

Precision Thick Film Chip Resistors

ERJ G : 01005, 0201

ERJ R : 0201, 0402, 0603, 0805

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



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 Series.....±1 %
ERJ1R, 2R, 3R, 6R Series ±0.5 %
- Reference Standards
IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B

■ Packaging Methods Please see Pages 40 to 43

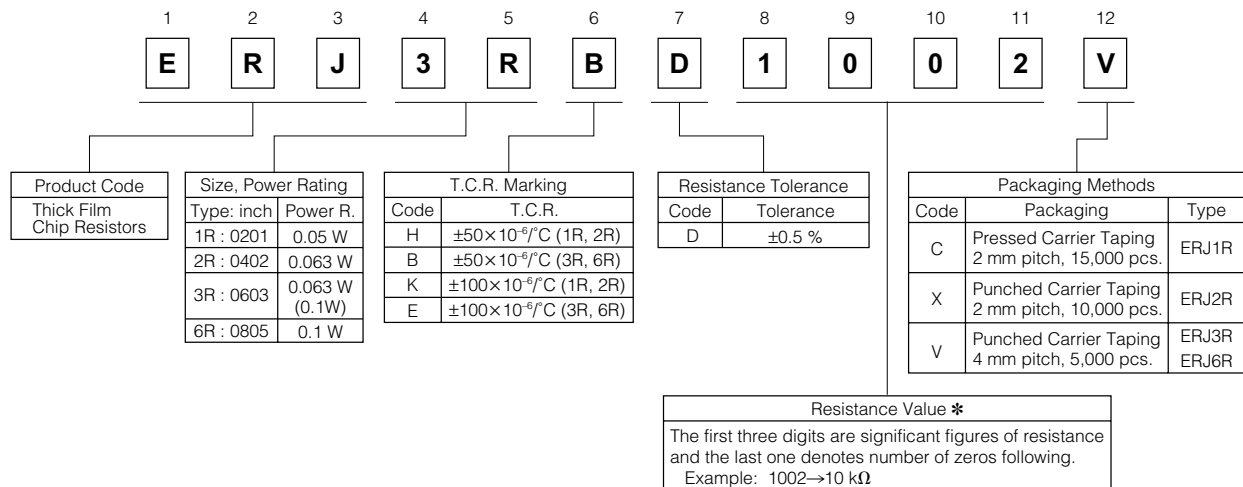
■ Recommended Land Pattern Please see Pages 44 to 45

■ Recommended Soldering Conditions Please see Page 46

■ Safety Precautions Please see Page 47

■ Explanation of Part Numbers

- ERJ1R, 2R, 3R, 6R Series, ±0.5 % type



● ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Series, ±1 % type



■ Construction



■ Dimensions in mm (not to scale)



| Type (inch size) | Dimensions (mm) | | | | | Mass (Weight) [g/1000 pcs.] |
|----------------------------|--------------------------------|--------------------------------|-----------------------|-----------------------|-----------------------|--------------------------------|
| | L | W | a | b | t | |
| ERJXG (01005) | 0.40 ^{+0.02} | 0.20 ^{+0.02} | 0.10 ^{+0.03} | 0.10 ^{+0.03} | 0.13 ^{+0.02} | 0.04 |
| ERJ1G, 1R (0201) | 0.60 ^{+0.03} | 0.30 ^{+0.03} | 0.10 ^{+0.05} | 0.15 ^{+0.05} | 0.23 ^{+0.03} | 0.15 |
| ERJ2R□ (0402) | 1.00 ^{+0.05} | 0.50 ^{+0.05} | 0.20 ^{+0.10} | 0.25 ^{+0.05} | 0.35 ^{+0.05} | 0.8 |
| ERJ3R□ ERJ3EK (0603) | 1.60 ^{+0.15} | 0.80 ^{+0.15} -0.05 | 0.30 ^{+0.20} | 0.30 ^{+0.15} | 0.45 ^{+0.10} | 2 |
| ERJ6R□ ERJ6EN (0805) | 2.00 ^{+0.20} | 1.25 ^{+0.10} | 0.40 ^{+0.20} | 0.40 ^{+0.20} | 0.60 ^{+0.10} | 4 |
| ERJ8EN (1206) | 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 |
| ERJ14N (1210) | 3.20 ^{+0.20} | 2.50 ^{+0.20} | 0.50 ^{+0.20} | 0.50 ^{+0.20} | 0.60 ^{+0.10} | 16 |
| ERJ12N (1812) | 4.50 ^{+0.20} | 3.20 ^{+0.20} | 0.50 ^{+0.20} | 0.50 ^{+0.20} | 0.60 ^{+0.10} | 27 |
| ERJ12S (2010) | 5.00 ^{+0.20} | 2.50 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.10} | 27 |
| ERJ1TN (2512) | 6.40 ^{+0.20} | 3.20 ^{+0.20} | 0.65 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.10} | 45 |

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

<±0.5 %>

| Type (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 100 k (E24, E96) | ±50 | -55 to +125 |
| ERJ1RK (0201) | 0.05 | 15 | 30 | ±0.5 | 100 to 976 (E24, E96) | ±100 | -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) | 0.063 (0.1) ⁽⁴⁾ | 50 | 100 | ±0.5 | 100 to 100 k (E24, E96) | ±50 | -55 to +125 |
| ERJ3RE (0603) | 0.063 (0.1) ⁽⁴⁾ | 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 %>

| Type (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) |
|------------------|---------------------------|---|---|--------------------------|-------------------------------------|---------------------------------|---------------------------------|
| ERJXG (01005) | 0.031 | 15 | 30 | ±1 | 10 to 1 M (E24, E96) | <100 Ω : ±300 100 Ω ≤ : ±200 | -55 to +125 |
| ERJ1G (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.

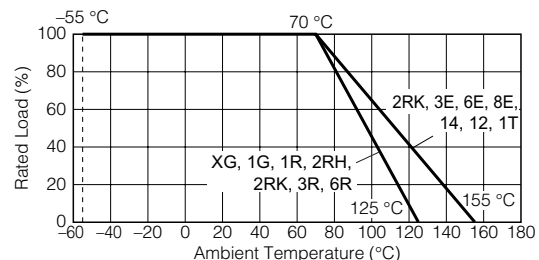
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from $SOTV = 2.5 \times \text{Power Rating}$ or max. Overload Voltage listed above whichever less.

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

(4) Please contact us when resistors with guaranteed high power are needed.

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.



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00 Sep. 2010