

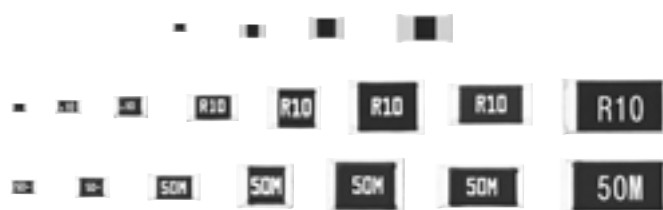
Thick Film Chip Resistors / Low Resistance Type

ERJ R, B : 0402, 0603, 0805, 1206, 1210, 1812, 2010, 2512

ERJ BW, CW : 0402, 0603, 0805, 1206

ERJ L : 0603, 0805, 1206, 1210, 1812, 2010, 2512

Type: ERJ 2B, 3B, 6B, 8B, 14B, 3R,
6R, 8R, 14R, 12R, 12Z, 1TR
ERJ 2BW, 3BW, 6BW, 8BW, 8CW
ERJ L03, L06, L08, L14, L12,
L1D, L1W



Features

- Current Sensing resistor
- Small size and lightweight
- High reliability : Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- Improved high-power/resistance to pulse characteristics
by double-sided resistive elements structure : ERJ2BW, 3BW, 6BW, 8BW, 8CW Type
- Low TCR : $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ (ERJ8CW)
- Low Resistance Value
 - 10 m Ω to 50 m Ω : ERJ8CW
 - 10 m Ω to 100 m Ω : ERJ6BW, 8BW
 - 20 m Ω to 100 m Ω : ERJ3BW, ERJL14, L12
 - 40 m Ω to 100 m Ω : ERJL1D, L1W
 - 47 m Ω to 100 m Ω : ERJ2BW, ERJL03, L06, L08
- Reference Standards : IEC 60115-8, JIS C 5201-8, JEITA RC-2144
- AEC-Q200 qualified
- RoHS compliant

Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

Explanation of Part Numbers

- ERJ2BS/2BQ, 3BS/3BQ, 6BS/6BQ, 8BS/8BQ, 14BS/14BQ, 3R, 6R, 8R, 14R, 12R, 12Z, 1TR Series High power type/Standard type

1	2	3	4	5	6	7	8	9	10	11
E	R	J	8	R	Q	F	R	2	2	V

Product Code	Size, Power Rating		Resistance Value		Resistance Tolerance		Packaging Methods			
Thick Film Chip Resistors	Type: inch	Power R.	Code	Res. Value	Code	Tolerance	Code	Packaging	Type	
	2B : 0402	0.166 W	S	0.1 Ω to 0.2 Ω	F	± 1 %	X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERJ2B	
	3R : 0603	0.1 W	Q	0.22 Ω to 9.1 Ω*	G	± 2 %	V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ3R/3B ERJ6R/6B ERJ8R/8B	
	3B : 0603	0.25 W	* 2B : 0.22 Ω to 1.0 Ω			J	± 5 %	U	ERJ14R/14B ERJ12R ERJ12Z ERJ1TR	
	6R : 0805	0.125 W								
	6B : 0805	0.33 W								
	8R : 1206	0.25 W						Embossed Carrier Taping 4 mm pitch, 5,000 pcs.		
	8B : 1206	0.5 W								
	14R : 1210	0.25 W						Embossed Carrier Taping 4 mm pitch, 4,000 pcs.		
	14B : 1210	0.5 W								
	12R : 1812	0.5 W								
	12Z : 2010	0.5 W								
	1TR : 2512	1 W								

Resistance Value
Shown by 3 digits or letters. (Ex.) R22 : 0.22 Ω

● ERJ2BW, 3BW, 6BW, 8BW, 8CW Series <High power (double-sided resistive elements structure) type>

	1	2	3	4	5	6	7	8	9	10	11	12
	E	R	J	2	B	W	G	R	0	4	7	X

Product Code	Code	Size:inch	Power Rating	Resistance Value	Resistance Tolerance		Resistance Value	Packaging Methods				
Thick Film Chip Resistors	2BW	0402	0.25 W	47 mΩ to 100 mΩ	Code	Tolerance	Shown by 4 digits or letters. (Ex.) R047 : 0.047 Ω=47 mΩ	Code	Packaging	Type		
	3BW	0603	0.33 W	20 mΩ to 100 mΩ	F	± 1 %		X	Pressed Carrier Taping 2 mm pitch, 10,000 pcs.	ERJ2BW		
	6BW	0805	0.5 W	10 mΩ to 100 mΩ	G	± 2 %				V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ3BW ERJ6BW ERJ8BW ERJ8CW
	8BW	1206	1 W	10 mΩ to 100 mΩ	J	± 5 %						
	8CW	1206	1 W	10 mΩ to 50 mΩ								

● ERJL03, L06, L08, L14, L12, L1D, L1W Series Low TCR type

1

2

3

4

5

6

7

8

9

10

11

12

E

R

J

L

1

4

K

J

5

0

M

U

Product Code

Thick Film Chip Resistors

Size, Power Rating

Type: inch

Power R.

L03 : 0603

0.2 W

L06 : 0805

0.25 W

L08 : 1206

0.33 W

L14 : 1210

0.33 W

L12 : 1812

0.5 W

L1D : 2010

0.5 W

L1W : 2512

1 W

Code

Res. Value

K

Std.
(20 mΩ, 22 mΩ, 33 mΩ, 39 mΩ, 47 mΩ, 50 mΩ, 100 mΩ) *

U

20 mΩ to 100 mΩ*

* L03, L06, L08 : 47 mΩ to 100 mΩ

L1D, L1W : 40 mΩ to 100 mΩ

Resistance Tolerance

Code

Tolerance

F

± 1 %

J

± 5 %

Resistance Value

Shown by 3 digits or letters.

(Ex.) 50 M:50 mΩ, 10 C:100 mΩ

Packaging Methods

Code

Packaging

Type

V

Punched Carrier Taping
4 mm pitch, 5,000 pcs.

ERJL03
ERJL06
ERJL08

U

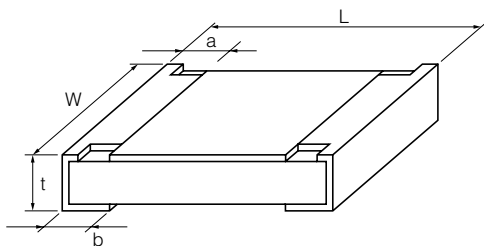
Embossed Carrier Taping
4 mm pitch, 5,000 pcs.

ERJL14
ERJL12
ERJL1D

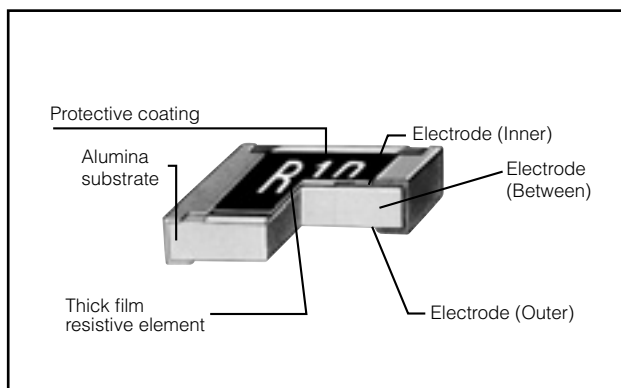
Embossed Carrier Taping
4 mm pitch, 4,000 pcs.

ERJL1W

■ Dimensions in mm (not to scale)



■ Construction



Type (inch size)	Dimensions (mm)					Mass(Weight) [g/1000pcs.]
	L	W	a	b	t	
ERJ2BW (0402)	1.00 ^{+0.10}	0.50 ^{+0.10} _{-0.05}	0.24 ^{+0.10}	0.24 ^{+0.10}	0.35 ^{+0.05}	0.8
ERJ2BS ERJ2BQ (0402)	1.00 ^{+0.10}	0.50 ^{+0.10} _{-0.05}	0.20 ^{+0.10}	0.27 ^{+0.10}	0.35 ^{+0.05}	0.8
ERJ3BW (0603)	1.60 ^{+0.15}	0.80 ^{+0.15}	0.40 ^{+0.20}	0.40 ^{+0.20}	0.55 ^{+0.10}	3
ERJ3R ERJ3B (0603) ERJL03	1.60 ^{+0.15}	0.80 ^{+0.15} _{-0.05}	0.30 ^{+0.20}	0.30 ^{+0.15}	0.45 ^{+0.10}	2
ERJ6BW(0805)	2.00 ^{+0.20}	1.25 ^{+0.20}	0.55 ^{+0.20}	0.55 ^{+0.20}	0.65 ^{+0.10}	6
ERJ6R ERJ6B (0805) ERJL06	2.00 ^{+0.20}	1.25 ^{+0.10}	0.40 ^{+0.20}	0.40 ^{+0.20}	0.60 ^{+0.10}	4
ERJ8BW(1206)	3.20 ^{+0.20}	1.60 ^{+0.20}	1.00 ^{+0.20}	1.00 ^{+0.20}	0.65 ^{+0.10}	13
ERJ8CW (10 to 16 mΩ)	3.20 ^{+0.20}	1.60 ^{+0.20}	1.10 ^{+0.20}	1.10 ^{+0.20}	0.65 ^{+0.10}	13
ERJ8CW (18 to 50 mΩ)	3.20 ^{+0.20}	1.60 ^{+0.20}	0.60 ^{+0.20}	0.60 ^{+0.20}	0.65 ^{+0.10}	13
ERJ8R ERJ8B (1206) ERJL08	3.20 ^{+0.05} _{-0.20}	1.60 ^{+0.05} _{-0.15}	0.50 ^{+0.20}	0.50 ^{+0.20}	0.60 ^{+0.10}	10
ERJ14R ERJ14B (1210) ERJL14	3.20 ^{+0.20}	2.50 ^{+0.20}	0.50 ^{+0.20}	0.50 ^{+0.20}	0.60 ^{+0.10}	16
ERJ12R ERJL12 (1812)	4.50 ^{+0.20}	3.20 ^{+0.20}	0.50 ^{+0.20}	0.50 ^{+0.20}	0.60 ^{+0.10}	27
ERJ12Z ERJL1D (2010)	5.00 ^{+0.20}	2.50 ^{+0.20}	0.60 ^{+0.20}	0.60 ^{+0.20}	0.60 ^{+0.10}	27
ERJ1TR ERJL1W (2512)	6.40 ^{+0.20}	3.20 ^{+0.20}	0.65 ^{+0.20}	0.60 ^{+0.20}	0.60 ^{+0.10}	45
	6.40 ^{+0.20}	3.20 ^{+0.20}	0.65 ^{+0.20}	1.30 ^{+0.20}	1.10 ^{+0.10}	79

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use.
Should a safety concern arise regarding this product, please be sure to contact us immediately.

■ Ratings

<High power type>

Type (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance ⁽¹⁾ Range (Ω)	T.C.R. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)
ERJ2BS (0402)	0.166	±1, ±2, ±5	0.10 to 0.20 (E24)	±300	-55 to +125
ERJ2BQ (0402)			0.22 to 1.0 (E24)	±250	
ERJ3BS (0603)	0.25	±1, ±2, ±5	0.10 to 0.20 (E24)	±300	-55 to +125
ERJ3BQ (0603)			0.22 to 0.91 (E24)	±300	
			1.0 to 9.1 (E24)	±200	
ERJ6BS (0805)	0.33	±1, ±2, ±5	0.10 to 0.20 (E24)	±250	-55 to +125
ERJ6BQ (0805)			0.22 to 0.91 (E24)	±250	
			1.0 to 9.1 (E24)	±200	
ERJ8BS (1206)	0.5	±1, ±2, ±5	0.10 to 0.20 (E24)	±250	-55 to +125
ERJ8BQ (1206)			0.22 to 0.91 (E24)	±250	
			1.0 to 9.1 (E24)	±200	
ERJ14BS (1210)	0.5	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 to +125
ERJ14BQ (1210)			0.22 to 0.91 (E24)	±200	
			1.0 to 9.1 (E24)	±100	

(1) Please contact us when resistors of irregular series are needed.

<Standard type>

Type (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)
ERJ3RS (0603)	0.1	±1, ±2, ±5	0.10 to 0.20 (E24)	±300	-55 to +125
ERJ3RQ (0603)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ6RS (0805)	0.125	±1, ±2, ±5	0.10 to 0.20 (E24)	±250	-55 to +125
ERJ6RQ (0805)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ8RS (1206)	0.25	±1, ±2, ±5	0.10 to 0.20 (E24)	±250	-55 to +125
ERJ8RQ (1206)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ14RS (1210)	0.25	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 to +125
ERJ14RQ (1210)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ12RS (1812)	0.5	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 to +125
ERJ12RQ (1812)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ12ZS (2010)	0.5	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 ~ +125
ERJ12ZQ (2010)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		
ERJ1TRS (2512)	1	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 to +125
ERJ1TRQ (2512)			0.22 to 0.91 (E24)		
			1.0 to 9.1 (E24)		

<High power (double-sided resistive elements structure) type>

Type (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance ⁽¹⁾ Range (Ω)	T.C.R. ($\times 10^{-6}/^{\circ}\text{C}$)	Category Temperature Range (°C)
ERJ2BW (0402)	0.25	$\pm 1, \pm 2, \pm 5$	47 m to 100 m(E24)	± 300	-55 to +155
ERJ3BW (0603)	0.33	$\pm 1, \pm 2, \pm 5$	20 m to 100 m(E24)	$R < 39\text{m}\Omega : \pm 250$ $R \geq 39\text{m}\Omega : \pm 150$	-55 to +155
ERJ6BW (0805)	0.5	$\pm 1, \pm 2, \pm 5$	10 m to 100 m(E24)	$R < 15\text{m}\Omega : \pm 300$ $R \geq 15\text{m}\Omega : \pm 200$	-55 to +155
ERJ8BW (1206)	1	$\pm 1, \pm 2, \pm 5$	10 m to 100 m(E24)	$10\text{m}\Omega \leq R < 20\text{m}\Omega : \pm 200$ $20\text{m}\Omega \leq R < 47\text{m}\Omega : \pm 150$ $47\text{m}\Omega \leq R \leq 100\text{m}\Omega : \pm 100$	-55 to +155
ERJ8CW (1206)	1	$\pm 1, \pm 2, \pm 5$	10 m to 50 m(E24)	± 50	-55 to +155 (10 m to 33 mΩ) -55 to +125 (36 m to 50 mΩ)

(1) Please contact us when resistors of irregular series are needed.

■ Ratings

<Low TCR type>

Type (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance ⁽¹⁾ Range (Ω)	T.C.R. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)
ERJL03 (0603)	0.2	±1, ±5	47 m to 100 m	±200	-55 to +125
ERJL06 (0805)	0.25	±1, ±5	47 m to 100 m	±100	-55 to +125
ERJL08 (1206)	0.33	±1, ±5	47 m to 100 m	±100	-55 to +125
ERJL14 (1210)	0.33	±1, ±5	20 m to 100 m	R<47 mΩ : ±300 R≥47 mΩ : ±100	-55 to +125
ERJL12 (1812)	0.5	±1, ±5	20 m to 100 m		-55 to +125
ERJL1D (2010)	0.5	±1, ±5	40 m to 100 m		-55 to +125
ERJL1W (2512)	1	±1, ±5	40 m to 100 m		-55 to +125

(1) Standard R.V. : 20 mΩ, 22 mΩ, 33 mΩ, 39 mΩ, 47 mΩ, 50 mΩ, 100 mΩ, Custom R.V. : Each 1 mΩ within upper 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.

