

Anti-Surge Thick Film Chip Resistors

0603, 0805, 1206, 1210, 0805

Type: **ERJ P03, P06, P08, P14**
ERJ P6W



■ Features

- ESD surge characteristics superior to standard metal film resistors
- High reliability
Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- High power···0.2 W : 1608(0603) size(ERJP03)
0.25 W : 2012(0805) size(ERJP06)
0.33 W : 3216(1206) size(ERJP08)
0.5 W : 3225(1210) size(ERJP14), double-sided resistive elements structure 2012(0805) size(ERJP6W)
- Reference Standards···IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- RoHS compliant

■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

■ Explanation of Part Numbers

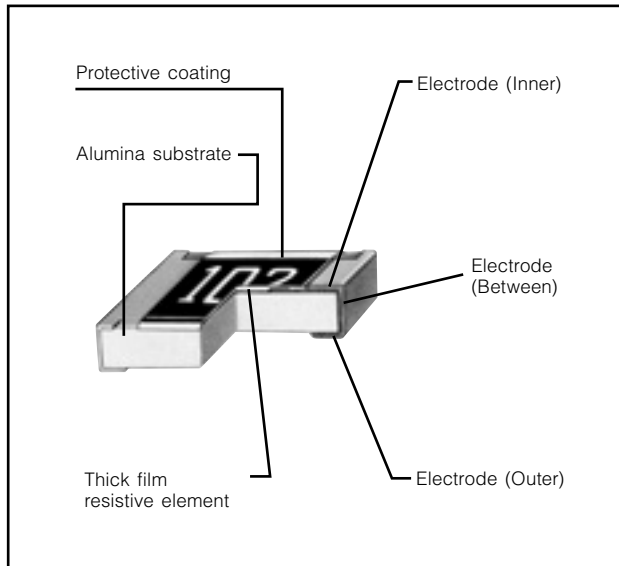
- ERJP03, P06, P08, P14

1	2	3	4	5	6	7	8	9	10	11	12
E	R	J	P	0	6	D	1	0	0	2	V
Product Code Thick Film Chip Resistors	Size, Power Rating Type: inch Power R. P03 : 0603 0.2 W P06 : 0805 0.25 W P08 : 1206 0.33 W P14 : 1210 0.5 W		Resistance Tolerance Code Tolerance D ± 0.5 % F ± 1 % J ± 5 %		Resistance Value The first two or three digits are significant figures of resistance and the third or 4th one denotes number of zeros following. Three digit type (±5%), four digit type (±1%, ±0.5%) Example: 222→2.2 kΩ, 1002→10 kΩ				Packaging Methods Code Packaging Type V Punched Carrier Taping 4 mm pitch, 5,000 pcs. ERJP03 ERJP06 ERJP08 U Embossed Carrier Taping 4 mm pitch, 5,000 pcs. ERJP14		

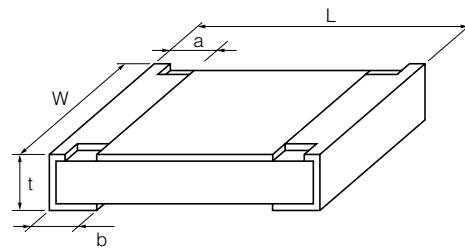
- ERJP6W(double-sided resistive elements structure)

1	2	3	4	5	6	7	8	9	10	11	12
E	R	J	P	6	W	F	1	0	0	2	V
Product Code Thick Film Chip Resistors	Size, Power Rating Type: inch Power R. P6W : 0805 0.5 W		Resistance Tolerance Code Tolerance F ± 1 % J ± 5 %		Resistance Value The first two or three digits are significant figures of resistance and the third or 4th one denotes number of zeros following. Three digit type (±5%), four digit type (±1%) Example: 222→2.2 kΩ, 1002→10 kΩ				Packaging Methods Code Packaging V Punched Carrier Taping 4 mm pitch, 5,000 pcs.		

Construction



Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000pcs.]
	L	W	a	b	t	
ERJP03 (0603)	1.60 $\pm$ 0.15	0.80 $\pm$ 0.15 0.05	0.15 $\pm$ 0.15 0.10	0.30 $\pm$ 0.15	0.45 $\pm$ 0.10	2
ERJP06 (0805)	2.00 $\pm$ 0.20	1.25 $\pm$ 0.10	0.25 $\pm$ 0.20	0.40 $\pm$ 0.20	0.60 $\pm$ 0.10	4
ERJP6W (0805)	2.00 $\pm$ 0.20	1.25 $\pm$ 0.20	0.35 $\pm$ 0.20	0.35 $\pm$ 0.20	0.65 $\pm$ 0.10	6
ERJP08 (1206)	3.20 $\pm$ 0.05 0.20	1.60 $\pm$ 0.05 0.15	0.40 $\pm$ 0.20	0.50 $\pm$ 0.20	0.60 $\pm$ 0.10	10
ERJP14 (1210)	3.20 $\pm$ 0.20	2.50 $\pm$ 0.20	0.35 $\pm$ 0.20	0.50 $\pm$ 0.20	0.60 $\pm$ 0.10	16

Ratings

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. ($\times 10^{-6}/^{\circ}\text{C}$)	Category Temperature Range ($^{\circ}\text{C}$)
ERJP03 (0603)	0.2	150	200	± 0.5	10 to 1 M (E24, E96)	± 150	-55 to +155
				± 1	10 to 1 M (E24, E96)	± 200	
				± 5	1 to 1 M (E24)	$R < 10 \Omega : -150 \text{ to } +400$ $10 \Omega \leq R : \pm 200$	
ERJP06 (0805)	0.25	400	600	$\pm 0.5, \pm 1$	10 to 1 M (E24, E96)	$R < 33 \Omega : \pm 300$ $33 \Omega \leq R : \pm 100$	-55 to +155
				± 5	1 to 3.3 M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R < 33 \Omega : \pm 300$ $33 \Omega \leq R : \pm 200$	
ERJP6W (0805)	0.5	150	200	± 1	10 to 1 M (E24, E96)	± 200	-55 to +155
				± 5	1 to 1 M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R : \pm 200$	
ERJP08 (1206)	0.33	500	1000	$\pm 0.5, \pm 1$	10 to 1 M (E24, E96)	± 100	-55 to +155
				± 5	1 to 10 M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R : \pm 200$	
ERJP14 (1210)	0.5	200	400	$\pm 0.5, \pm 1$	10 to 1 M (E24, E96)	± 100	-55 to +155
				± 5	1 to 1 M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R : \pm 200$	

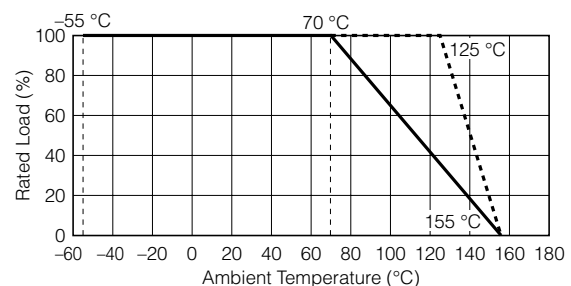
(1) Rated Continuous Working Voltage (RCWV) shall be determined from $\text{RCWV} = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$, or Limiting Element Voltage listed above, whichever less.

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

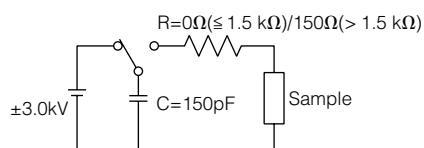
Power Derating Curve

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

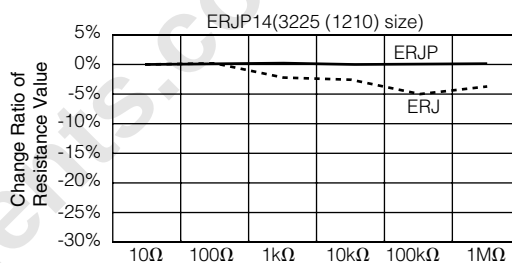
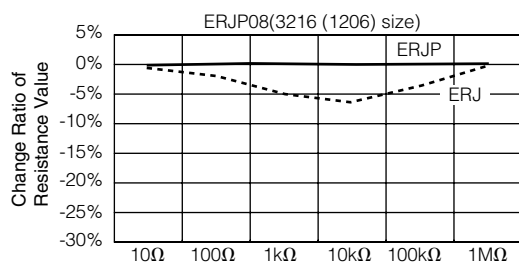
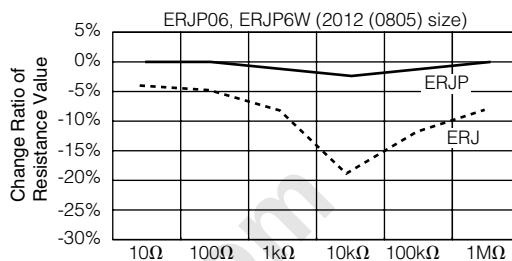
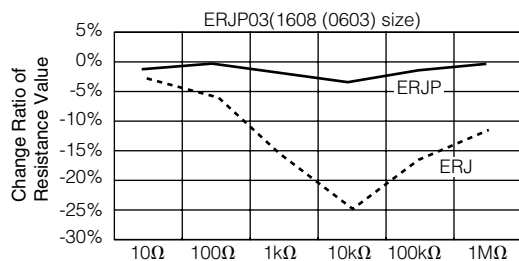
* When the temperature of ERJP06/08/14 is 155 °C or less, the derating start temperature can be changed to 125 °C. (See the dotted line)



ESD Characteristic



— Anti-Surge Thick Film Chip Resistors(ERJP Type)
- - - Thick Film Chip Resistors(ERJ Type)



Anti-Pulse Thick Film Chip Resistors 0805, 1206, 1210

Type: **ERJ T06, T08, T14**



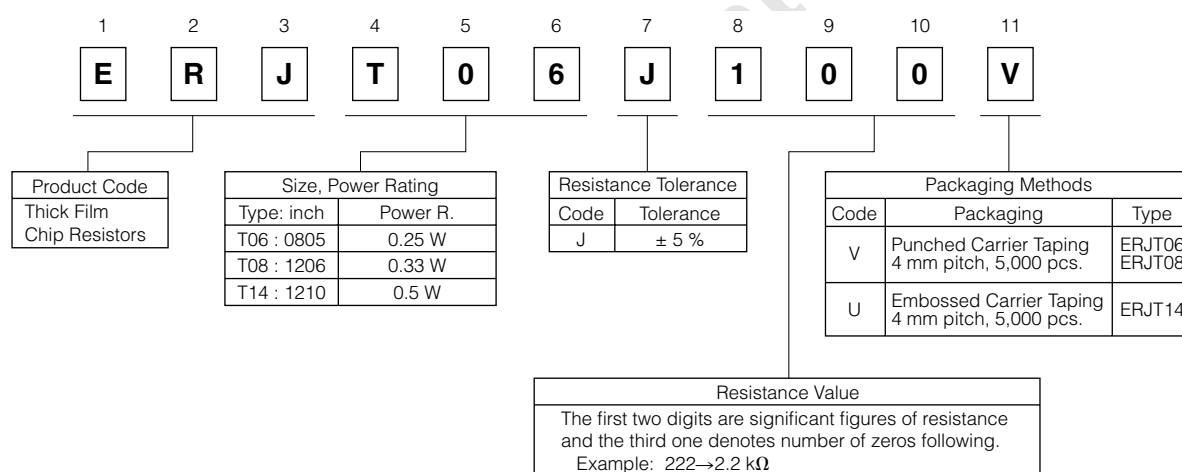
■ Features

- Anti-Pulse characteristics
High pulse characteristics achieved by the optimized trimming specifications
- High reliability
Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- High power··· 0.25 W : 2012(0805) size
0.33 W : 3216(1206) size
0.5 W : 3225(1210) size
- Reference Standards··· IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- RoHS compliant

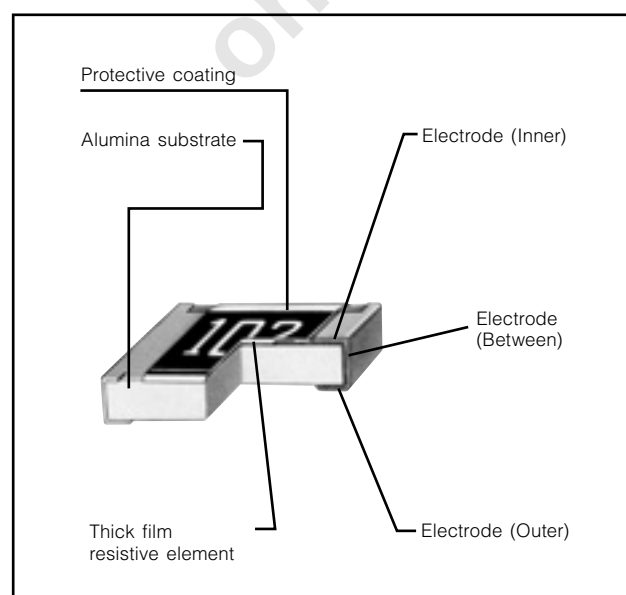
■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

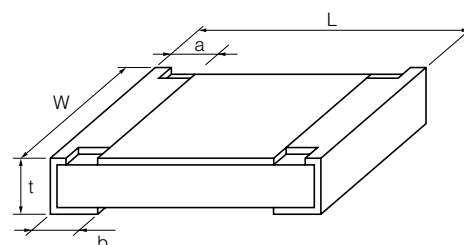
■ Explanation of Part Numbers



■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000pcs.]
	L	W	a	b	t	
ERJT06 (0805)	2.00 ^{+0.20} _{-0.20}	1.25 ^{+0.10} _{-0.10}	0.25 ^{+0.20} _{-0.20}	0.40 ^{+0.20} _{-0.20}	0.60 ^{+0.10} _{-0.10}	4
ERJT08 (1206)	3.20 ^{+0.05} _{-0.20}	1.60 ^{+0.05} _{-0.15}	0.40 ^{+0.20} _{-0.20}	0.50 ^{+0.20} _{-0.20}	0.60 ^{+0.10} _{-0.10}	10
ERJT14 (1210)	3.20 ^{+0.20} _{-0.20}	2.50 ^{+0.20} _{-0.20}	0.35 ^{+0.20} _{-0.20}	0.50 ^{+0.20} _{-0.20}	0.60 ^{+0.10} _{-0.10}	16

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.

■ Ratings

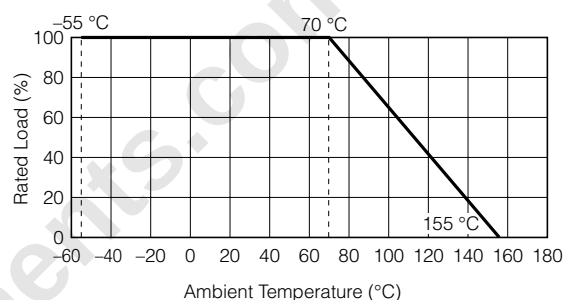
Type (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage ⁽¹⁾ (V)	Maximum Overload Voltage ⁽²⁾ (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)
ERJT06 (0805)	0.25	150	200	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 Less than 33 Ω : ±300 More than 33 Ω : ±200	-55 to +155
ERJT08 (1206)	0.33	200	400	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	-55 to +155
ERJT14 (1210)	0.5	200	400	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	-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.

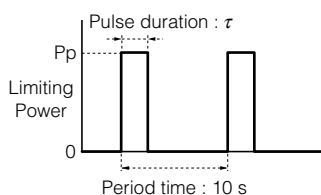
Power Derating Curve

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



■ Limiting Power Curve

- In rush pulse Characteristic

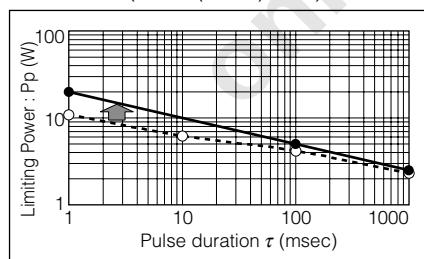


Test cycle : 1000 cycles

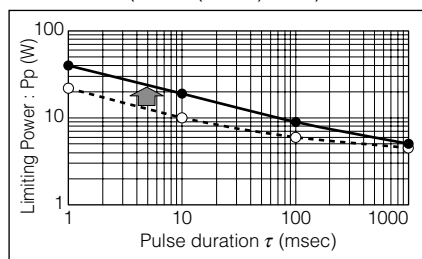
Spec : Resistance value = within ±5%

- : Anti-Pulse Thick Film Chip Resistors (ERJT Type)
- : Thick Film Chip Resistors (ERJ Type)

● ERJT06 (1212 (0805) size)



● ERJT08 (3216 (1206) size)



● ERJT14 (3225 (1210) size)

