

High Power Chip Resistors / Wide Terminal Type 2512, 2010, 1206, 0805

Type: **ERJ A1, B1, B2, B3**



■ Features

- High solder-joint reliability by wide terminal construction
- Excellent heat dissipation characteristics by wide terminal construction
- RoHS compliant

■ Recommended Applications

- Automotive electronic circuits including ECUs (Electrical control unit), anti-lock breaking systems and air-bag systems
- Current sensing for power supply circuits in a variety of equipment

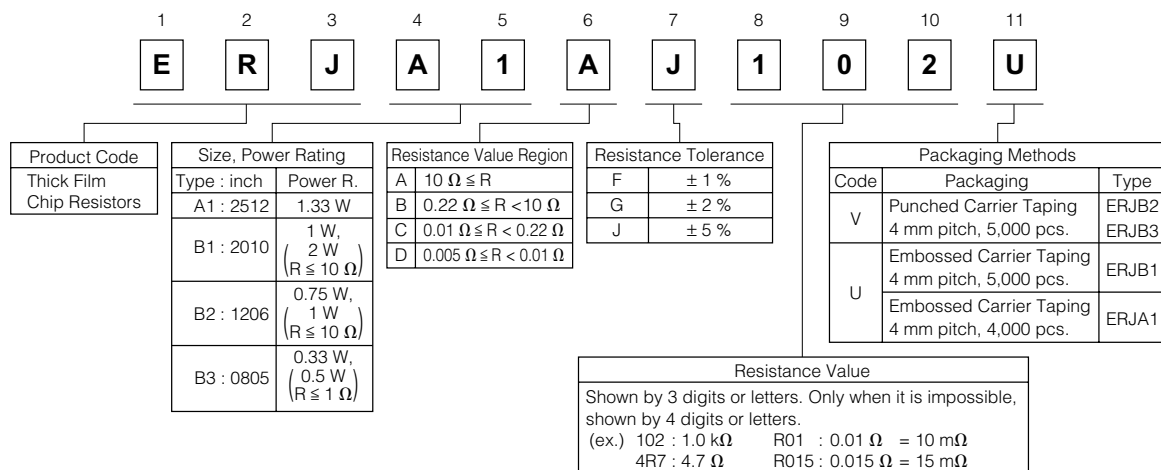
■ Packaging Methods Please see Pages 40 to 43

■ Recommended Land Pattern Please see Pages 44 to 45

■ Recommended Soldering Conditions Please see Page 46

■ Safety Precautions Please see Page 47

■ Explanation of Part Numbers



■ Construction (Example : ERJA1 type)



■ Dimensions in mm (not to scale)

ERJA1 type



Mass (Weight) [1000 pcs.] : 40 g

| | | | | | |
|-----------------|----------------|----------------|-----------|--|----------------|
| Dimensions (mm) | L | W | T | A ₁ | B ₁ |
| | 6.40±0.20 | 3.20±0.20 | 0.55±0.10 | 0.70±0.20 | 0.45±0.20 |
| Dimensions (mm) | A ₂ | B ₂ | P | φD | C |
| | 0.70±0.20 | 1.25±0.15 | 1.27±0.10 | 0.30 ^{+0.10} _{-0.20} | 0.4 min. |

ERJB1 type



Mass (Weight) [1000 pcs.] : 27 g

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Dimensions (mm) | L | W | T | a | b |
| | 5.00±0.20 | 2.50±0.20 | 0.55±0.20 | 0.25±0.20 | 0.90±0.20 |

ERJB2 type

(R < 10 mΩ)



(10 mΩ ≤ R ≤ 1 MΩ)



Mass (Weight) [1000 pcs.] : 11 g

| | | | | | |
|--------------------|-----------|-----------|-----------|-----------|-----------|
| Dimensions (mm) | L | W | T | a | b |
| 5 mΩ ≤ R < 10 mΩ | | | | 0.30±0.20 | 0.30±0.20 |
| 10 mΩ ≤ R < 220 mΩ | 3.20±0.20 | 1.60±0.15 | 0.65±0.15 | 0.30±0.20 | 0.50±0.20 |
| 220 mΩ ≤ R ≤ 1 MΩ | | | | 0.20±0.20 | 0.50±0.20 |

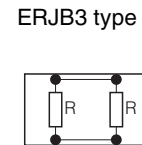
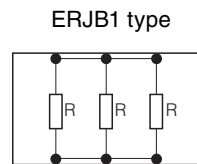
ERJB3 type



Mass (Weight) [1000 pcs.] : 4.8 g

| | | | | | |
|-----------------|-----------|-----------|-----------|-----------|-----------|
| Dimensions (mm) | L | W | T | a | b |
| | 2.00±0.10 | 1.25±0.10 | 0.50±0.10 | 0.25±0.15 | 0.40±0.15 |

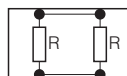
■ Circuit Configuration



< Less than 10 mΩ >



< Low resistance zone >



< High resistance zone >



■ Ratings

| Type (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. ($\times 10^{-6}/^{\circ}\text{C}$) | Category Temperature Range (°C) |
|---------------------|---|---|--|--------------------------------|--|---|--|
| ERJA1 (2512) | 1.33 | 200 | 400 | ±1 | 100 m to 10 k (E24) | R < 100 mΩ : ±350 100 mΩ ≤ R : ±100 (±1%) ±200 (±2%, ±5%) | -55 to +155 |
| | | | | ±2, ±5 | 10 m to 10 k (E24) | | |
| ERJB1 (2010) | $\frac{1}{2}(R \leq 10 \Omega)^{(3)}$ | 200 | 400 | ±1, ±2, ±5 | 10 m to 10 k (E24) | R < 22 mΩ : ±350 22 mΩ ≤ R < 47 mΩ : ±200 47 mΩ ≤ R < 100 mΩ : ±150 (±1%) ±200 (±2%, ±5%) 100 mΩ ≤ R : ±100 (±1%) ±200 (±2%, ±5%) | -55 to +155 |
| ERJB2 (1206) | $\frac{0.75}{1}(R \leq 10 \Omega)^{(3)}$ | 200 | 400 | ±1, ±2 | 10 m to 1 M (E24) | R < 22 mΩ : 0 to +300 22 mΩ ≤ R < 47 mΩ : 0 to +200 47 mΩ ≤ R < 100 mΩ : 0 to +150 100 mΩ ≤ R < 220 mΩ : 0 to +150 (±1%) 0 to +200 (±2%, ±5%) 220 mΩ ≤ R : ±100 (±1%) ±200 (±2%, ±5%) | -55 to +155 |
| | | | | ±5 | 5 m to 1 M (5 m to 9 m : 1mΩ step) 10 m to 1 M : E24 | | |
| ERJB3 (0805) | $\frac{0.33}{0.5}(R \leq 1 \Omega)^{(3)}$ | 150 | 200 | ±1, ±2, ±5 | 20 m to 10 (E24) | R < 47 mΩ : 0 to +300 47 mΩ ≤ R ≤ 1 Ω : 0 to +200 1 Ω < R : ±100 (±1%) ±200 (±2%, ±5%) | -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 $SOTV = 2.5 \times \text{Power Rating}$ or max. Overload Voltage listed above whichever less.

(3) Please contact us when resistors with guaranteed high power are needed.

Power Derating Curve

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

