

## Thick Film Chip Resistors

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



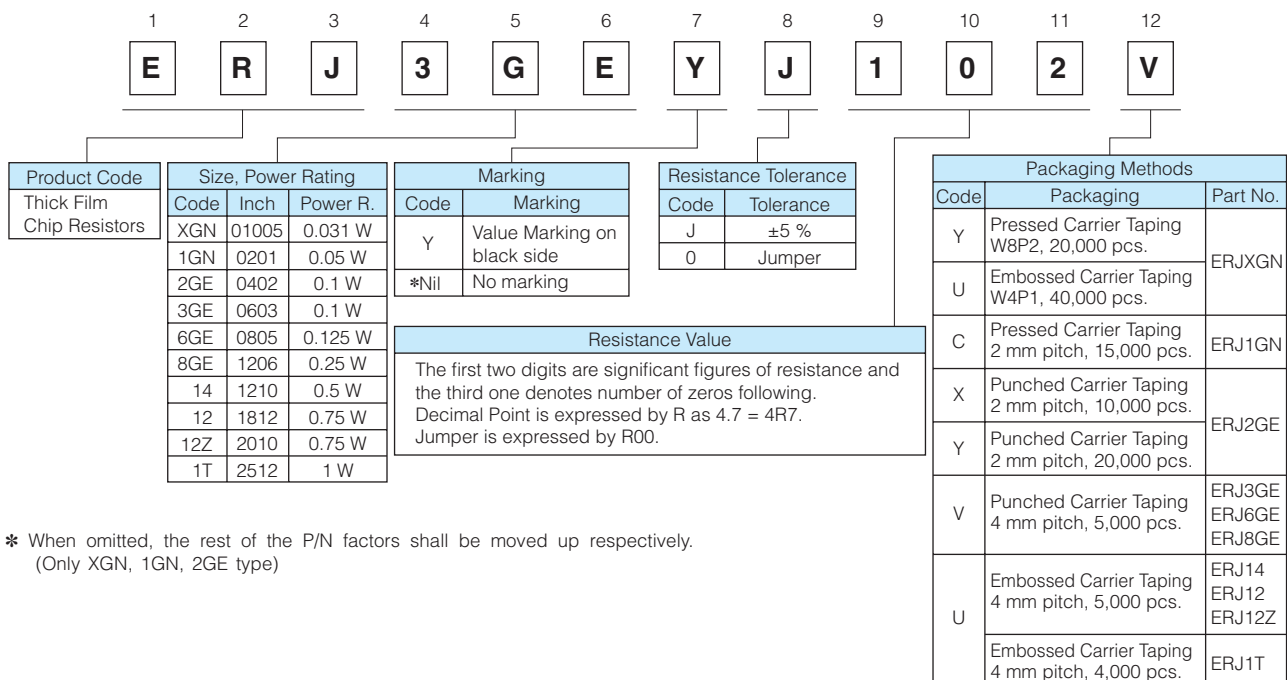
### Features

- 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

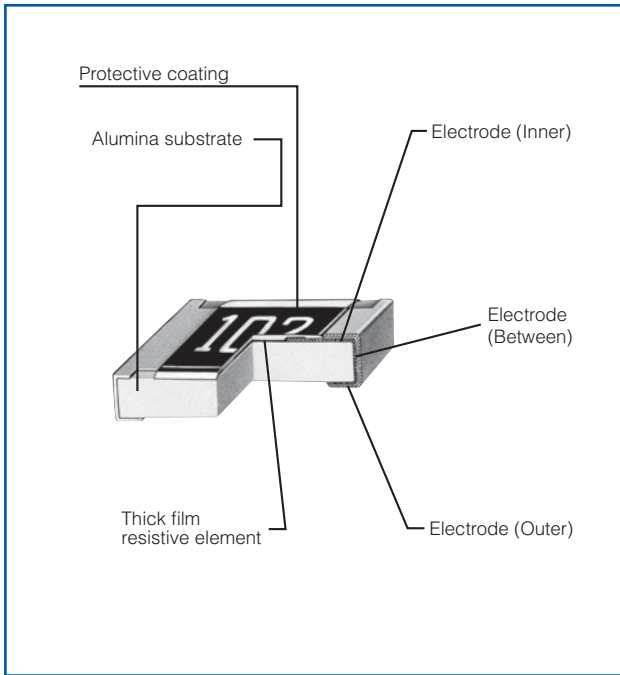
### Explanation of Part Numbers

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

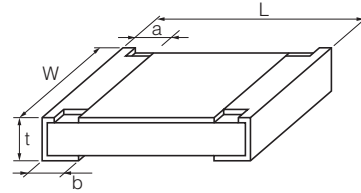


\* When omitted, the rest of the P/N factors shall be moved up respectively.  
(Only XGN, 1GN, 2GE type)

## Construction



## Dimensions in mm (not to scale)



| Part No.<br>(inch size) | Dimensions (mm)             |                             |                       |                       |                       | Mass (Weight)<br>(g/1000 pcs.) |
|-------------------------|-----------------------------|-----------------------------|-----------------------|-----------------------|-----------------------|--------------------------------|
|                         | L                           | W                           | a                     | b                     | t                     |                                |
| ERJXG<br>(01005)        | 0.40 <sup>±0.02</sup>       | 0.20 <sup>±0.02</sup>       | 0.10 <sup>±0.03</sup> | 0.10 <sup>±0.03</sup> | 0.13 <sup>±0.02</sup> | 0.04                           |
| ERJ1G<br>(0201)         | 0.60 <sup>±0.03</sup>       | 0.30 <sup>±0.03</sup>       | 0.10 <sup>±0.05</sup> | 0.15 <sup>±0.05</sup> | 0.23 <sup>±0.03</sup> | 0.15                           |
| ERJ2G<br>(0402)         | 1.00 <sup>±0.05</sup>       | 0.50 <sup>±0.05</sup>       | 0.20 <sup>±0.10</sup> | 0.25 <sup>±0.05</sup> | 0.35 <sup>±0.05</sup> | 0.8                            |
| ERJ3G<br>(0603)         | 1.60 <sup>±0.15</sup>       | 0.80 <sup>+0.15/-0.05</sup> | 0.30 <sup>±0.20</sup> | 0.30 <sup>±0.15</sup> | 0.45 <sup>±0.10</sup> | 2                              |
| ERJ6G<br>(0805)         | 2.00 <sup>±0.20</sup>       | 1.25 <sup>±0.10</sup>       | 0.40 <sup>±0.20</sup> | 0.40 <sup>±0.20</sup> | 0.60 <sup>±0.10</sup> | 4                              |
| ERJ8G<br>(1206)         | 3.20 <sup>+0.05/-0.20</sup> | 1.60 <sup>+0.05/-0.15</sup> | 0.50 <sup>±0.20</sup> | 0.50 <sup>±0.20</sup> | 0.60 <sup>±0.10</sup> | 10                             |
| ERJ14<br>(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                             |
| ERJ12<br>(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<br>(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                             |
| ERJ1T<br>(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                             |

## Ratings

### [For Resistor]

| Part No.<br>(inch size) | Power Rating<br>at 70 °C<br>(W) | Limiting Element<br>Voltage <sup>(1)</sup><br>(V) | Maximum Overload<br>Voltage <sup>(2)</sup><br>(V) | Resistance<br>Tolerance<br>(%) | Resistance<br>Range<br>(Ω) | T.C.R.<br>(×10 <sup>-6</sup> /°C)                           | Category<br>Temperature Range<br>(°C) |
|-------------------------|---------------------------------|---|---|--------------------------------|----------------------------|---|---------------------------------------|
| ERJXG<br>(01005)        | 0.031                           | 15  | 30  | ±5                             | 4.7 to 1 M (E24)           | <10 Ω: -100 to +600<br>10 Ω to 100 Ω: ±300<br>100 Ω <: ±200 | -55 to +125                           |
| ERJ1G<br>(0201)         | 0.05                            | 25  | 50  | ±5                             | 1 to 10 M (E24)            | <10 Ω:<br>-100 to +600                                      | -55 to +125                           |
| ERJ2G<br>(0402)         | 0.1                             | 50  | 100   | ±5                             | 1 to 10 M (E24)            |   | -55 to +155                           |
| ERJ3G<br>(0603)         | 0.1                             | 75  | 150   | ±5                             | 1 to 10 M (E24)            | 10 Ω to 1 M Ω:<br>±200                                      | -55 to +155                           |
| ERJ6G<br>(0805)         | 0.125                           | 150   | 200   | ±5                             | 1 to 10 M (E24)            |   | -55 to +155                           |
| ERJ8G<br>(1206)         | 0.25                            | 200   | 400   | ±5                             | 1 to 10 M (E24)            |   | -55 to +155                           |
| ERJ14<br>(1210)         | 0.5                             | 200   | 400   | ±5                             | 1 to 10 M (E24)            | 1 M Ω <:<br>-400 to +150                                    | -55 to +155                           |
| ERJ12<br>(1812)         | 0.75                            | 200   | 500   | ±5                             | 1 to 10 M (E24)            |   | -55 to +155                           |
| ERJ12Z<br>(2010)        | 0.75                            | 200   | 500   | ±5                             | 1 to 10 M (E24)            | -400 to +150  | -55 to +155                           |
| ERJ1T<br>(2512)         | 1                               | 200   | 500   | ±5                             | 1 to 1 M (E24)             |   | -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 ERJ2G=2.0) × RCWV or max. Overload Voltage listed above whichever less.

### [For Jumper]

| Part No.<br>(inch size) | Rated Current<br>(A) | Maximum Overload Current<br>(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.

