

Low TCR High Power Chip Resistors / Wide Terminal Type

.010

.010

Type: **ERJ D1, D2**

Features

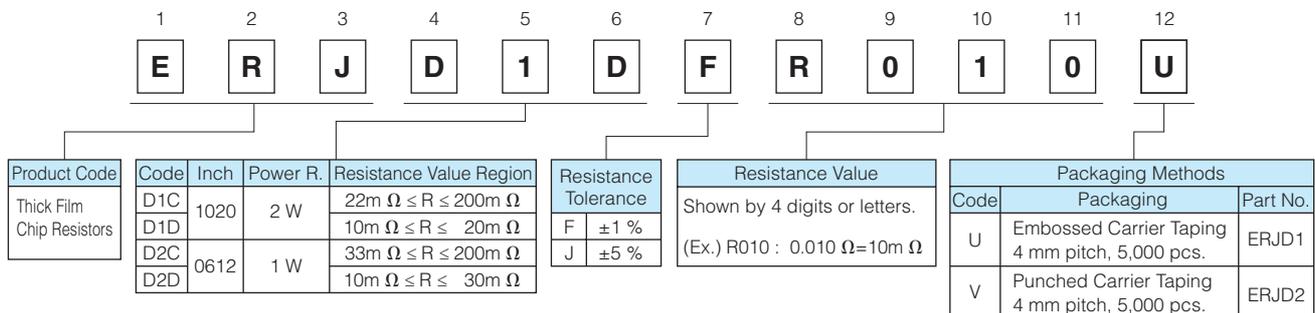
- Achieved High power and low TCR ($\pm 100 \times 10^{-6}/^{\circ}\text{C}$) using wide terminal electrode structure and original material
- Suitable for small size/high power current detection (Low TCR enables high accuracy of current detection)
- High solder-joint reliability by wide terminal construction
- Excellent heat dissipation characteristics by wide terminal construction
- AEC-Q200 qualified
- RoHS compliant

Recommended Applications

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

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

Explanation of Part Numbers



Ratings

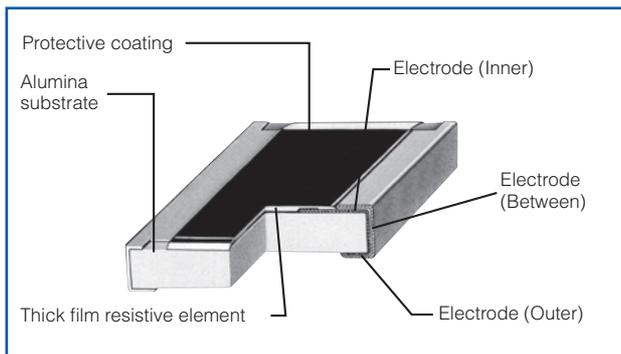
| Part No. (inch size) | Power Rating ⁽²⁾ at 70 °C (W) | Resistance Tolerance (%) | Resistance Range ⁽¹⁾ (Ω) | T.C.R. ($\times 10^{-6}/^{\circ}\text{C}$) | Category Temperature Range ($^{\circ}\text{C}$) | AEC-Q200 Grade |
|-------------------------|--|--------------------------------|--|---|--|-------------------|
| ERJD1 (1020) | 2 | $\pm 1, \pm 5$ | 10m to 200m (E24) | ± 100 | -55 to +155 | Grade 0 |
| ERJD2 (0612) | 1 | $\pm 1, \pm 5$ | 10m to 200m (E24) | ± 100 | | |

(1) Please contact us when resistors of irregular series are needed.

(2) Use it on the condition that the case temperature is below the upper category temperature.

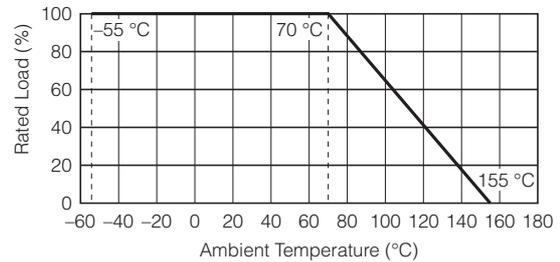
- Rated Continuous Working Voltage (RCWV) shall be determined from $\text{RCWV} = \sqrt{\text{Power Rating} \times \text{Resistance Values}}$.
- Overload Test Voltage (OTV) shall be determined from $\text{OTV} = \text{Specified Magnification (refer to performance)} \times \text{RCWV}$.

Construction

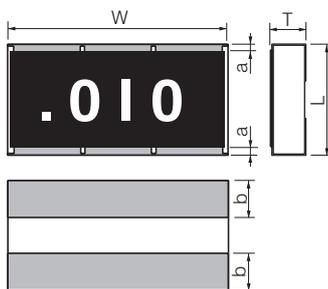


Power Derating Curve

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

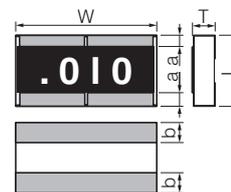


Dimensions in mm (not to scale)



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

| Part No. | Dimensions (mm) | | | | |
|----------|-----------------|-----------|-----------|-----------|-----------|
| | L | W | T | a | b |
| ERJD1 | 2.50±0.20 | 5.00±0.20 | 0.60±0.20 | 0.30±0.20 | 0.90±0.20 |

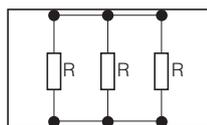


Mass (Weight) [1000 pcs.] : 11 g

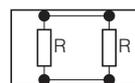
| Part No. | Dimensions (mm) | | | | |
|----------|-----------------|-----------|-----------|-----------|-----------|
| | L | W | T | a | b |
| ERJD2 | 1.60±0.15 | 3.20±0.20 | 0.65±0.15 | 0.30±0.20 | 0.50±0.20 |

Circuit Configuration

ERJD1 type



ERJD2 type



Performance

| Test Item | Performance Requirements | Test Conditions |
|------------------------------|----------------------------|---|
| Resistance | Within Specified Tolerance | 20 °C |
| T. C. R. | Within Specified T. C. R. | +25 °C/+125 °C |
| Overload | ±2% | Rated Voltage × 2.0, 5 s |
| Resistance to Soldering Heat | ±1% | 270 °C, 10 s |
| Rapid Change of Temperature | ±2% | -55 °C (30min.) / +125 °C (30min.), 1000 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 |