

## 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 %



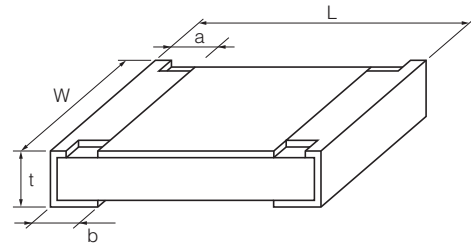
● ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Type,  $\pm 1\%$



## Construction



## Dimensions in mm (not to scale)



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

## Ratings

<±0.5 %>

| 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) |
|-------------------------|---------------------------------|---|---|--------------------------------|--|-----------------------------------|---------------------------------------|
| ERJ1RH<br>(0201)        | 0.05                            | 15  | 30  | ±0.5                           | 1 k to 1 M<br>(E24, E96)                 | ±50                               | -55 to +125                           |
| ERJ2RH<br>(0402)        | 0.063                           | 50  | 100   | ±0.5                           | 100 to 100 k<br>(E24, E96)               | ±50                               | -55 to +125                           |
| ERJ2RK<br>(0402)        | 0.063                           | 50  | 100   | ±0.5                           | 10 to 97.6<br>102 k to 1 M<br>(E24, E96) | ±100                              | -55 to +125                           |
| ERJ3RB<br>(0603)        | 0.1                             | 50  | 100   | ±0.5                           | 100 to 100 k<br>(E24, E96)               | ±50                               | -55 to +125                           |
| ERJ3RE<br>(0603)        | 0.1                             | 50  | 100   | ±0.5                           | 10 to 97.6<br>102 k to 1 M<br>(E24, E96) | ±100                              | -55 to +125                           |
| ERJ6RB<br>(0805)        | 0.1                             | 150   | 200   | ±0.5                           | 100 to 100 k<br>(E24, E96)               | ±50                               | -55 to +125                           |
| ERJ6RE<br>(0805)        | 0.1                             | 150   | 200   | ±0.5                           | 10 to 97.6<br>102 k to 1 M<br>(E24, E96) | ±100                              | -55 to +125                           |

<±1 %>

| 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) |
|-------------------------|---------------------------------|---|---|--------------------------------|--|-----------------------------------|---------------------------------------|
| ERJXGN<br>(01005)       | 0.031                           | 15  | 30  | ±1                             | 10 to 1 M<br>(E24, E96)                | <100 Ω : ±300<br>100 Ω ≤ : ±200   | -55 to +125                           |
| ERJ1GN<br>(0201)        | 0.05                            | 25  | 50  | ±1                             | 10 to 1 M <sup>(3)</sup><br>(E24, E96) | ±200                              | -55 to +125                           |
| ERJ2RK<br>(0402)        | 0.1                             | 50  | 100   | ±1                             | 10 to 1 M <sup>(3)</sup><br>(E24, E96) | ±100                              | -55 to +155                           |
| ERJ3EK<br>(0603)        | 0.1                             | 75  | 150   | ±1                             | 10 to 1 M<br>(E24, E96)                | ±100                              | -55 to +155                           |
| ERJ6EN<br>(0805)        | 0.125                           | 150   | 200   | ±1                             | 10 to 2.2 M<br>(E24, E96)              | ±100                              | -55 to +155                           |
| ERJ8EN<br>(1206)        | 0.25                            | 200   | 400   | ±1                             | 10 to 2.2 M<br>(E24, E96)              | ±100                              | -55 to +155                           |
| ERJ14N<br>(1210)        | 0.5                             | 200   | 400   | ±1                             | 10 to 1 M<br>(E24, E96)                | ±100                              | -55 to +155                           |
| ERJ12N<br>(1812)        | 0.75                            | 200   | 500   | ±1                             | 10 to 1 M<br>(E24, E96)                | ±100                              | -55 to +155                           |
| ERJ12S<br>(2010)        | 0.75                            | 200   | 500   | ±1                             | 10 to 1 M<br>(E24, E96)                | ±100                              | -55 to +155                           |
| ERJ1TN<br>(2512)        | 1                               | 200   | 500   | ±1                             | 10 to 1 M<br>(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.

