	±(0.05%+0.05Ω)	RCWV*2.5 or Max. overload voltage for 5 seconds
Insulation Resistance	> 1,000MΩ	Apply 500 V _{DC} for 1 minute
Endurance	±(0.2%+0.05Ω)	70±2 °C, Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(0.2%+0.05Ω)	40±2 °C, 90~95% R.H. Max. working voltage for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	95% min. Coverage	245±5 °C for 5 seconds
Resistance to Soldering Heat	±(0.05%+0.01Ω)	350±10°C for 3 seconds after test leave for 3 hours
Terminal Strength	Tensile: ≥2.5kg	Tensile strength: for 10 sec. Torsional strength: Rotated through 360°, 5 rotations.
Pulse Overload	±(0.1%+0.01Ω)	4 times RCWV for 10000 cycles with 1second "ON" and 25 seconds "OFF"
Temperature Cycle	±(0.05%+0.05Ω)	Low side : -55 °C/ 30min., Room temp. : 10 to 15min. High side : 85 °C/ 30min., Room temp. : 10 to 15min. 5 cycles
Resistance to Solvent	No deterioration of coatings and markings	Trichroethane for 1 min. with ultrasonic
Shelf life	△R=±0.1%	12 months at room temperature 25±3°C, 80%RH Max.

Reference Standards: MIL-STD-202, JIS-C 5201-1 ■ Storage Temperature: 25±3°C; Humidity < 80%RH