

Precision Thick Film Chip Resistors

Type: **ERJ XG, 1G**
ERJ 1R, 2R, 3R, 6R
ERJ 3E, 6E, 8E, 14, 12, 1T



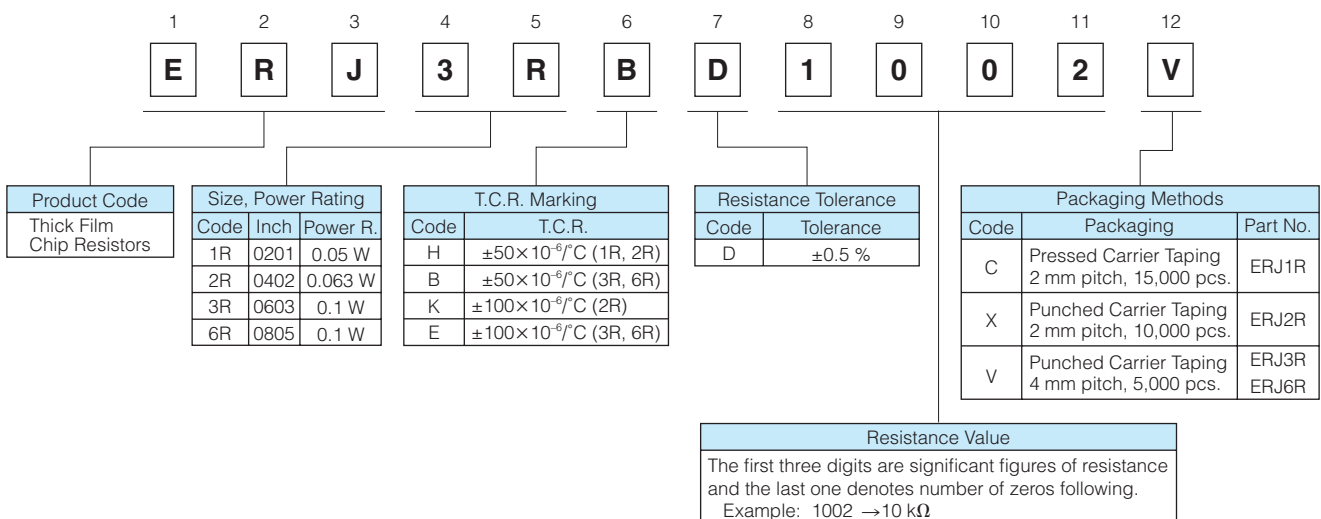
Features

- Small size and lightweight
- High reliability
Metal glaze thick film resistive element and three layers of electrodes
- Compatible with placement machines
Taping packaging available
- Suitable for both reflow and flow soldering
- Low Resistance Tolerance
ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Type : ±1 %
ERJ1R, 2R, 3R, 6R Type : ±0.5 %
- Reference Standards
IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- AEC-Q200 qualified (Exemption ERJXG, ERJ1R)
- RoHS compliant

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

Explanation of Part Numbers

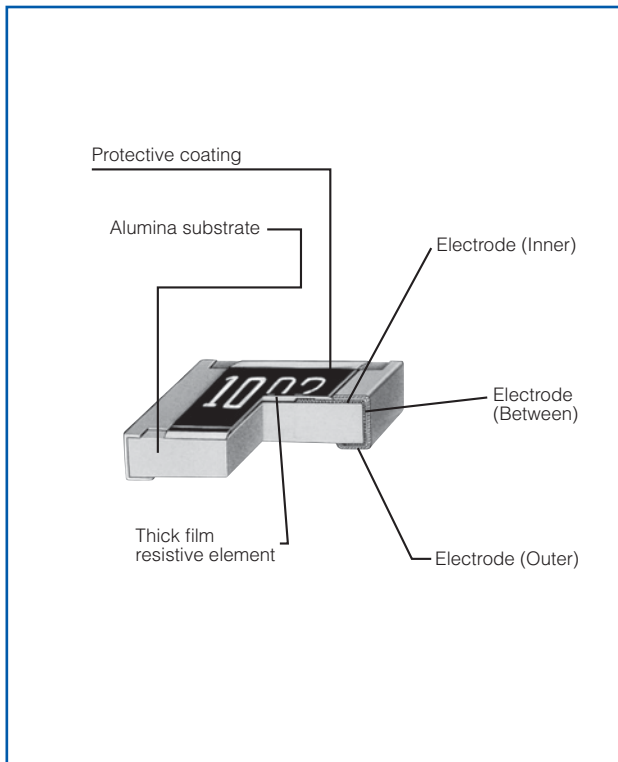
- ERJ1R, 2R, 3R, 6R Type, ±0.5 %



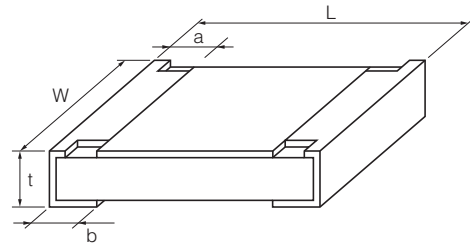
● ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Type, $\pm 1\%$



Construction



Dimensions in mm (not to scale)



| Part No. (inch size) | Dimensions (mm) | | | | | Mass (Weight) [g/1000pcs.] |
|----------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------------------|
| | L | W | a | b | t | |
| ERJXG (01005) | 0.40 $^{\pm 0.02}$ | 0.20 $^{\pm 0.02}$ | 0.10 $^{\pm 0.03}$ | 0.10 $^{\pm 0.03}$ | 0.13 $^{\pm 0.02}$ | 0.04 |
| ERJ1G, 1R (0201) | 0.60 $^{\pm 0.03}$ | 0.30 $^{\pm 0.03}$ | 0.10 $^{\pm 0.05}$ | 0.15 $^{\pm 0.05}$ | 0.23 $^{\pm 0.03}$ | 0.15 |
| ERJ2R□ (0402) | 1.00 $^{\pm 0.05}$ | 0.50 $^{\pm 0.05}$ | 0.20 $^{\pm 0.10}$ | 0.25 $^{\pm 0.05}$ | 0.35 $^{\pm 0.05}$ | 0.8 |
| ERJ3R□ ERJ3EK (0603) | 1.60 $^{\pm 0.15}$ | 0.80 $^{\pm 0.15}$ | 0.30 $^{\pm 0.20}$ | 0.30 $^{\pm 0.15}$ | 0.45 $^{\pm 0.10}$ | 2 |
| ERJ6R□ ERJ6EN (0805) | 2.00 $^{\pm 0.20}$ | 1.25 $^{\pm 0.10}$ | 0.40 $^{\pm 0.20}$ | 0.40 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 4 |
| ERJ8EN (1206) | 3.20 $^{\pm 0.05}$ | 1.60 $^{\pm 0.05}$ | 0.50 $^{\pm 0.20}$ | 0.50 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 10 |
| ERJ14N (1210) | 3.20 $^{\pm 0.20}$ | 2.50 $^{\pm 0.20}$ | 0.50 $^{\pm 0.20}$ | 0.50 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 16 |
| ERJ12N (1812) | 4.50 $^{\pm 0.20}$ | 3.20 $^{\pm 0.20}$ | 0.50 $^{\pm 0.20}$ | 0.50 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 27 |
| ERJ12S (2010) | 5.00 $^{\pm 0.20}$ | 2.50 $^{\pm 0.20}$ | 0.60 $^{\pm 0.20}$ | 0.60 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 27 |
| ERJ1TN (2512) | 6.40 $^{\pm 0.20}$ | 3.20 $^{\pm 0.20}$ | 0.65 $^{\pm 0.20}$ | 0.60 $^{\pm 0.20}$ | 0.60 $^{\pm 0.10}$ | 45 |

Ratings

<±0.5 %>

| Part No. (inch size) | Power Rating at 70 °C (W) | Limiting Element Voltage ⁽¹⁾ (V) | Maximum Overload Voltage ⁽²⁾ (V) | Resistance Tolerance (%) | Resistance Range (Ω) | T.C.R. (×10 ⁻⁶ /°C) | Category Temperature Range (°C) |
|-------------------------|---------------------------------|---|---|--------------------------------|--|-----------------------------------|---------------------------------------|
| ERJ1RH (0201) | 0.05 | 15 | 30 | ±0.5 | 1 k to 1 M (E24, E96) | ±50 | -55 to +125 |
| ERJ2RH (0402) | 0.063 | 50 | 100 | ±0.5 | 100 to 100 k (E24, E96) | ±50 | -55 to +125 |
| ERJ2RK (0402) | 0.063 | 50 | 100 | ±0.5 | 10 to 97.6 102 k to 1 M (E24, E96) | ±100 | -55 to +125 |
| ERJ3RB (0603) | 0.1 | 50 | 100 | ±0.5 | 100 to 100 k (E24, E96) | ±50 | -55 to +125 |
| ERJ3RE (0603) | 0.1 | 50 | 100 | ±0.5 | 10 to 97.6 102 k to 1 M (E24, E96) | ±100 | -55 to +125 |
| ERJ6RB (0805) | 0.1 | 150 | 200 | ±0.5 | 100 to 100 k (E24, E96) | ±50 | -55 to +125 |
| ERJ6RE (0805) | 0.1 | 150 | 200 | ±0.5 | 10 to 97.6 102 k to 1 M (E24, E96) | ±100 | -55 to +125 |

<±1 %>

| Part No. (inch size) | Power Rating at 70 °C (W) | Limiting Element Voltage ⁽¹⁾ (V) | Maximum Overload Voltage ⁽²⁾ (V) | Resistance Tolerance (%) | Resistance Range (Ω) | T.C.R. (×10 ⁻⁶ /°C) | Category Temperature Range (°C) |
|-------------------------|---------------------------------|---|---|--------------------------------|--|-----------------------------------|---------------------------------------|
| ERJXGN (01005) | 0.031 | 15 | 30 | ±1 | 10 to 1 M (E24, E96) | <100 Ω : ±300 100 Ω ≤ : ±200 | -55 to +125 |
| ERJ1GN (0201) | 0.05 | 25 | 50 | ±1 | 10 to 1 M ⁽³⁾ (E24, E96) | ±200 | -55 to +125 |
| ERJ2RK (0402) | 0.1 | 50 | 100 | ±1 | 10 to 1 M ⁽³⁾ (E24, E96) | ±100 | -55 to +155 |
| ERJ3EK (0603) | 0.1 | 75 | 150 | ±1 | 10 to 1 M (E24, E96) | ±100 | -55 to +155 |
| ERJ6EN (0805) | 0.125 | 150 | 200 | ±1 | 10 to 2.2 M (E24, E96) | ±100 | -55 to +155 |
| ERJ8EN (1206) | 0.25 | 200 | 400 | ±1 | 10 to 2.2 M (E24, E96) | ±100 | -55 to +155 |
| ERJ14N (1210) | 0.5 | 200 | 400 | ±1 | 10 to 1 M (E24, E96) | ±100 | -55 to +155 |
| ERJ12N (1812) | 0.75 | 200 | 500 | ±1 | 10 to 1 M (E24, E96) | ±100 | -55 to +155 |
| ERJ12S (2010) | 0.75 | 200 | 500 | ±1 | 10 to 1 M (E24, E96) | ±100 | -55 to +155 |
| ERJ1TN (2512) | 1 | 200 | 500 | ±1 | 10 to 1 M (E24, E96) | ±100 | -55 to +155 |

(1) Rated Continuous Working Voltage (RCWV) shall be determined from $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$, or Limiting Element Voltage listed above, whichever less.

(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from $SOTV = 2.5$ (Only ERJ2RK ±1% =2.0) × Power Rating or max. Overload Voltage listed above whichever less.

(3) Please contact us when you need a type with a resistance of less than 10 Ω.

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.

