

Construction



Dimensions in mm (not to scale)



Туре	N.10	Dim	ensions (I	mm)		Mass (Weight)	
(inches)	Ĺ	W	а	b	t	[g/1000 pcs.]	
ERJP03 (0603)	1.60 ^{±0.15}	0.80+0.15	0.15 ^{+0.15} _{-0.10}	0.30 ^{±0.15}	0.45 ^{±0.10}	2	
ERJP06 (0805)	2.00 ^{±0.20}	1.25 ^{±0.10}	0.25 ^{±0.20}	0.40 ^{±0.20}	0.60 ^{±0.10}	4	
ERJP08 (1206)	3.20 ^{+0.05} _{-0.20}	1.60 ^{+0.05}	0.40 ^{±0.20}	0.50 ^{±0.20}	0.60 ^{±0.10}	10	
ERJP14 (1210)	3.20 ^{±0.20}	2.50 ^{±0.20}	0.35 ^{±0.20}	0.50 ^{±0.20}	0.60 ^{±0.10}	16	

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Anti-Surge Thick Film Chip Resistors

Ratings	11			0				
Type (inches)	Power Rating at 70 °C (W)	Limiting Element Voltage (Maximum RCWV) ⁽¹⁾ (V)	Maximum Overload Voltage ⁽²⁾ (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. [×10 ⁻⁶ /°C (ppm/°C)]	Category Temperature Range (Operating Temperature Range) (°C)	
TW	WW	1007.001	I.TW	±0.5	10 to 1 M (E24, E96)	±150		
ERJP03 (0603) 0.2	150	200	±1	10 to 1 M (E24, E96)	±200	-55 to +155		
	WW	W.100 L	WT.	±5	1 to 1 M (E24)	± 200 Less than 10 Ω : –150 to +400		
ERJP06	0.05	150	200	±0.5, ±1	10 to 3.3 M (E24, E96)	Less than 33 Ω : ±300 More than 33 Ω : ±100	EE to 11EE	
(0805)	0.25	(400) ⁽³⁾	(600) ⁽³⁾	±5	1 to 3.3 M (E24)	Less than 33 Ω : ±300 More than 33 Ω : ±200	-55 10 +155	
ERJP08	0.00	200	400	±0.5, ±1	10 to 1 M (E24, E96)	±100		
(1206) 0.33	0.33	(500) ⁽³⁾	(1000) ⁽³⁾	±5	1 to 10 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	-55 to +155	
ERJP14	0.5	200	100	±0.5, ±1	10 to 1 M (E24, E96)	±100	EE to 1155	
(1210) 0.5	200	400	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	-55 to +155		

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV=VPower Rating × Resistance Values, or Limiting Element Voltage (max. RCWV) 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.

(3) Please contact us when resistors with guaranteed high voltage are need.

Power Derating Curve

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

* When the temperature of ERJP06/08/14 is 155 °C or less, the derating start temperature can be changed to 125 °C. (See the dotted line)



Anti-Surge Thick Film Chip Resistors(ERJP Type)

-- Thick Film Chip Resistors(ERJ Type)

ESD Characteristic











Туре	I.W.I	Dim	ensions (r	nm)		Mass (Weight) [g/1000 pcs.]	
(inches)	L	W	а	b	t		
ERJT06 (0805)	2.00 ^{±0.20}	1.25 ^{±0.10}	0.25 ^{±0.20}	0.40 ^{±0.20}	0.60 ^{±0.10}	4	
ERJT08 (1206)	3.20+0.05	1.60 ^{+0.05} _{-0.15}	0.40 ^{±0.20}	0.50 ^{±0.20}	0.60 ^{±0.10}	10	
ERJT14 (1210)	3.20 ^{±0.20}	2.50 ^{±0.20}	0.35 ^{±0.20}	0.50 ^{±0.20}	0.60 ^{±0.10}	16	

Anti-Pulse Thick Film Chip Resistors

Ratings

Type (inches)	Power Rating at 70 °C (W)	Limiting Element Voltage (Maximum RCWV) ⁽¹⁾ (V)	Maximum Overload Voltage ⁽²⁾ (V)	Resistance Tolerance (%)	Resistance Range (Ω)	T.C.R. [×10 ⁻⁶ /°C (ppm/°C)]	Category Temperature Range (Operating Temperature Range) (°C)
ERJT06 (0805)	0.25	150	200	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 Less than 33 Ω : ±300 More than 33 Ω : ±200	–55 to +155
ERJT08 (1206)	0.33	200	400	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	–55 to +155
ERJT14 (1210)	0.5	200	400	±5	1 to 1 M (E24)	Less than 10 Ω : -100 to +600 More than 10 Ω : ±200	–55 to +155

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV=VPower Rating × Resistance Values, or Limiting Element Voltage (max. RCWV) 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 temperatures above 70 °C, power rating shall be derated in accordance with the figure on the right.



Limiting Power Curve
 In rush pulse Characteristic



Test cycle : 1000 cycles Spec : Resistance value = within ±5%

Anti-Pulse Thick Film Chip Resistors (ERJT Type)
 Thick Film Chip Resistors (ERJ Type)

• ERJT06 (2012 (0805) size)



• ERJT08 (3216 (1206) size)



• ERJT14 (3225 (1210) size)



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(Unit : mm)

Packaging Methods (Taping)

Туре	Kind of Taping	Pitch (P1)	Quantity
ERJP03	V.100Y. ONITW	W.100	COM.I
ERJP06	Punched Carrier Taping	W W.100	5000 ()
ERJP08	WI 100Y.COM.TW	4 mm	5000 pcs./reel
ERJP14	Embossed Carrier Taping		ON.CO.M.TW

Carrier Tape



			-11						-		
Туре	A	В	W	F C	E	P ₁	P ₂	Po	φD ₀	I	φD ₁
ERJP03	1.10 ^{±0.10}	1.90 ^{±0.10}	8.00 ^{±0.20}	2 E0±0.05	1 75±0.10	1 00±0.10	2 00±0.05	4 00±0.10	1 5 0 + 0.10	0.70 ^{±0.05}	- IV
ERJP06	$1.65^{\pm 0.15}$	2.50 ^{±0.20}								0.04±0.05	Ī
ERJP08	2.00 ^{±0.15}	3.60 ^{±0.20}	0.00±0.30	3.50	1.75	4.00	2.00	4.00	1.50_0	0.84	<u>Tvī</u>
ERJP14	2.80 ^{±0.20}	$3.50^{\pm 0.20}$	8.00	N.12	N.COP	W		WWW	1005	1.00 ^{±0.10}	1.0+0.10

Taping Reel



ON.		W	1.10-	(Unit : mm)		
Туре	φA	φB	φC	W	T	
ERJP03		211	10	01.0	T.M	
ERJP06	100.0+0	CO min	12 0+10	0.0+10	11 4+1.0	
ERJP08	180.0 ^{+3.0}	60 min.	13.0-10	9.0	11.4-1.0	
ERJP14			N		COM	

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Recommended Land Pattern

In case of flow soldering, the land width must be smaller than the Chip Resistor width to control the solder amount properly. Generally, the land width should be 0.7 to 0.8 times (W) of the width of chip resistor. In case of reflow soldering, solder amount can be adjusted, therefore the land width should be set to 1.0 to 1.3 times chip resistor width (W).

	NW.ION CONT	Туре	Dimensions (mm)			
	Chip Resistor	(inches)	а	b	С	
		ERJP03 (0603)	0.7 to 0.9	2 to 2.2	0.8 to 1	
		ERJP06 (0805)	1 to 1.4	3.2 to 3.8	0.9 to 1.4	
		ERJP08 (1206)	2 to 2.4	4.4 to 5	1.2 to 1.8	
+	WWW.100Y.COM.TW	ERJP14 (1210)	2 to 2.4	4.4 to 5	1.8 to 2.8	

OM.T Packaging Methods (Taping)

Standa	rd	Quantity	

 Packaging Methods Standard Quantity 	s (Taping)	WWW.100Y.CO	OM.TW	
Туре	Kind of Taping	Pitch (P1)	Quantity	
ERJT06	Durahad Oracia Tanina	W.1001.	COM	
ERJT08	Punched Carrier Taping	4 mm	5000 pcs./reel	
ERJT14	Embossed Carrier Taping	WWW.100	COM.TW	



W.100 1.	-ON.L			NN.10	ST CO	W.	SI	Win	1.100	V.CON	Wn
ERJT14	2.80 ^{±0.20}	3.50 ^{±0.20}	0.00	N.10-	V.COD	W		WWW	1.1	1.00 ^{±0.10}	1.0+0.10
ERJT08	2.00 ^{±0.15}	3.60 ^{±0.20}	0 00±0.30	3.50 ^{±0.05}	1.75 ^{±0.10}	4.00 ^{±0.10}	2.00 ^{±0.05}	4.00 ^{±0.10}	1.50+0.10	0.8410.00	L.M
ERJT06	1.65 ^{±0.15}	$2.50^{\pm 0.20}$	8.00 ^{±0.20}	11001	Mon			W.	100 -	0.04+0.05	
Type	A	В	VV	F	COF	P_1	P ₂	P ₀	ϕD_0		ϕD_1





Туре	φA	φB	φC	W	Т
ERJT06	1		VN.10		OW.
ERJT08	180.0 ⁺⁰ -3.0	60 min.	13.0 ^{±1.0}	9.0 ^{±1.0}	11.4 ^{±1.0}
ERJT14	N	N	N.	1001.	

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Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately. ...ee WWW.100

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Recommended Land Pattern

In case of flow soldering, the land width must be smaller than the Chip Resistor width to control the solder amount properly. Generally, the land width should be 0.7 to 0.8 times (W) of the width of chip resistor. In case of reflow soldering, solder amount can be adjusted, therefore the land width should be set to 1.0 to 1.3 times chip resistor width (W).



▲ Safety Precautions

Soldering

245 ± 5 °C

The following are precautions for individual products. Please also refer to the precautions common to Fixed Resistors shown on page ER2 of this catalog.

20 s to 30 s

max. 260 °C

max. 10 s

- 1. Take measures against mechanical stress during and after mounting of Anti-Pulse Thick Film Chip Resistors (hereafter called the resistors) so as not to damage their electrodes and protective coatings.
- 2. If a transient load (heavy load in a short time) like a pulse is expected to be applied, check and evaluate the operations of the resistors when installed in your products before use.

Never exceed the rated power. Otherwise, the performance and/or reliability of the resistors may be impaired.

- 3. Do not use halogen-based or other high-activity flux. Otherwise, the residue may impair the resistors' performance and/or reliability.
- 4. When soldering with a soldering iron, never touch the resistors' bodies with the tip of the soldering iron. When using a soldering iron with a high temperature tip, finish soldering as quickly as possible (within three seconds at 350 °C max.).
- 5. As the amount of applied solder becomes larger, the mechanical stress applied to the resistors increases, causing problems such as cracks and faulty characteristics. Avoid applying an excessive amount of solder.
- 6. Do not apply shock to the resistors or pinch them with a hard tool (e.g. pliers and tweezers). Otherwise, the resistors' protective coatings and bodies may be chipped, affecting their performance.
- 7. Avoid excessive bending of printed circuit boards in order to protect the resistors from abnormal stress.