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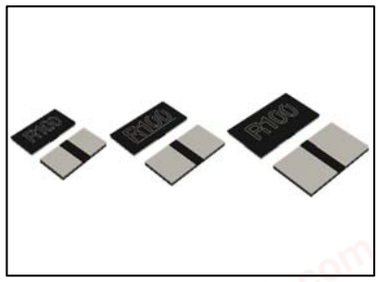
High Power Metal Plate Shunt Resistors

GMR series

Series Lineup

●Features

1) High power (4W to 10W)
2) High heat dissipation
3) Excellent TCR characteristics
4) Low ohmic (5mΩ to 220mΩ)
5) ROHM resistors have obtained ISO9001 / IATF16949 certification
6) Corresponds to AEC-Q200



●Products list

Part No.	Size		Rated power	Rated terminal Temperature	Tolerance	Temperature*1 coefficient	Resistance*2 range	Operating temperature range	Automotive grade available (AEC-Q200)
	(mm)	(inch)	(W)	(°C)		(ppm/°C)	(Ω)	(°C)	
GMR50	5025	2010	4	90	F (±1%)	0～+25	5m≦R<10m	-65～+170	Yes
						±25	10m≦R≦220m		
GMR100	6432	2512	7	70	F (±1%)	0～+50	5m≦R<10m	-65～+170	Yes
						±20	10m≦R≦220m		
			5	110	F (±1%)	0～+50	5m≦R<10m		
						±20	10m≦R≦220m		
GMR320	7142	2817	10	70	F (±1%)	0～+50	5m≦R<10m	-65～+170	Yes
						±25	10m≦R≦100m		
			7	110	F (±1%)	0～+50	5m≦R<10m		
						±25	10m≦R≦100m		

Design and specifications are subject to change without notice. Carefully check the specification sheet supplied with the product before using or ordering it.
*1 (+20/+60°C)
*2 Development schedule will vary depending on resistance value. Please contact us for resistance values.

●Composition of part number

GMR	320	H	JA	A	F	D	5L00
Part No.	Size	Packaging code	Product code	Custom code	Tolerance	Special code	Nominal resistance

Part No.
GMR
High Power Metal Plate
Shunt Resistors

Size	(mm)	[inch]
50	(5025)	[2010]
100	(6432)	[2512]
320	(7142)	[2817]

Packaging code			
Part No.	Code	Packaging specifications	Quantity pcs/reel
GMR50	H	Embossed tape (4mm Pitch)	2,000
GMR100	H	Embossed tape (8mm Pitch)	2,000
GMR320	H	Embossed tape (8mm Pitch)	2,000

Product code	
JA	5mΩ≦R<10mΩ
JB	10mΩ≦R<100mΩ
JC	100mΩ≦R≦220mΩ

Custom code
A

Tolerance
F (±1%)

Special code
Please refer to the next page.

Nominal resistance
Please refer to the next page.

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●Part Number List by Resistance Value

The table below provides a reference for identifying the applicable part number based on the resistance value.
The part numbers listed in this table do not necessarily indicate products suitable for mass production.
For part numbers available for mass production, please refer to the latest datasheet.

Resistance Value	Part No・Size	Packaging code	Product code	Custom code	Tolerance	Special code	Nominal Resistance
5mΩ	GMR50 or GMR100 or GMR320	H	JA	A	F	D	5L00
6mΩ				A		E	6L00
6.2mΩ				-		T	6L20
7mΩ				A		F	7L00
8mΩ				A		G	8L00
9mΩ				A		H	9L00
10mΩ			JB	-		A	10L0
11mΩ				-		B	R011
12mΩ				-		C	R012
13mΩ				-		D	R013
15mΩ				-		E	R015
16mΩ				-		F	R016
18mΩ				-		G	R018
20mΩ				-		H	R020
22mΩ				-		I	R022
24mΩ				-		J	R024
25mΩ				A		C	R025
27mΩ				-		K	R027
30mΩ				-		L	R030
33mΩ				-		M	R033
36mΩ				-		N	R036
39mΩ				-		O	R039
40mΩ				A		A	R040
43mΩ				-		P	R043
47mΩ				-		Q	R047
50mΩ				A		B	R050
51mΩ				-		R	R051
56mΩ				-		S	R056
62mΩ				-		T	R062
68mΩ				-		U	R068
75mΩ				-		V	R075
82mΩ				-		W	R082
91mΩ				-		X	R091
100mΩ			JC	-		A	R100
110mΩ				-		B	R110
120mΩ				-		C	R120
130mΩ				-		D	R130
150mΩ				-		E	R150
160mΩ				-		F	R160
180mΩ				-		G	R180
200mΩ				-		H	R200
220mΩ				-		I	R220

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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	CLASSⅢ	CLASSⅡb	CLASSⅢ
CLASSⅣ		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 Cl_2, H_2S, NH_3, SO_2, and NO_2
   [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
   [f] Sealing or coating our Products with resin or other coating materials
   [g] Use of our Products without cleaning residue of flux (Exclude cases where no-clean type fluxes is used. However, recommend sufficiently about the residue.); 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

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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 Ionizer, 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 Cl_2, H_2S, NH_3, SO_2, and NO_2
   - [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

2. 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.

Precaution Regarding Intellectual Property Rights

1. All information and data including but not limited to application example contained in this document is for reference only. ROHM does not warrant that foregoing information or data will not infringe any intellectual property rights or any other rights of any third party regarding such information or data.

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General Precaution

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