Anti-Sulfurated Thick Film Chip Resistors

ERJ S : 0402, 0603, 0805, 1206, 1210, 1812, 2010, 2512

ERJ U : 0201, 0402, 0603, 0805, 1206, 1210, 1812, 2010, 2512

Type: **ERJ S02, S03, S06, S08, S14 S12, S1D, S1T (Au-based inner electrode type)**

Type: **ERJ U01, U02, U03, U06, U08, U14, U12, U1D, U1T (Ag-Pd-based inner electrode type)**

■ Features

- High resistance to sulfurization achieved by adopting an Au-based inner electrode (ERJS type) and Ag-Pd-based inner electrode (ERJU type)
- High reliability
  Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- Reference Standard···IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B ● RoHS compliant

■Packaging Methods Please see Pages 40 to 43
■Recommended Soldering Conditions Please see Page 46
■Recommended Land Pattern Please see Pages 44 to 45
■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	S	0	6	F	1	0	0	2	V

Product Code
Thick FilmChip Resistors

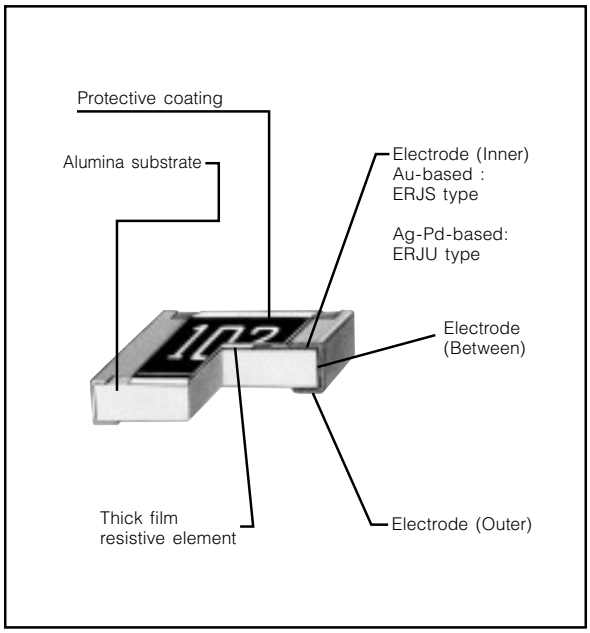
Size, Power Rating			
Type: inch	Power R.	Type: inch	Power R.
U01 : 0201	0.05 W	S14, U14: 1210	0.5 W
S02, U02 : 0402	0.1 W	S12, U12 : 1812	0.75 W
S03, U03 : 0603	0.1 W	S1D, U1D : 2010	0.75 W
S06, U06 : 0805	0.125 W	S1T, U1T : 2512	1 W
S08, U08 : 1206	0.025 W		

Resistance Tolerance	
Code	Tolerance
F	± 1 %
J	± 5 %
0	Jumper

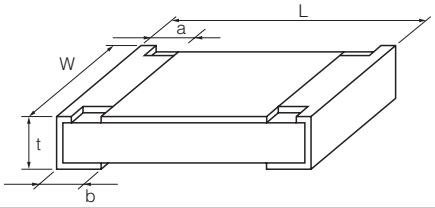
Resistance Value
The first two or three digits are significant figures of resistance and the third or 4th one denotes number of zeros following. Jumper is expressed by R00. Three digit type (±5%), four digit type (±1%) Example: 222→2.2 kΩ, 1002→10 kΩ

Packaging Methods		
Code	Packaging	Type
C	Pressed Carrier Taping 2 mm pitch, 15,000 pcs.	ERJU01
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERJS02, ERJU02
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJS03, ERJU03 ERJS06, ERJU06 ERJS08, ERJU08
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJS14, ERJU14 ERJS12, ERJU12 ERJS1D, ERJU1D
	Embossed Carrier Taping 4 mm pitch, 4,000 pcs.	ERJS1T, ERJU1T

■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000 pcs.]
	L	W	a	b	t	
ERJU01 (0201)	$0.60^{\pm0.03}$	$0.30^{\pm0.03}$	$0.10^{\pm0.05}$	$0.15^{\pm0.05}$	$0.23^{\pm0.03}$	0.15
ERJS02 ERJU02 (0402)	$1.00^{\pm0.05}$	$0.50^{\pm0.05}$	$0.20^{\pm0.10}$	$0.25^{\pm0.10}$	$0.35^{\pm0.05}$	0.8
ERJS03 ERJU03 (0603)	$1.60^{\pm0.15}$	$0.80^{+0.15}_{-0.05}$	$0.30^{\pm0.20}$	$0.30^{\pm0.15}$	$0.45^{\pm0.10}$	2
ERJS06 ERJU06 (0805)	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.40^{\pm0.20}$	$0.40^{\pm0.20}$	$0.60^{\pm0.10}$	4
ERJS08 ERJU08 (1206)	$3.20^{+0.05}_{-0.20}$	$1.60^{+0.05}_{-0.15}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	10
ERJS14 ERJU14 (1210)	$3.20^{\pm0.20}$	$2.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	16
ERJS12 ERJU12 (1812)	$4.50^{\pm0.20}$	$3.20^{\pm0.20}$	$0.50^{\pm0.20}$	$0.50^{\pm0.20}$	$0.60^{\pm0.10}$	27
ERJS1D ERJU1D (2010)	$5.00^{\pm0.20}$	$2.50^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.10}$	27
ERJS1T ERJU1T (2512)	$6.40^{\pm0.20}$	$3.20^{\pm0.20}$	$0.65^{\pm0.20}$	$0.60^{\pm0.20}$	$0.60^{\pm0.10}$	45

■ Ratings

<For Resistor>

Type (inch size)	PowerRating 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)
ERJU01 (0201)	0.05	25	50	±1	10 to 1 M (E24, E96)	<10 Ω: −100 to +600 10 Ω to 1 MΩ: ±200(±5%) ±100(±1%)* *ERJU01, ERJS02, ERJU02 : ±200 1 MΩ<: −400 to +150	-55 to +125
				±5	1 to 1 M (E24)		
ERJS02 ERJU02 (0402)	0.1	50	100	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 3.3 M (E24)		
ERJS03 ERJU03 (0603)	0.1	75	150	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS06 ERJU06 (0805)	0.125	150	200	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS08 ERJU08 (1206)	0.25	200	400	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS14 ERJU14 (1210)	0.5	200	400	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS12 ERJU12 (1812)	0.75	200	500	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS1D ERJU1D (2010)	0.75	200	500	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 M (E24)		
ERJS1T ERJU1T (2512)	1.0	200	500	±1	10 to 1 M (E24, E96)		-55 to +155
				±5	1 to 10 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 × Power Rating or max. Overload Voltage listed above whichever less.

<For Jumper>

Type (inch size)	Rated Current (A)	Maximum Overload Current (A)
ERJU01 (0201)	0.5	1
ERJS02 ERJU02 (0402)	1	2
ERJS03 ERJU03 (0603)		
ERJS06 ERJU06 (0805)	2	4
ERJS08 ERJU08 (1206)		
ERJS14 ERJU14 (1210)		
ERJS12 ERJU12 (1812)		
ERJS1D ERJU1D (2012)		
ERJS1T ERJU1T (2512)		

Power Derating Curve

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