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
Thick Film Chip Resistors

Size, Power Rating		
Code	Inch	Power R.
XGN	01005	0.031 W
1GN	0201	0.05 W
2GE	0402	0.1 W
3GE	0603	0.1 W
6GE	0805	0.125 W
8GE	1206	0.25 W
14	1210	0.5 W
12	1812	0.75 W
12Z	2010	0.75 W
1T	2512	1 W

Marking	
Code	Marking
Y	Value Marking on black side
*Nil	No marking

Resistance Tolerance	
Code	Tolerance
J	±5 %
0	Jumper

Resistance Value
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.

Packaging Methods		
Code	Packaging	Part No.
Y	Pressed Carrier Taping W8P2, 20,000 pcs.	ERJXGN
U	Embossed Carrier Taping W4P1, 40,000 pcs.	
C	Pressed Carrier Taping 2 mm pitch, 15,000 pcs.	ERJ1GN
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERJ2GE
Y	Punched Carrier Taping 2 mm pitch, 20,000 pcs.	
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ3GE ERJ6GE ERJ8GE
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJ14 ERJ12 ERJ12Z
	Embossed Carrier Taping 4 mm pitch, 4,000 pcs.	ERJ1T

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

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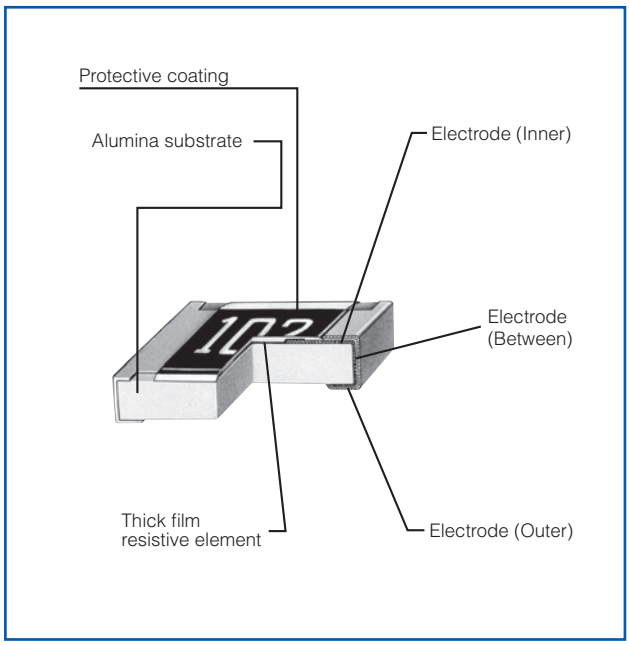
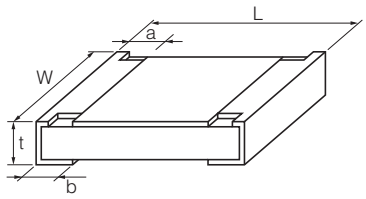
Construction



Dimensions in mm (not to scale)



Part No.	Dimensions (mm)					Mass (Weight) (g/1000 pcs.)
	L	W	a	b	t	
ERJXG	$0.40^{\pm0.02}$	$0.20^{\pm0.02}$	$0.10^{\pm0.03}$	$0.10^{\pm0.03}$	$0.13^{\pm0.02}$	0.04
ERJ1G	$0.60^{\pm0.03}$	$0.30^{\pm0.03}$	$0.10^{\pm0.05}$	$0.15^{\pm0.05}$	$0.23^{\pm0.03}$	0.15
ERJ2G	$1.00^{\pm0.05}$	$0.50^{\pm0.05}$	$0.20^{\pm0.10}$	$0.25^{\pm0.05}$	$0.35^{\pm0.05}$	0.8
ERJ3G	$1.60^{\pm0.15}$	$0.80^{\pm0.15}_{\pm0.05}$	$0.30^{\pm0.20}$	$0.30^{\pm0.15}$	$0.45^{\pm0.10}$	2
ERJ6G	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.40^{\pm0.20}$	$0.40^{\pm0.20}$	$0.60^{\pm0.10}$	4
ERJ8G	$3.20^{\pm0.05}_{-0.20}$	$1.60^{\pm0.05}_{-0.15}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	10
ERJ14	$3.20^{\pm0.20}$	$2.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	16
ERJ12	$4.50^{\pm0.20}$	$3.20^{\pm0.20}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	27
ERJ12Z	$5.00^{\pm0.20}$	$2.50^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.10}$	27
ERJ1T	$6.40^{\pm0.20}$	$3.20^{\pm0.20}$	$0.65^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.10}$	45

Ratings

[For Resistor]

Part No. (inch size)	Power Rating (3) at 70 °C (W)	Limiting Element Voltage (1) (V)	Maximum Overload Voltage (2) (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. ($\times10^{-6}$/°C)	Category Temperature Range (°C)	AEC-Q200 Grade
ERJXG (01005)	0.031	15	30	±5	1 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 (RCWV) shall be determined from RCWV=$\sqrt{\text{Power Rating} \times \text{Resistance Values}}$, or Limiting Element Voltage listed above, whichever less.
(2) Overload Test Voltage (OTV) shall be determined from OTV=Specified Magnification (refer to performance) × RCWV or Maximum Overload Voltage listed above, whichever less.
(3) Use it on the condition that the case temperature is below the upper category temperature.

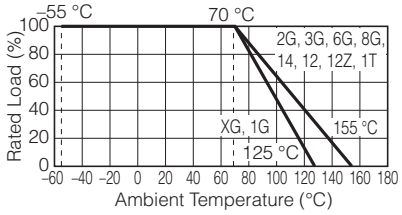
[For Jumper]

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



Perfomance

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

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