

## 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,  $\pm 5\%$



\* 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.	Dimensions (mm)					Mass (Weight) (g/1000 pcs.)
	L	W	a	b	t	
ERJXG	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	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	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	1.60 <sup>±0.15</sup>	0.80 <sup>±0.15</sup>	0.30 <sup>±0.20</sup>	0.30 <sup>±0.15</sup>	0.45 <sup>±0.10</sup>	2
ERJ6G	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	3.20 <sup>±0.05</sup>	1.60 <sup>±0.05</sup>	0.50 <sup>±0.20</sup>	0.50 <sup>±0.20</sup>	0.60 <sup>±0.10</sup>	10
ERJ14	3.20 <sup>±0.20</sup>	2.50 <sup>±0.15</sup>	0.50 <sup>±0.20</sup>	0.50 <sup>±0.20</sup>	0.60 <sup>±0.10</sup>	16
ERJ12	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	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	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 <sup>(3)</sup> 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)	AEC-Q200 Grade
ERJXG (01005)	0.031	15	30	±5	4.7 to 1M (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 10M (E24)	<10 Ω : -100 to +600  10 Ω to 1M Ω : ±200  1M Ω < : -400 to +150	-55 to +125	Grade 1
ERJ2G (0402)	0.1	50	100	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ3G (0603)	0.1	75	150	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ6G (0805)	0.125	150	200	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ8G (1206)	0.25	200	400	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ14 (1210)	0.5	200	400	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ12 (1812)	0.75	200	500	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ12Z (2010)	0.75	200	500	±5	1 to 10M (E24)		-55 to +155	Grade 0
ERJ1T (2512)	1	200	500	±5	1 to 1M (E24)		-55 to +155	Grade 0

- (1) Rated Continuous Working Voltage (RCWW) shall be determined from RCWW=√Power Rating × Resistance Values, or Limiting Element Voltage listed above, whichever less.  
 (2) Overload Test Voltage (OTV) shall be determined from OTV=Specified Magnification (refer to performance) × RCWW or Maximum Overload Voltage listed above, whichever less.  
 (3) Use it on the condition that the case temperature is below the upper category temperature.

### [For Jumper]

Part No. (inch size)	Rated Current (A)	Maximum Overload Current <sup>(1)</sup> (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)		

(1) Overload test current

### Power Derating Curve

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



## Performance

Test Item	Performance Requirements		Test Conditions
	Resistor type	Jumper type	
Resistance	Within Specified Tolerance	50m $\Omega$ or less	20 °C
T. C. R.	Within Specified T. C. R.	50m $\Omega$ or less	+25 °C/+155 °C (ERJXG, ERJ1G : +25 °C/+125 °C)
Overload	±2%	50m $\Omega$ or less	Rated Voltage × 2.5, 5 s Jumper type : Max. Overload Current, 5 s
Resistance to Soldering Heat	±1%	50m $\Omega$ or less	270 °C, 10 s
Rapid Change of Temperature	±1%	50m $\Omega$ or less	-55 °C (30min.) / +155 °C (ERJXG, ERJ1G : +125 °C) (30min.), 100 cycles
High Temperature Exposure	±1%	50m $\Omega$ or less	+155 °C (ERJXG, ERJ1G : +125 °C) , 1000 h
Damp Heat, Steady State	±1%	50m $\Omega$ or less	60 °C, 90% to 95 %RH, 1000 h
Load Life in Humidity	±3%	50m $\Omega$ or less	60 °C, 90% to 95 %RH, Rated Voltage (Jumper type: Rated Current), 1.5 h ON/0.5 h OFF cycle, 1000 h
Endurance at 70 °C	±3%	50m $\Omega$ or less	70 °C, Rated Voltage(Jumper type: Rated Current), 1.5 h ON/0.5 h OFF cycle, 1000 h