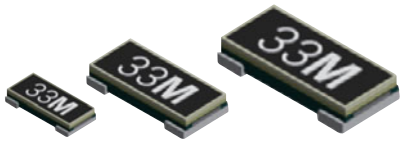
Current Sensing Resistors, Metal Plate Type

Type: **ERJ MP2, MP3, MP4**



Features

- Ideal for current sensing solution
- Small case size with high power
- Metal plate bonding technology. Excellent long term stability
- Outer Resin with high heat dissipation. Wide temperature range (–65 °C to +170 °C)
- AEC-Q200 qualified
- RoHS compliant
- ISO9001, ISO/TS16949 certified

■ **As for Packaging Methods, Soldering Conditions and Safety Precautions,**
Please see Data Files

Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12
E	R	J	M	P	4	P	F	1	0	M	U

Product Code
Metal Plate Chip Resistors

Type Code	
Code	Inch size
P2	1206
P3	2010
P4	2512

Power Rating	
Code	Rating
G	0.25 W
K	0.5 W
M	1 W
P	2 W

Resistance Tolerance	
Code	Tolerance
F	±1 %

Resistance Value
Shown by 3 digits or letters.Decimal point is expressed by M as 2M0=2m Ω 10M=10m Ω

Packaging Methods		
Code	Packaging	Part No.
U	Embossed Carrier Taping 4 mm pitch, 3,000 pcs.	ERJMP2 ERJMP3
	Embossed Carrier Taping 4 mm pitch, 2,000 pcs.	ERJMP4

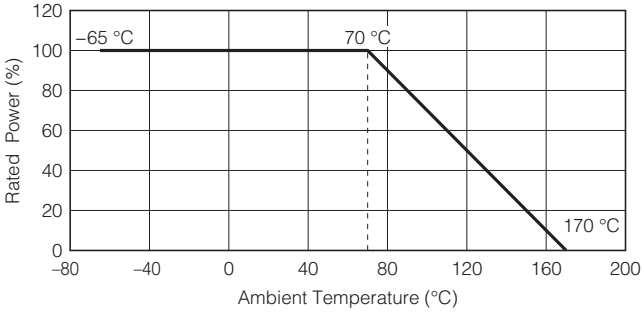
Ratings

Part No. (inch size)	Power Rating at 70 °C (W)	Resistance Range (mΩ)	Resistance Tolerance (%)	T.C.R. ($\times 10^{-6}$/°C)	Category Temperature Range (°C)
ERJMP2G (1206)	0.25	1 to 10	F : ±1	±75	–65 to +170
ERJMP2K (1206)	0.5				
ERJMP3K (2010)	0.5	1 to 10	F : ±1	±75	–65 to +170
ERJMP3M (2010)	1				
ERJMP4M (2512)	1	1 to 10	F : ±1	±75	–65 to +170
ERJMP4P (2512)	2				

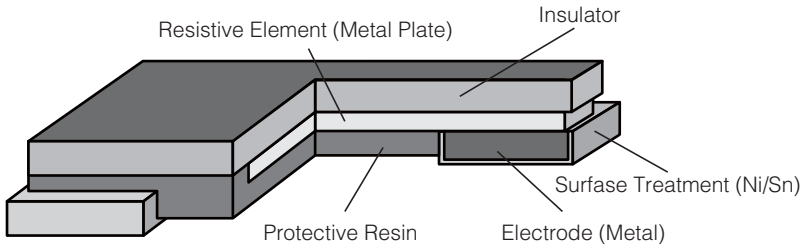
✻ Please contact us when resistors of irregular series are needed.

Power Derating Curve

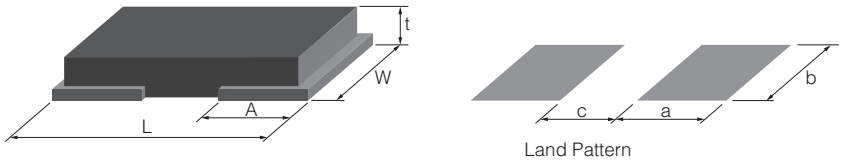
If the ambient temperature of the resistor is more than ambient temperature upper limit value of the rated table, please reduce the rated power according to the Power Derating Curve shown in the figure on the right.



Construction

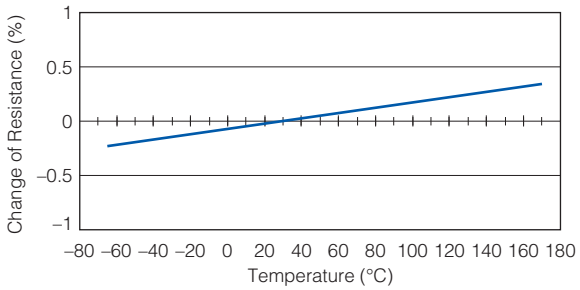


Dimensions in mm (not to scale), Recommended Land Pattern



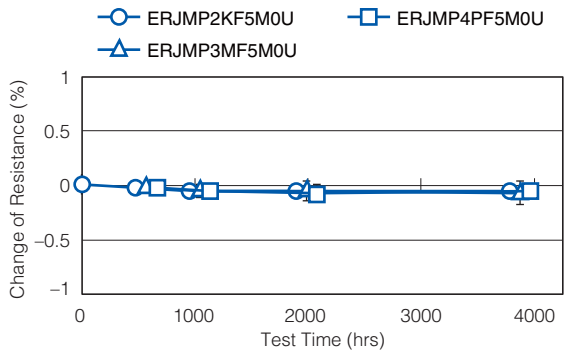
Part No. (inch size)	Resistance Value (Ω)	Dimension (mm)				Recommended Land Pattern (mm)			Mass (Weight) (g/1000 pcs.)
		L	W	A	t	a	b	c	
ERJMP2 (1206)	1m	3.20±0.25	1.60±0.25	1.04±0.25	0.90±0.25	1.5	1.8	1.0	30
	2m			0.64±0.25		1.1	1.8	1.8	
	3m to 5m				0.64±0.25				
	6m to 10m			0.50±0.25					
ERJMP3 (2010)	1m	5.00±0.25	2.50±0.25	1.47±0.25	0.90±0.25	2.1	3.1	1.9	70
	2m to 6m				0.64±0.25				
	7m to 10m			0.50±0.25		1.3	3.1	3.5	
ERJMP4 (2512)	1m	6.40±0.25	3.20±0.25	2.20±0.25	0.90±0.25	3.0	3.4	2.0	100
	2m to 4m				0.64±0.25				
	5m, 6m			1.20±0.25					
	7m to 10m			0.76±0.25		2.0	3.4	4.0	

Typical Temperature dependence of electrical resistance

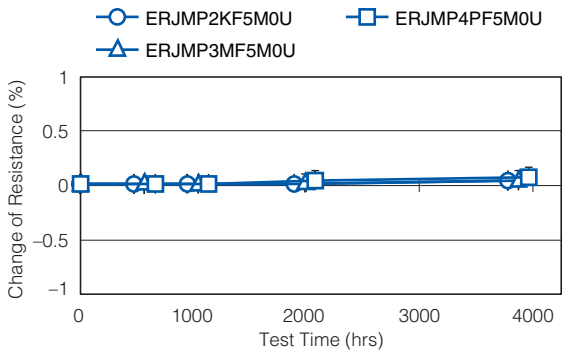


Long-term stability

● Load Life 70 °C, Rated power



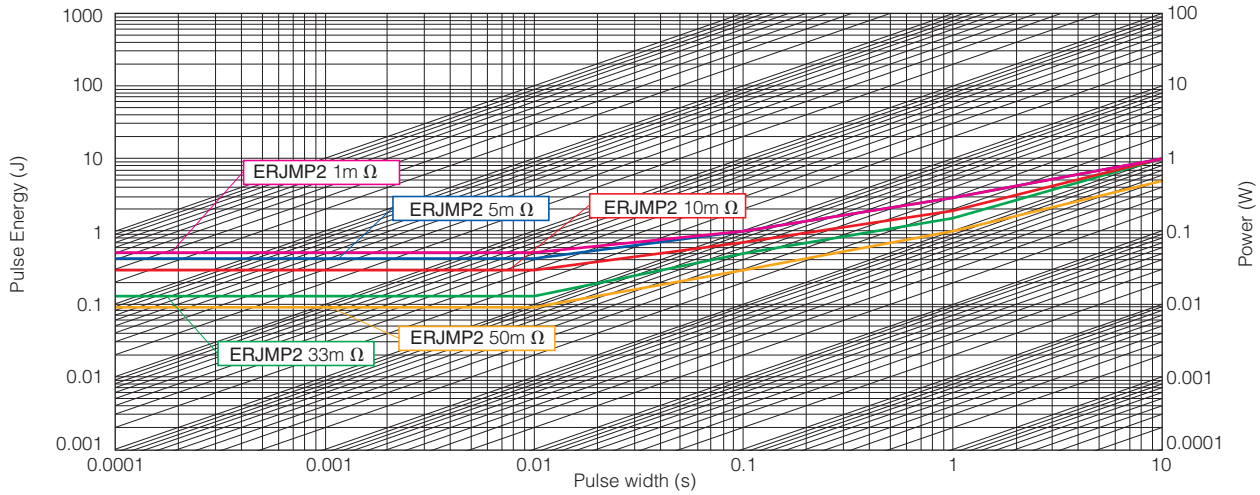
● Thermal Shock −55 °C/155 °C



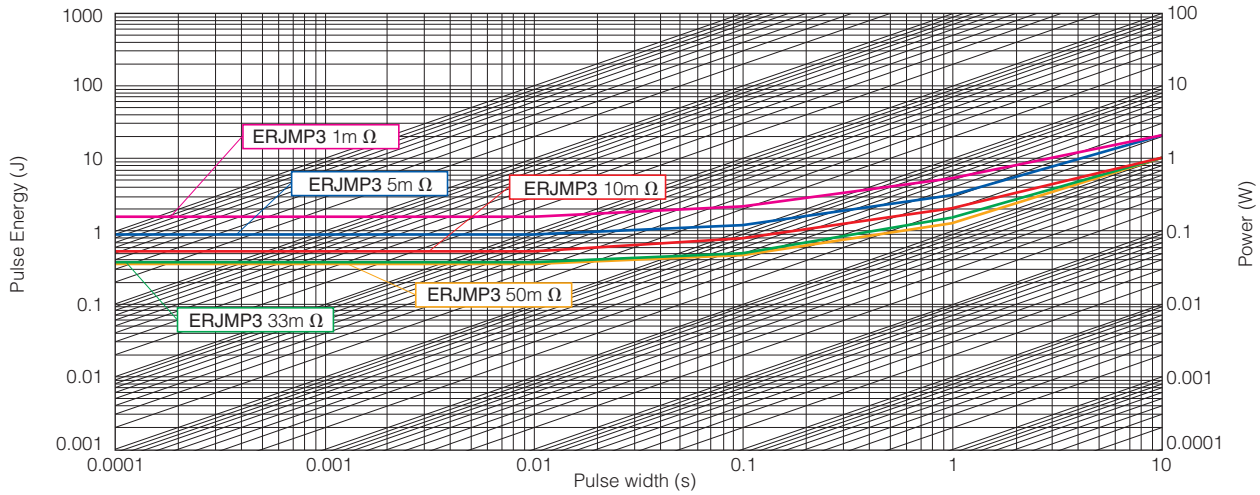
Maximum pulse energy respectively pulse power for continuous operation

Referance Data
Condition : Room Temperature, OFF : 10 s, 1000 cycle, Wave form : Square
Change of Resistance=±1 %

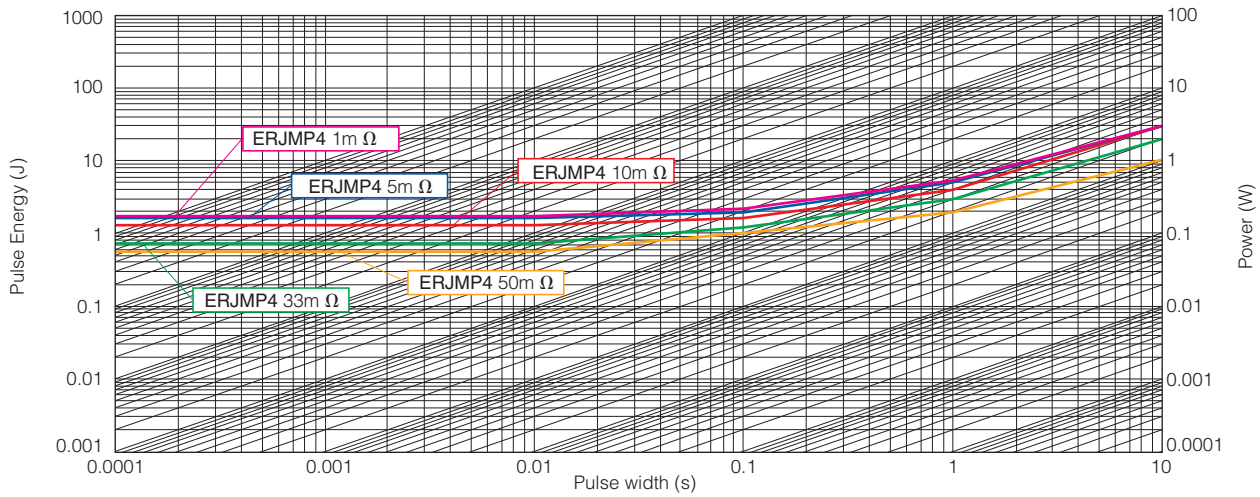
● ERJMP2 type



● ERJMP3 type



● ERJMP4 type



Performance (AEC-Q200)

Test Item	Test Condition	Specification	Typical value
Thermal Shock	–55 °C/155 °C, 1000cycles	±1 %	0.20 %
Overload	3 × Rated Power, 5 sec	±0.5 %	0.10 %
Solderability	245 °C, 3 sec	> 95% coverage	> 95% coverage
Resistance to Solvents	MIL-STD-202 method 215, 2.1a, 2.1d	No damage	No damage
Low Temperature Storage and Operation	–65 °C, 24 h	±0.5 %	0.03 %
Resistance to Soldering Heat	MIL-STD-202 method 210 (260 °C, 10s)	±0.5 %	0.10 %
Moisture Resistance	MIL-STD-202 method 106	±0.5 %	0.10 %
Shock	MIL-STD-202 method 213-A	±0.5 %	0.10 %
Vibration, High Frequency	10 to 2000 (Hz)	±0.5 %	0.05 %
Life	70 °C, Rated Power, 2000 h	±1 %	0.30 %
Storage Life at Elevated Temperature	170 °C, 2000 h	±1 %	0.30 %
High Temperature Characteristics	140 °C, 2000 h	±0.5 %	0.05 %
Frequency Characteristics	Inductance	< 5 nH	< 2 nH

Sense terminal-Layout