

High Precision Metal Film Leaded Resistor

■ Features

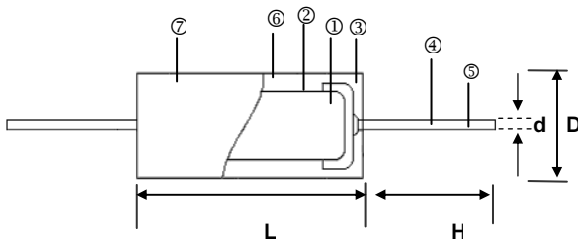
- Very tight tolerance down to $\pm 0.02\%$
- Extremely low TCR down to $\pm 5\text{PPM}/^\circ\text{C}$
- High precision
- Excellent stability

■ Applications

- Precision Equipment
- Measurement Equipment



■ Construction



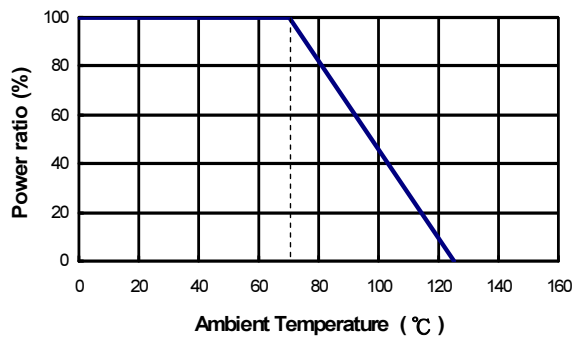
① Ceramic Core (Alumina ceramic)	⑤ Lead Wire (Tinned annealed copper wire)
② Resistor Element (Nickel alloy)	⑥ Molding (Expose)
③ Terminal (Tinned iron cap)	⑦ Marking (Expose based ink)
④ Connection	

■ Dimensions

Unit : mm

Type	L	D	H	d	Weight (g) (1000pcs)
MFD0727	7.0 \pm 0.3	2.7 \pm 0.4	26 \pm 3	0.6 \pm 0.05	230
MFD1040	10.2 \pm 0.3	4.0 \pm 0.4	25 \pm 3	0.6 \pm 0.05	430

■ Derating Curve



MFD Series

High Precision Metal Film Leaded Resistor

Part Numbering

MFD	0727	B	A	C	V	1001
Product Type	Dimensions (LxD)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance
	0727: 7.0x2.7 1040: 10.2x4.0	Q: ±0.02% A: ±0.05% B: ±0.1% F: ±1%	A: Ammo B: Bulk	S: ±5 B: ±10 N: ±15 C: ±25	U: 1/2W V: 1/4W	0100: 10Ω 2201: 2200Ω 1002: 10000Ω 1001: 1KΩ 1004: 1MΩ

Standard Electrical Specifications

Item Type	Power Rating 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/°C)
					±0.02%	±0.05%	±0.1%	±1%	
0727	1/4W	-55 ~ +125°C	250V	500V	10Ω -500KΩ				±5
					10Ω -1MΩ				±10 ±15 ±25
1040	1/2W		300V	600V	10Ω -500KΩ				±5
					10Ω -1MΩ				±10 ±15 ±25

Operating Voltage= $\sqrt{P \cdot R}$ or Max. operating voltage listed above, whichever is lower.

Overload Voltage= $2.5 \cdot \sqrt{P \cdot R}$ or Max. overload voltage listed above, whichever is lower.

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)	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	> 1,000MΩ	MIL-STD-202F Method 302 Apply 500V _{DC} for 1 minute
Endurance	±(0.2%+0.05Ω)	MIL-STD-202F Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	±(0.2%+0.05Ω)	MIL-STD-202F Method 103B 40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	95% min. Coverage	MIL-STD-202F Method 208H 245±5°C for 5 seconds
Resistance to Soldering Heat	±(0.05%+0.01Ω)	350±10°C for 3 seconds or 260±5°C for 10 seconds
Terminal Strength	Tensile: ≥2.5kg	Tensile strength: for 10 sec. Torsional strength: Rotated through 360°, 5 rotations.
Pulse Overload	±(0.1%+0.01Ω)	JIS-C-5201-1 5.8 4 times RCWV for 10000 cycles with 1second "ON" and 25 seconds "OFF"
Temperature Cycle	±(0.05%+0.05Ω)	-25°C (30min)/+85°C (30min), 5 cycles
Resistance to Solvent	No deterioration of coatings and markings	JIS-C-5201-1 6.9 Trichroethane for 3 min. with ultrasonic

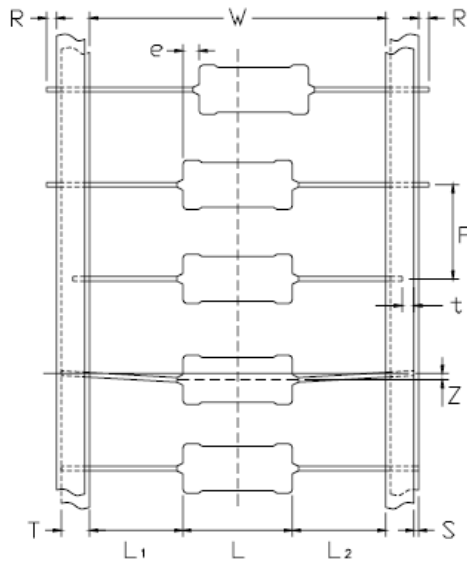
RCWV(Rated continuous working voltage)= $\sqrt{P \cdot R}$ or Max. Operating voltage whichever is lower

Storage Temperature: 25±3°C; Humidity < 80%RH

【MFD Series】

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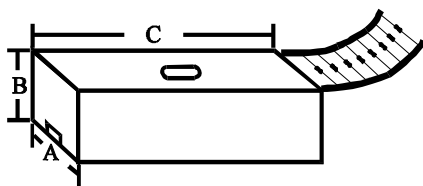
■Taping/Packing Specifications



Unit: mm

Packaging Type	Packing Methods									
	L	W	P	L1-L2 Max.	T	Z Max.	R Max.	t Max.	e Max.	S Max.
0727	7.0±0.3	52±1	5±0.3	1.0	6±0.5	0.8	0	2.5	0.5	0.5
1040	10.2±0.3	52±1	5±0.3	1.0	6±0.5	0.8	0	2.5	0.5	0.5

■ Ammo Packing



Unit: mm

Packaging Type	Ammo Packing			
	A	B	C	Qty
0727	79	53	258	2,000
1040	79	53	258	1,000