

## Precision Thick Film Chip Resistors

Type: **ERJ XG, 1G**

**ERJ 1R, 2R, 3R, 6R**

**ERJ 3E, 6E, 8E, 14, 12, 1T**



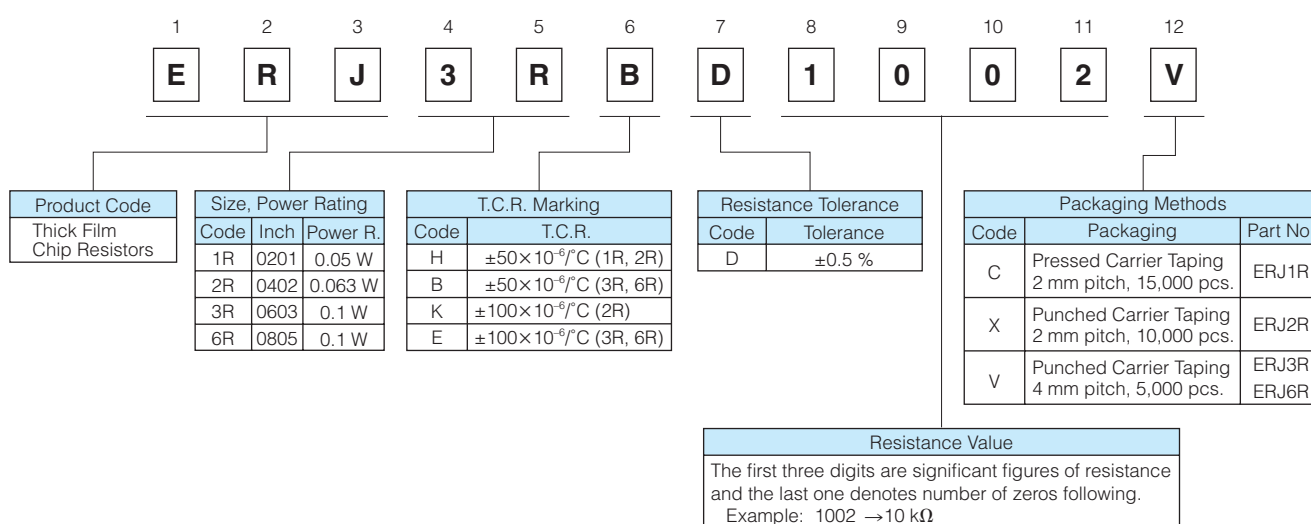
### Features

- 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 :  $\pm 1\%$   
ERJ1R, 2R, 3R, 6R Type :  $\pm 0.5\%$
- 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,  $\pm 0.5\%$



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

1

2

3

4

5

6

7

8

9

10

11

12

E

R

J

8

E

N

F

1

0

0

2

V

Product Code

Thick Film Chip Resistors

Size, Power Rating

Code	Inch	Power R.
XGN	01005	0.031 W
1GN	0201	0.05 W
2RK	0402	0.1 W
3EK	0603	0.1 W
6EN	0805	0.125 W
8EN	1206	0.25 W
14N	1210	0.5 W
12N	1812	0.75 W
12S	2010	0.75 W
1TN	2512	1 W

Resistance Tolerance

Code	Tolerance
F	±1 %

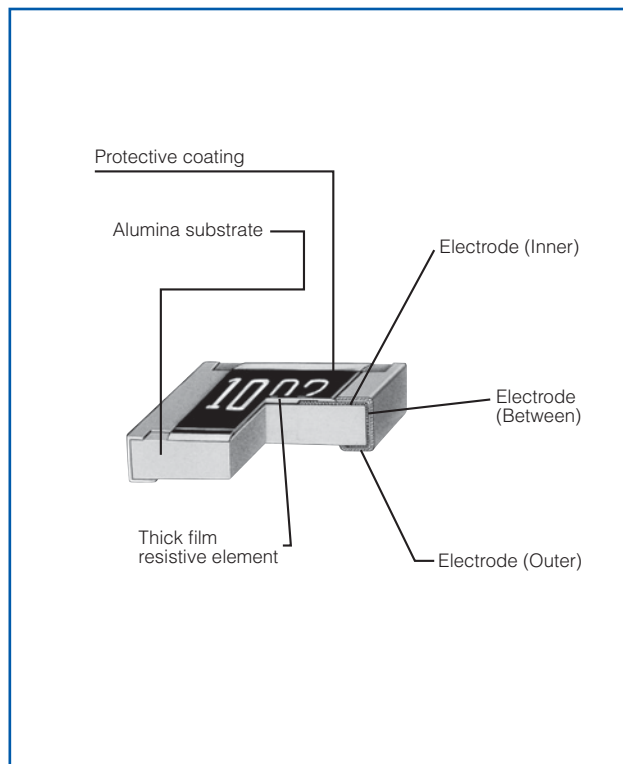
Resistance Value

The first three digits are significant figures of resistance and the last one denotes number of zeros following.  
 Decimal point is expressed by "R".  
 Example : 1002 → 10 kΩ

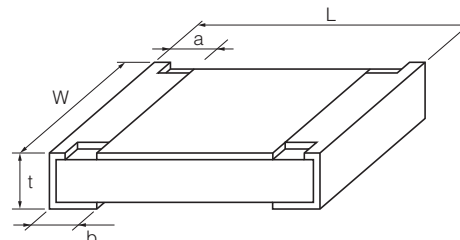
Packaging Methods

Code	Packaging	Part No.
Y	Pressed Carrier Taping 2 mm pitch, 20,000 pcs.	ERJXGN
C	Pressed Carrier Taping 2 mm pitch, 15,000 pcs.	ERJ1GN
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERJ2RK
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ3EK ERJ6EN ERJ8EN
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ14N ERJ12N ERJ12S
	Embossed Carrier Taping 4 mm pitch, 4,000 pcs.	ERJ1TN

## Construction



## Dimensions in mm (not to scale)



Part No. (inch size)	Dimensions (mm)					Mass (Weight) [g/1000pcs.]
	L	W	a	b	t	
ERJXG (01005)	0.40 $\pm 0.02$	0.20 $\pm 0.02$	0.10 $\pm 0.03$	0.10 $\pm 0.03$	0.13 $\pm 0.02$	0.04
ERJ1G, 1R (0201)	0.60 $\pm 0.03$	0.30 $\pm 0.03$	0.10 $\pm 0.05$	0.15 $\pm 0.05$	0.23 $\pm 0.03$	0.15
ERJ2R□ (0402)	1.00 $\pm 0.05$	0.50 $\pm 0.05$	0.20 $\pm 0.10$	0.25 $\pm 0.05$	0.35 $\pm 0.05$	0.8
ERJ3R□ ERJ3EK (0603)	1.60 $\pm 0.15$	0.80 $\pm 0.15$	0.30 $\pm 0.20$	0.30 $\pm 0.15$	0.45 $\pm 0.10$	2
ERJ6R□ ERJ6EN (0805)	2.00 $\pm 0.20$	1.25 $\pm 0.10$	0.40 $\pm 0.20$	0.40 $\pm 0.20$	0.60 $\pm 0.10$	4
ERJ8EN (1206)	3.20 $\pm 0.05$ $-0.20$	1.60 $\pm 0.05$ $-0.15$	0.50 $\pm 0.20$	0.50 $\pm 0.20$	0.60 $\pm 0.10$	10
ERJ14N (1210)	3.20 $\pm 0.20$	2.50 $\pm 0.20$	0.50 $\pm 0.20$	0.50 $\pm 0.20$	0.60 $\pm 0.10$	16
ERJ12N (1812)	4.50 $\pm 0.20$	3.20 $\pm 0.20$	0.50 $\pm 0.20$	0.50 $\pm 0.20$	0.60 $\pm 0.10$	27
ERJ12S (2010)	5.00 $\pm 0.20$	2.50 $\pm 0.20$	0.60 $\pm 0.20$	0.60 $\pm 0.20$	0.60 $\pm 0.10$	27
ERJ1TN (2512)	6.40 $\pm 0.20$	3.20 $\pm 0.20$	0.65 $\pm 0.20$	0.60 $\pm 0.20$	0.60 $\pm 0.10$	45

## Ratings

<±0.5 %>

Part No. (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
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)	0.1	50	100	±0.5	100 to 100 k (E24, E96)	±50	-55 to +125
ERJ3RE (0603)	0.1	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 %>

Part No. (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)
ERJXGN (01005)	0.031	15	30	±1	10 to 1 M (E24, E96)	<100 Ω : ±300 100 Ω ≤ : ±200	-55 to +125
ERJ1GN (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  $SOTV = 2.5$  (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.

