

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

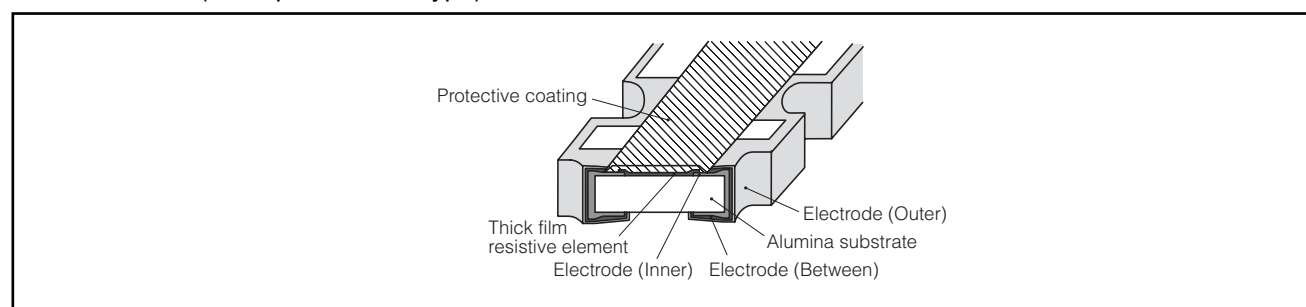
■ Safety Precautions

Please see Page 47

■ Explanation of Part Numbers

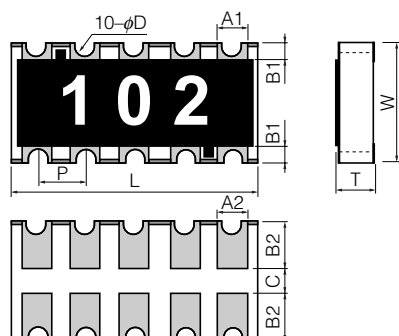
1		2		3		4		5		6		7		8		9		10		11	
E		R		J		A		1		A		J		1		0		2		U	
Product Code		Size, Power Rating				Resistance Value Region				Resistance Tolerance				Packaging Methods							
Thick Film Chip Resistors		Type : inch		Power R.		A		10 Ω ≤ R		F		± 1 %		Code		Packaging		Type			
		A1 : 2512		1.33 W		B		0.22 Ω ≤ R < 10 Ω		G		± 2 %		V		Punched Carrier Taping 4 mm pitch, 5,000 pcs.		ERJB2 ERJB3			
		B1 : 2010		1 W, 2 W (R ≤ 10 Ω)		C		0.01 Ω ≤ R < 0.22 Ω		J		± 5 %		U		Embossed Carrier Taping 4 mm pitch, 5,000 pcs.		ERJB1			
		B2 : 1206		0.75 W, 1 W (R ≤ 10 Ω)		D		0.005 Ω ≤ R < 0.01 Ω				Embossed Carrier Taping 4 mm pitch, 4,000 pcs.				ERJA1					
		B3 : 0805		0.33 W, 0.5 W (R ≤ 1 Ω)																	
														Resistance Value							
														Shown by 3 digits or letters. Only when it is impossible, shown by 4 digits or letters.							
														(ex.) 102 : 1.0 kΩ R01 : 0.01 Ω = 10 mΩ							
														4R7 : 4.7 Ω R015 : 0.015 Ω = 15 mΩ							

■ Construction (Example : ERJA1 type)



■ Dimensions in mm (not to scale)

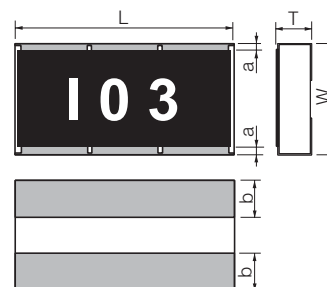
ERJA1 type



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

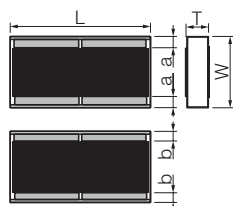


Mass (Weight) [1000 pcs.] : 27 g

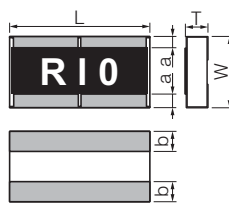
Dimensions (mm)	L	W	T	a	b
	5.00±0.20	2.50±0.20	0.55±0.20	0.25±0.20	0.90±0.20

ERJB2 type

(R < 10 mΩ)



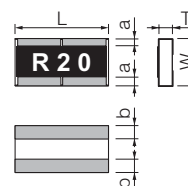
(10 mΩ ≤ R ≤ 1 MΩ)



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

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

ERJB3 type

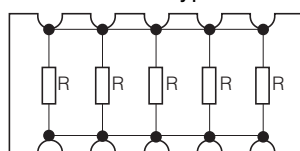


Mass (Weight) [1000 pcs.] : 4.8 g

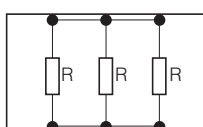
Dimensions (mm)	L	W	T	a	b
	2.00±0.10	1.25±0.10	0.50±0.10	0.25±0.15	0.40±0.15

■ Circuit Configuration

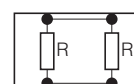
ERJA1 type



ERJB1 type

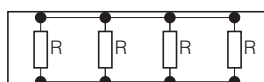


ERJB3 type

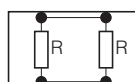


ERJB2 type

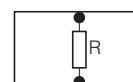
< Less than 10 mΩ >



< 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. (×10 ⁻⁶ /°C)	Category Temperature Range (°C)
ERJA1 (2512)	1.33	200	400	±1 ±2, ±5	100 m to 10 k (E24) 10 m to 10 k (E24)	R < 100 mΩ : ±350 100 mΩ ≤ R : ±100 (±1%) ±200 (±2%, ±5%)	-55 to +155
ERJB1 (2010)	1 2(R ≤ 10 Ω) ⁽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)	0.75 1(R ≤ 10 Ω) ⁽³⁾	200	400	±1, ±2 ±5	10 m to 1 M (E24) 5 m to 1 M (5 m to 9 m : 1mΩ step) 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
ERJB3 (0805)	0.33 0.5(R ≤ 1 Ω) ⁽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.

