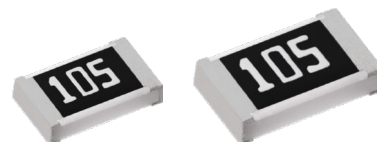


Thick Film Chip Resistors

ERJ type

ERJ XG, 1G, 2G, 3G, 6G series

ERJ 8G, 14, 12, 12Z, 1T series



(Oct. 2021) Products marked as "NRFND" are not recommended for new design.
Target products : ERJ8G, 14, 12, 12Z, 1T series
Please refer to the recommended alternatives with "Design Support Tool" .

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 standard : IEC 60115-8, JIS C 5201-8, JEITA RC-2134C
- AEC-Q200 compliant (except ERJXG, ERJ1GN)
- RoHS compliant

■ As for packaging methods, land pattern, soldering conditions and safety precautions, please see data files.

Explanation of part numbers

- ERJXGN, 1GN, 1GJ, 2GE, 3GE, 6GE, 8GE, 14, 12, 12Z, 1T series, $\pm 5\%$

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		Resistance value		Packaging methods		
Thick film chip resistors		Code	inch	Power rating	Code	Marking	Code	Tolerance	The first two digits are significant figures of resistance and the third one denotes number of zeros following. Jumper is expressed by R00. (Ex.) 222 : 2.2 kΩ 4R7 : 4.7 Ω		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		0	Jumper	U			Embossed carrier taping W4P1, 40,000 pcs		
NEW 1GJ		2GE	0402	0.1 W	*Nil	No marking					C	Pressed carrier taping 2 mm pitch, 15,000 pcs	ERJ1GN ERJ1GJ
		3GE	0603	0.1 W							X	Punched carrier taping 2 mm pitch, 10,000 pcs	ERJ2GE
		6GE	0805	0.125 W							V	Punched carrier taping 4 mm pitch, 5,000 pcs	ERJ3GE ERJ6GE NRFND ERJ8GE
		NRFND 8GE	1206	0.25 W								NRFND	ERJ14
		NRFND 14	1210	0.5 W								NRFND	ERJ12
		NRFND 12	1812	0.75 W								NRFND	ERJ12Z
		NRFND 12Z	2010	0.75 W									
		NRFND 1T	2512	1 W								NRFND	ERJ1T

* Series XGN, 1GN and 2GE do not have value markings on the black side.

Please omit the letter "Y" from the part number for these series of parts.

The other part number factors will move up respectively.

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* For the automotive application, please use ERJ1GJ as 0201 inch size from the new design.

Not recommended for new design

Ratings

[For Resistor]

Part No. (inch size)	Rated power ^{*1} (70 °C) (W)	Limiting element voltage ^{*2} (V)	Maximum overload voltage ^{*3} (V)	Resistance tolerance (%)	Resistance range (Ω)	T.C.R. (×10 ⁻⁶ /K)	Category temperature range (°C)	AEC-Q200 Grade
ERJXG (01005)	0.031	15	30	±5	1 to 1 M (E24)	R<10Ω : -100 to +600 10Ω to 100Ω : ±300 100Ω≤R : ±200	-55 to +125	-
ERJ1GN (0201)	0.05	25	50	±5	1 to 10 M (E24)	R<10 Ω : -100 to +600		
NEW ERJ1GJ (0201)	0.05	25	50	±5	1 to 10 M (E24)			Grade 1
ERJ2G (0402)	0.1	50	100	±5	1 to 10 M (E24)	10 Ω to 1 M Ω : ±200	-55 to +155	Grade 0
ERJ3G (0603)	0.1	75	150	±5	1 to 10 M (E24)	1 MΩ<R : -400 to +150		
ERJ6G (0805)	0.125	150	200	±5	1 to 10 M (E24)			
NRFND ERJ8G (1206)	0.25	200	400	±5	1 to 10 M (E24)	R<10 Ω : -100 to +600 10 Ω to 1 M Ω : ±200 1 MΩ<R : -400 to +150	-55 to +155	Grade 0
NRFND ERJ14 (1210)	0.5	200	400	±5	1 to 10 M (E24)			
NRFND ERJ12 (1812)	0.75	200	500	±5	1 to 10 M (E24)			
NRFND ERJ12Z (2010)	0.75	200	500	±5	1 to 10 M (E24)			
NRFND ERJ1T (2512)	1	200	500	±5	1 to 1 M (E24)			

*1: Use it on the condition that the case temperature is below the upper category temperature.

*2: Rated Continuous Working Voltage (RCWV) shall be determined from $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Value}}$, or Limiting Element Voltage listed above, whichever less.

*3: Overload Test Voltage (OTV) shall be determined from $OTV = \text{Specified Magnification (refer to performance)} \times RCWV$ or Maximum Overload Voltage listed above, whichever less.

NRFND

Not recommended for new design

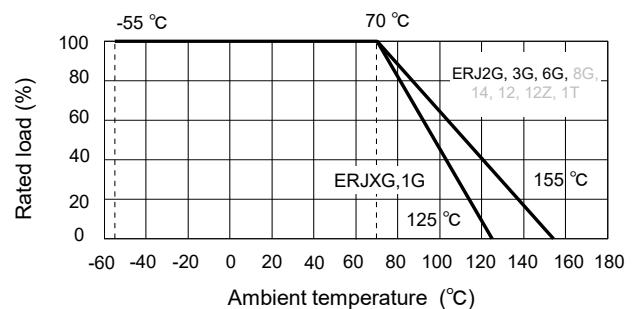
[For Jumper]

Part No.	Resistance(Ω)	Rated current(A)	Maximum overload current (A) ^{*1}
ERJXG	50 mΩ or less	0.5	1
ERJ1G			
ERJ2G		1	2
ERJ3G			
ERJ6G		2	4
NRFND ERJ8G	50 mΩ or less	2	4
NRFND ERJ14			
NRFND ERJ12			
NRFND ERJ12Z			
NRFND ERJ1T			

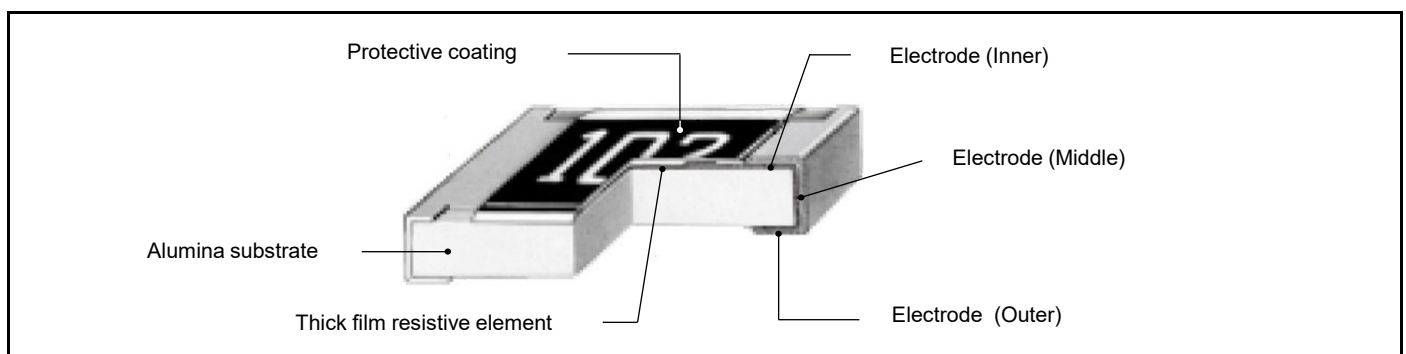
*1 :Overload test current

Power derating curve

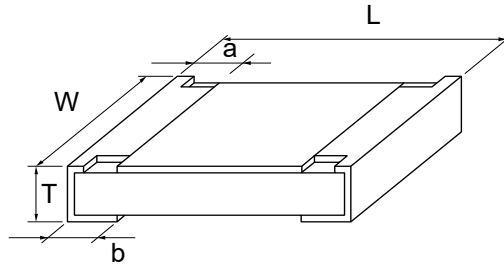
above 70 °C, power rating shall be derated in accordance with the figure below.



Construction



Dimensions (not to scale)



Unit : mm

Part No.	Dimensions					Mass (Weight) (Reference) (g/1000 pcs)
	L	W	a	b	T	
ERJXG	0.40±0.02	0.20±0.02	0.10±0.03	0.10±0.03	0.13±0.02	0.04
ERJ1G	0.60±0.03	0.30±0.03	0.10±0.05	0.15±0.05	0.23±0.03	0.15
ERJ2G	1.00±0.05	0.50±0.05	0.20±0.10	0.25±0.05	0.35±0.05	0.8
ERJ3G	1.60±0.15	0.80±0.15/-0.05	0.30±0.20	0.30±0.15	0.45±0.10	2
ERJ6G	2.00±0.20	1.25±0.10	0.40±0.20	0.40±0.20	0.60±0.10	4
NRFND ERJ8G	3.20±0.05/-0.20	1.60±0.05/-0.15	0.50±0.20	0.50±0.20	0.60±0.10	10
NRFND ERJ14	3.20±0.20	2.50±0.20	0.50±0.20	0.50±0.20	0.60±0.10	16
NRFND ERJ12	4.50±0.20	3.20±0.20	0.50±0.20	0.50±0.20	0.60±0.10	27
NRFND ERJ12Z	5.00±0.20	2.50±0.20	0.60±0.20	0.60±0.20	0.60±0.10	27
NRFND ERJ1T	6.40±0.20	3.20±0.20	0.65±0.20	0.60±0.20	0.60±0.10	45

NRFND

Not recommended for new design

Performance

Test item	Performance requirements ΔR		Test conditions
	Resistor type	Jumper type	
Resistance	Within specified tolerance	50 mΩ or less	20 °C
T. C. R.	Within specified T. C. R.	50 mΩ or less	+25°C / +155°C (ERJXG,1G : +25°C / +125°C)
Overload	±2 %	50 mΩ or less	Rated voltage× 2.5, 5 s Jumper type : Max. overload current, 5 s
Resistance to soldering heat	±1 %	50 mΩ or less	270 °C, 10 s
Rapid change of temperature	±1 %	50 mΩ or less	−55 °C (30 min.) / +155 °C (ERJXG,1G : +125 °C) (30 min.), 100 cycles
High temperature exposure	±1 %	50 mΩ or less	+155°C (ERJXG,1G : +125°C), 1000 h
Damp heat, Steady state	±1 %	50 mΩ or less	60 °C, 90 % to 95 %RH, 1000 h
Load life in humidity	±3 %	50 mΩ 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 %	50 mΩ 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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