Panasonic

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
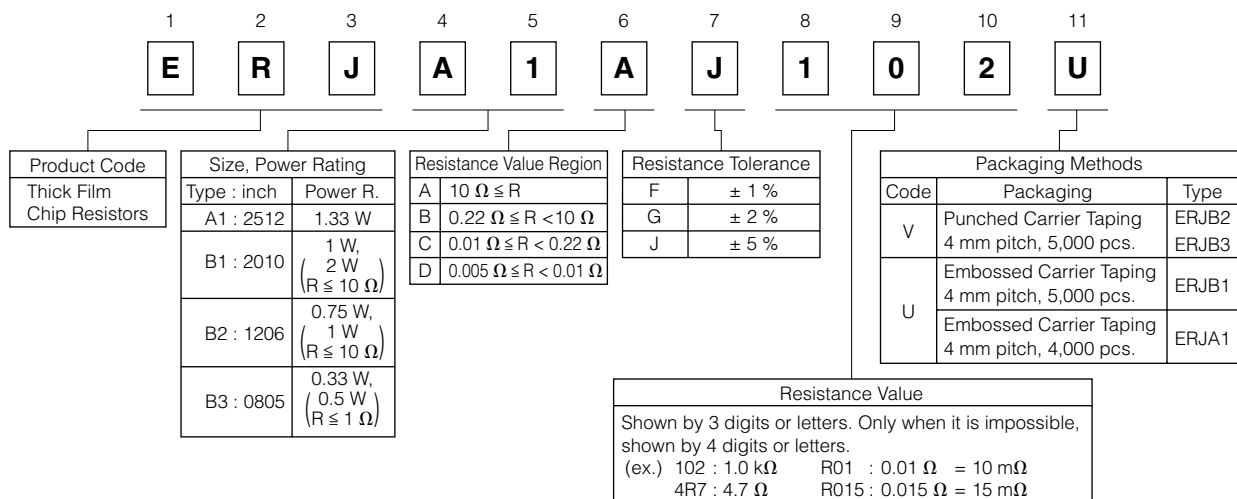● RoHS compliant

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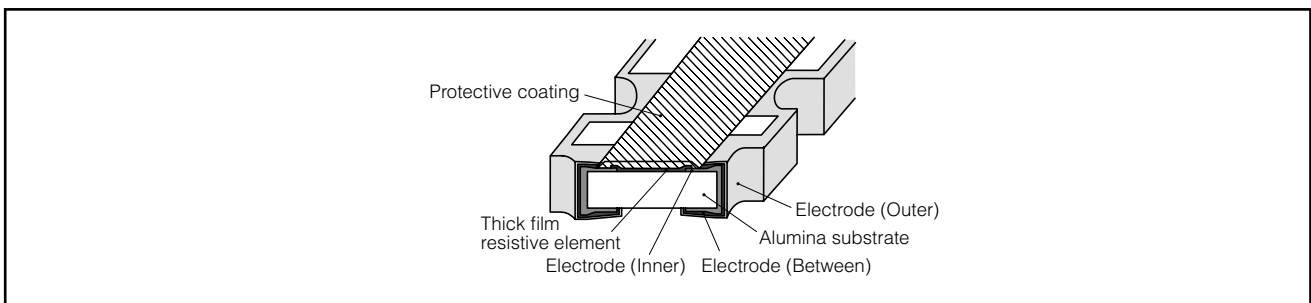● Current sensing for power supply circuits in a variety of equipment

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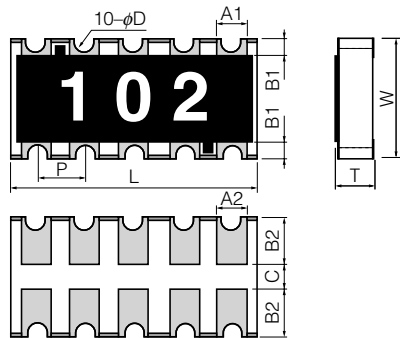Please see Data Files

■ 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

Thick Film Chip Resistors

Size, Power Rating

Type : inch	Power R.
A1 : 2512	1.33 W
B1 : 2010	1 W, 2 W (R ≤ 10 Ω)
B2 : 1206	0.75 W, 1 W (R ≤ 10 Ω)
B3 : 0805	0.33 W, 0.5 W (R ≤ 1 Ω)

Resistance Value Region

A	10 Ω ≤ R
B	0.22 Ω ≤ R < 10 Ω
C	0.01 Ω ≤ R < 0.22 Ω
D	0.005 Ω ≤ R < 0.01 Ω

Resistance Tolerance

F	± 1 %
G	± 2 %
J	± 5 %

Packaging Methods

Code	Packaging	Type
V	Punched Carrier Taping 4 mm pitch, 5,000 pcs.	ERJB2 ERJB3
U	Embossed Carrier Taping 4 mm pitch, 5,000 pcs.	ERJB1
U	Embossed Carrier Taping 4 mm pitch, 4,000 pcs.	ERJA1

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)

Protective coating
Thick film resistive element
Electrode (Inner)
Electrode (Between)
Electrode (Outer)
Alumina substrate

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■ Dimensions in mm (not to scale)

ERJA1 type

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

Dimensions (mm)	L	W	T	A₁	B₁
	6.40±0.20	3.20±0.20	0.55±0.10	0.70±0.20	0.45±0.20

Dimensions (mm)	A₂	B₂	P	φD	C
	0.70±0.20	1.25±0.15	1.27±0.10	0.30₋₀.₂₀⁺⁰·¹⁰	0.4 min.

ERJB1 type
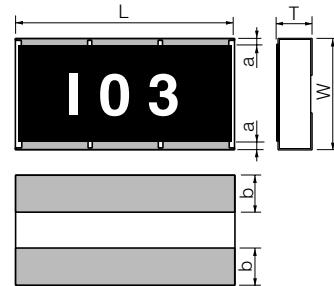
Mass (Weight) [1000 pcs.] : 27 g

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
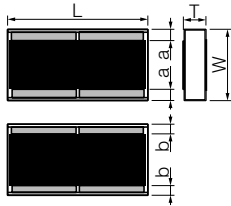
(R< 10 mΩ)   (10 mΩ ≦ R ≦ 1 MΩ)
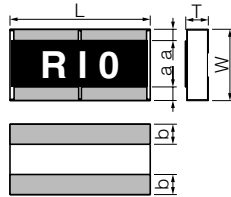
Mass (Weight) [1000 pcs.] : 11 g

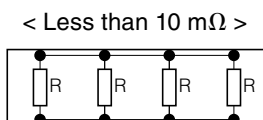| Dimensions (mm)	L	W	T	a	b
5 mΩ≦R<10 mΩ	3.20±0.20	1.60±0.15	0.65±0.15	0.30±0.20	0.30±0.20
10 mΩ≦R<220 mΩ					0.50±0.20
220 mΩ≦R≦1 MΩ				0.20±0.20	

ERJB3 type
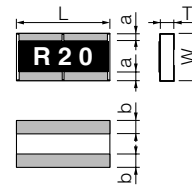
Mass (Weight) [1000 pcs.] : 4.8 g

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

ERJA1 type

ERJB1 type

ERJB3 type

ERJB2 type

< Less than 10 mΩ >   < Low resistance zone >   < High resistance zone >

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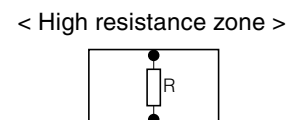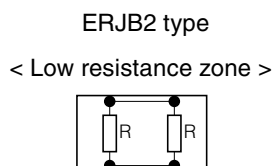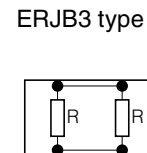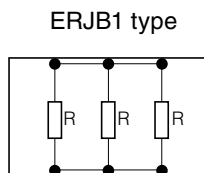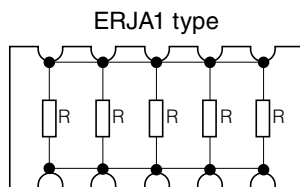
■ Ratings

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	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)	1 2(R ≤ 10 Ω)	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)	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)	0.33 0.5(R ≤ 1 Ω)	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=√(Power Rating × 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.

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.