**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

■ Packaging Methods Please see Pages 40 to 43

■ Recommended Soldering Conditions Please see Page 46

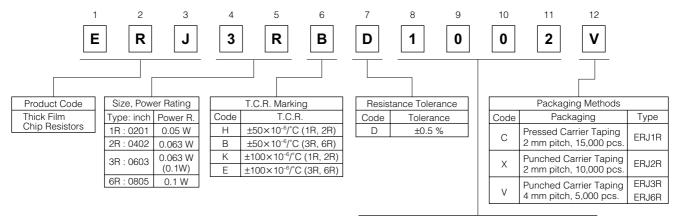
- Low Resistance Tolerance
   ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Series .....±1 %
   ERJ1R, 2R, 3R, 6R Series ......±0.5 %
- Reference Standards
   IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B

■ Recommended Land Pattern Please see Pages 44 to 45

■Safety Precautions Please see Page 47

## ■ Explanation of Part Numbers

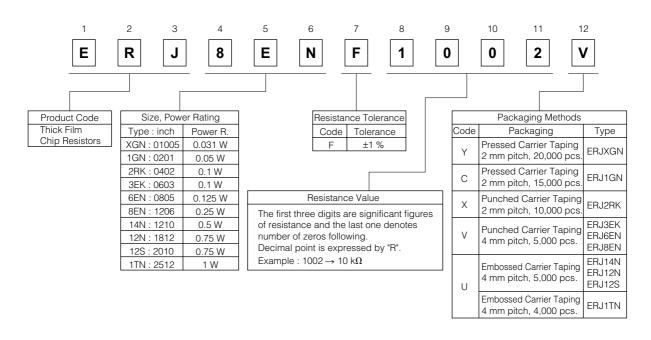
● ERJ1R, 2R, 3R, 6R Series, ±0.5 % type



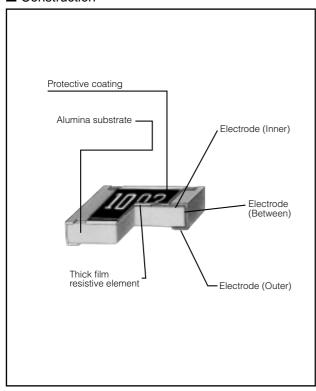
Resistance Value

The first three digits are significant figures of resistance and the last one denotes number of zeros following. Example: 1002 $\rightarrow$ 10 k $\Omega$ 

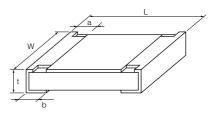
● ERJXG, 1G, 2R, 3E, 6E, 8E, 14, 12, 1T Series, ±1 % type



# ■ Construction



# ■ Dimensions in mm (not to scale)



Туре		Mass (Weight)				
(inch size)	L	W	а	b	t	[g/1000 pcs.]
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+0.15	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+0.05	1.60+0.05	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

## ■ 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

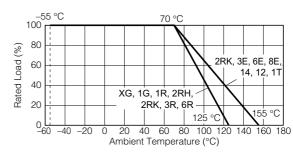
#### <±1 %>

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

<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 × 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  $\Omega$ . (4) Please contact us when resistors with guaranteed high power are needed.