

Low Resistance Value Chip Resistors(Current Sensing Resistors) 0603, 2512

Type: **ERJM03**

ERJM1W

Discontinued
Part No.
ERJM03NF10MV
ERJM03NJ10MV

Suggested replacement
Part No. : ERJ3LWFR010V,ERJ3LWJR010V



■ Features

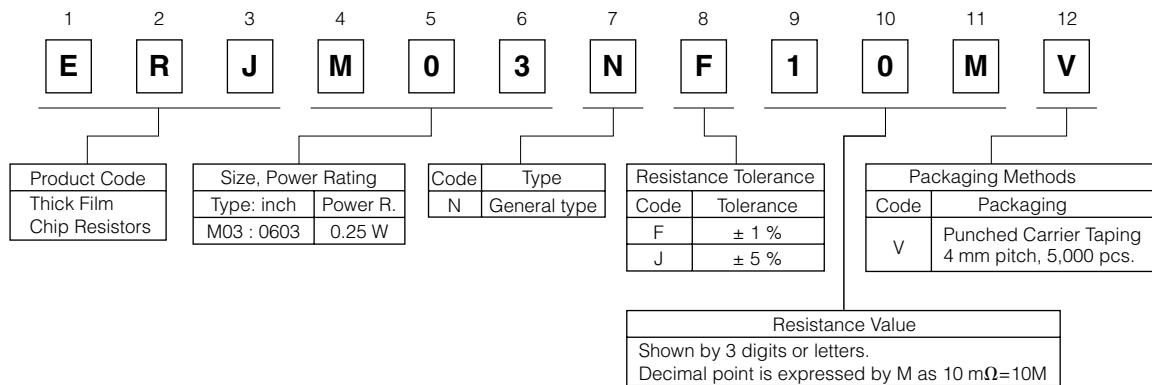
- Low resistance values and high precision(1 mΩ to 20 mΩ)
- Stable resistance not influenced by measurement position
- High heat emission
- Low profile, strong body
- Inductance less than 1.0 nH for the metal plate structure
- RoHS compliant

■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

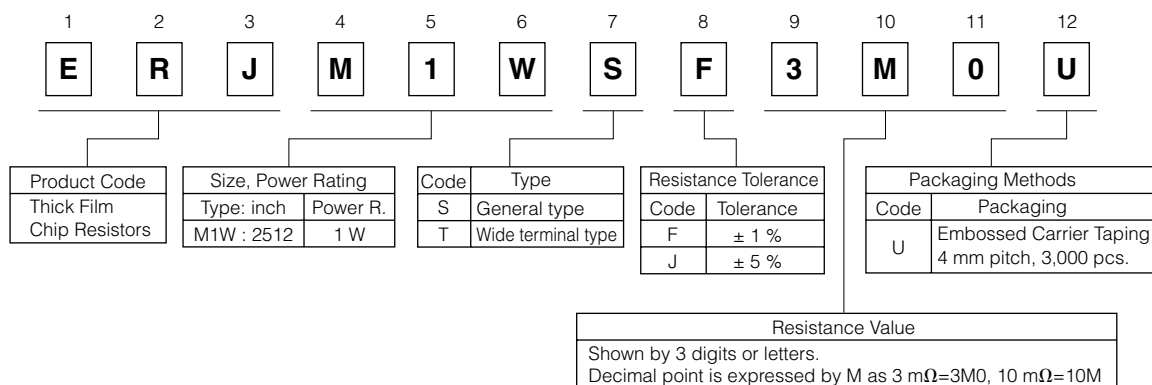
Please see Data Files

■ Explanation of Part Numbers

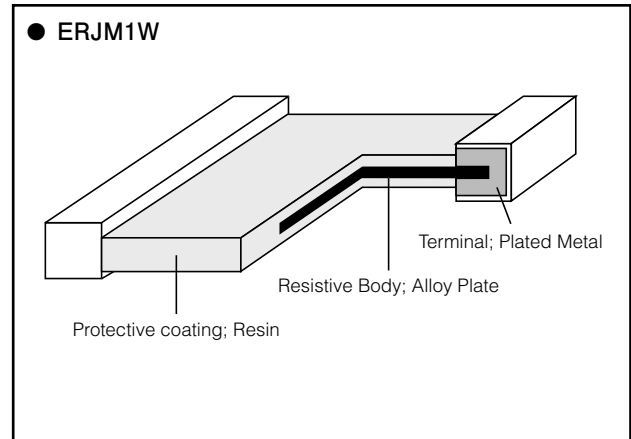
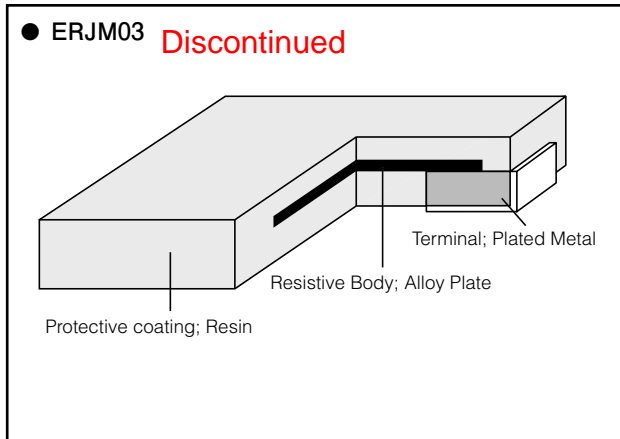
● ERJM03 Discontinued



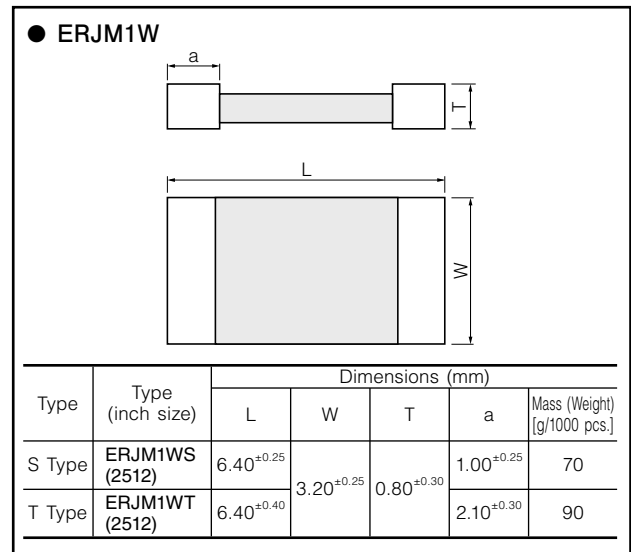
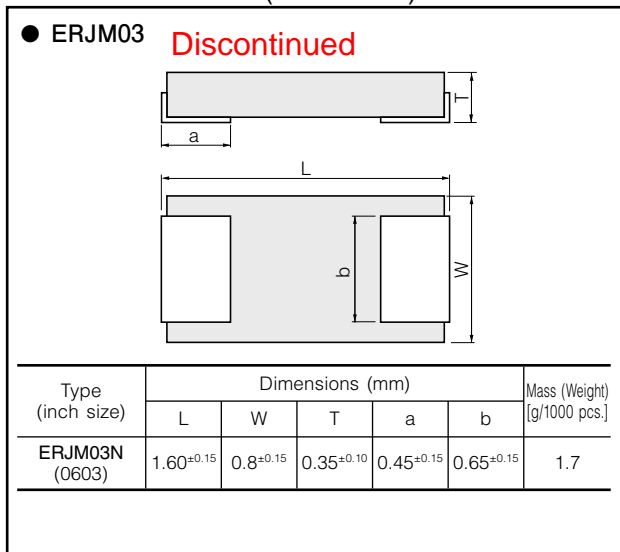
● ERJM1W



Construction



Dimensions in mm (not to scale)



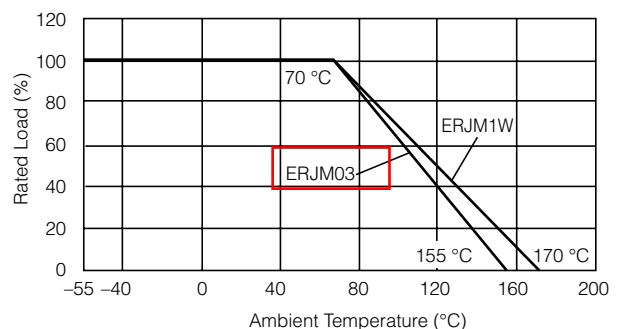
Ratings

Type (inch size)	Power Rating at 70 °C (W)	Standard Resistance (mΩ)	Resistance Tolerance (%)	T.C.R. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)	Circuit board of use
ERJM03N (0603)	0.25	10		±100	-55 to +155	-
ERJM1WS (2512)	1	3, 4	F: ±1, J: ±5	±350	-55 to +170	You should use the aluminum substrate when the added wattage exceeds 0.5 W.
		5, 6, 10, 15, 20		±100		
ERJM1WT (2512)		1, 1.5		350±100		
		2, 3, 4		100±50		

* Please contact the factory for other values and the range

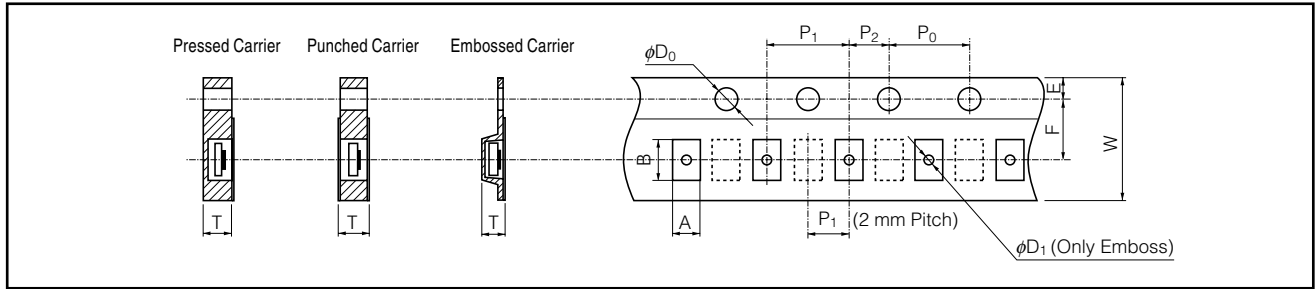
Power Derating Curve

For resistors operated in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure on the right.



Carrier Tape

(Unit : mm)



Pressed Carrier Taping (2 mm Pitch)

● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJXGN	0402(01005)	0.24 ^{±0.03}	0.45 ^{±0.03}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.31 ^{±0.05}
ERJ1GN ERJ1R□ ERJU01 ERA1A	0603 (0201)	0.38 ^{±0.05}	0.68 ^{±0.05}								0.42 ^{±0.05}
ERJ2BW	1005(0402)	0.67 ^{±0.10}	1.17 ^{±0.10}								0.61 ^{±0.05}

Punched Carrier Taping (2 mm Pitch)

● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJ2□ ERJS02 ERJU02 ERA2A	1005 (0402)	0.67 ^{±0.05}	1.17 ^{±0.05}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.52 ^{±0.05}

Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Attenuator

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
EXB14V EXB14AT	0806 (0302)	0.70 ^{+0.10} _{-0.05}	0.95 ^{+0.05} _{-0.10}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	2.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.52 ^{±0.05}
EXB18V	1406(0502)		1.60 ^{±0.10}								
EXB24V EXBU24 EXB24AT	1010 (0404)	1.20 ^{±0.10}	1.20 ^{±0.10}								
EXB28V EXBU28 EXBN8V	2010 (0804)		2.20 ^{±0.10}								

Punched Carrier Taping (4 mm Pitch)

● Rectangular Type

(Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJ3□ ERJ3BW ERJ□□3 ERA3A	1608 (0603)	1.10 ^{±0.10}	1.90 ^{±0.10}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.70 ^{±0.05}
ERJ6□ ERJ□06 ERJS6□ ERA6A	2012 (0805)	1.65 ^{±0.15}	2.50 ^{±0.20}								0.84 ^{±0.05}
ERJB3	1220(0508)										
ERJ6BW ERJP6W	2012(0805)	1.55 ^{±0.15}	2.30 ^{±0.20}								
ERJ8□ ERJ8□W ERJ□08 ERA8A	3216 (1206)	2.00 ^{±0.15}	3.60 ^{±0.20}								
ERJB2	1632(0612)										

● Chip Resistor Array / Metal Film Chip Resistor Array / Anti-Sulfurated Chip Resistor Array / Chip Resistor Networks (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	
EXB34V EXBU34	1616(0606)	1.95 ^{±0.15}	1.95 ^{±0.20}	8.00 ^{±0.20}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	0.70 ^{±0.05}	
EXB38V ERA38V EXBU38	3216(1206)		3.60 ^{±0.20}									
EXB2HV EXBU2H	3816(1506)		4.10 ^{±0.15}									
EXBV4V	1616(0606)		1.95 ^{±0.20}									
EXBV8V	3216(1206)		3.60 ^{±0.20}									
EXBD	3216(1206)		2.00 ^{±0.20}									3.60 ^{±0.20}
EXBQ	3816(1506)	1.90 ^{±0.20}	4.10 ^{±0.20}								0.84 ^{±0.05}	
												0.84 ^{±0.10}
												0.64 ^{±0.05}

■ Embossed Carrier Taping (1 mm Pitch)

● Rectangular Type (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T
ERJXGN	0402(01005)	0.25 ^{±0.05}	0.45 ^{±0.05}	4.00 ^{±0.20}	1.80 ^{±0.05}	0.90 ^{±0.10}	1.00 ^{±0.10}	1.00 ^{±0.10}	2.00 ^{±0.10}	0.80 ^{±0.10}	0.5 max.

■ Embossed Carrier Taping (4 mm Pitch)

● Rectangular Type (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁	
ERJ14□ ERJ□14	3225 (1210)	2.80 ^{±0.20}	3.50 ^{±0.20}	8.00 ^{±0.30}	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	1.00 ^{±0.10}	1.00 ^{+0.10} ₀	
ERJ12□ ERJ□12	4532 (1812)	3.50 ^{±0.20}	4.80 ^{±0.20}	12.00 ^{±0.30}	5.50 ^{±0.20}							1.50 ^{±0.10}	1.60 ^{±0.10}
ERJ12Z ERJ12S ERJ□1D	5025 (2010)	2.80 ^{±0.20}	5.30 ^{±0.20}										
ERJB1 ERJC1	2550 (1020)												
ERJ1T□ ERJ□1T	6432 (2512)	3.60 ^{±0.20}	6.90 ^{±0.20}										
ERJL1W													
ERJM1W						1.10 ^{±0.20}							
ERJA1	3264(1225)	3.50 ^{±0.20}	6.80 ^{±0.20}									1.5 min.	

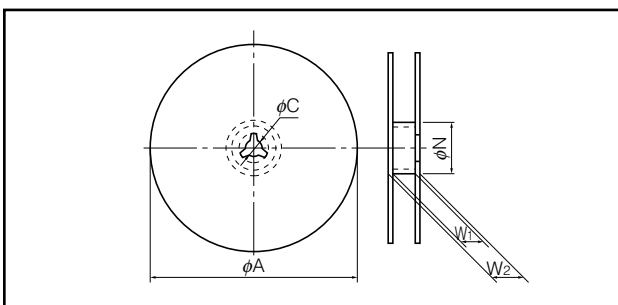
● Chip Resistor Array / Chip Resistor Networks (Unit : mm)

Type	Size mm (inch)	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁
EXBS8V	5022(2029)	2.80 ^{±0.20}	5.70 ^{±0.20}	12.00 ^{±0.30}	5.50 ^{±0.20}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	1.6 max.	1.5 min.
EXBE	4021(1608)	2.50 ^{±0.20}	4.40 ^{±0.20}								1.10 ^{±0.20}	
EXBA	6431(2512)	3.50 ^{±0.20}	6.80 ^{±0.20}									

● Fixed Metal (Oxide) Film Resistors (Unit : mm)

Type	A	B	W	F	E	P ₁	P ₂	P ₀	φD ₀	T	φD ₁
ERG(X)1H	6.20 ^{±0.20}	13.70 ^{±0.20}	24.0 ^{±0.30}	11.50 ^{±0.10}	1.75 ^{±0.10}	8.00 ^{±0.10}	2.00 ^{±0.10}	4.00 ^{±0.10}	1.50 ^{+0.10} ₀	5.70 ^{±0.10}	1.5 min.
ERG(X)2H	7.00 ^{±0.20}	16.20 ^{±0.20}				12.00 ^{±0.10}				6.40 ^{±0.10}	

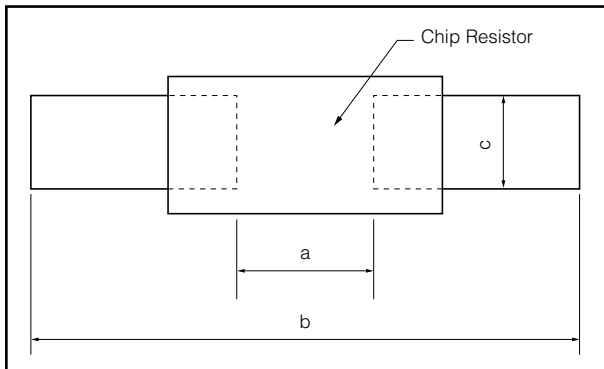
■ Taping Reel (Unit : mm)



Tape Width(W)	φA	φN	φC	W ₁	W ₂
4mm Width	180.0 ^{±3.0}	60.0 ^{+1.0} ₀	13.0 ^{±0.2}	4.5 ^{±0.5}	7.0 ^{±0.5}
8mm Width	180.0 ^{-1.5} ₀			9.0 ^{+1.0} ₀	11.4 ^{±1.0}
12mm Width				13.0 ^{+1.0} ₀	15.4 ^{±1.0}
24mm Width	380.0 ^{±2.0}	80.0 ^{±1.0}		25.4 ^{±1.0}	29.4 ^{±1.0}

Recommended Land Pattern

● An example of a land pattern for the Rectangular Type is shown below.



Size mm/inch	Dimensions (mm)		
	a	b	c
0402/01005	0.15 to 0.20	0.5 to 0.7	0.20 to 0.25
0603/0201	0.3 to 0.4	0.8 to 0.9	0.25 to 0.35
1005/0402	0.5 to 0.6	1.4 to 1.6	0.4 to 0.6
1608/0603	0.7 to 0.9	2.0 to 2.2	0.8 to 1.0
2012/0805	1.0 to 1.4	3.2 to 3.8	0.9 to 1.4
3216/1206	2.0 to 2.4	4.4 to 5.0	1.2 to 1.8
3225/1210	2.0 to 2.4	4.4 to 5.0	1.8 to 2.8
4532/1812	3.3 to 3.7	5.7 to 6.5	2.3 to 3.5
5025/2010	3.6 to 4.0	6.2 to 7.0	1.8 to 2.8
6432/2512	5.0 to 5.4	7.6 to 8.6	2.3 to 3.5
6432/2512*	3.6 to 4.0	7.6 to 8.6	2.3 to 3.5

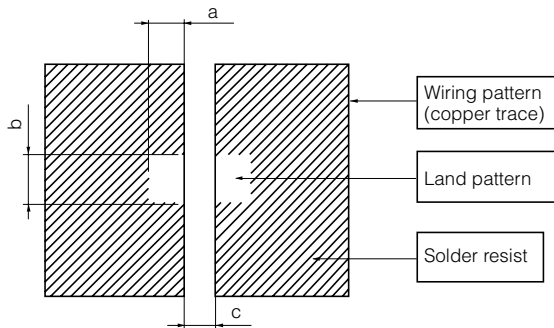
High power (double-sided resistive elements structure) type

Type	Size mm/inch	Dimensions (mm)		
		a	b	c
ERJ2BW	1005/0402	0.52	1.4 to 1.6	0.4 to 0.6
ERJ3BW	1608/0603	0.5 to 0.8	2.5 to 2.7	0.9 to 1.1
ERJ6BW	2012/0805	0.9	3.2 to 3.8	1.1 to 1.4
ERJ8BW	3216/1206	1.2	4.4 to 5.0	1.3 to 1.8
ERJ8CW (10 to 16 mΩ)				
ERJ8CW (18 to 50 mΩ)	3216/1206	2.0 to 2.6	4.4 to 5.0	1.2 to 1.8

* ERJL1W

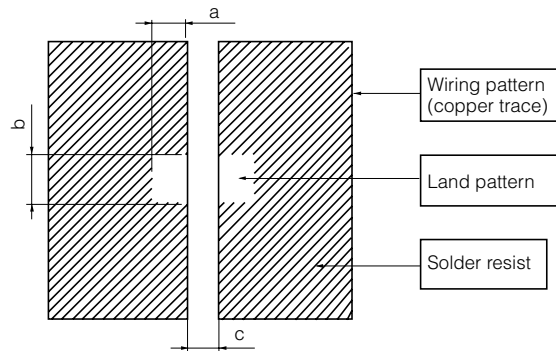
● An example of a land pattern for Low Resistance Value Chip Resistors is shown below.

ERJM03 (Size 1608/0603)



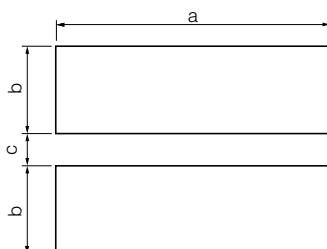
Type	Dimensions (mm)		
	a	b	c
ERJM03N	0.65	0.8	0.7

ERJM1W (Size 6432/2512)



Type	Dimensions (mm)		
	a	b	c
ERJM1WS	2.1	3.4	4.2
ERJM1WT	3.1	3.4	2.2

● An example of a land pattern for High Power Chip Resistors / Wide Terminal Type is shown below.



Type	Dimensions (mm)		
	a	b	c
ERJA1	6.4	1.70	0.60
ERJB1 ERJC1 ⁽¹⁾	5.0	1.30	0.75
ERJB2	3.2	0.95	0.70
ERJB3	2.0	0.80	0.60

(1) Anti-Sulfurated High Power Chip Resistors / Wide Terminal Type