

Anti-Sulfurated Thick Film Chip Resistors



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, U6S, U6Q**
(Ag-Pd-based inner electrode type)

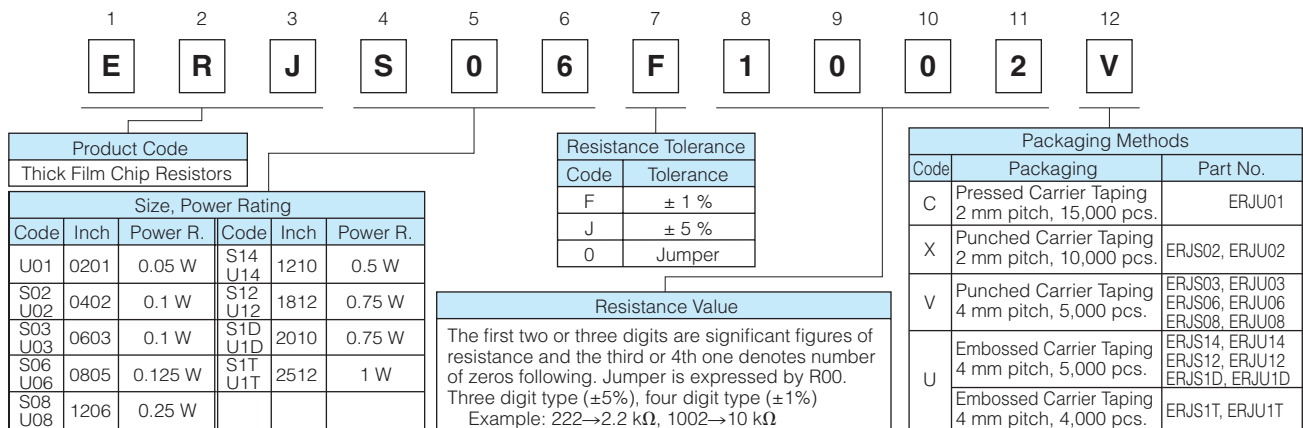
Features

- 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
- Low Resistance type...ERJU6S, U6Q : 0.1 Ω to 1.0 Ω
- Reference Standard...IEC 60115-8, JIS C 5201-8, EIAJ RC-2134B
- AEC-Q200 qualified (Exemption ERJU01)
- RoHS compliant

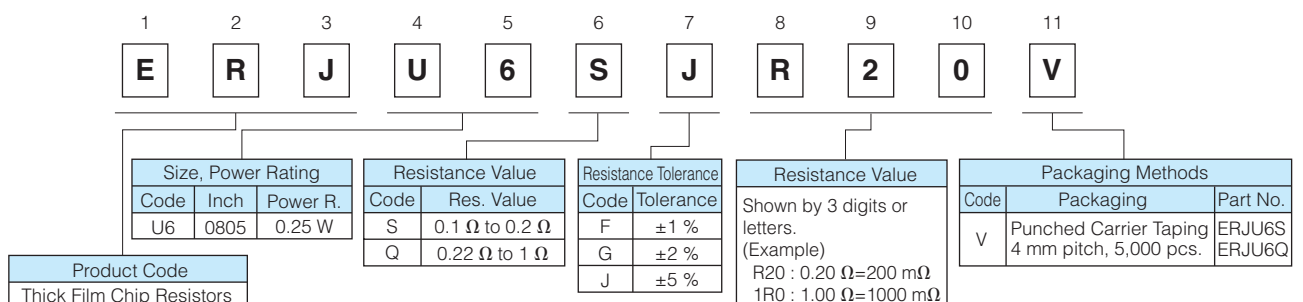
■ **As for Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions,**
Please see Data Files

Explanation of Part Numbers

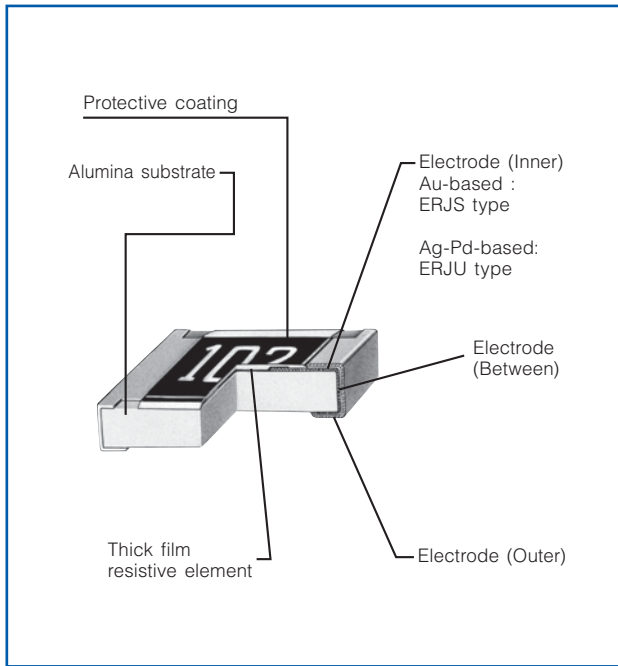
- ERJS0, S1, U0, U1 Type



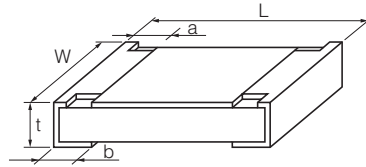
- ERJU6S, U6Q Type



Construction



Dimensions in mm (not to scale)



| Part No. (inch size) | Dimensions (mm) | | | | | Mass (Weight) [g/1000 pcs.] |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------------------------|
| | L | W | a | b | t | |
| ERJU01 (0201) | 0.60 ^{+0.03} | 0.30 ^{+0.03} | 0.10 ^{+0.05} | 0.15 ^{+0.05} | 0.23 ^{+0.03} | 0.15 |
| ERJS02 ERJU02 | 1.00 ^{+0.05} | 0.50 ^{+0.05} | 0.20 ^{+0.10} | 0.25 ^{+0.10} | 0.35 ^{+0.05} | 0.8 |
| ERJS03 ERJU03 | 1.60 ^{+0.15} | 0.80 ^{+0.15} | 0.30 ^{+0.20} | 0.30 ^{+0.15} | 0.45 ^{+0.10} | 2 |
| ERJS06 ERJU06 | 2.00 ^{+0.20} | 1.25 ^{+0.10} | 0.40 ^{+0.20} | 0.40 ^{+0.20} | 0.60 ^{+0.10} | 4 |
| ERJU6□ (0805) | 2.00 ^{+0.20} | 1.25 ^{+0.10} | 0.45 ^{+0.20} | 0.45 ^{+0.20} | 0.55 ^{+0.10} | 6 |
| ERJS08 ERJU08 | 3.20 ^{+0.05} | 1.60 ^{+0.05} | 0.50 ^{+0.20} | 0.50 ^{+0.20} | 0.60 ^{+0.10} | 10 |
| ERJS14 ERJU14 | 3.20 ^{+0.20} | 2.50 ^{+0.20} | 0.50 ^{+0.20} | 0.50 ^{+0.20} | 0.60 ^{+0.10} | 16 |
| ERJS12 ERJU12 | 4.50 ^{+0.20} | 3.20 ^{+0.20} | 0.50 ^{+0.20} | 0.50 ^{+0.20} | 0.60 ^{+0.10} | 27 |
| ERJS1D ERJU1D | 5.00 ^{+0.20} | 2.50 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.10} | 27 |
| ERJS1T ERJU1T | 6.40 ^{+0.20} | 3.20 ^{+0.20} | 0.65 ^{+0.20} | 0.60 ^{+0.20} | 0.60 ^{+0.10} | 45 |

Ratings

| Part No. (inch size) | Power Rating 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 ±5 | 10 to 1 M (E24, E96) 1 to 1 M (E24) | <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 |
| ERJS02 ERJU02 (0402) | 0.1 | 50 | 100 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 3.3 M (E24) | | -55 to +155 |
| ERJS03 ERJU03 (0603) | 0.1 | 75 | 150 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS06 ERJU06 (0805) | 0.125 | 150 | 200 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS08 ERJU08 (1206) | 0.25 | 200 | 400 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS14 ERJU14 (1210) | 0.5 | 200 | 400 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS12 ERJU12 (1812) | 0.75 | 200 | 500 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS1D ERJU1D (2010) | 0.75 | 200 | 500 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -55 to +155 |
| ERJS1T ERJU1T (2512) | 1.0 | 200 | 500 | ±1 ±5 | 10 to 1 M (E24, E96) 1 to 10 M (E24) | | -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 $SOTV = 2.5 \times RCWV$ or max. Overload Voltage listed above whichever less.

[Low Resistance type]

| Part No. (inch size) | Power Rating at 70 °C (W) | Resistance Tolerance (%) | Resistance Range (Ω) | T.C.R. (×10 ⁻⁶ /°C) | Category Temperature Range (°C) |
|-------------------------|---------------------------------|--------------------------------|----------------------------|-----------------------------------|--|
| ERJU6S (0805) | 0.25 | ±1, ±2, ±5 | 0.1 to 0.2 (E24) | ±150 | -55 to +155 |
| ERJU6Q (0805) | | | 0.22 to 1 (E24) | | |

[For Jumper]

| Part No. (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.

