Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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Anti-Surge Thick Film Chip Resistors

Type: ERJ PA2, P03, PA3, 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 ···0.20 W : 0402 inch / 1005 mm size (ERJPA2), 0603 inch / 1608 mm size (ERJP03)
  0.25 W : 0603 inch / 1608 mm size (ERJPA3)
  0.50 W : 0805 inch / 2012 mm size (ERJP06), 1210 inch / 3225 mm size (ERJP14)
  0.66 W : 1206 inch / 3216 mm size (ERJP08)
- Reference Standards··· IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- AEC-Q200 qualified
- RoHS compliant

■ As for Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions, Please see Data Files

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		
Code	Inch	Power R.
PA2	0402	0.20 W
P03	0603	0.20 W
PA3	0603	0.25 W
P06	0805	0.50 W
P08	1206	0.66 W
P14	1210	0.50 W

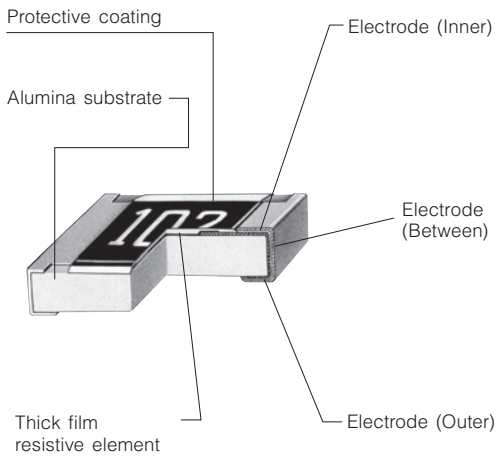
Resistance Tolerance	
Code	Tolerance
D	± 0.5 %
F	± 1 %
J	± 5 %

Resistance Value

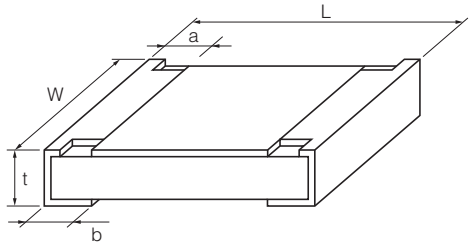
The first two or three digits are significant figures of resistance and the third or 4th one denotes number of zeros following.
Three digit type (±5 %),
four digit type (±1 %, ±0.5 %)
Example: 222→2.2k Ω, 1002→10k Ω

Packaging Methods		
Code	Packaging	Part No.
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERJPA2
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJP03 ERJPA3 ERJP06 ERJP08
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJP14

Construction



Dimensions in mm (not to scale)



Part No.	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
ERJPA2	$1.00^{\pm0.05}$	$0.50^{\pm0.05}$	$0.20^{\pm0.15}$	$0.25^{\pm0.05}$	$0.35^{\pm0.05}$	0.8
ERJP03	$1.60^{\pm0.15}$	$0.80^{+0.15}_{-0.05}$	$0.15^{+0.15}_{-0.10}$	$0.30^{\pm0.15}$	$0.45^{\pm0.10}$	2
ERJPA3	$1.60^{\pm0.15}$	$0.80^{+0.15}_{-0.05}$	$0.15^{+0.15}_{-0.10}$	$0.25^{\pm0.10}$	$0.45^{\pm0.10}$	2
ERJP06	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.25^{\pm0.20}$	$0.40^{\pm0.20}$	$0.60^{\pm0.10}$	4
ERJP08	$3.20^{+0.05}_{-0.20}$	$1.60^{+0.05}_{-0.15}$	$0.40^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	10
ERJP14	$3.20^{\pm0.20}$	$2.50^{\pm0.20}$	$0.35^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	16

Ratings

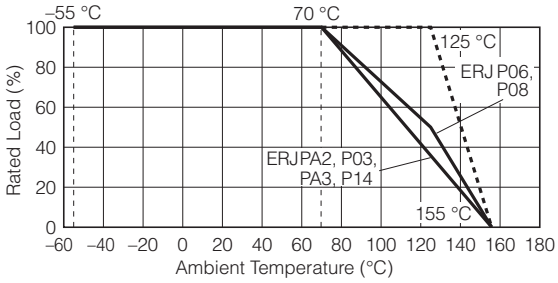
Part No. (inch size)	Power Rating(3) at 70 °C (W)	Limiting Element Voltage(1) (V)	Maximum Overload Voltage(2) (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10^{-6}/°C)	Category Temperature Range (°C)	AEC-Q200 Grade
ERJPA2 (0402)	0.20	50	100	±0.5, ±1	10 to 1M (E24, E96)	±100	–55 to +155	Grade 0
				±5	10 to 1M (E24)	±200		
ERJP03 (0603)	0.20	150	200	±0.5	10 to 1M (E24, E96)	±150	–55 to +155	Grade 0
				±1	10 to 1M (E24, E96)	±200		
				±5	1 to 1M (E24)	R < 10 Ω : −150 to +400 10 Ω ≤ R : ±200		
ERJPA3 (0603)	0.25	150	200	±0.5, ±1	10 to 1M (E24, E96)	±100	–55 to +155	Grade 0
				±5	1 to 1.5M (E24)	±200		
ERJP06 (0805)	0.50	400	600	±0.5, ±1	10 to 1M (E24, E96)	R < 33 Ω : ±300 33 Ω ≤ R : ±100	–55 to +155	Grade 0
				±5	1 to 3.3M (E24)	R < 10 Ω : −100 to +600 10 Ω ≤ R < 33 Ω : ±300 33 Ω ≤ R : ±200		
ERJP08 (1206)	0.66	500	1000	±0.5, ±1	10 to 1M (E24, E96)	±100	–55 to +155	Grade 0
				±5	1 to 10M (E24)	R < 10 Ω : −100 to +600 10 Ω ≤ R : ±200		
ERJP14 (1210)	0.50	200	400	±0.5, ±1	10 to 1M (E24, E96)	±100	–55 to +155	Grade 0
				±5	1 to 1M (E24)	R < 10 Ω : −100 to +600 10 Ω ≤ R : ±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 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.

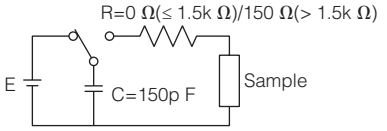
Power Derating Curve

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 ERJP14 is 155 °C or less, the derating start temperature can be changed to 125 °C. (See the dotted line)

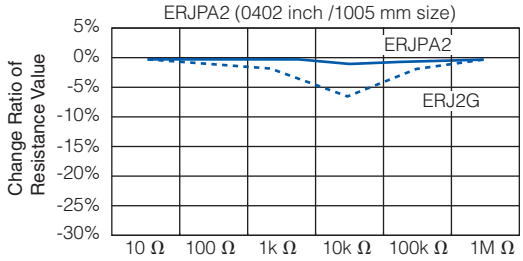


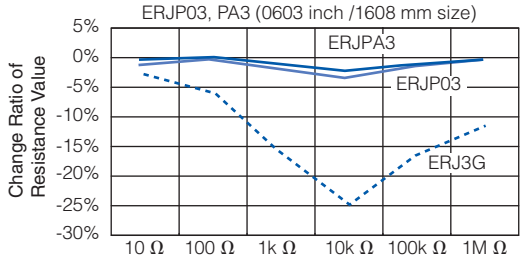
ESD Characteristic

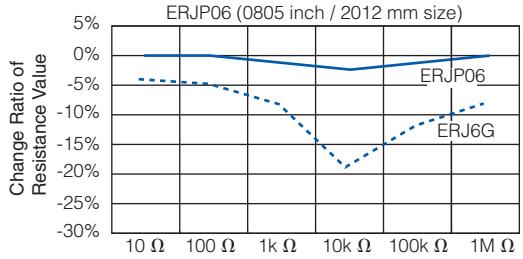


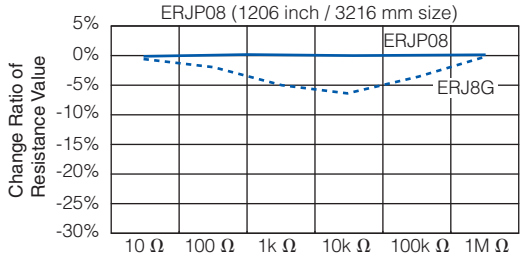
0402 inch size : E=±1k V
0603, 0805, 1206, 1210 inch size : E=±3k V

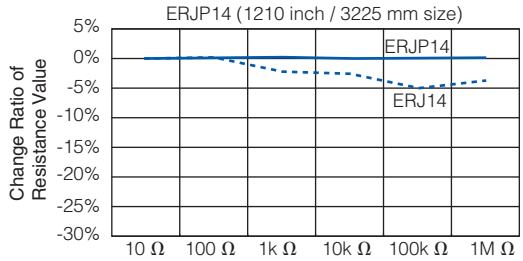
Anti-Surge Thick Film Chip Resistors(ERJP Type)
Thick Film Chip Resistors(ERJ Type)











Performance

Test Item	Performance Requirements	Test Conditions
Resistance	Within Specified Tolerance	20 °C
T. C. R.	Within Specified T. C. R.	+25 °C/+155 °C (ERJPA2 : +125 °C)
Overload	±2% Only when it is ERJP03 (D), P14 (D) : ±0.5%	ERJP06 : Rated Voltag×1.77, 5 s ERJPA2, ERJPA3, ERJP08 : Rated Voltag×2.0, 5 s ERJP03, ERJP14 : Rated Voltag×2.5, 5 s
Resistance to Soldering Heat	D : ±0.5%, F, J : ±1%	270 °C, 10 s
Rapid Change of Temperature	±1%	–55 °C (30 min.) / +155 °C (30 min.) , 100 cycles
High Temperature Exposure	±1%	+155 °C, 1000 h
Damp Heat, Steady State	±1%	60 °C, 90% to 95%RH, 1000 h
Load Life in Humidity	±3% Only when it is ERJP03 (D), P14 (D) : ±1%	60 °C, 90% to 95%RH, Rated Voltage, 1.5 h ON / 0.5 h OFF cycle, 1000 h
Endurance at 70 °C	±3% Only when it is ERJP03 (D), P14 (D) : ±1%	70 °C, Rated Voltage, 1.5 h ON / 0.5 h OFF cycle, 1000 h