Metal Film Chip Resistors, Rectangular Type 0603, 0805, (1206, 1210, 2512)

Type: **ERA 3Y, 6Y (8Y, 14, 1W)**

■ Features

- Small size and lightweight
  PWB size reduction and lightweight products
- High reliability
  Low T.C.R. & current noise, excellent non-linearity.
- Solderability
  Suitable for both reflow soldering and flow soldering
- Reference Standards
  IEC 60115-8, JIS C 5201-8, EIAJ RC-2133A

■ Explanation of Part Numbers

1	2	3	4	5	6	7	8	9	10	11
E	R	A	3	Y	E	B	1	0	2	V

Product Code
Metal Film Chip Resistors

Size, Power Rating	
Type: inches	Power Rating
3Y : 0603	0.063 W
6Y : 0805	0.1 W
8Y : 1206 *1	0.125 W
14 : 1210 *1	0.25 W
1W : 2512 *1	1.0 W

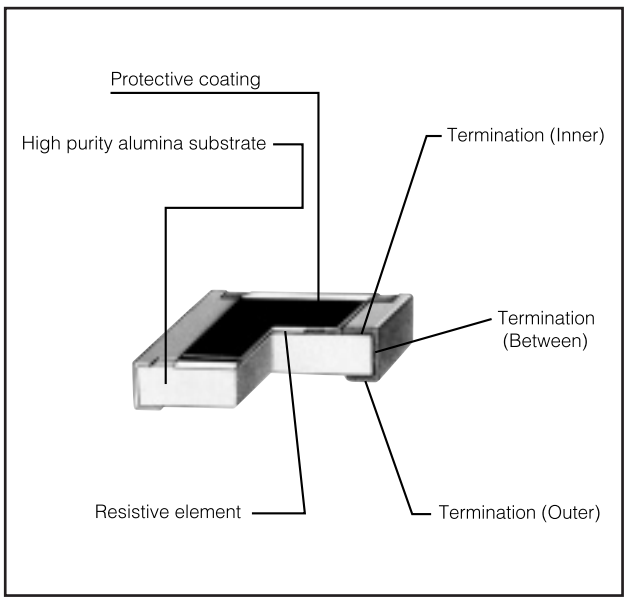
Temperature Coefficient	
Code	T.C.R.
E	±25 ×10^{-6}/°C (ppm/°C)
H	±50 ×10^{-6}/°C (ppm/°C)
K	±100 ×10^{-6}/°C (ppm/°C)

Resistance Tolerance	
Code	Tolerance
B	±0.1 %
D	±0.5 %

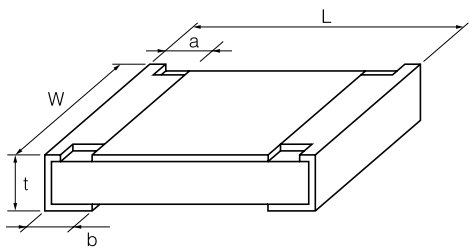
Resistance Value
The first two digits are significant figures of resistance and the third one denotes number of zero following.

Suffix for Packaging	
Code	Packaging
V	Punched (Paper) Taping

■ Construction



■ Dimensions in mm (not to scale)



Type (inches)	Dimensions (mm)					Net Weight (1000 pcs.)
	L	W	a	b	t	
ERA3Y (0603)	1.60$^{\pm0.20}$	0.80$^{\pm0.20}$	0.30$^{\pm0.20}$	0.30$^{\pm0.20}$	0.45$^{\pm0.10}$	2 g
ERA6Y (0805)	2.00$^{\pm0.20}$	1.25$^{\pm0.10}$	0.40$^{\pm0.25}$	0.40$^{\pm0.25}$	0.50$^{\pm0.10}$	4 g
ERA8Y *1 (1206)	3.20$^{\pm0.20}$	1.60$^{\pm0.20}$	0.50$^{\pm0.20}$	0.50$^{\pm0.20}$	0.60$^{\pm0.10}$	10 g
ERA14 *1 (1210)	3.20$^{\pm0.20}$	2.50$^{\pm0.20}$	0.50$^{\pm0.20}$	0.50$^{\pm0.20}$	0.60$^{\pm0.10}$	16 g
ERA1W *1 (2512)	6.40$^{\pm0.20}$	3.20$^{\pm0.20}$	0.65$^{\pm0.20}$	1.30$^{\pm0.20}$	0.60$^{\pm0.10}$	45 g

*1 : 8Y, 14, 1W Type are custom product. Please ask us to confirm your requirements.

■ Ratings

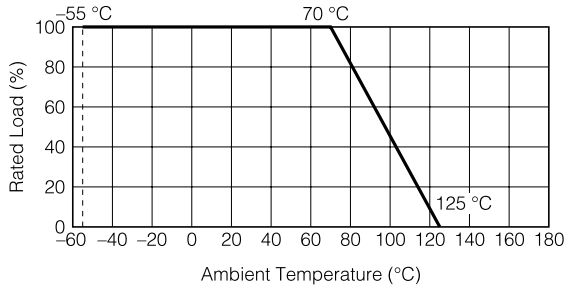
Type (inches)	Power Rating at 70 °C (W)	Limiting Element Voltage (Maximum RCWV)(1) (V)	Maximum Overload Voltage(2) (V)	Resistance Tolerance (%)	Resistance Range (Ω)		T.C.R. ×10^{-6}/°C (ppm/°C)	Standard Resistance Values
					min.	max.		
ERA3Y (0603)	0.063	75	150	±0.5	10	91	±50	E24
					100	33 K	±25	
					36 K	330 K	±100	
				±0.1	100	33 K	±25	
ERA6Y (0805)	0.1	100	200	±0.5	10	91	±50	E24
					100	100 K	±25	
					110 K	1 M	±100	
				±0.1	100	100 K	±25	

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV= $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$, 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 must be derated in accordance with the curve right.

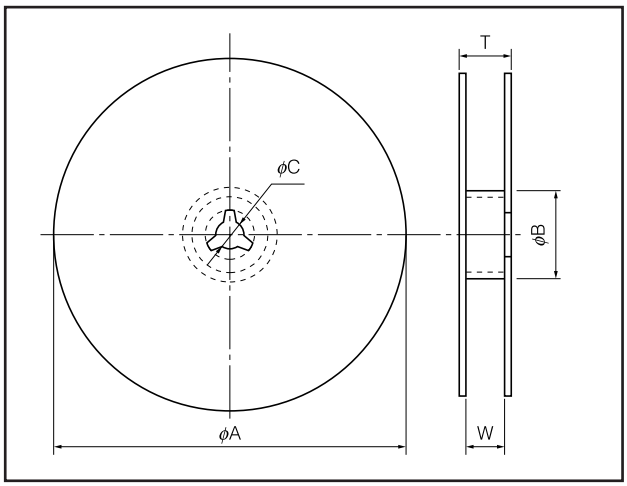


■ Packaging Methods

● Standard Quantity

Type (inches)	Thickness (mm)	Punched (Paper) Taping
ERA3Y (0603)	0.45	5000 pcs./reel
ERA6Y (0805)	0.5	5000 pcs./reel

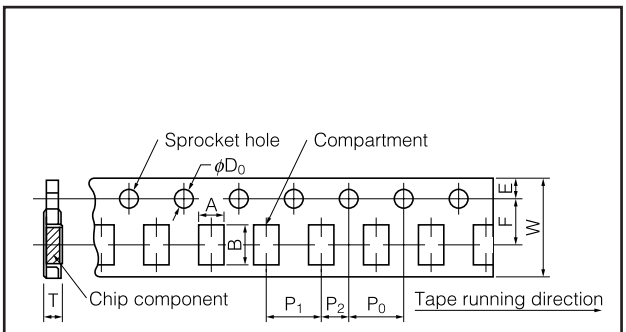
● Taping Reel



Dimensions (mm)	Type	ϕA	ϕB	ϕC
	3Y	180.0$^{0}_{-3.0}$	60 min.	13.0$^{\pm1.0}$
	6Y			

Dimensions (mm)	Type	W	T
	3Y	9.0$^{\pm1.0}$	11.4$^{\pm2.0}$
	6Y		

● Punched (Paper) Taping

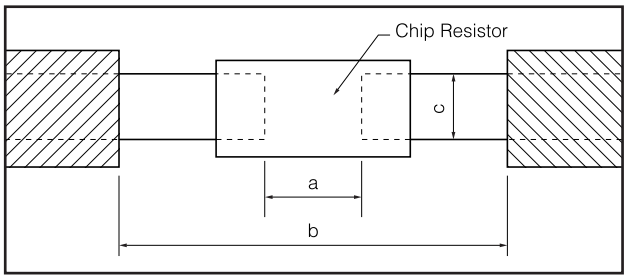


Dimensions (mm)	Type	A	B	W	F	E
	3Y	1.10$^{\pm0.10}$	1.90$^{\pm0.10}$	8.00$^{\pm0.20}$	3.50$^{\pm0.05}$	1.75$^{\pm0.10}$
	6Y	1.65$^{\pm0.15}$	2.50$^{\pm0.20}$			

Dimensions (mm)	Type	P_1	P_2	P_0	ϕD_0	T
	3Y	4.00$^{\pm0.10}$	2.00$^{\pm0.05}$	4.00$^{\pm0.10}$	1.50$^{+0.10}_{0}$	0.70$^{\pm0.05}$
	6Y					0.84$^{\pm0.05}$

■ Recommended Land Pattern

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



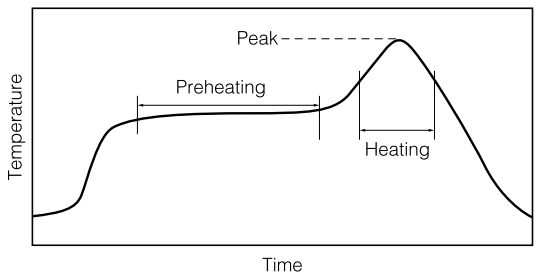
Type (inches)	Dimensions (mm)		
	a	b	c
ERA3Y (0603)	0.7 to 0.9	2 to 2.2	0.8 to 1
ERA6Y (0805)	1 to 1.4	3.2 to 3.8	0.9 to 1.4

■ Recommended Soldering Conditions

Recommendations and precautions are described below.

●Recommended soldering conditions for reflow

·Reflow soldering shall be two times maximum.
·Please contact us for additional information when you use in conditions other than those specified.
·Please measure a temperature of terminations and study solderability every kind of solder and board, before actual use.



For solder (Example : Sn/Pb)

	Temperature	Time
Preheating	140 °C to 160 °C	60 s to 120 s
Main heating	Above 200 °C	30 s to 40 s
Peak	235 ± 5 °C	max. 10 s

For lead-free solder (Example : Sn/Ag/Cu)

	Temperature	Time
Preheating	150 °C to 180 °C	60 s to 120 s
Main heating	Above 230 °C	30 s to 40 s
Peak	max. 260 °C	max. 10 s

●Recommended soldering conditions for flow

	For solder		For lead-free solder	
	Temperature	Time	Temperature	Time
Preheating	140 °C to 160 °C	60 s to 120 s	150 °C to 180 °C	60 s to 120 s
Soldering	245±5 °C	20 s to 30 s	max. 260 °C	max. 10 s

⚠Cautions for Safety

1. Rated Power and Ambient Temperature
   Keep the rated power and ambient temperature within the specified derating curve.
   ✻ Place and fit resistors and other heating components on board, taking into consideration of temperature rise due to approaching of these components with each other.
2. External Shock
   Mechanical shock during automatic mounting or handling of board after chip being mounted may cause break, flaw or fall-off of paint film of resistor that may impair initial characteristics.
   Avoid nipping of resistor with hard tool (a pair of pliers or tweezers) as it may damage protective film or electrode of resistor and may affect resistor's performance.
3. Application of Pulse
   When pulse is applied to a resistor, the peak value of the pulse shall be within rated value.
4. The resistor is neigher non-combustible nor flame-retardant.
5. When soldering with soldering iron, never touch the body of the chip resistor with a tip of the soldering iron. When using a soldering iron with a tip at high temperature, solder for a time as short as possible (three seconds or less up to 350˚C).
6. Avoid immersion of chip resistor in solvent for a long time. Use solvent after the effect of immersion is confirmed.
7. Do not use the product in dewy atmospheres.