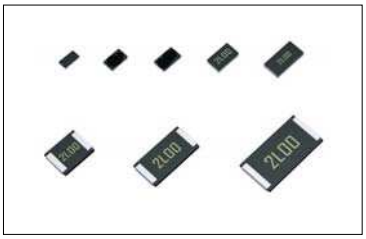
Ultra-low Ohmic Chip Resistors for Current Detection

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%)

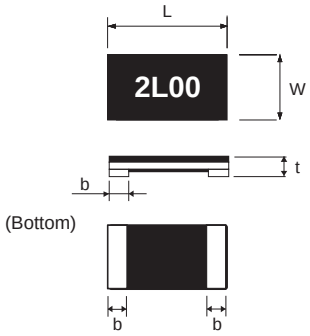
Special part code
U : 5 to 10mΩ
V : 1 to 4mΩ

Nominal Resistance
Resistance code, 3 or 4 digits.

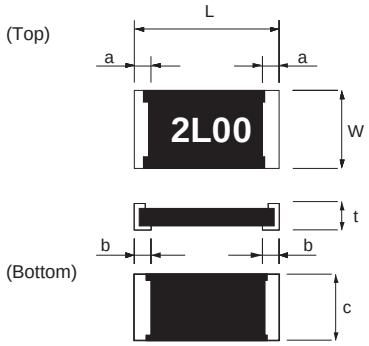
Resistance Value(Ω)	Resistance Tolerance J	Resistance Tolerance F,G
1mΩ	1L0	1L00
2mΩ	2L0	2L00
3mΩ	3L0	3L00
4mΩ	4L0	4L00
5mΩ	5L0	5L00
6mΩ	6L0	6L00
7mΩ	7L0	7L00
8mΩ	8L0	8L00
9mΩ	9L0	9L00
10mΩ	10L	10L0

●Chip Resistor Dimensions and Markings

■ **PMR006 / 01 / 03 / 10 / 18**



■ **PMR25 / 50 / 100**



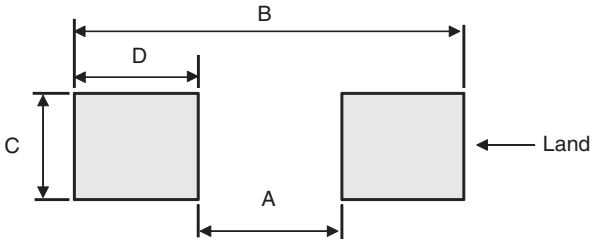
<Marking method>
There are four digits used for the calculation number "L" is used for the decimal point of mΩ.
Ex.) 2mΩ=2L00
10mΩ=10L0

(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



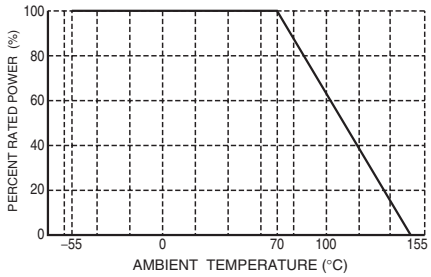
(Unit : mm)

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)

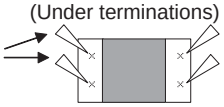
●Derating Curve

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.	–

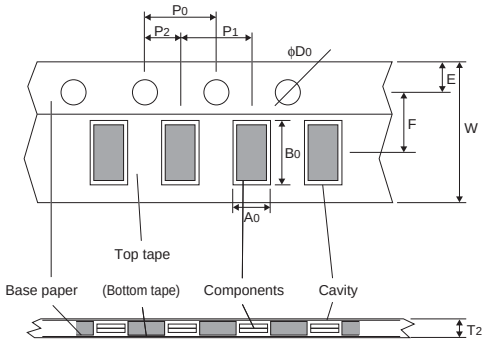
Compliance Standard(s) : IEC60115–8
JISC 5201–8

●Chip weight (typical value)

Parameter	Unit	PMR01	PMR03	PMR10	PMR18	PMR25	PMR50	PMR100
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

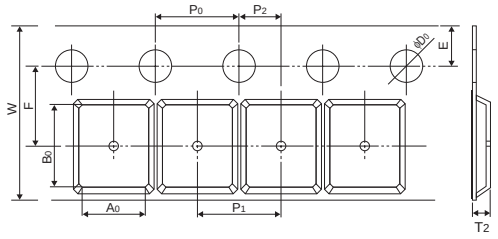


(Unit : mm)

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

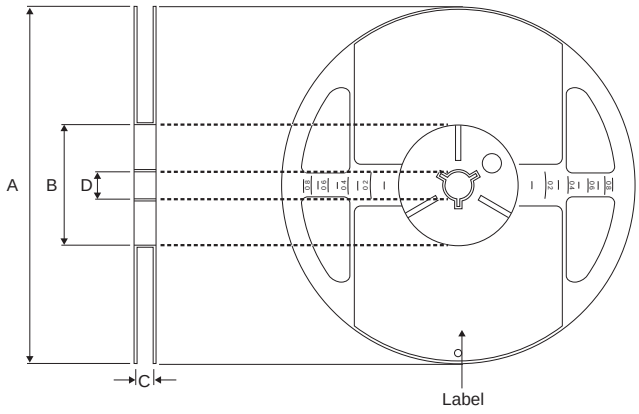


(Unit : mm)

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**	$\phi180^{0}_{-1.5}$	$\phi60^{+1.0}_{0}$	$9^{+1.0}_{0}$	φ13±0.2
PMR01				
PMR03				
PMR10				
PMR18				
PMR25				
PMR50			$13^{+1.0}_{0}$	
PMR100				

☆: Under development

Notes

1) The information contained herein is subject to change without notice.

2) Before you use our Products, please contact our sales representative and verify the latest specifications :

3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Poducts beyond the rating specified by ROHM.

4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.

5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.

6) The Products are intended for use in general electronic equipment (i.e. AV/OA devices, communication, consumer systems, gaming/entertainment sets) as well as the applications indicated in this document.

7) The Products specified in this document are not designed to be radiation tolerant.

8) For use of our Products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a ROHM representative : transportation equipment (i.e. cars, ships, trains), primary communication equipment, traffic lights, fire/crime prevention, safety equipment, medical systems, servers, solar cells, and power transmission systems.

9) Do not use our Products in applications requiring extremely high reliability, such as aerospace equipment, nuclear power control systems, and submarine repeaters.

10) ROHM shall have no responsibility for any damages or injury arising from non-compliance with the recommended usage conditions and specifications contained herein.

11) ROHM has used reasonable care to ensur the accuracy of the information contained in this document. However, ROHM does not warrants that such information is error-free, and ROHM shall have no responsibility for any damages arising from any inaccuracy or misprint of such information.

12) Please use the Products in accordance with any applicable environmental laws and regulations, such as the RoHS Directive. For more details, including RoHS compatibility, please contact a ROHM sales office. ROHM shall have no responsibility for any damages or losses resulting non-compliance with any applicable laws or regulations.

13) When providing our Products and technologies contained in this document to other countries, you must abide by the procedures and provisions stipulated in all applicable export laws and regulations, including without limitation the US Export Administration Regulations and the Foreign Exchange and Foreign Trade Act.

14) This document, in part or in whole, may not be reprinted or reproduced without prior consent of ROHM.

ROHM SEMICONDUCTOR

Thank you for your accessing to ROHM product informations.
More detail product informations and catalogs are available, please contact us.

ROHM Customer Support System

http://www.rohm.com/contact/