

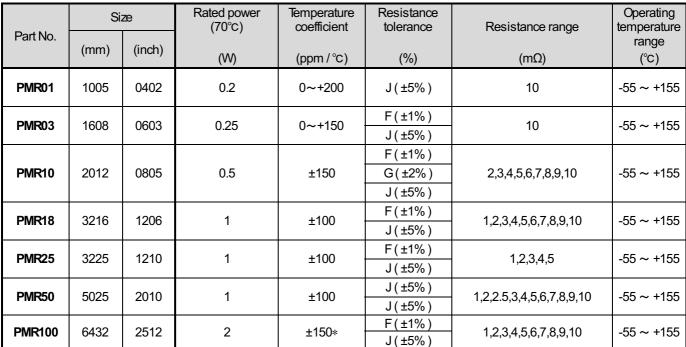
Ultra-low ohmic chip resistors for current detection

PMR series Datasheet

Features

- 1) Ultra low-ohmic resistance range $(1m\Omega \sim)$
- 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. (PMR01 is preparing)

Products list



^{*: ±150}ppm/°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













PMR (Ultra-low ohmic chip resistors for current detection)
(Ultra-low ohmic chip resistors for current

Size (mm [inch])
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				
PMR01	ZZP	Embossed 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				

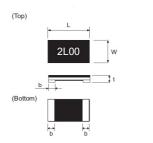
Resistance olerance	Special part code
F (±1%) G (±2%) J (±5%)	U:5 ~ 10m V:1 ~4mΩ

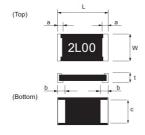
Nominal resistance							
	Resistance code, 3 or 4 digits.						
Resistance value(Ω)		istance erance					
V CIGC(12)	J	F, G					
1mΩ	1L0	1L00					
2mΩ	2L0	2L00					
3mΩ	3L0	3L00					
4mΩ	4L0	4L00					
5mΩ	5L0	5L00					
6mΩ	6mΩ 6L0 6L00						
7mΩ	7L0	7L00					
8mΩ	8L0	8L00					
9mΩ	9L0	9L00					
10mΩ	10L	10L0					

•Chip resistor dimensions and markings

■ PMR 01 / 03 / 10 / 18

■ PMR 25 / 50 / 100





<Marking method>

There are four digits used for the calculation number "L" is used for the decimal point of $m\Omega$.

Ex.) $2m\Omega = 2L00$

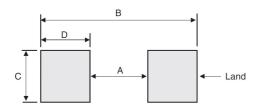
 $10m\Omega = 10L0$

(Unit:mm)

Part No.	(mm)	(inch)	L	W	t	а	b	С	Marking existence
PMR01	1005	0402	1.00±0.05	0.50±0.05	0.25±0.10	_	0.3±0.10	_	No
PMR03	1608	0603	1.60±0.15	0.80±0.15	0.25±0.25	_	0.35±0.15	_	No
PMR10	2012	0805	2.00±0.15	1.20±0.15	0.42~0.28*±0.15	_	0.75~0.35*±0.25	_	Yes
PMR18	3216	1206	3.20±0.15	1.60±0.15	0.44~0.28*±0.15	_	1.20~0.50*±0.25	_	Yes
PMR25	3225	1210	3.20±0.20	2.50±0.20	0.52~0.32*±0.15	0.50	1.00~0.90*±0.20	1.95±0.20	Yes
PMR50	5025	2010	5.00±0.20	2.50±2.50	0.52~0.32*±0.15	0.50	1.85~0.90*±0.20	1.95±0.20	Yes
PMR100	6432	2512	6.40±0.25	3.20±0.25	0.52~0.32*±0.15	0.50	2.30~1.10*±0.25	2.65±0.25	Yes

^{*:} Each value range varies with the resisrance. Please contact a ROHMsales representative for futher details.

Land pattern example



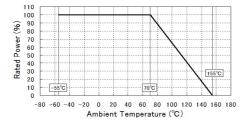
(Unit:mm)

Dimensions Part No.	А	В	С	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 (2~10mΩ)	3.4 (1mΩ) 3.8 (2~10mΩ)	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.

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



● Characteristics (RMR01 ~ 100)

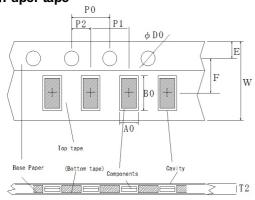
Toot itomo	Guaranteed value	Took oon dikin na		
Test items	Resistor type	- Test conditions		
Resistance	See P.1	20°C Measuring method : Measure Bottom termination by 4 proves. Bottom termination prove		
Variation of resistance with temperature	See P.1	Measurement: +25/-55, +25/+125°C		
Overload	±(2.0%+0.0005Ω)	Rated power×2.5, 2s		
Solderability	Anew uniform coating of minimum of 95% of the surface being immersed and no soldering damage.	Rosin-ethanol solution25% (Wweight) Soldering condition: 245±5°C Duration of immersion: 2.0±0.5s		
Resistance to soldering heat	$\pm (1.0\% + 0.0005\Omega)$ 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∼+125°C 5cycle		
Damp heat, steady state	±(3.0%+0.0005Ω)	40°C, 93%(Relative humidity) Test time: 1,000h		
Endurance at 70°C	±(3.0%+0.0005Ω)	70°C,Rated power 1.5h:ON – 0.5h:OFF Test time: 1,000h		
Endurance	±(3.0%+0.0005Ω)	155°C Test time: 1,000h		
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	Wihout open.	-		

Compliance Standard(s): IEC60115-8

JISC 5201-8

Tape dimensions

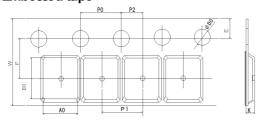
■Paper tape



(Unit:mm) W F В0 Part No. Е A0 0.68±0.03 PMR03 8.0 ± 0.1 3.5 ± 0.05 1.75±0.1 1.12±0.03 PMR10 8.0 ± 0.3 3.5±0.05 1.75±0.1 0.95±0.1 1.75±0.1 1.45^{+0.2} -0.1 2.3^{+0.2} -0.1 8.0±0.3 **PMR18** 3.5±0.05 1.75±0.1

Part No.	D0	P0	P1	P2	T2
PMR03	Ф1.5 ^{+0.1}	4.0±0.05	2.0±0.05	2.0±0.05	MAX1.1
PMR10	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
PMR18	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

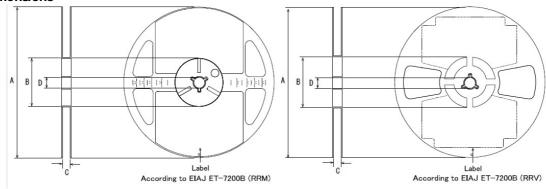
■Embossed tape



					(Unit:mm)
Part No.	W	F	Е	A0	B0
PMR01	8.0±0.3	3.5±0.05	1.75±0.1	1.95 ^{+0.1} _{-0.05}	3.5 ^{+0.15} _{-0.05}
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	K
PMR01	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX 1.1
PMR25	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1
PMR50	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX 11
PMR100	Ф1.5 ^{+0.1}	4.0±0.1	4.0±0.1	2.0±0.05	MAX1.1

•Reel dimensions



(Unit	:	mm)
		,

Part No.	Α	В	С	D
PMR01				
PMR03			.4.0	
PMR10	0	14.0	9 ^{+1.0}	
PMR18	Ф180 ⁰ -1.5	Ф60 ^{+1.0}	0	Ф13±0.2
PMR25	-1.5			
PMR50			13 ^{+1.0}	
PMR100			130	

Notice

Precaution on using ROHM Products

1. If you intend to use our Products in devices requiring extremely high reliability (such as medical equipment (Note 1), aircraft/spacecraft, nuclear power controllers, etc.) and whose malfunction or failure may cause loss of human life, bodily injury or serious damage to property ("Specific Applications"), please consult with the ROHM sales representative in advance. Unless otherwise agreed in writing by ROHM in advance, ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of any ROHM's Products for Specific Applications.

(Note1) Medical Equipment Classification of the Specific Applications

JAPAN	USA	EU	CHINA
CLASSⅢ	OL 400 TF	CLASS II b	ОГУСОШ
CLASSIV	CLASSⅢ	CLASSⅢ	CLASSⅢ

- 2. ROHM designs and manufactures its Products subject to strict quality control system. However, semiconductor products can fail or malfunction at a certain rate. Please be sure to implement, at your own responsibilities, adequate safety measures including but not limited to fail-safe design against the physical injury, damage to any property, which a failure or malfunction of our Products may cause. The following are examples of safety measures:
 - [a] Installation of protection circuits or other protective devices to improve system safety
 - [b] Installation of redundant circuits to reduce the impact of single or multiple circuit failure
- 3. Our Products are not designed under any special or extraordinary environments or conditions, as exemplified below. Accordingly, ROHM shall not be in any way responsible or liable for any damages, expenses or losses arising from the use of any ROHM's Products under any special or extraordinary environments or conditions. If you intend to use our Products under any special or extraordinary environments or conditions (as exemplified below), your independent verification and confirmation of product performance, reliability, etc, prior to use, must be necessary:
 - [a] Use of our Products in any types of liquid, including water, oils, chemicals, and organic solvents
 - [b] Use of our Products outdoors or in places where the Products are exposed to direct sunlight or dust
 - [c] Use of our Products in places where the Products are exposed to sea wind or corrosive gases, including Cl₂, H₂S, NH₃, SO₂, and NO₂
 - [d] Use of our Products in places where the Products are exposed to static electricity or electromagnetic waves
 - [e] Use of our Products in proximity to heat-producing components, plastic cords, or other flammable items
 - If Sealing or coating our Products with resin or other coating materials
 - [g] Use of our Products without cleaning residue of flux (even if you use no-clean type fluxes, cleaning residue of flux is recommended); or Washing our Products by using water or water-soluble cleaning agents for cleaning residue after soldering
 - [h] Use of the Products in places subject to dew condensation
- 4. The Products are not subject to radiation-proof design.
- 5. Please verify and confirm characteristics of the final or mounted products in using the Products.
- 6. In particular, if a transient load (a large amount of load applied in a short period of time, such as pulse. is applied, confirmation of performance characteristics after on-board mounting is strongly recommended. Avoid applying power exceeding normal rated power; exceeding the power rating under steady-state loading condition may negatively affect product performance and reliability.
- 7. De-rate Power Dissipation depending on ambient temperature. When used in sealed area, confirm that it is the use in the range that does not exceed the maximum junction temperature.
- 8. Confirm that operation temperature is within the specified range described in the product specification.
- 9. ROHM shall not be in any way responsible or liable for failure induced under deviant condition from what is defined in this document.

Precaution for Mounting / Circuit board design

- 1. When a highly active halogenous (chlorine, bromine, etc.) flux is used, the residue of flux may negatively affect product performance and reliability.
- 2. In principle, the reflow soldering method must be used on a surface-mount products, the flow soldering method must be used on a through hole mount products. If the flow soldering method is preferred on a surface-mount products, please consult with the ROHM representative in advance.

For details, please refer to ROHM Mounting specification

Precautions Regarding Application Examples and External Circuits

- 1. If change is made to the constant of an external circuit, please allow a sufficient margin considering variations of the characteristics of the Products and external components, including transient characteristics, as well as static characteristics.
- 2. You agree that application notes, reference designs, and associated data and information contained in this document are presented only as guidance for Products use. Therefore, in case you use such information, you are solely responsible for it and you must exercise your own independent verification and judgment in the use of such information contained in this document. ROHM shall not be in any way responsible or liable for any damages, expenses or losses incurred by you or third parties arising from the use of such information.

Precaution for Electrostatic

This Product is electrostatic sensitive product, which may be damaged due to electrostatic discharge. Please take proper caution in your manufacturing process and storage so that voltage exceeding the Products maximum rating will not be applied to Products. Please take special care under dry condition (e.g. Grounding of human body / equipment / solder iron, isolation from charged objects, setting of lonizer, friction prevention and temperature / humidity control).

Precaution for Storage / Transportation

- 1. Product performance and soldered connections may deteriorate if the Products are stored in the places where:
 - [a] the Products are exposed to sea winds or corrosive gases, including Cl2, H2S, NH3, SO2, and NO2
 - [b] the temperature or humidity exceeds those recommended by ROHM
 - [c] the Products are exposed to direct sunshine or condensation
 - [d] the Products are exposed to high Electrostatic
- Even under ROHM recommended storage condition, solderability of products out of recommended storage time period
 may be degraded. It is strongly recommended to confirm solderability before using Products of which storage time is
 exceeding the recommended storage time period.
- 3. Store / transport cartons in the correct direction, which is indicated on a carton with a symbol. Otherwise bent leads may occur due to excessive stress applied when dropping of a carton.
- 4. Use Products within the specified time after opening a humidity barrier bag. Baking is required before using Products of which storage time is exceeding the recommended storage time period.

Precaution for Product Label

A two-dimensional barcode printed on ROHM Products label is for ROHM's internal use only.

Precaution for Disposition

When disposing Products please dispose them properly using an authorized industry waste company.

Precaution for Foreign Exchange and Foreign Trade act

Since concerned goods might be fallen under listed items of export control prescribed by Foreign exchange and Foreign trade act, please consult with ROHM in case of export.

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- 3. The information contained in this doc ument is provided on an "as is" basis and ROHM does not warrant that all information contained in this document is accurate an d/or error-free. ROHM shall not be in an y way responsible or liable for any damages, expenses or losses incurred by you or third parties resulting from inaccuracy or errors of or concerning such information.

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PMR18EZPFV - Web Page

Distribution Inventory

Part Number	PMR18EZPFV
Package	
Unit Quantity	5000
Minimum Package Quantity	5000
Packing Type	Taping
Constitution Materials List	inquiry
RoHS	Yes