

Ultra low ohmic resistors for current detection

PMR03

●Features

- 1) Metal-plate, which is an excellent material in view of electrical characteristics, is employed as resistive element by Rohm's unique production method.
- 2) 0.25W is achieved; the industry's first for 0603 sized metal-plate type.
- 3) 0 to +150ppm/°C of TCR (Temperature Coefficient of Resistance) is realized at ultra-low resistance of 10mΩ
- 4) Completely Pb free product

●Rating

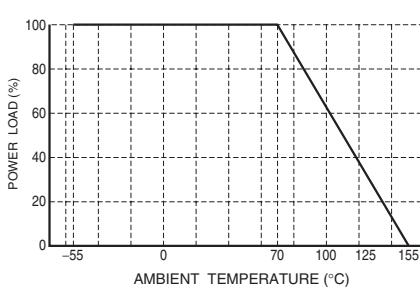
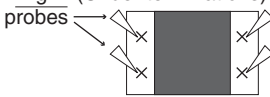
Item	Conditions	Specifications
Rated power	For resistors operated at the ambient temperature in excess of 70°C, the load shall be derated in accordance with Fig.1  Fig.1	0.25W (1/4W) at 70°C
Rated voltage Rated current	Rated voltage and current are determined from the following. $E = \sqrt{P \times R}$ E : Rated voltage (V) I : Rated current (A) P : Rated power (W) R : Resistance (Ω) $E = \sqrt{P / R}$	
Nominal resistance	See Table 1.	
Operating temperature		-55°C to +155°C

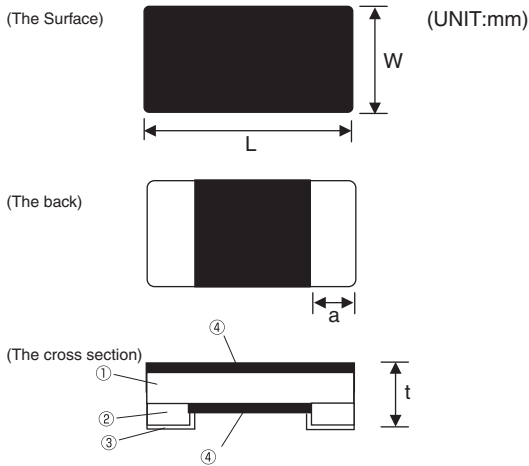
Table.1

RESISTANCE (mΩ)	TOLERANCE	SPECIAL CODE	TEMPERATURE COEFFICIENT (ppm / °C)
10	F (±1%) J (±5%)	U	0 to +150

●Characteristics

Item	Guaranteed value	Test conditions (JIS C 5201-1)
	Resistor type	
Resistance	F : $\pm 1\%$ J : $\pm 5\%$	JIS C 5201-1 4.5 Measuring method : Measure under terminations by 4 probes. Fig.2 (Under terminations) 
Variation of resistance with temperature	See Table.1	JIS C 5201-1 4.8 Measurement : 25 / -55 / +25 / +125°C
Overload	$\pm (2.0\%+0.0005\Omega)$	JIS C 5201-1 4.13 Rated voltage (current) $\times 2.5$, 2s.
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	JIS C 5201-1 4.17 Rosin-Ethanol (25%WT) Soldering condition : $235\pm 5^\circ\text{C}$ Duration of immersion : $2.0\pm 0.5\text{s}$.
Resistance to soldering heat	$\pm (1.0\%+0.0005\Omega)$ No remarkable abnormality on the appearance.	JIS C 5201-1 4.18 Soldering condition : $260\pm 5^\circ\text{C}$ Duration of immersion : $10\pm 1\text{s}$.
Rapid change of temperature	$\pm (1.0\%+0.0005\Omega)$	JIS C 5201-1 4.19 Test temp. : -55°C to $+125^\circ\text{C}$ 5cyc
Damp heat, steady state	$\pm (3.0\%+0.0005\Omega)$	JIS C 5201-1 4.24 40°C , 93%RH Test time : 56days
Endurance at 70°C	$\pm (3.0\%+0.0005\Omega)$	JIS C 5201-1 4.25.1 Rated power, 70°C 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	$\pm (3.0\%+0.0005\Omega)$	JIS C 5201-1 4.25.3 155°C Test time : 1,000h to 1,048h
Component Solvent Resistance	$\pm (0.5\%+0.0005\Omega)$	JIS C 5201-1 4.29 $23^\circ\text{C}\pm 5^\circ\text{C}$ Solvent : 2-propanol
Bend strength of the end face plating	Without open.	JIS C 5201-1 4.33

●Dimensions&Construction



Resistance	Measure			
	L $\pm$ 0.15	W $\pm$ 0.15	t $\pm$ 0.10	a $\pm$ 0.15
10m Ω	1.60	0.80	0.25	0.35

No.	Material
①	Resistive metal element (Ni-Cu/Ni-Cr Alloy)
②	Primary electrode(Cu)
③	External electrode(Sn)
④	Overcoat (Resin : Black)

●Product designation

Part No.	Resistance tolerance	Special part number	Nominal resistance
P M R 0 3 E Z P J U 1 0 L	J $\pm$ 5% F $\pm$ 1%	U 10 m Ω	Resistance code, 3 or 4 digits. Resistance tolerance J : 3 digits F : 4 digits Resistance value 10m Ω 10L 10L0

Packaging Specifications Code

Part No.	Code	Resistance tolerance		Packaging specifications	Reel	Basic ordering unit (pcs)
		J ($\pm$ 5%)	F ($\pm$ 1%)			
PMR03	EZP	◎	◎	Embossed tape (4mm Pitch)	ϕ 180mm (7inch)	5,000

Reel (ϕ 180) : Compatible with JEITA standard "EIAJ ET-7200B"

◎ : Standard product

●Packaging

Reel

Diagram of a reel showing dimensions A, B, C, D, and a label. The reel is circular with a central hub and four spokes. The dimensions are defined as follows: A is the outer diameter, B is the inner diameter, C is the width of the reel, and D is the diameter of the central hub. A label is shown on the reel.

EIAJ ET-7200B compliant

(Unit : mm)

A	B	C	D
$\phi 180 \begin{smallmatrix} 0 \\ -1.5 \end{smallmatrix}$	$\phi 60 \begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$	$9 \begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$	$\phi 13 \pm 0.2$

Taping

Diagram of a resistor tape showing dimensions W, F, E, A₀, B₀, P₀, P₁, P₂, and T₂. The tape is shown in cross-section and top view. The dimensions are defined as follows: W is the width of the tape, F is the distance between components, E is the thickness of the tape, A₀ is the distance from the center of the component to the edge of the tape, B₀ is the distance from the center of the component to the edge of the tape, P₀, P₁, and P₂ are the distances between the components, and T₂ is the thickness of the tape.

(Unit : mm)

W	F	E	A ₀	B ₀
8.0 ± 0.3	3.5 ± 0.05	1.75 ± 0.1	0.95 ± 0.1	1.75 ± 0.1
D ₀	P ₀	P ₁	P ₂	T ₂
$\phi 1.5 \begin{smallmatrix} +0.1 \\ 0 \end{smallmatrix}$	4.0 ± 0.1	4.0 ± 0.1	2.0 ± 0.05	Max. 1.1

Notes

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