### **Precision Thick Film Chip Resistors**

### **Precision Thick Film Chip Resistors**

Type: ERJ XG, 1G ERJ 1R, 2R, 3R, 6R ERJ 3E, 6E, 8E, 14, 12, 1T



1001

#### **Features**

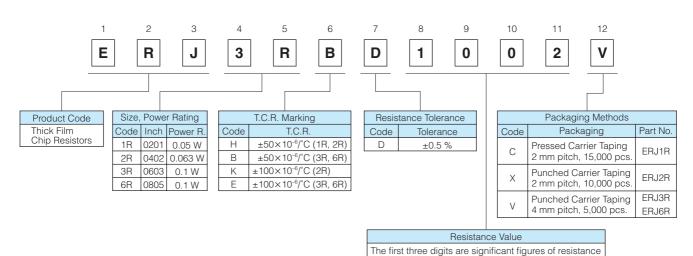
- Small size and lightweight
- High reliability

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 %



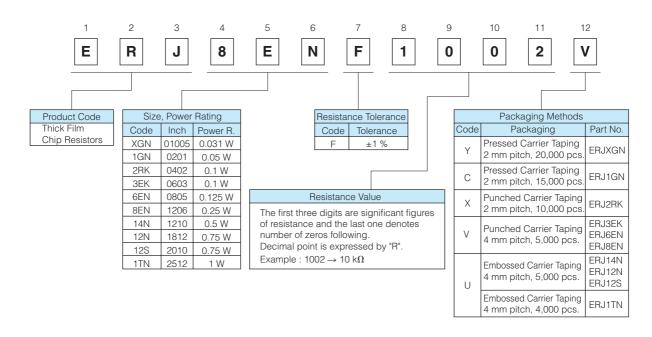
and the last one denotes number of zeros following.

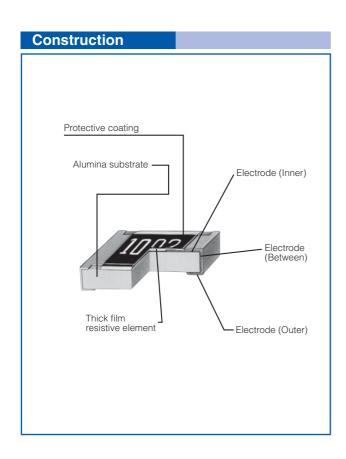
Example:  $1002 \rightarrow 10 \text{ k}\Omega$ 

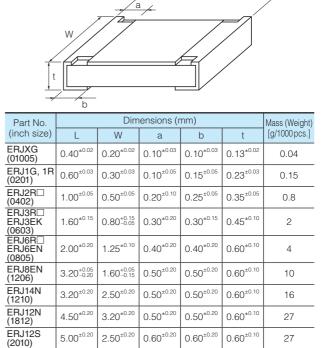
# **Panasonic**

### **Precision Thick Film Chip Resistors**

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







**Dimensions in mm (not to scale)** 

ERJ1TN

(2512)

6.40<sup>±0.20</sup>

3.20<sup>±0.20</sup>

0.65<sup>±0.20</sup>

 $0.60^{\pm0.20}$ 

 $0.60^{\pm0.10}$ 

## **Precision Thick Film Chip Resistors**

### Ratings

<±0.5 %>

| Part No. (inch size) | Power Rating at 70 °C (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                           |

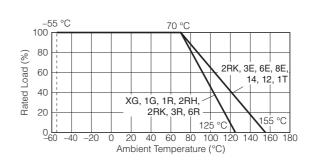
#### <±1 %>

| 421 702                 |                                 |   |   |                                |  |                                   |                                       |  |  |
|-------------------------|---------------------------------|---|---|--------------------------------|--|-----------------------------------|---------------------------------------|--|--|
| 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                           |  |  |

<sup>(1)</sup> Rated Continuous Working Voltage (RCWV) shall be determined from RCWV=√Power Rating × Resistance Values, or Limiting Element Voltage listed above, whichever less.

#### 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.



<sup>(2)</sup> Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from SOTV=2.5 (Only ERJ2RK ±1% =2.0) × RCWV or max. Overload Voltage listed above whichever less.

<sup>(3)</sup> Please contact us when you need a type with a resistance of less than 10  $\Omega$ .