

## Thick Film Chip Resistors

Type: **ERJ XG, 1G, 2G, 3G, 6G, 8G, 14, 12, 12Z, 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
- Reference Standards  
IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- AEC-Q200 qualified (Exemption ERJXG)
- RoHS compliant

**As for Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions,**  
Please see Data Files

### Explanation of Part Numbers

- ERJXGN, 1GN, 2GE, 3GE, 6GE, 8GE, 14, 12, 12Z, 1T Type, ±5 %

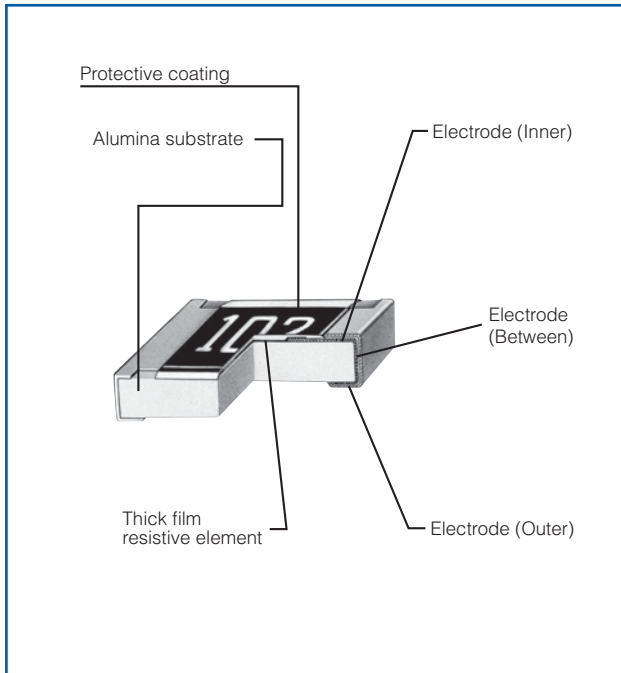
1      2      3      4      5      6      7      8      9      10      11      12

E      R      J      3      G      E      Y      J      1      0      2      V

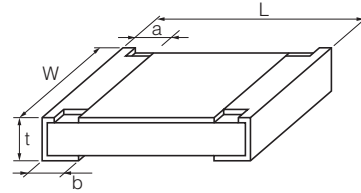
Product Code	Size, Power Rating		Marking		Resistance Tolerance		Packaging Methods			
Thick Film Chip Resistors	Code	Inch	Power R.	Code	Marking	Code	Tolerance	Code	Packaging	Part No.
	XGN	01005	0.031 W	Y	Value Marking on black side	J	±5 %	Y	Pressed Carrier Taping W8P2, 20,000 pcs.	ERJXGN
	1GN	0201	0.05 W	*Nil	No marking	0	Jumper	U	Embossed Carrier Taping W4P1, 40,000 pcs.	
	2GE	0402	0.1 W	<b>Resistance Value</b> The first two digits are significant figures of resistance and the third one denotes number of zeros following. Decimal Point is expressed by R as 4.7 = 4R7. Jumper is expressed by R00.			C	Pressed Carrier Taping 2 mm pitch, 15,000 pcs.	ERJ1GN	
	3GE	0603	0.1 W				X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	Y	Punched Carrier Taping 2 mm pitch, 20,000 pcs.
	6GE	0805	0.125 W	V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ3GE ERJ6GE ERJ8GE		
	8GE	1206	0.25 W	U	Embossed Carrier Taping 4 mm pitch, 4,000 pcs.	ERJ14 ERJ12 ERJ12Z				
	14	1210	0.5 W			ERJ1T				
	12	1812	0.75 W							
	12Z	2010	0.75 W							
	1T	2512	1 W							

\* When omitted, the rest of the P/N factors shall be moved up respectively.  
(Only XGN, 1GN, 2GE type)

## Construction



## Dimensions in mm (not to scale)



Part No. (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 (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
ERJ2G (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
ERJ3G (0603)	1.60 <sup>±0.15</sup>	0.80 <sup>+0.15/-0.05</sup>	0.30 <sup>±0.20</sup>	0.30 <sup>±0.15</sup>	0.45 <sup>±0.10</sup>	2
ERJ6G (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
ERJ8G (1206)	3.20 <sup>+0.05/-0.20</sup>	1.60 <sup>+0.05/-0.15</sup>	0.50 <sup>±0.20</sup>	0.50 <sup>±0.20</sup>	0.60 <sup>±0.10</sup>	10
ERJ14 (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
ERJ12 (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
ERJ12Z (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
ERJ1T (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

### [For Resistor]

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)
ERJXG (01005)	0.031	15	30	±5	4.7 to 1 M (E24)	<10 Ω: -100 to +600 10 Ω to 100 Ω: ±300 100 Ω <: ±200	-55 to +125
ERJ1G (0201)	0.05	25	50	±5	1 to 10 M (E24)	<10 Ω: -100 to +600	-55 to +125
ERJ2G (0402)	0.1	50	100	±5	1 to 10 M (E24)		-55 to +155
ERJ3G (0603)	0.1	75	150	±5	1 to 10 M (E24)	10 Ω to 1 M Ω: ±200	-55 to +155
ERJ6G (0805)	0.125	150	200	±5	1 to 10 M (E24)		-55 to +155
ERJ8G (1206)	0.25	200	400	±5	1 to 10 M (E24)		-55 to +155
ERJ14 (1210)	0.5	200	400	±5	1 to 10 M (E24)	1 M Ω <: -400 to +150	-55 to +155
ERJ12 (1812)	0.75	200	500	±5	1 to 10 M (E24)		-55 to +155
ERJ12Z (2010)	0.75	200	500	±5	1 to 10 M (E24)	-400 to +150	-55 to +155
ERJ1T (2512)	1	200	500	±5	1 to 1 M (E24)		-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.

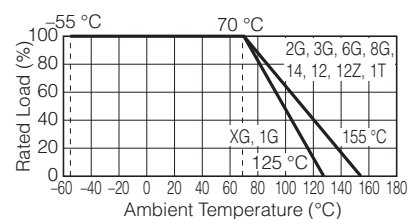
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from  $SOTV = 2.5$  (Only ERJ2G=2.0) × RCWV or max. Overload Voltage listed above whichever less.

### [For Jumper]

Part No. (inch size)	Rated Current (A)	Maximum Overload Current (A)
ERJXG (01005)	0.5	1
ERJ1G (0201)		
ERJ2G (0402)		
ERJ3G (0603)	1	2
ERJ6G (0805)		
ERJ8G (1206)		
ERJ14 (1210)	2	4
ERJ12 (1812)		
ERJ12Z (2010)		
ERJ1T (2512)		

### Power Derating Curve

For resistors operated in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure below.



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