

## Thick Film Chip Resistors / Low Resistance Type

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



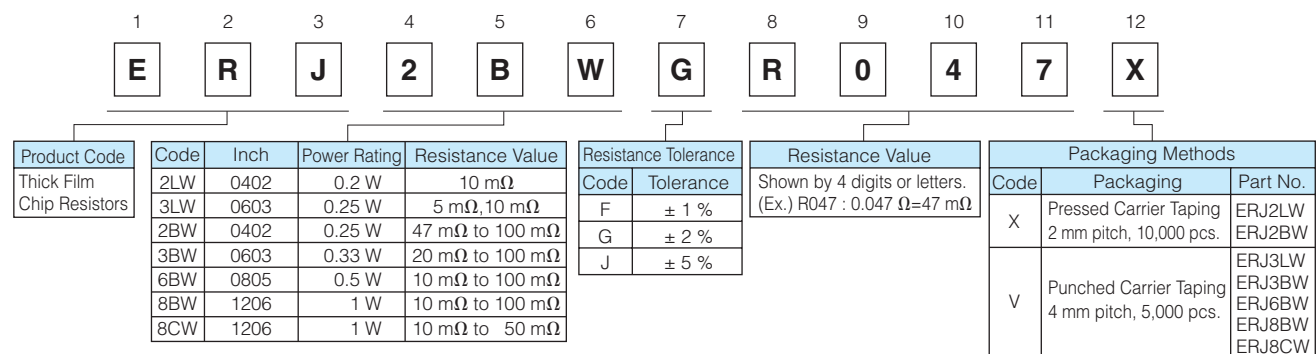
### Features

- 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 : ERJ2LW, 3LW ,2BW, 3BW, 6BW, 8BW, 8CW
- Low TCR :  $\pm 50 \times 10^{-6} / ^\circ\text{C}$  (ERJ8CW)
- Low Resistance Value
  - 5 m $\Omega$ , 10 m $\Omega$  : ERJ3LW
  - 10 m $\Omega$  : ERJ2LW
  - 10 m $\Omega$  to 50 m $\Omega$  : ERJ8CW
  - 10 m $\Omega$  to 100 m $\Omega$  : ERJ6BW, 8BW
  - 20 m $\Omega$  to 100 m $\Omega$  : ERJ3BW, ERJL14, L12
  - 40 m $\Omega$  to 100 m $\Omega$  : ERJL1D, L1W
  - 47 m $\Omega$  to 100 m $\Omega$  : ERJ2BW, ERJL03, L06, L08
- Reference Standards : IEC 60115-8, JIS C 5201-8, JEITA RC-2144
- AEC-Q200 qualified
- RoHS compliant

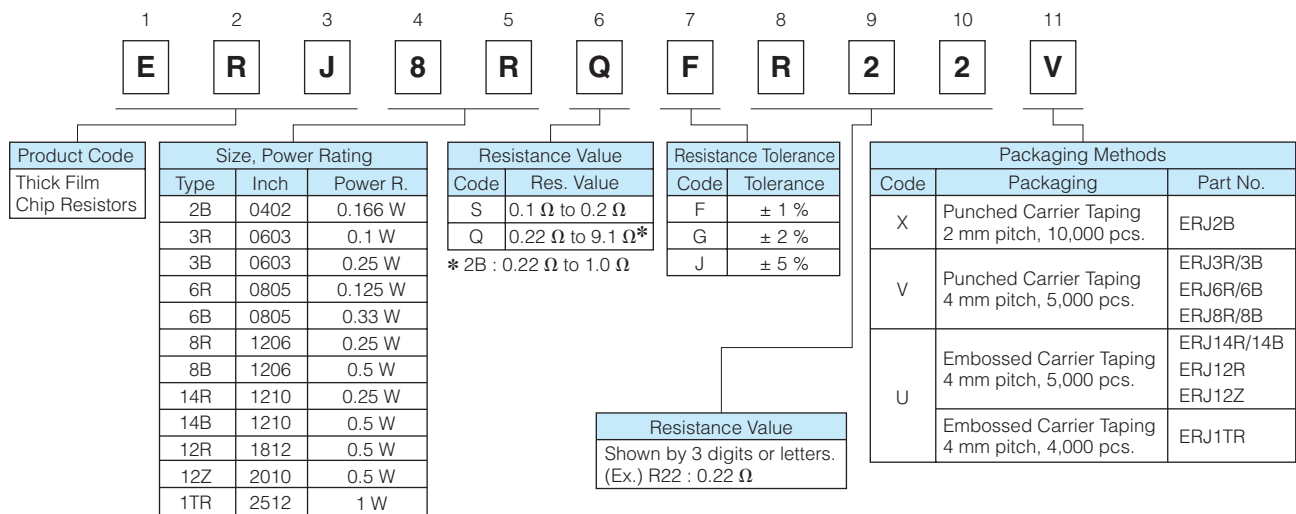
■ **As for Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions,**  
Please see Data Files

### Explanation of Part Numbers

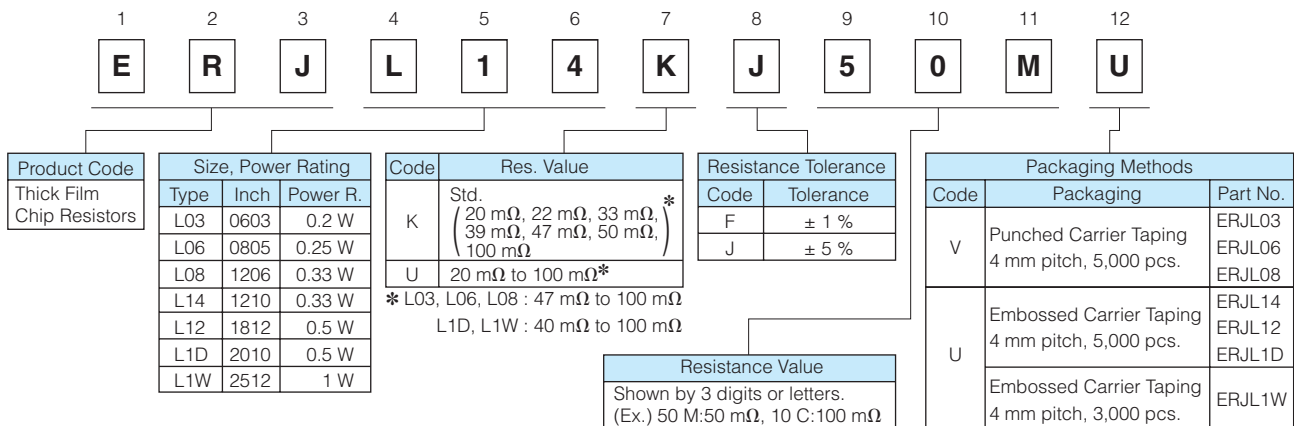
- ERJ2LW, 3LW, 2BW, 3BW, 6BW, 8BW, 8CW <High power (double-sided resistive elements structure) type>



● ERJ2BS/2BQ, 3BS/3BQ, 6BS/6BQ, 8BS/8BQ, 14BS/14BQ, 3R, 6R, 8R, 14R, 12R, 12Z, 1TR <High power type/Standard type>



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



## Ratings

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

Part No. (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance <sup>(1)</sup> Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)
ERJ2LW (0402)	0.2	±1, ±2, ±5	10 m	0 to 500	-55 to +125
ERJ3LW (0603)	0.25	±1, ±2, ±5	5 m	0 to 700	-55 to +125
			10 m	0 to 300	-55 to +125
ERJ2BW (0402)	0.25	±1, ±2, ±5	47 m to 100 m (E24)	±300	-55 to +155
ERJ3BW (0603)	0.33	±1, ±2, ±5	20 m to 100 m (E24)	R<39m Ω : ±250 R≥39m Ω : ±150	-55 to +155
ERJ6BW (0805)	0.5	±1, ±2, ±5	10 m to 100 m (E24)	R<15m Ω : ±300 R≥15m Ω : ±200	-55 to +155
ERJ8BW (1206)	1	±1, ±2, ±5	10 m to 100 m (E24)	10 mΩ ≤ R < 20 mΩ : ±200 20 mΩ ≤ R < 47 mΩ : ±150 47 mΩ ≤ R ≤ 100 mΩ : ±100	-55 to +155
ERJ8CW (1206)	1	±1, ±2, ±5	10 m to 50 m (E24)	±75	-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

<High power type>

Part No. (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance <sup>(1)</sup> Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°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)	±200	
			1.0 to 9.1 (E24)		
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)	±200	
			1.0 to 9.1 (E24)		
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)	±200	
			1.0 to 9.1 (E24)		
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)	±100	
			1.0 to 9.1 (E24)		

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

<Standard type>

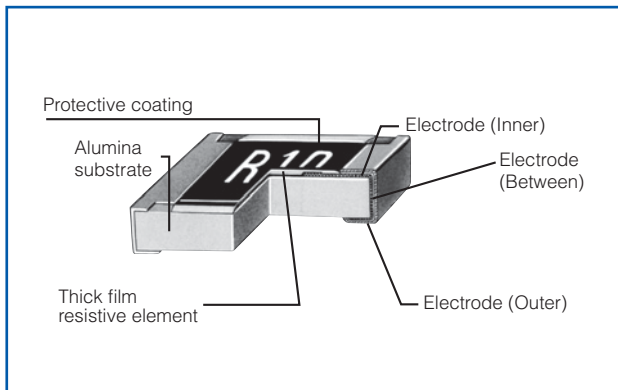
Part No. (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)
ERJ3RS (0603)	0.1	±1, ±2, ±5	0.10 to 0.20 (E24)	±300	-55 to +125
ERJ3RQ (0603)			0.22 to 0.91 (E24)	±200	
			1.0 to 9.1 (E24)		
ERJ6RS (0805)	0.125	±1, ±2, ±5	0.10 to 0.20 (E24)	±250	-55 to +125
ERJ6RQ (0805)			0.22 to 0.91 (E24)	±200	
			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)	±200	
			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)	±100	
			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)	±100	
			1.0 to 9.1 (E24)		
ERJ12ZS (2010)	0.5	±1, ±2, ±5	0.10 to 0.20 (E24)	±200	-55 to +125
ERJ12ZQ (2010)			0.22 to 0.91 (E24)	±100	
			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)	±100	
			1.0 to 9.1 (E24)		

<Low TCR type>

Part No. (inch size)	Power Rating at 70 °C (W)	Resistance Tolerance (%)	Resistance <sup>(1)</sup> Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°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

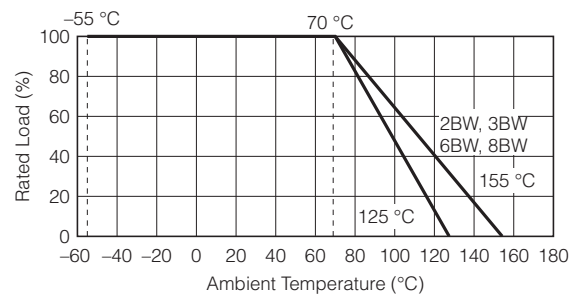
(1) Standard R.V. : 20 mΩ, 22 mΩ, 33 mΩ, 39 mΩ, 47 mΩ, 50 mΩ, 100 mΩ, Custom R.V. : Each 1 mΩ within upper range.

### Construction

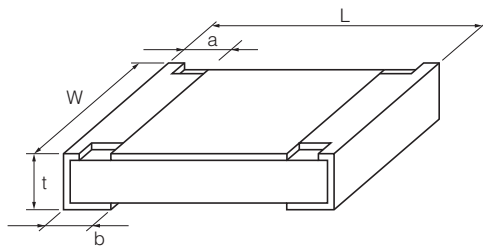


### Power Derating Curve

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



### Dimensions in mm (not to scale)



Part No. (inch size)	Dimensions (mm)					Mass(Weight) [g/1000 pcs.]
	L	W	a	b	t	
ERJ2LW (0402)	1.00 <sup>+0.10</sup>	0.50 <sup>+0.10</sup> <sub>-0.05</sub>	0.25 <sup>+0.10</sup>	0.25 <sup>+0.10</sup>	0.40 <sup>+0.05</sup>	0.8
ERJ2BW (0402)	1.00 <sup>+0.10</sup>	0.50 <sup>+0.10</sup> <sub>-0.05</sub>	0.24 <sup>+0.10</sup>	0.24 <sup>+0.10</sup>	0.35 <sup>+0.05</sup>	0.8
ERJ2BS ERJ2BQ (0402)	1.00 <sup>+0.10</sup>	0.50 <sup>+0.10</sup> <sub>-0.05</sub>	0.20 <sup>+0.10</sup>	0.27 <sup>+0.10</sup>	0.35 <sup>+0.05</sup>	0.8
ERJ3LW (5 mΩ)	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.55 <sup>+0.10</sup>	3
ERJ3LW (10 mΩ)	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup>	0.40 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.55 <sup>+0.10</sup>	3
ERJ3BW	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup>	0.40 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.55 <sup>+0.10</sup>	3
ERJ3R ERJ3B (0603)	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup> <sub>-0.05</sub>	0.30 <sup>+0.20</sup>	0.30 <sup>+0.15</sup>	0.45 <sup>+0.10</sup>	2
ERJL03	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup>	0.30 <sup>+0.20</sup>	0.30 <sup>+0.15</sup>	0.45 <sup>+0.10</sup>	2
ERJ6BW (0805)	2.00 <sup>+0.20</sup>	1.25 <sup>+0.20</sup>	0.55 <sup>+0.20</sup>	0.55 <sup>+0.20</sup>	0.65 <sup>+0.10</sup>	6
ERJ6R ERJ6B (0805)	2.00 <sup>+0.20</sup>	1.25 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	4
ERJL06	2.00 <sup>+0.20</sup>	1.25 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	4
ERJ8BW (1206)	3.20 <sup>+0.20</sup>	1.60 <sup>+0.20</sup>	1.00 <sup>+0.20</sup>	1.00 <sup>+0.20</sup>	0.65 <sup>+0.10</sup>	13
ERJ8CW (10 to 16 mΩ)	3.20 <sup>+0.20</sup>	1.60 <sup>+0.20</sup>	1.10 <sup>+0.20</sup>	1.10 <sup>+0.20</sup>	0.65 <sup>+0.10</sup>	13
ERJ8CW (18 to 50 mΩ)	3.20 <sup>+0.20</sup>	1.60 <sup>+0.20</sup>	0.60 <sup>+0.20</sup>	0.60 <sup>+0.20</sup>	0.65 <sup>+0.10</sup>	13
ERJ8R ERJ8B (1206)	3.20 <sup>+0.20</sup> <sub>-0.05</sub>	1.60 <sup>+0.20</sup> <sub>-0.05</sub>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	10
ERJL08	3.20 <sup>+0.20</sup>	1.60 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	10
ERJ14R ERJ14B (1210)	3.20 <sup>+0.20</sup>	2.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	16
ERJL14	3.20 <sup>+0.20</sup>	2.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	16
ERJ12R ERJL12 (1812)	4.50 <sup>+0.20</sup>	3.20 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	27
ERJ12Z ERJL1D (2010)	5.00 <sup>+0.20</sup>	2.50 <sup>+0.20</sup>	0.60 <sup>+0.20</sup>	0.60 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	27
ERJ1TR ERJL1W (2512)	6.40 <sup>+0.20</sup>	3.20 <sup>+0.20</sup>	0.65 <sup>+0.20</sup>	0.60 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	45
ERJL1W	6.40 <sup>+0.20</sup>	3.20 <sup>+0.20</sup>	0.65 <sup>+0.20</sup>	1.30 <sup>+0.20</sup>	1.10 <sup>+0.10</sup>	79