

Precision Thick Film Chip Resistors

ERJ G : 01005, 0201

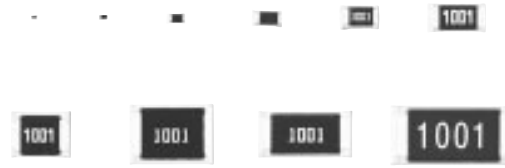
ERJ R : 0201, 0402, 0603, 0805

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

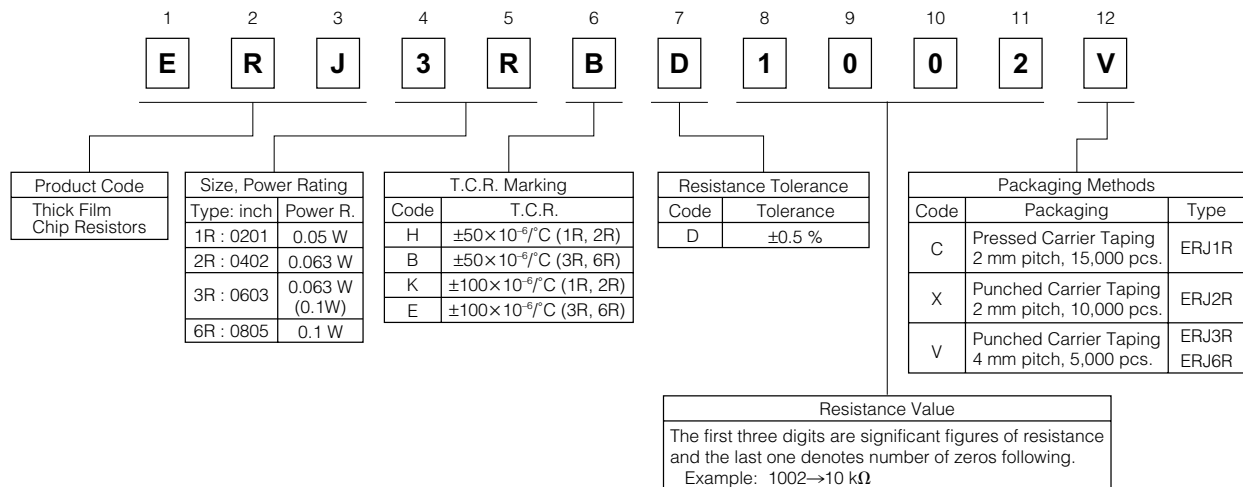
Please see Page 46

■ 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, $\pm 1\%$ type

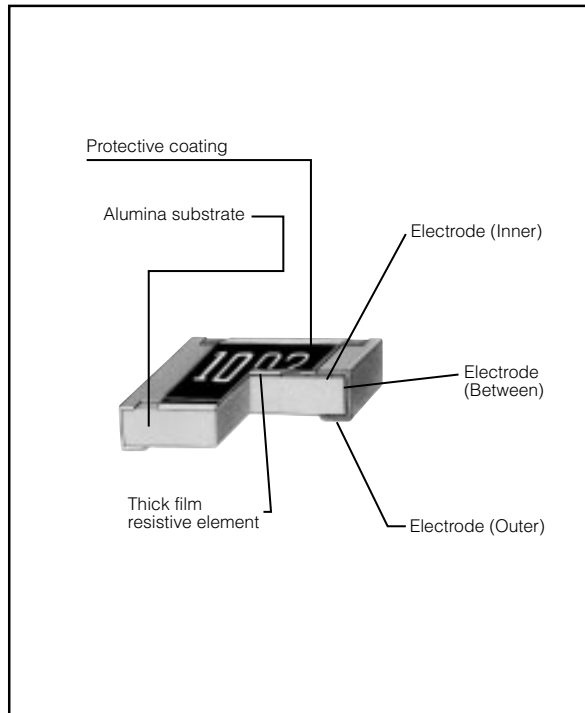
1	2	3	4	5	6	7	8	9	10	11	12
E	R	J	8	E	N	F	1	0	0	2	V

Product Code	Size, Power Rating		Resistance Tolerance		Packaging Methods	
Thick Film	Type : inch	Power R.	Code	Tolerance	Code	Packaging
Chip Resistors	XGN : 01005	0.031 W	F	$\pm 1\%$	Y	Pressed Carrier Taping 2 mm pitch, 20,000 pcs.
	1GN : 0201	0.05 W			C	Pressed Carrier Taping 2 mm pitch, 15,000 pcs.
	2RK : 0402	0.1 W			X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.
	3EK : 0603	0.1 W			V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.
	6EN : 0805	0.125 W			U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.
	8EN : 1206	0.25 W				Embossed Carrier Taping 4 mm pitch, 4,000 pcs.
	14N : 1210	0.5 W				
	12N : 1812	0.75 W				
	12S : 2010	0.75 W				
	1TN : 2512	1 W				

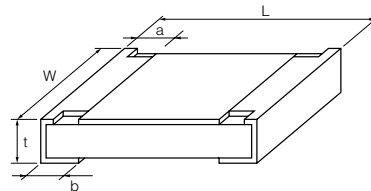
Resistance Value	
The first three digits are significant figures of resistance and the last one denotes number of zeros following. Decimal point is expressed by "R". Example : 1002 \rightarrow 10 k Ω	

Packaging Methods		
Code	Packaging	Type
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)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
ERJXG (01005)	0.40 $^{+0.02}_{-0.02}$	0.20 $^{+0.02}_{-0.02}$	0.10 $^{+0.03}_{-0.03}$	0.10 $^{+0.03}_{-0.03}$	0.13 $^{+0.02}_{-0.02}$	0.04
ERJ1G, 1R (0201)	0.60 $^{+0.03}_{-0.03}$	0.30 $^{+0.03}_{-0.03}$	0.10 $^{+0.05}_{-0.05}$	0.15 $^{+0.05}_{-0.05}$	0.23 $^{+0.03}_{-0.03}$	0.15
ERJ2R□ (0402)	1.00 $^{+0.05}_{-0.05}$	0.50 $^{+0.05}_{-0.05}$	0.20 $^{+0.10}_{-0.10}$	0.25 $^{+0.05}_{-0.05}$	0.35 $^{+0.05}_{-0.05}$	0.8
ERJ3R□ ERJ3EK (0603)	1.60 $^{+0.15}_{-0.15}$	0.80 $^{+0.15}_{-0.05}$	0.30 $^{+0.20}_{-0.20}$	0.30 $^{+0.15}_{-0.15}$	0.45 $^{+0.10}_{-0.10}$	2
ERJ6R□ ERJ6EN (0805)	2.00 $^{+0.20}_{-0.20}$	1.25 $^{+0.10}_{-0.10}$	0.40 $^{+0.20}_{-0.20}$	0.40 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	4
ERJ8EN (1206)	3.20 $^{+0.05}_{-0.20}$	1.60 $^{+0.05}_{-0.15}$	0.50 $^{+0.20}_{-0.20}$	0.50 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	10
ERJ14N (1210)	3.20 $^{+0.20}_{-0.20}$	2.50 $^{+0.20}_{-0.20}$	0.50 $^{+0.20}_{-0.20}$	0.50 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	16
ERJ12N (1812)	4.50 $^{+0.20}_{-0.20}$	3.20 $^{+0.20}_{-0.20}$	0.50 $^{+0.20}_{-0.20}$	0.50 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	27
ERJ12S (2010)	5.00 $^{+0.20}_{-0.20}$	2.50 $^{+0.20}_{-0.20}$	0.60 $^{+0.20}_{-0.20}$	0.60 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	27
ERJ1TN (2512)	6.40 $^{+0.20}_{-0.20}$	3.20 $^{+0.20}_{-0.20}$	0.65 $^{+0.20}_{-0.20}$	0.60 $^{+0.20}_{-0.20}$	0.60 $^{+0.10}_{-0.10}$	45

■ Ratings

<±0.5 %>

Type (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage ⁽¹⁾ (V)	Maximum Overload Voltage ⁽²⁾ (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 ⁻⁶ /°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) ⁽⁴⁾	50	100	±0.5	100 to 100 k (E24, E96)	±50	-55 to +125
ERJ3RE (0603)	0.063 (0.1) ⁽⁴⁾	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 ⁽¹⁾ (V)	Maximum Overload Voltage ⁽²⁾ (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 ⁻⁶ /°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 ⁽³⁾ (E24, E96)	±200	-55 to +125
ERJ2RK (0402)	0.1	50	100	±1	10 to 1 M ⁽³⁾ (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.

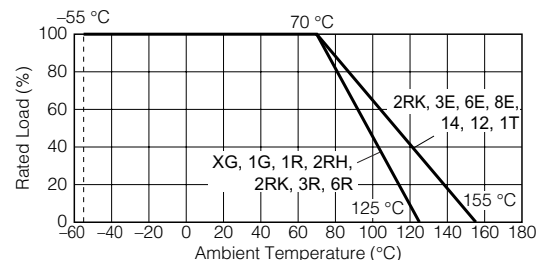
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from $SOTV = 2.5 \times \text{Power Rating}$ or max. Overload Voltage listed above whichever less.

(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.



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.

01 Mar. 2011