

### 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
- RoHS compliant

- 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<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, 1R<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                           |
| ERJ2R□<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                            |
| ERJ3R□<br>ERJ3EK<br>(0603) | 1.60 <sup>+0.15</sup>          | 0.80 <sup>+0.15</sup><br>-0.05 | 0.30 <sup>+0.20</sup> | 0.30 <sup>+0.15</sup> | 0.45 <sup>+0.10</sup> | 2                              |
| ERJ6R□<br>ERJ6EN<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                              |
| ERJ8EN<br>(1206)           | 3.20 <sup>+0.05</sup><br>-0.20 | 1.60 <sup>+0.05</sup><br>-0.15 | 0.50 <sup>+0.20</sup> | 0.50 <sup>+0.20</sup> | 0.60 <sup>+0.10</sup> | 10                             |
| ERJ14N<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                             |
| ERJ12N<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                             |
| ERJ12S<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                             |
| ERJ1TN<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                             |

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

| Type<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  | ±1                             | 10 to 1 M<br>(E24, E96)                | <100 Ω : ±300<br>100 Ω ≤ : ±200   | -55 to +125                           |
| ERJ1G<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.

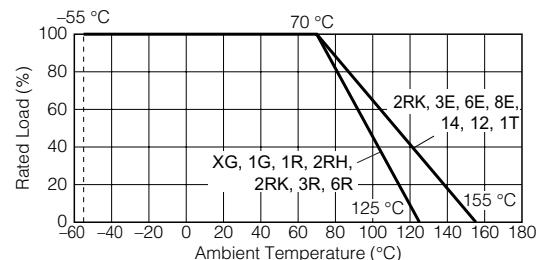
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from  $SOTV = 2.5 \times \text{Power Rating}$  or max. Overload Voltage listed above whichever less.

(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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