

Anti-Sulfurated Thick Film Chip Resistors / Anti-Surge Type



Type: **ERJ UP3, UP6, UP8**

Features

- High resistance to sulfurization achieved by adopting Anti-Sulfurated electrode structure and material
- 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 ... 0.25 W : 0603 inch / 1608 mm size (ERJUP3)
0.50 W : 0805 inch / 2012 mm size (ERJUP6)
0.66 W : 1206 inch / 3216 mm size (ERJUP8)
- 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

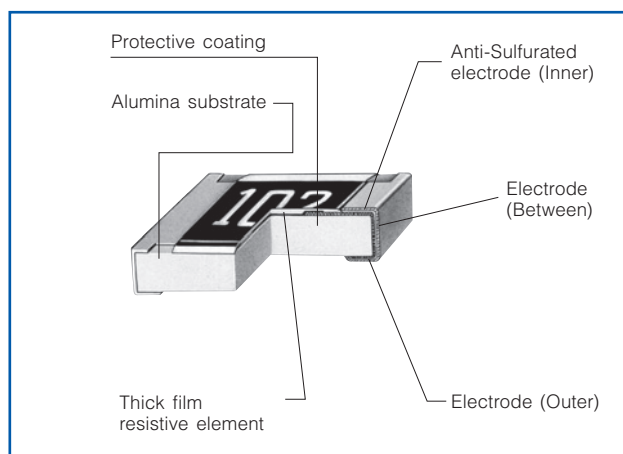
Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11	12
E	R	J	U	P	6	D	1	0	0	2	V

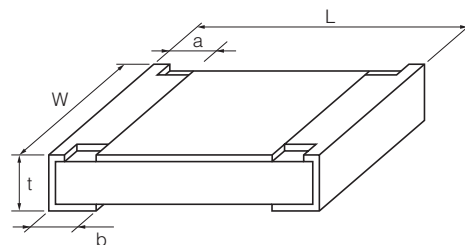
Product Code	Size, Power Rating		Resistance Tolerance		Resistance Value			Packaging Methods			
Thick Film Chip Resistors	Code	Inch	Power R.	Code	Tolerance	The first two or three digits are significant figures of resistance and the third or 4th one denotes number of zeros following. Three digit type ($\pm 5\%$), four digit type ($\pm 1\%$, $\pm 0.5\%$) Example: 222 \rightarrow 2.2k Ω , 1002 \rightarrow 10k Ω			Code	Packaging	Part No.
	▲UP3	0603	0.25 W	D	$\pm 0.5\%$				V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	▲ERJUP3 ERJUP6 ERJUP8
	UP6	0805	0.50 W	F	$\pm 1\%$						
	UP8	1206	0.66 W	J	$\pm 5\%$						

▲Under development

Construction



Dimensions in mm (not to scale)



Part No.	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
▲ERJUP3	1.60 $^{+0.15}$	0.80 $^{+0.15}$ $^{-0.05}$	0.15 $^{+0.15}$ $^{-0.10}$	0.25 $^{+0.10}$	0.45 $^{+0.10}$	2
ERJUP6	2.00 $^{+0.20}$	1.25 $^{+0.10}$	0.25 $^{+0.20}$	0.40 $^{+0.20}$	0.60 $^{+0.10}$	4
ERJUP8	3.20 $^{+0.05}$ $^{-0.20}$	1.60 $^{+0.05}$ $^{-0.15}$	0.40 $^{+0.20}$	0.50 $^{+0.20}$	0.60 $^{+0.10}$	10

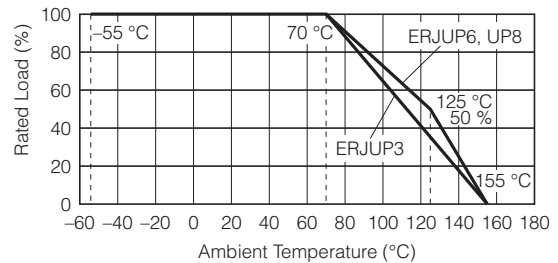
Ratings

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. ($\times 10^{-6}/^{\circ}\text{C}$)	Category Temperature Range (°C)	AEC-Q200 Grade
▲ERJUP3 (0603)	0.25	150	200	$\pm 0.5, \pm 1$	10 to 1M (E24, E96)	± 100	-55 to +155	Grade 0
				± 5	1 to 1.5M (E24)	± 200		
ERJUP6 (0805)	0.50	400	600	$\pm 0.5, \pm 1$	10 to 1M (E24, E96)	± 100	-55 to +155	Grade 0
				± 5	1 to 3.3M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R : \pm 200$		
ERJUP8 (1206)	0.66	500	1000	$\pm 0.5, \pm 1$	10 to 1M (E24, E96)	± 100	-55 to +155	Grade 0
				± 5	1 to 10M (E24)	$R < 10 \Omega : -100 \text{ to } +600$ $10 \Omega \leq R : \pm 200$		

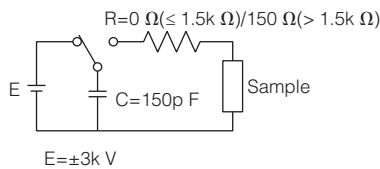
- (1) Rated Continuous Working Voltage (RCWV) shall be determined from $\text{RCWV} = \sqrt{\text{Power Rating} \times \text{Resistance Value}}$, or Limiting Element Voltage listed above, whichever less.
 (2) Overload Test Voltage (OTV) shall be determined from $\text{OTV} = \text{Specified Magnification (refer to performance)} \times \text{RCWV}$ 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

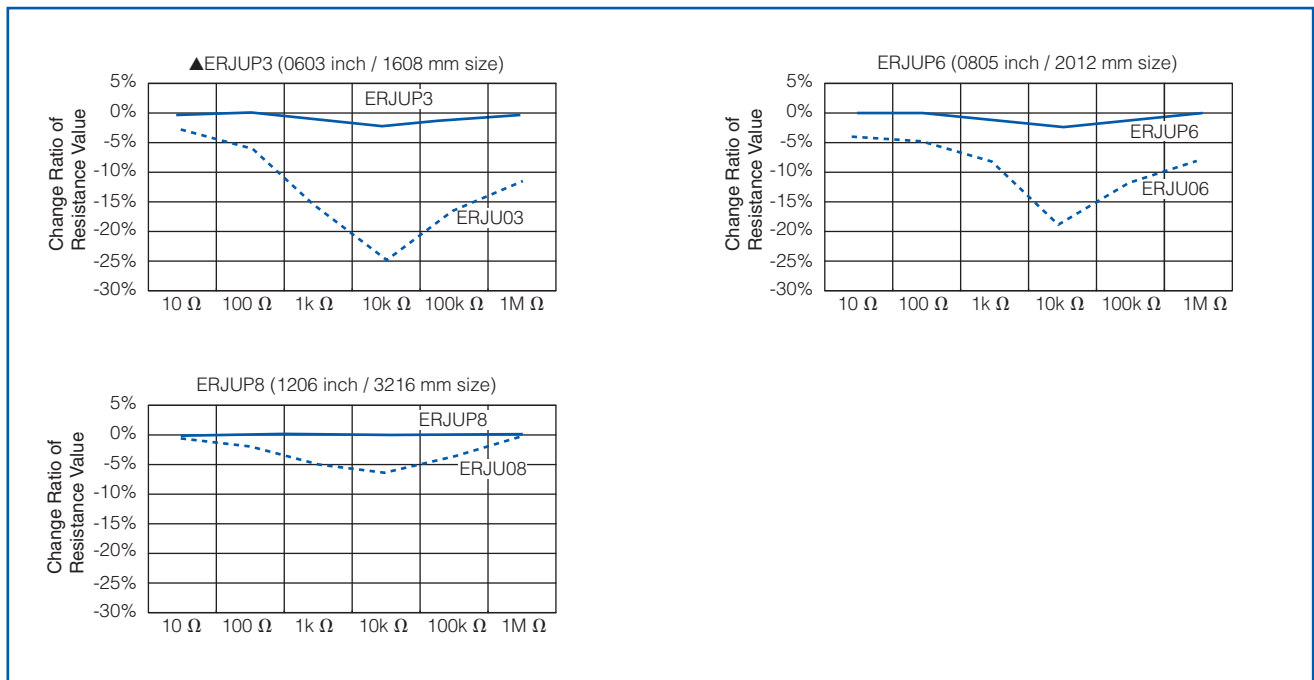
For resistors operated in ambient temperatures above 70 °C, power rating shall be derated in accordance with the figure on the right.



ESD Characteristic



- Anti-Sulfurated Thick Film Chip Resistors / Anti-Surge Type (ERJUP Type)
- - - Anti-Sulfurated Thick Film Chip Resistors (ERJU 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
Overload	±2%	ERJUP6 : Rated Voltage × 1.77, 5 s ▲ERJUP3, ERJUP8 : Rated Voltage × 2.0, 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%	60 °C, 90% to 95%RH, Rated Voltage, 1.5 h ON / 0.5 h OFF cycle, 1000 h
Endurance at 70 °C	±3%	70 °C, Rated Voltage, 1.5 h ON / 0.5 h OFF cycle, 1000 h