

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

Type: **ERJ P03, PA3, P06, P08, P14**  
**ERJ P6W**



#### ■ Features

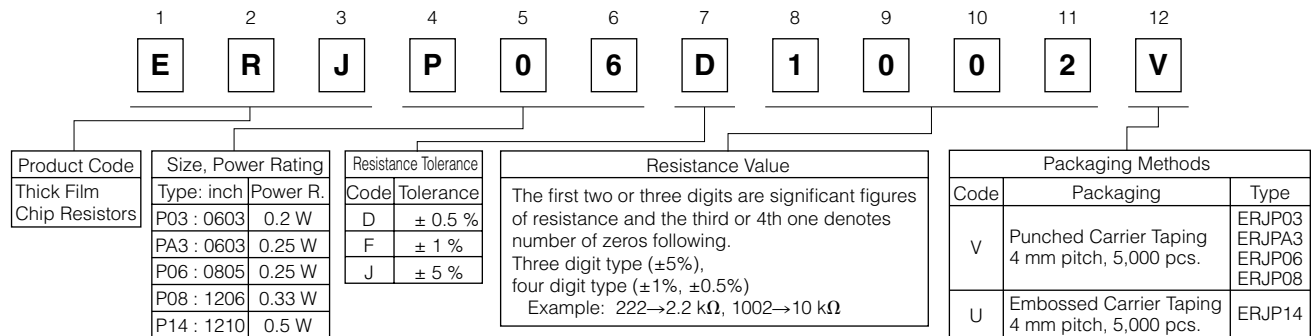
- ESD surge characteristics superior to standard metal film resistors
- High reliability  
Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- High power...
  - 0.2 W : 1608(0603) size(ERJP03)
  - 0.25 W : 1608(0603) size(ERJPA3), 2012(0805) 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

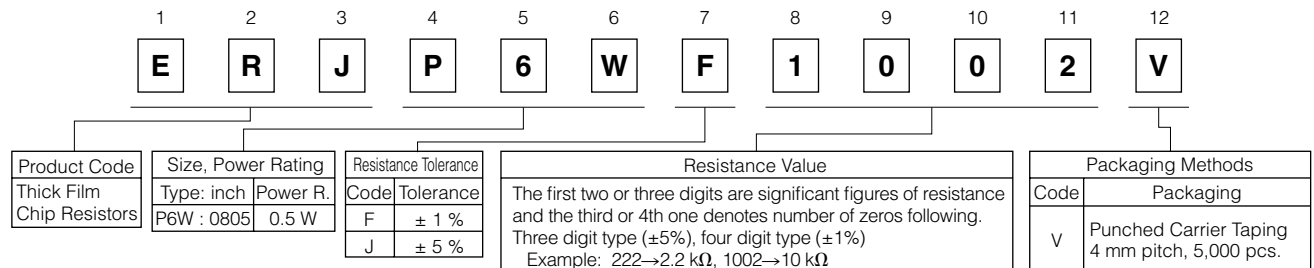
Please see Data Files

#### ■ Explanation of Part Numbers

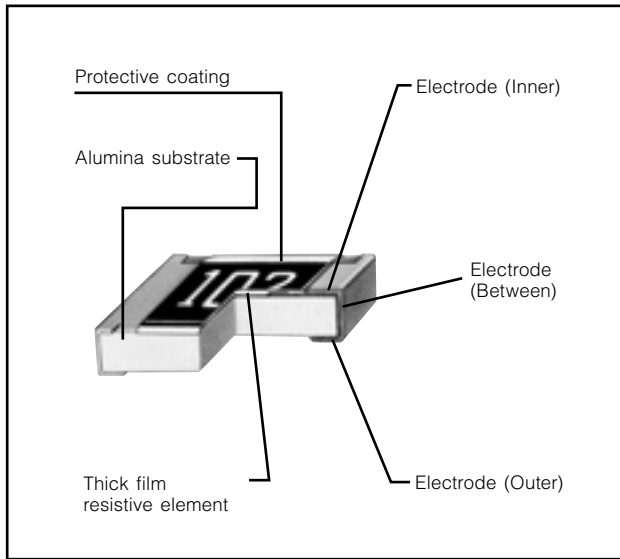
- ERJP03, PA3, P06, P08, P14



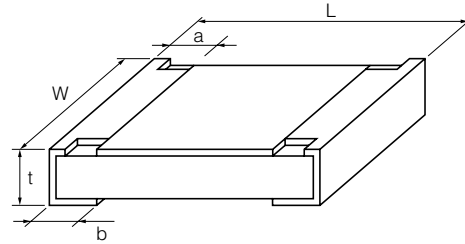
- ERJP6W(double-sided resistive elements structure)



### 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 <sup>+0.15</sup>	0.80 <sup>+0.15/-0.05</sup>	0.15 <sup>+0.15/-0.10</sup>	0.30 <sup>+0.15</sup>	0.45 <sup>+0.10</sup>	2
ERJPA3 (0603)	1.60 <sup>+0.15</sup>	0.80 <sup>+0.15/-0.05</sup>	0.15 <sup>+0.15/-0.10</sup>	0.25 <sup>+0.10</sup>	0.45 <sup>+0.10</sup>	2
ERJP06 (0805)	2.00 <sup>+0.20</sup>	1.25 <sup>+0.10</sup>	0.25 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	4
ERJP6W (0805)	2.00 <sup>+0.20</sup>	1.25 <sup>+0.20</sup>	0.35 <sup>+0.20</sup>	0.35 <sup>+0.20</sup>	0.65 <sup>+0.10</sup>	6
ERJP08 (1206)	3.20 <sup>+0.05/-0.20</sup>	1.60 <sup>+0.05/-0.15</sup>	0.40 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	10
ERJP14 (1210)	3.20 <sup>+0.20</sup>	2.50 <sup>+0.20</sup>	0.35 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	16

### Ratings

Type (inch size)	Power Rating 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)
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)		
				±5	1 to 1 M (E24)		
ERJPA3 (0603)	0.25	150	200	±0.5, ±1	10 to 1 M (E24, E96)	±100	-55 to +155
				±5	1 to 1.5 M (E24)		
ERJP06 (0805)	0.25	400	600	±0.5, ±1	10 to 1 M (E24, E96)	R < 33 Ω : ±300 33 Ω ≤ R : ±100	-55 to +155
				±5	1 to 3.3 M (E24)	R < 10 Ω : -100 to +600 10 Ω ≤ R < 33 Ω : ±300 33 Ω ≤ R : ±200	
ERJP6W (0805)	0.5	150	200	±1	10 to 1 M (E24, E96)	±200	-55 to +155
				±5	1 to 1 M (E24)		
ERJP08 (1206)	0.33	500	1000	±0.5, ±1	10 to 1 M (E24, E96)	±100	-55 to +155
				±5	1 to 10 M (E24)		
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)		

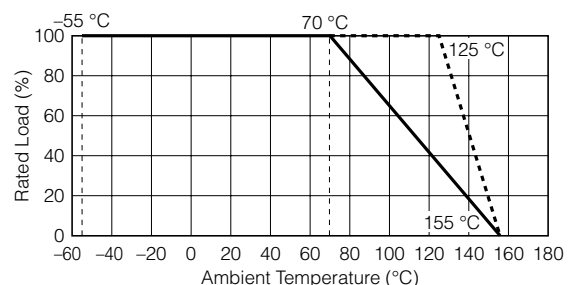
(1) Rated Continuous Working Voltage (RCWV) shall be determined from  $RCWV = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$ , or Limiting Element Voltage listed above, whichever less.

(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.

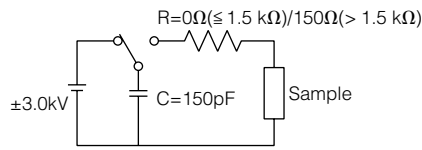
### Power Derating Curve

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

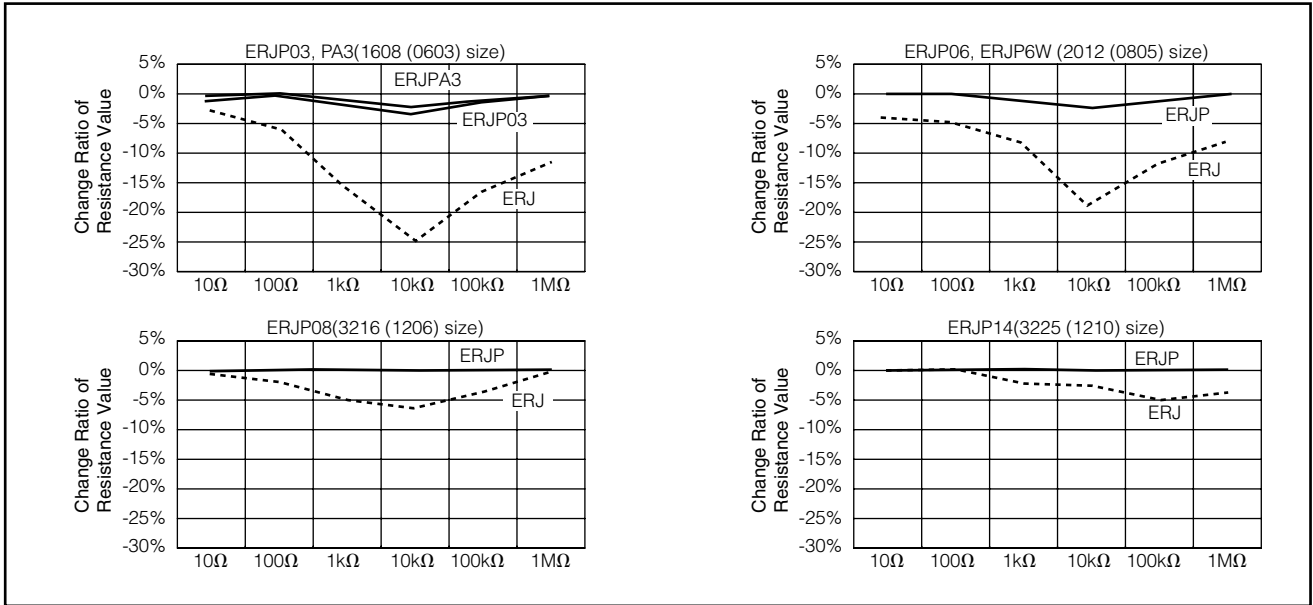
\* When the temperature of ERJP06/08/14 is 155 °C or less, the derating start temperature can be changed to 125 °C. (See the dotted line)



### 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**



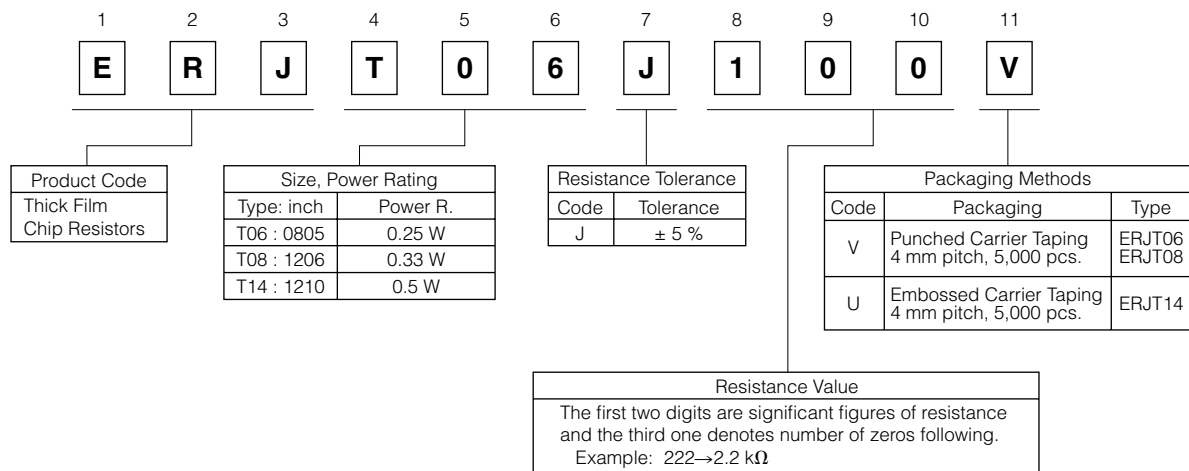
#### ■ Features

- 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

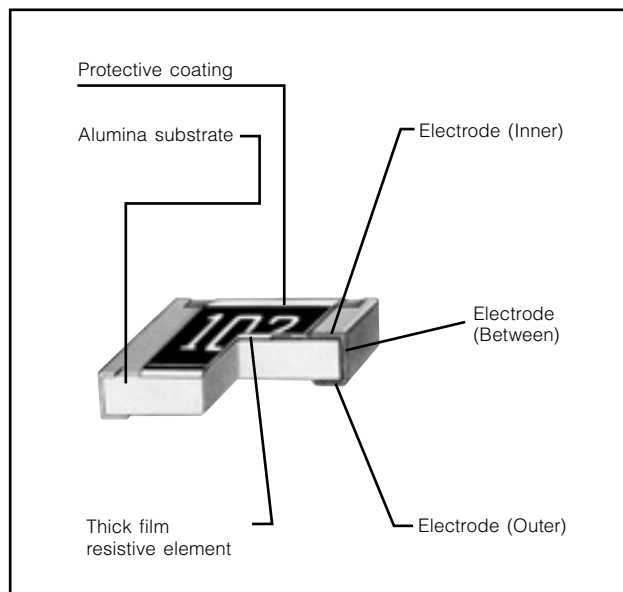
#### ■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

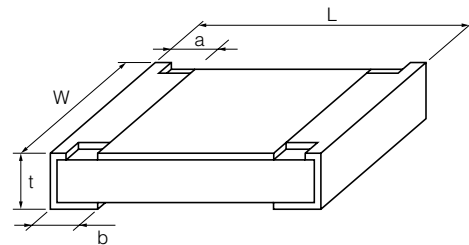
#### ■ Explanation of Part Numbers



#### ■ 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 <sup>+0.20</sup>	1.25 <sup>+0.10</sup>	0.25 <sup>+0.20</sup>	0.40 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	4
ERJT08 (1206)	3.20 <sup>+0.05</sup> <sub>-0.20</sub>	1.60 <sup>+0.05</sup> <sub>-0.15</sub>	0.40 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	10
ERJT14 (1210)	3.20 <sup>+0.20</sup>	2.50 <sup>+0.20</sup>	0.35 <sup>+0.20</sup>	0.50 <sup>+0.20</sup>	0.60 <sup>+0.10</sup>	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

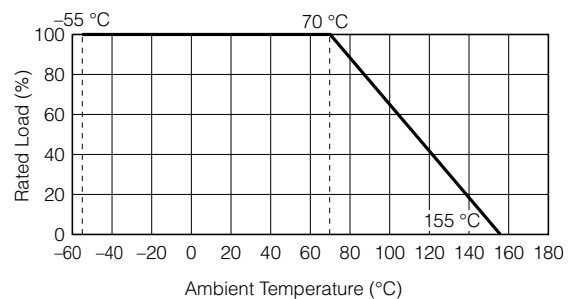
Type (inch size)	Power Rating at 70 °C (W)	Limiting Element Voltage <sup>(1)</sup> (V)	Maximum Overload Voltage <sup>(2)</sup> (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10 <sup>-6</sup> /°C)	Category Temperature Range (°C)
ERJT06 (0805)	0.25	150	200	±5	1 to 1 M (E24)	Less than 10 Ω : -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.

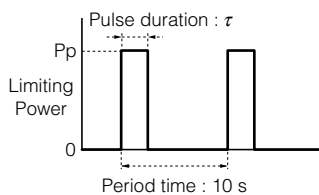
### Power Derating Curve

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

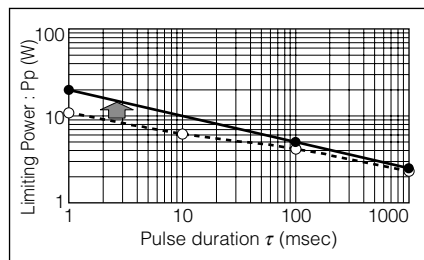
● In rush pulse Characteristic



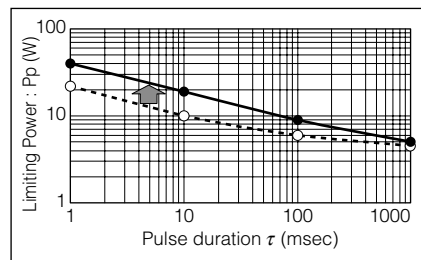
Test cycle : 1000 cycles  
Spec : Resistance value = within ±5%

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

### ● ERJT06 (2012 (0805) size)



### ● ERJT08 (3216 (1206) size)



### ● ERJT14 (3225 (1210) size)

