

### 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

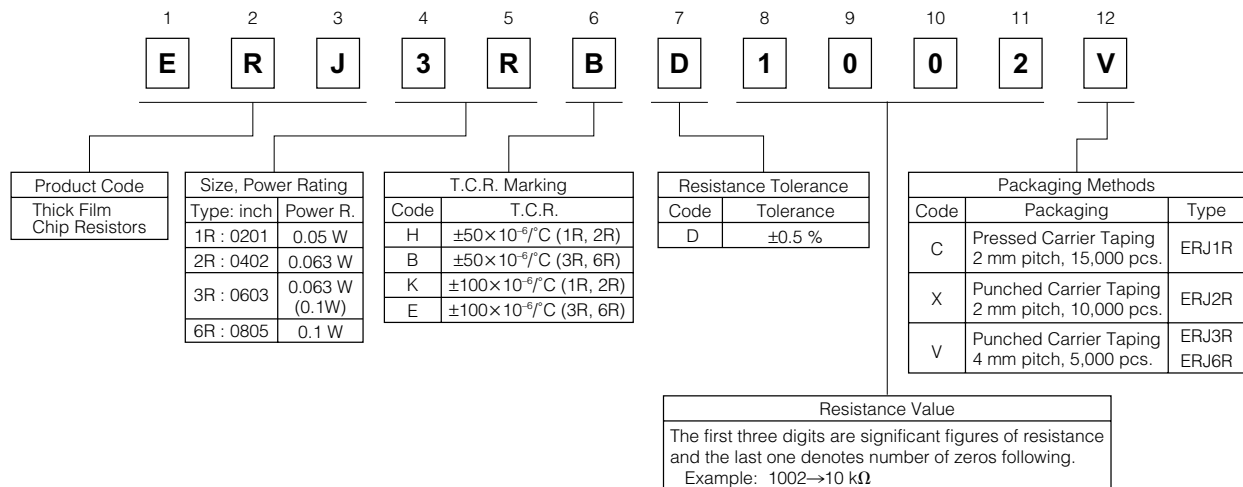
■ **Recommended Land Pattern** Please see Pages 44 to 45

■ **Recommended Soldering Conditions** Please see Page 46

■ **Safety Precautions** Please see Page 47

#### ■ Explanation of Part Numbers

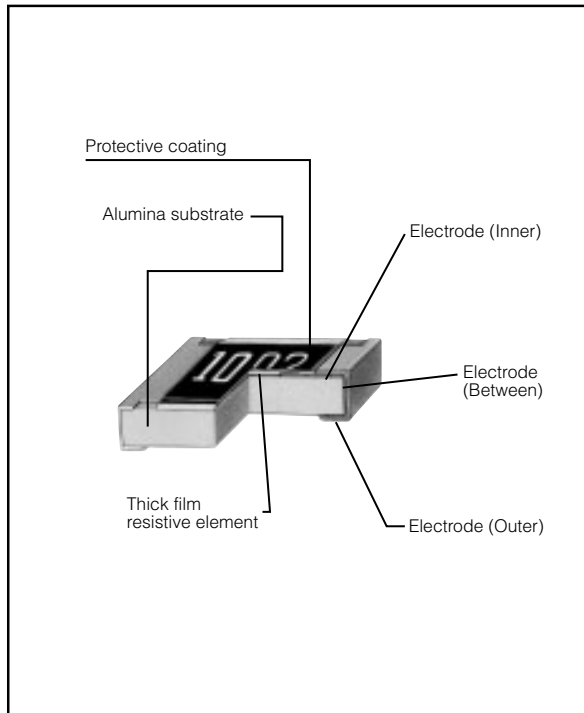
- ERJ1R, 2R, 3R, 6R Series, ±0.5 % type



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



■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
ERJXG (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 (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□ (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□ ERJ3EK (0603)	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15</sup> -0.05	0.30 <sup>+0.20</sup>	0.30 <sup>+0.15</sup>	0.45 <sup>+0.10</sup>	2
ERJ6R□ ERJ6EN (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 (1206)	3.20 <sup>+0.05</sup> -0.20	1.60 <sup>+0.05</sup> -0.15	0.50 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	10
ERJ14N (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 (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 (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 (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 (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage <sup>(1)</sup> (V)	Maximum Overload Voltage <sup>(2)</sup> (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)
ERJ1RH (0201)	0.05	15	30	±0.5	1 k to 1 M (E24, E96)	±50	-55 to +125
ERJ1RK (0201)	0.05	15	30	±0.5	100 to 976 (E24, E96)	±100	-55 to +125
ERJ2RH (0402)	0.063	50	100	±0.5	100 to 100 k (E24, E96)	±50	-55 to +125
ERJ2RK (0402)	0.063	50	100	±0.5	10 to 97.6 102 k to 1 M (E24, E96)	±100	-55 to +125
ERJ3RB (0603)	0.063 (0.1) <sup>(4)</sup>	50	100	±0.5	100 to 100 k (E24, E96)	±50	-55 to +125
ERJ3RE (0603)	0.063 (0.1) <sup>(4)</sup>	50	100	±0.5	10 to 97.6 102 k to 1 M (E24, E96)	±100	-55 to +125
ERJ6RB (0805)	0.1	150	200	±0.5	100 to 100 k (E24, E96)	±50	-55 to +125
ERJ6RE (0805)	0.1	150	200	±0.5	10 to 97.6 102 k to 1 M (E24, E96)	±100	-55 to +125

<±1 %>

Type (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage <sup>(1)</sup> (V)	Maximum Overload Voltage <sup>(2)</sup> (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)
ERJXG (01005)	0.031	15	30	±1	10 to 1 M (E24, E96)	<100 Ω : ±300 100 Ω ≤ : ±200	-55 to +125
ERJ1G (0201)	0.05	25	50	±1	10 to 1 M <sup>(3)</sup> (E24, E96)	±200	-55 to +125
ERJ2RK (0402)	0.1	50	100	±1	10 to 1 M <sup>(3)</sup> (E24, E96)	±100	-55 to +155
ERJ3EK (0603)	0.1	75	150	±1	10 to 1 M (E24, E96)	±100	-55 to +155
ERJ6EN (0805)	0.125	150	200	±1	10 to 2.2 M (E24, E96)	±100	-55 to +155
ERJ8EN (1206)	0.25	200	400	±1	10 to 2.2 M (E24, E96)	±100	-55 to +155
ERJ14N (1210)	0.5	200	400	±1	10 to 1 M (E24, E96)	±100	-55 to +155
ERJ12N (1812)	0.75	200	500	±1	10 to 1 M (E24, E96)	±100	-55 to +155
ERJ12S (2010)	0.75	200	500	±1	10 to 1 M (E24, E96)	±100	-55 to +155
ERJ1TN (2512)	1	200	500	±1	10 to 1 M (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.

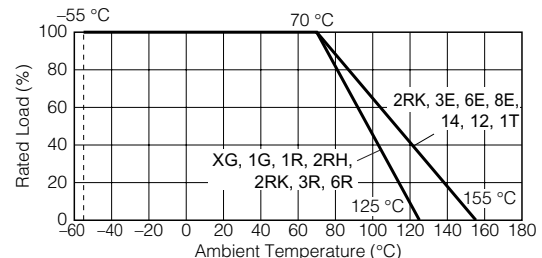
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from  $SOTV = 2.5 \times \text{Power Rating}$  or max. Overload Voltage listed above whichever less.

(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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01 Mar. 2011