Metal Film Chip Resistors
0603, 0805

Type: **ERA 3Y, 6Y**

■ Features

- Small size and lightweight
- High reliability
  Low T.C.R. & current noise, excellent non-linearity
- Suitable for both reflow 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	0.1 W
6Y : 0805	0.125 W

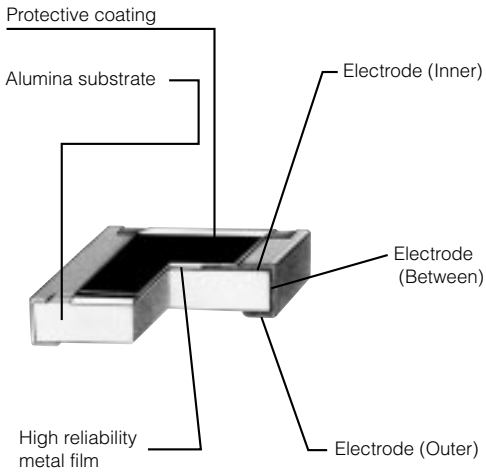
Temperature Coefficient	
Code	T.C.R.
E	±25×10^{-6}/°C (ppm/°C)
H	±50×10^{-6}/°C (ppm/°C)
K	±100×10^{-6}/°C (ppm/°C)

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

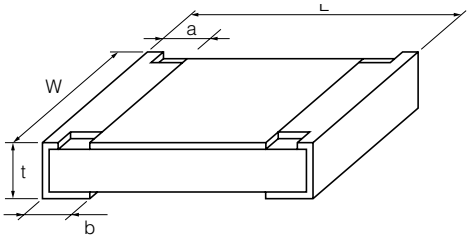
Packaging Methods		
Code	Packaging	Type
V	Punched Carrier Taping 4 mm pitch	ERA3Y ERA6Y

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

■ Construction



■ Dimensions in mm (not to scale)



Type (inches)	Dimensions (mm)					Mass (Weight) [g/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
ERA6Y (0805)	2.00$^{\pm0.20}$	1.25$^{\pm0.10}$	0.40$^{\pm0.25}$	0.40$^{\pm0.25}$	0.50$^{\pm0.10}$	4

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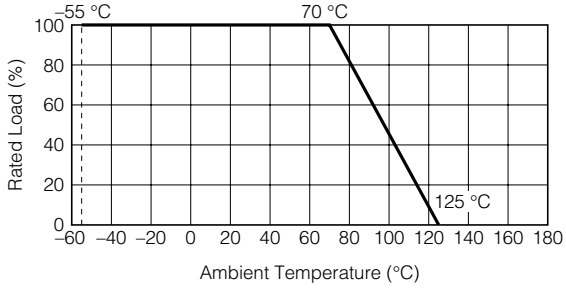
■ Ratings

Type (inches)	Power Rating at 70 °C (W)	Limiting Element Voltage (Maximum RCWV)(1) (V)	Maximum Overload Voltage(2) (V)	Resistance Tolerance (%)	Resistance Range(3) (Ω)	T.C.R. [×10⁻⁶/°C (ppm/°C)]	Category Temperature Range (Operating Temperature Range) (°C)
ERA3Y (0603)	0.1	75	150	±0.5	10 to 91 (E24)	± 50	−55 to +125
					100 to 33 k (E24)	± 25	
					36 k to 330 k (E24)	±100	
				±0.1	100 to 33 k (E24)	± 25	
ERA6Y (0805)	0.125	100	200	±0.5	10 to 91 (E24)	± 50	
					100 to 100 k (E24)	± 25	
					110 k to 1 M (E24)	±100	
				±0.1	100 to 100 k (E24)	± 25	

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV=$\sqrt{\text{Rated Power} \times \text{Resistance Values}}$, 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) E96 series resistance values are also available. Please contact us for details. Part Number of E96 series is shown ERA3E. , ERA6E.

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.

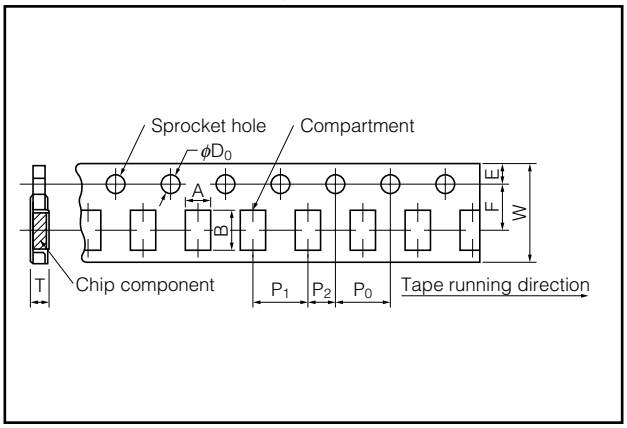


■ Packaging Methods (Taping)

● Standard Quantity

Type	Kind of Taping	Pitch (P_1)	Quantity
ERA3Y	Punched Carrier Taping	4 mm	5000 pcs./reel
ERA6Y			

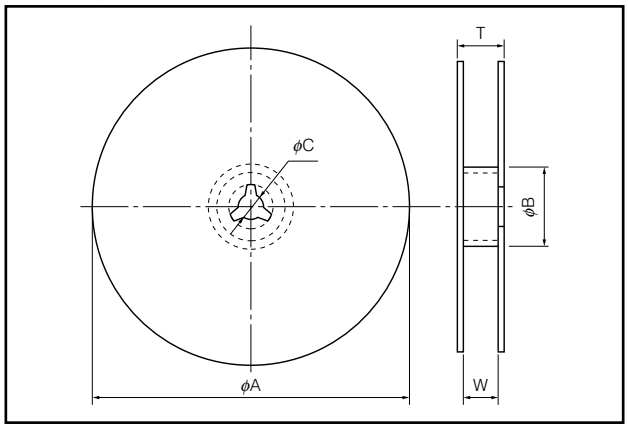
● Punched Carrier Taping



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					$0.84^{\pm0.05}$

● 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	$9.0^{\pm1.0}$	$11.4^{\pm1.0}$
	6Y		

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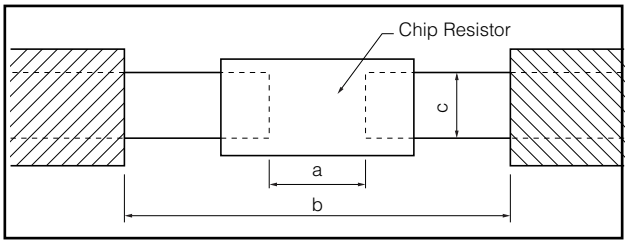
■ Recommended Land Pattern

In 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 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).



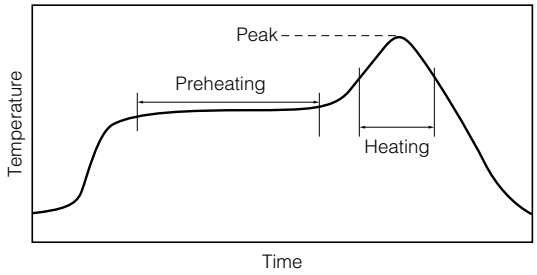
Type (inches)	Dimensions (mm)		
	a	b	c
ERA3Y (0603)	0.7 to 0.9	2 to 2.2	0.8 to 1
ERA6Y (0805)	1 to 1.4	3.2 to 3.8	0.9 to 1.4

■ Recommended Soldering Conditions

Recommendations and precautions are described below.

● Recommended soldering conditions for reflow

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



For soldering (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 soldering (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 soldering		For lead-free soldering	
	Temperature	Time	Temperature	Time
Preheating	140 °C to 180 °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

⚠ Safety Precautions

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

1. Keep the rated power and ambient temperature within the specified derating curve.
   * When positioning and mounting Metal Film Chip Resistors (hereafter called the resistors), make allowance for the effect of heat generated through close contact between the resistors and neighboring components and for the temperature rise of adjacent heat-generating components.
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.
   When applying pulses to the resistors, keep the pulse peak within the rated voltage.
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. When the resistors' protective coatings are chipped, flawed, or removed, the characteristics of the resistors may be impaired. Take special care not to apply mechanical shock during automatic mounting or cause damage during handling of the boards with the resistors mounted.
7. 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.
8. Avoid excessive bending of printed circuit boards in order to protect the resistors from abnormal stress.
9. Do not immerse the resistors in solvent for a long time. Before using solvent, carefully check the effects of immersion.

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