ROHM SEMICONDUCTOR

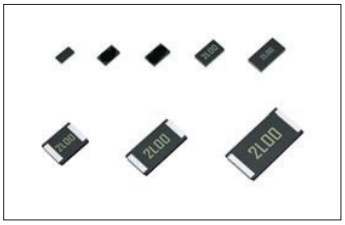
Data Sheet

Ultra-low Ohmic Chip Resistors for Current Detection

PMR Series

●Features

1) Ultra low-ohmic resistance range (1mΩ ~)
2) Improved current detection accuracy by trimming-less structure.
3) Special low resistance temperature coefficient.
4) The unique chip structure minimizes thermal stress during temperature cycling, resulting in greater reliability.
5) ROHM resistors have obtained ISO9001 / ISO / TS16949 certification.
6) Corresponds to AEC-Q200. (PMR50 / 100)



●Products List

Part No.	Size (mm)	Size (inch)	Rated Power (70°C) (W)	Temperature Coefficient (ppm / °C)	Resistance Tolerance (%)	Resistance Range	Operating Temperature Range (°C)
☆ PMR006	0603	0201	0.1	0 to 300	J(±5%)	10mΩ	−55 to +155
PMR01	1005	0402	0.2	0 to 200	J(±5%)	10mΩ	
PMR03	1608	0603	0.25	0 to 150	J(±5%)	10mΩ	
					F(±1%)		
PMR10	2012	0805	0.5	±150	J(±5%)	2,3,4,5,6,7,8,9,10mΩ	
					G(±2%)		
					F(±1%)		
PMR18	3216	1206	1	±100	J(±5%)	1,2,3,4,5,6,7,8,9,10mΩ	
					F(±1%)		
PMR25	3225	1210	1	±100	J(±5%)	1,2,3,4,5mΩ	
					F(±1%)		
PMR50	5025	2010	1	±100	J(±5%)	1,2,3,4,5,6,7,8,9,10mΩ	
					F(±1%)		
PMR100	6432	2512	2	±100 *	J(±5%)	1,2,3,4,5,6,7,8,9,10mΩ	
					F(±1%)		

☆: Under development
* : ± 150ppm / °C (1mΩ, 2mΩ Only)
Design and specifications are subject to change without notice.
Carefully check the specification sheet supplied with the product before using or ordering it.

●Part Number Description

P M R | 2 5 | H Z P | J | V | 2 L 0

Part No.
PMR
(Ultra-low Ohmic Chip Resistors for Current Detection)

Size (mm [inch])
006 (0603 [0201])
01 (1005 [0402])
03 (1608 [0603])
10 (2012 [0805])
18 (3216 [1206])
25 (3225 [1210])
50 (5025 [2010])
100 (6432 [2512])

Packaging specifications code

Part No.	Code	Packaging specifications	Quantity / Reel
PMR006	YZP	Paper tape (2mm Pitch)	15,000
PMR01	MZP	Paper tape (2mm Pitch)	10,000
PMR03	EZP	Paper tape (4mm Pitch)	5,000
PMR10	EZP	Paper tape (4mm Pitch)	5,000
PMR18	EZP	Paper tape (4mm Pitch)	5,000
PMR25	HZP	Embossed tape (4mm Pitch)	2,000
PMR50	HZP	Embossed tape (4mm Pitch)	2,000
PMR100	HZP	Embossed tape (4mm Pitch)	2,000

Resistance Tolerance
F (±1%)
G (±2%)
J (±5%)

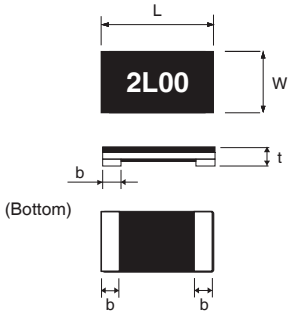
Special part code
U : 5 to 10mΩ
V : 1 to 4mΩ

Nominal Resistance
Resistance code, 3 or 4 digits.

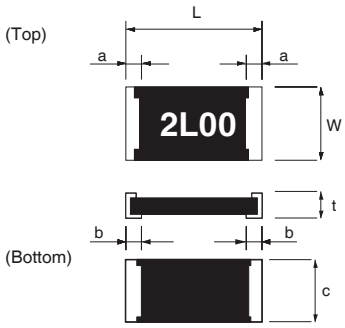
Resistance Value(Ω)	Resistance Tolerance J	Resistance Tolerance F,G
1mΩ	1L0	1L00
2mΩ	2L0	2L00
3mΩ	3L0	3L00
4mΩ	4L0	4L00
5mΩ	5L0	5L00
6mΩ	6L0	6L00
7mΩ	7L0	7L00
8mΩ	8L0	8L00
9mΩ	9L0	9L00
10mΩ	10L	10L0

●Chip Resistor Dimensions and Markings

■ **PMR006 / 01 / 03 / 10 / 18**



■ **PMR25 / 50 / 100**



<Marking method>
There are four digits used for the calculation number "L" is used for the decimal point of mΩ.
Ex.) 2mΩ=2L00
10mΩ=10L0

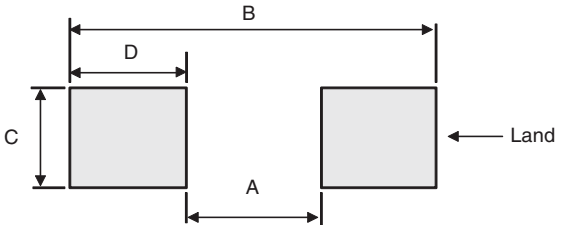
(Unit : mm)

Part No.	(mm)	(inch)	L	W	t	a	b	c	Marking existence
☆**PMR006**	0603	0201	0.6±0.05	0.3±0.05	0.23±0.05	–	0.15±0.05	–	No
PMR01	1005	0402	1.0±0.05	0.5±0.05	0.25±0.1	–	0.3±0.1	–	No
PMR03	1608	0603	1.6±0.15	0.8±0.15	0.25±0.1	–	0.35±0.15	–	No
PMR10	2012	0805	2.0±0.15	1.2±0.15	0.42 to 0.28*±0.15	–	0.75 to 0.35*±0.25	–	Yes
PMR18	3216	1206	3.2±0.15	1.6±0.15	0.42 to 0.28*±0.15	–	1.2 to 0.5*±0.25	–	Yes
PMR25	3225	1210	3.2±0.2	2.5±0.2	0.52 to 0.32*±0.15	0.5±0.2	1.0 to 0.8*±0.2	1.95±0.2	Yes
PMR50	5025	2010	5.0±0.2	2.5±0.2	0.52 to 0.32*±0.15	0.5±0.2	1.85 to 0.9*±0.2	1.95±0.2	Yes
PMR100	6432	2512	6.4±0.25	3.2±0.25	0.52 to 0.32*±0.15	0.5±0.25	2.3 to 1.1*±0.25	2.65±0.25	Yes

☆: Under development

*: Each value range varies with the resistance. Please contact a ROHM sales representative for further details.

●Land pattern Example



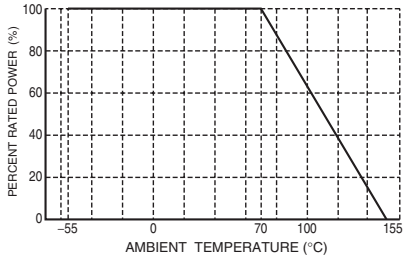
(Unit : mm)

Dimensions / Part No.	A	B	C	D
PMR01	0.5	1.8	0.5	0.65
PMR03	0.5	2.5	0.9	1.0
PMR10	0.8	3.4	1.3	1.3
PMR18	1.0	4.0	1.8	1.5
PMR25	1.0	4.0	2.8	1.5
PMR50	1.8	6.0	2.8	2.1
PMR100	1.2 (1mΩ) 2.4 (2,3,4,6mΩ) 3.0 (5,7,8,9,10mΩ)	6.8 (1mΩ) 7.6 (2 to 10mΩ)	3.4 (1mΩ) 3.8 (2 to 10mΩ)	2.8 (1mΩ) 2.6 (2,3,4,6mΩ) 2.3 (5,7,8,9,10mΩ)

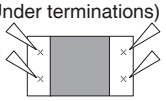
●Derating Curve

When the ambient temperature exceeds 70°C, power dissipation must be adjusted according to the derating curves below.

■ PMR006 / 01 / 03 / 10 / 18 / 25 / 50 / 100



●Characteristics (PMR01 to 100)

Test Items	Guaranteed Value Resistor Type	Test Conditions
Resistance	See P.1	20°C Measuring method : Measure under terminations by 4 probes. (Under terminations) Probes 
Variation of resistance with temperature	See P.1	Measurement : +20 / –55 / +20 / +125°C
Overload	± (2.0%+0.0005Ω)	Rated power × 2.5, 2s
Solderability	A new uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	Rosin·Ethanol : 25% (Weight) Soldering condition : 235±5°C Duration of immersion : 2.0±0.5s
Resistance to soldering heat	± (1.0%+0.0005Ω) No remarkable abnormality on the appearance.	Soldering condition : 260±5°C Duration of immersion : 10±1s
Rapid change of temperature	± (1.0%+0.0005Ω)	Test temp. : –55°C to +125°C 5cycle
Damp heat, steady state	± (3.0%+0.0005Ω)	40°C, 93%RH (Relative Humidity) Test time : 1,000h to 1,048h
Endurance at 70°C	± (3.0%+0.0005Ω)	70°C Rated power 1.5h : ON – 0.5h : OFF Test time : 1,000h to 1,048h
Endurance	± (3.0%+0.0005Ω)	155°C Test time : 1,000h to 1,048h
Resistance to solvent	± (0.5%+0.0005Ω)	23±5°C, Immersion cleaning, 5±0.5min Solvent : 2–propanol
Bend strength of the end face plating	Without mechanical damage such as breaks.	–

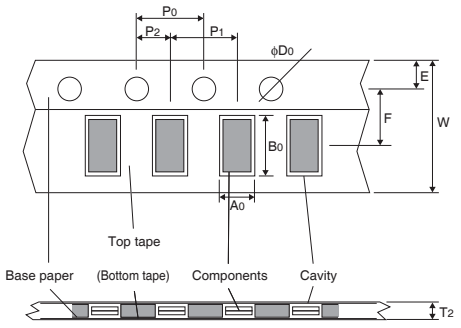
Compliance Standard(s) : IEC60115–8
JISC 5201–8

●Technical data

Parameter	Unit	PMR01	PMR03	PMR10	PMR18	PMR25	PMR50	PMR100
Failure rate	Fit	–	0.0577	1.2968	5.5531	2.8058	3.2292	0.1772
Weight	mg/pc	0.829	2.12	7.08 (2mΩ) 6.77 (3 to 5mΩ) 4.61 (6 to 8mΩ) 3.73 (9 to 10mΩ)	15.1 (1 to 2mΩ) 14.3 (3 to 6mΩ) 9.77 (7 to 8mΩ) 8.01 (9 to 10mΩ)	32.5 (1mΩ) 28.1 (2 to 3mΩ) 16.9 (4 to 5mΩ)	45.2 (1 to 2mΩ) 40.9 (3 to 5mΩ) 25.0 (6 to 10mΩ)	73.8 (1 to 2mΩ) 66.9 (3 to 5mΩ) 40.3 (6 to 10mΩ)

●Tape Dimensions

■Paper Tape

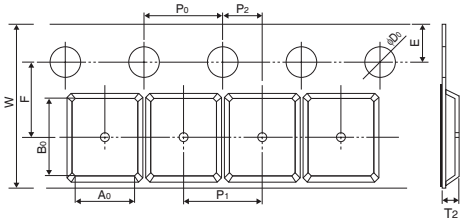


(Unit : mm)

Part No.	W	F	E	A0	B0
PMR01	8.0±0.3	3.5±0.05	1.75±0.1	0.7±0.1	1.2±0.1
PMR03	8.0±0.3	3.5±0.05	1.75±0.1	0.95±0.1	1.75±0.1
PMR10	8.0±0.3	3.5±0.05	1.75±0.1	$1.65^{+0.2}_{-0.1}$	$2.4^{+0.2}_{-0.1}$
PMR18	8.0±0.3	3.5±0.05	1.75±0.1	$1.95^{+0.1}_{-0.05}$	$3.5^{+0.15}_{-0.05}$

Part No.	D0	P0	P1	P2	T2
PMR01	$\phi1.5^{+0.1}_{0}$	4.0±0.1	2.0±0.05	2.0±0.05	Max 1.1
PMR03	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1
PMR10	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1
PMR18	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1

■Embossed Tape

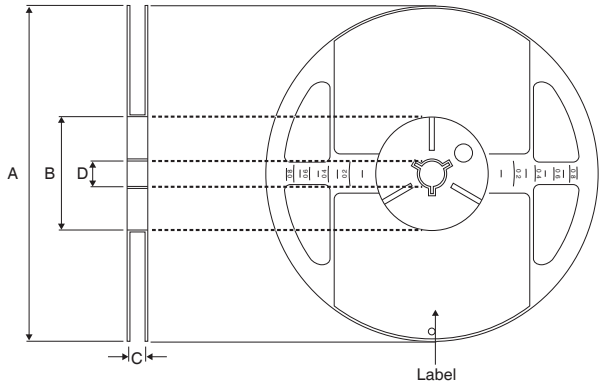


(Unit : mm)

Part No.	W	F	E	A0	B0
PMR25	8.0±0.3	3.5±0.05	1.75±0.1	3.0±0.1	3.5±0.1
PMR50	12.0±0.3	5.5±0.05	1.75±0.1	2.9±0.2	5.3±0.2
PMR100	12.0±0.3	5.5±0.05	1.75±0.1	3.5±0.2	6.7±0.2

Part No.	D0	P0	P1	P2	T2
PMR25	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1
PMR50	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1
PMR100	$\phi1.5^{+0.1}_{0}$	4.0±0.1	4.0±0.1	2.0±0.05	Max 1.1

●Reel Dimensions



ACCORDING TO EIAJ ET-7200B

(Unit : mm)

Part No.	A	B	C	D
☆ **PMR006**	$\phi180^{0}_{-1.5}$	$\phi60^{+1.0}_{0}$	$9^{+1.0}_{0}$	$\phi13\pm0.2$
PMR01				
PMR03				
PMR10				
PMR18				
PMR25				
PMR50			$13^{+1.0}_{0}$	
PMR100				

☆: Under development

Notes

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