Anti-Sulfurated Thick Film Chip Resistors

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

ERJ S6 : 0805

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 S6S, S6Q (Ag-Pd-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 (ERJS0/S1 type) and Ag-Pd-based inner electrode (ERJS6, ERJU type)
- High reliability
  Metal glaze thick film resistive element and three layers of electrodes
- Suitable for both reflow and flow soldering
- Low Resistance type···ERJS6S, S6Q : 0.1 Ω to 1.0 Ω
- Reference Standard···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

- ERJS0, S1, U0, U1 Series

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 Film Chip 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	0.25 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

- ERJS6S, S6Q Series

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

Product Code
Thick Film Chip Resistors

Size, Power Rating	
Type: inch	Power R.
S6: 0805	0.25 W

Resistance Value	
Code	Res. Value
S	0.1 Ω to 0.2 Ω
Q	0.22 Ω to 1 Ω

Resistance Tolerance	
Code	Tolerance
F	±1 %
G	±2 %
J	±5 %

Resistance Value
Shown by 3 digits or letters. (Example) R20 : 0.20 Ω=200 mΩ 1R0 : 1.00 Ω=1000 mΩ

Packaging Methods		
Code	Packaging	Type
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJS6

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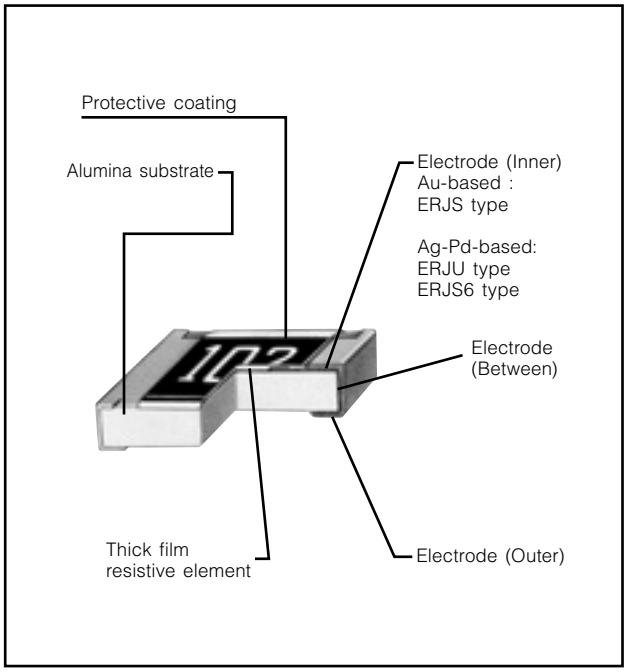
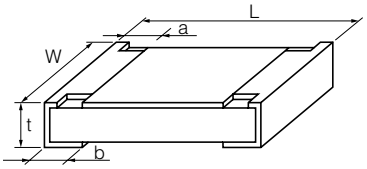
■ Construction



■ 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
ERJS6□ (0805)	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.45^{\pm0.20}$	$0.45^{\pm0.20}$	$0.55^{\pm0.10}$	6
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

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.

<Low Resistance type>

Type (inch size)	PowerRating at 70 °C (W)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. (×10^{-6}/°C)	Category Temperature Range (°C)
ERJS6S (0805)	0.25	±1, ±2, ±5	0.1 to 0.2 (E24)	±150	-55 to +155
ERJS6Q (0805)			0.22 to 1 (E24)		

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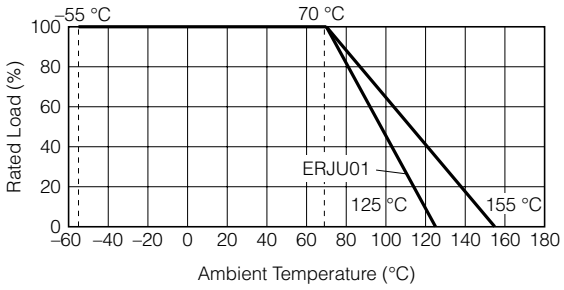
<For Jumper>

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 ERJS6S/Q (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.



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Panasonic:

ERJ1TYJ330U ERJ-UP3J750V EEEFK1A102AP ERA6AEB124V ERJB1CFR01U 16SVPC100M AXT340124 ERJ-B1AF511U ERJ-XGNJ3R0Y ERJPB3B1001V ERJ1TYJ1R0U ERJ2RKF12R0X ERJ8ENF2701V ERJB1CFR018U ERJD1CFR030U ERJD1CJR022U ETQP3M1R5KVN ERJ-6ENF7501V ERJ-8ENF39R0V ERJ-P08F2000V ERJ-P6WF1500V ERJB1AF100U ERJU0XJ105Y AXK5F16547YG ECQE2273KB EEUEB1E221SB ERA-3AEB912V EEE-FK1E221GP ERJ-3GEYJ3R0V ERJ-P08J1R0V