Anti-Surge Thick Film Chip Resistors
0603, 0805, 1206, 1210

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

■ 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
  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

■Packaging Methods Please see Pages 40 to 43

■Recommended Land Pattern Please see Pages 44 to 45

■Recommended Soldering Conditions Please see Page 46

■Safety Precautions Please see Page 47

■ Explanation of Part Numbers

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

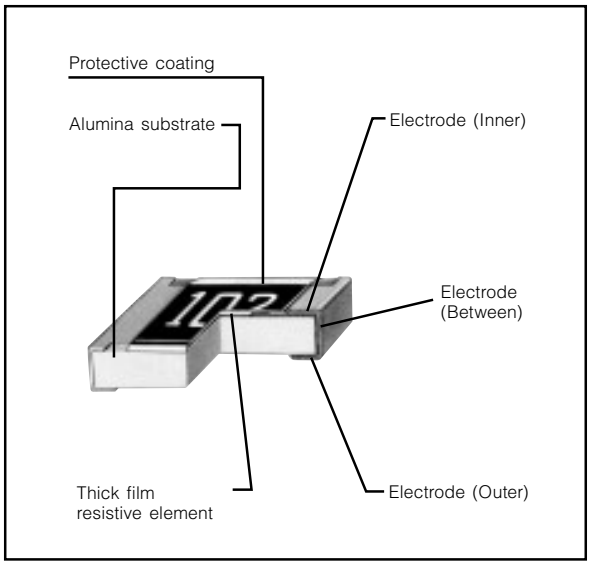
Size, Power Rating	
Type: inch	Power R.
P03 : 0603	0.2 W
P06 : 0805	0.25 W
P08 : 1206	0.33 W
P14 : 1210	0.5 W

Resistance Tolerance	
Code	Tolerance
D	± 0.5 %
F	± 1 %
J	± 5 %

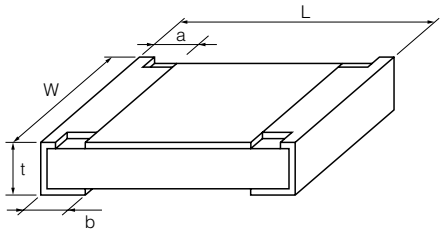
Packaging Methods		
Code	Packaging	Type
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJP03 ERJP06 ERJP08
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJP14

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

■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm) L	W	a	b	t	Mass (Weight) [g/1000 pcs.]
ERJP03 (0603)	$1.60^{\pm0.15}$	$0.80^{+0.15}_{-0.05}$	$0.15^{+0.15}_{-0.10}$	$0.30^{\pm0.15}$	$0.45^{\pm0.10}$	2
ERJP06 (0805)	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.25^{\pm0.20}$	$0.40^{\pm0.20}$	$0.60^{\pm0.10}$	4
ERJP08 (1206)	$3.20^{+0.05}_{-0.20}$	$1.60^{+0.05}_{-0.15}$	$0.40^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	10
ERJP14 (1210)	$3.20^{\pm0.20}$	$2.50^{\pm0.20}$	$0.35^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	16

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■ Ratings

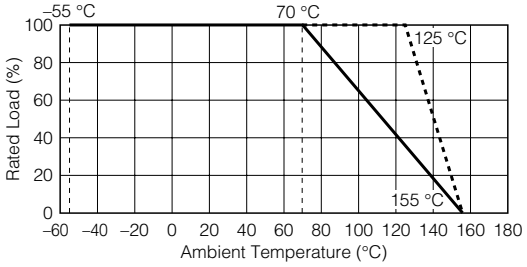
Type (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage(1) (V)	Maximum Overload Voltage(2) (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10⁻⁶/°C)	Category Temperature Range (°C)
ERJP03 (0603)	0.2	150	200	±0.5	10 to 1 M (E24, E96)	±150	−55 to +155
				±1	10 to 1 M (E24, E96)	±200	
				±5	1 to 1 M (E24)	±200 Less than 10 Ω : −150 to +400	
ERJP06 (0805)	0.25	150 (400)(3)	200 (600)(3)	±0.5, ±1	10 to 1 M (E24, E96)	Less than 33 Ω : ±300 More than 33 Ω : ±100	−55 to +155
				±5	1 to 3.3 M (E24)	Less than 33 Ω : ±300 More than 33 Ω : ±200	
ERJP08 (1206)	0.33	200 (500)(3)	400 (1000)(3)	±0.5, ±1	10 to 1 M (E24, E96)	±100	−55 to +155
				±5	1 to 10 M (E24)	Less than 10 Ω : −100 to +600 More than 10 Ω : ±200	
ERJP14 (1210)	0.5	200	400	±0.5, ±1	10 to 1 M (E24, E96)	±100	−55 to +155
				±5	1 to 1 M (E24)	Less than 10 Ω : −100 to +600 More than 10 Ω : ±200	

(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 × Power Rating or max. Overload Voltage listed above whichever less.
(3) Please contact us when resistors with guaranteed high voltage are need.

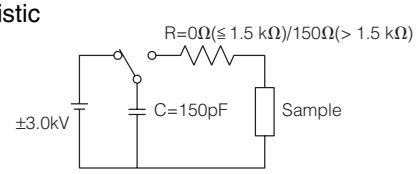
Power Derating Curve

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

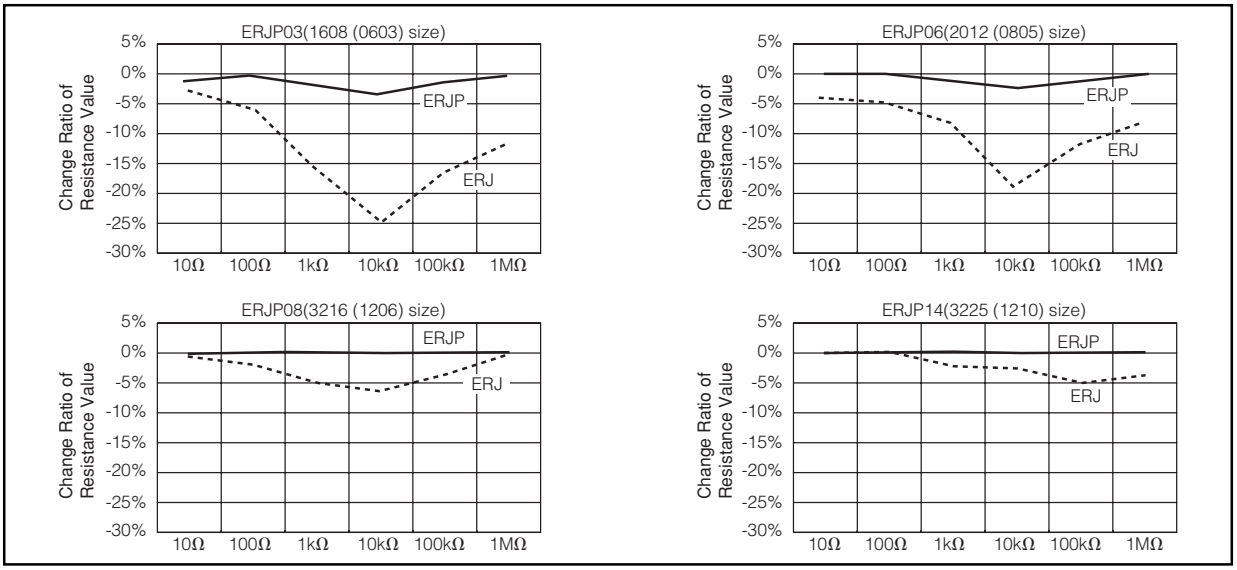
✻ When the temperature of ERJP06/08/14 is 155 °C or less, the derating start temperature can be changed to 125 °C. (See the dotted line)



■ 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

■Packaging Methods Please see Pages 40 to 43

■Recommended Land Pattern Please see Pages 44 to 45

■Recommended Soldering Conditions Please see Page 46

■Safety Precautions Please see Page 47

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11
E	R	J	T	0	6	J	1	0	0	V

Product Code
Thick Film Chip Resistors

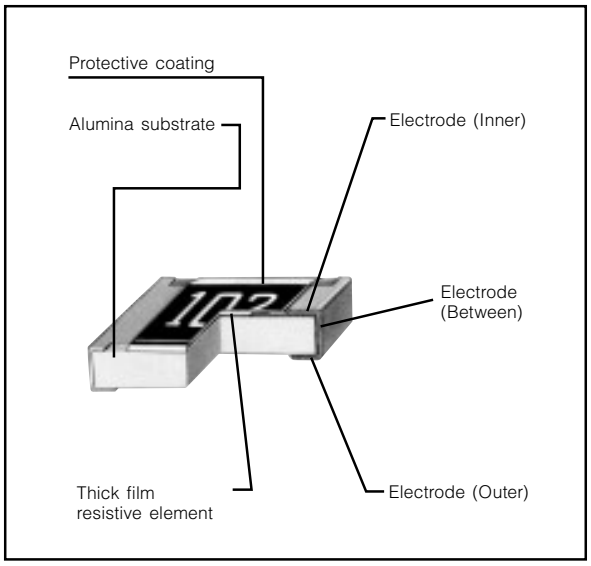
Size, Power Rating	
Type: inch	Power R.
T06 : 0805	0.25 W
T08 : 1206	0.33 W
T14 : 1210	0.5 W

Resistance Tolerance	
Code	Tolerance
J	± 5 %

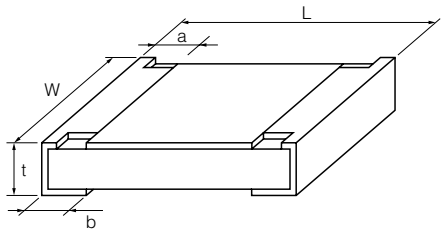
Packaging Methods		
Code	Packaging	Type
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJT06 ERJT08
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJT14

Resistance Value
The first two digits are significant figures of resistance and the third one denotes number of zeros following. Example: 222→2.2 kΩ

■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm) L	W	a	b	t	Mass (Weight) [g/1000pcs.]
ERJT06 (0805)	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.25^{\pm0.20}$	$0.40^{\pm0.20}$	$0.60^{\pm0.10}$	4
ERJT08 (1206)	$3.20^{+0.05}_{-0.20}$	$1.60^{+0.05}_{-0.15}$	$0.40^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	10
ERJT14 (1210)	$3.20^{\pm0.20}$	$2.50^{\pm0.20}$	$0.35^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	16

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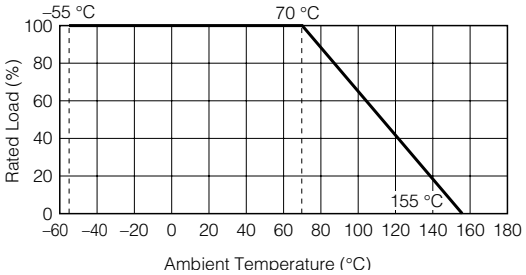
■ Ratings

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 × Power Rating or max. Overload Voltage listed above whichever less.

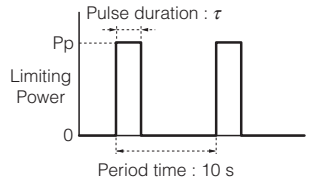
Power Derating Curve

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

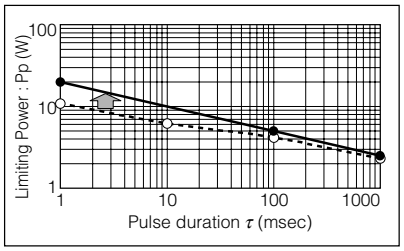
● In rush pulse Characteristic



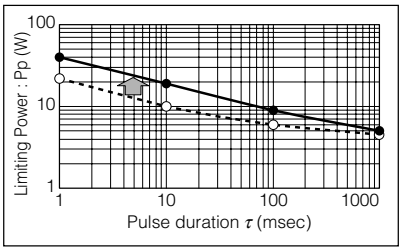
Test cycle : 1000 cycles
Spec : Resistance value = within ±5%

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

● **ERJT06** (2012 (0805) size)



● **ERJT08** (3216 (1206) size)



● **ERJT14** (3225 (1210) size)