

Thick Film Chip Resistors

Type: **ERJ XG, 1G, 2G, 3G, 6G, 8G, 14, 12, 12Z, 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
- Reference Standards
IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- AEC-Q200 qualified (Exemption ERJXG)
- RoHS compliant

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

Explanation of Part Numbers

- ERJXGN, 1GN, 2GE, 3GE, 6GE, 8GE, 14, 12, 12Z, 1T Type, $\pm 5\%$

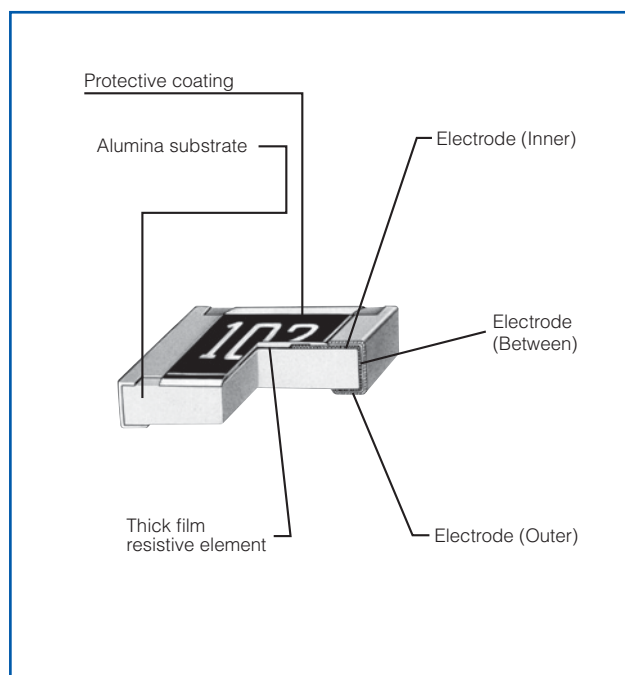
| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| E | R | J | 3 | G | E | Y | J | 1 | 0 | 2 | V |

| | | | | | | | | | | | | | | |
|---------------------------|--------------------|-------|----------|--|-----------------------------|----------------------|-----------|-------------------|---|----------|--|---|--|----------------------------|
| Product Code | Size, Power Rating | | | Marking | | Resistance Tolerance | | Packaging Methods | | | | | | |
| Thick Film Chip Resistors | Code | Inch | Power R. | Code | Marking | Code | Tolerance | Code | Packaging | Part No. | | | | |
| | XGN | 01005 | 0.031 W | Y | Value Marking on black side | J | ±5 % | Y | Pressed Carrier Taping W8P2, 20,000 pcs. | ERJXGN | | | | |
| | 1GN | 0201 | 0.05 W | | | 0 | Jumper | U | Embossed Carrier Taping W4P1, 40,000 pcs. | | | | | |
| | 2GE | 0402 | 0.1 W | <div>Resistance Value</div> <p>The first two digits are significant figures of resistance and the third one denotes number of zeros following. Decimal Point is expressed by R as 4.7 = 4R7. Jumper is expressed by R00.</p> | | | | | | | | C | Pressed Carrier Taping 2 mm pitch, 15,000 pcs. | ERJ1GN |
| | 3GE | 0603 | 0.1 W | | | | | | | | | X | Punched Carrier Taping 2 mm pitch, 10,000 pcs. | ERJ2GE |
| | 6GE | 0805 | 0.125 W | | | | | | | | | Y | Punched Carrier Taping 2 mm pitch, 20,000 pcs. | |
| | 8GE | 1206 | 0.25 W | | | | | | | | | V | Punched Carrier Taping 4 mm pitch, 5,000 pcs. | ERJ3GE ERJ6GE ERJ8GE |
| | 14 | 1210 | 0.5 W | | | | | | | | | U | Embossed Carrier Taping 4 mm pitch, 5,000 pcs. | ERJ14 ERJ12 ERJ12Z |
| | 12 | 1812 | 0.75 W | | | | | | | | | | Embossed Carrier Taping 4 mm pitch, 4,000 pcs. | ERJ1T |
| | 12Z | 2010 | 0.75 W | | | | | | | | | | | |
| | 1T | 2512 | 1 W | | | | | | | | | | | |

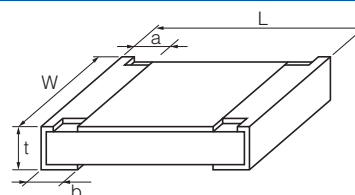
* When omitted, the rest of the P/N factors shall be moved up respectively.
(Only XGN, 1GN, 2GE type)

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Construction



Dimensions in mm (not to scale)



| Part No. (inch size) | Dimensions (mm) | | | | | Mass (Weight) (g/1000 pcs.) |
|-------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|--------------------------------|
| | 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 (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 |
| ERJ2G (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 |
| ERJ3G (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 |
| ERJ6G (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 |
| ERJ8G (1206) | 3.20 \pm 0.05 | 1.60 \pm 0.15 | 0.50 \pm 0.20 | 0.50 \pm 0.20 | 0.60 \pm 0.10 | 10 |
| ERJ14 (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 |
| ERJ12 (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 |
| ERJ12Z (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 |
| ERJ1T (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

[For Resistor]

| 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. ($\times 10^{-6}/^{\circ}\text{C}$) | Category Temperature Range ($^{\circ}\text{C}$) |
|-------------------------|---------------------------------|---|---|--------------------------------|-------------------------------------|---|---|
| ERJXG (01005) | 0.031 | 15 | 30 | ± 5 | 4.7 to 1 M (E24) | <10 Ω : -100 to +600 10 Ω to 100 Ω : ± 300 100 Ω <: ± 200 | -55 to +125 |
| ERJ1G (0201) | 0.05 | 25 | 50 | ± 5 | 1 to 10 M (E24) | <10 Ω : -100 to +600 | -55 to +125 |
| ERJ2G (0402) | 0.1 | 50 | 100 | ± 5 | 1 to 10 M (E24) | | -55 to +155 |
| ERJ3G (0603) | 0.1 | 75 | 150 | ± 5 | 1 to 10 M (E24) | | -55 to +155 |
| ERJ6G (0805) | 0.125 | 150 | 200 | ± 5 | 1 to 10 M (E24) | | -55 to +155 |
| ERJ8G (1206) | 0.25 | 200 | 400 | ± 5 | 1 to 10 M (E24) | | -55 to +155 |
| ERJ14 (1210) | 0.5 | 200 | 400 | ± 5 | 1 to 10 M (E24) | 10 Ω to 1 M Ω : ± 200 | -55 to +155 |
| ERJ12 (1812) | 0.75 | 200 | 500 | ± 5 | 1 to 10 M (E24) | 1 M Ω <: -400 to +150 | -55 to +155 |
| ERJ12Z (2010) | 0.75 | 200 | 500 | ± 5 | 1 to 10 M (E24) | | -55 to +155 |
| ERJ1T (2512) | 1 | 200 | 500 | ± 5 | 1 to 1 M (E24) | | -55 to +155 |

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

(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from $\text{SOTV} = 2.5$ (Only ERJ2G=2.0) \times RCWV or max. Overload Voltage listed above whichever less.

[For Jumper]

| Part No. (inch size) | Rated Current (A) | Maximum Overload Current (A) |
|-------------------------|----------------------|---------------------------------|
| ERJXG (01005) | 0.5 | 1 |
| ERJ1G (0201) | | |
| ERJ2G (0402) | | |
| ERJ3G (0603) | 1 | 2 |
| ERJ6G (0805) | | |
| ERJ8G (1206) | | |
| ERJ14 (1210) | 2 | 4 |
| ERJ12 (1812) | | |
| ERJ12Z (2010) | | |
| ERJ1T (2512) | | |

Power Derating Curve

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

