Metal Film (Thin Film) Chip Resistors, High Reliability Type 0402, 0603, 0805, 1206

Type: **ERA 2A, 3A, 6A, 8A**

■ Features

- High reliability ·····Stable at high temperature and humidity
  (85 °C 85 %RH rated load, Category temperature range : –55 to +155 °C)
- High accuracy·····Small resistance tolerance and Temperature Coefficient of Resistance
- High performance·····Low current noise, excellent linearity
- Reference Standard·····IEC 60115-8, JIS C 5201-8, EIAJ RC-2133B
- RoHS compliant

■ Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions

Please see Data Files

■ Explanation of Part Numbers

- E24 Series

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

Product Code

Metal Film Chip Resistors

Size, Power Rating

Type: inch	Power Rating
2A : 0402	0.063 W
3A : 0603	0.1 W
6A : 0805	0.125 W
8A : 1206	0.25 W

Temperature Coefficient

Code	T.C.R.
R	±10×10^{-6}/°C
P	±15×10^{-6}/°C
E	±25×10^{-6}/°C
H	±50×10^{-6}/°C
K	±100×10^{-6}/°C

Resistance Tolerance

Code	Tolerance
W	±0.05 %
B	±0.1 %
C	±0.25 %
D	±0.5 %

Packaging Methods

Code	Packaging	Type
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERA2A
V	Punched CarrierTaping 4 mm pitch, 5,000 pcs.	ERA3A ERA6A ERA8A

Resistance Value

Consist of three figures for E24 series resistance value. The first two digits are significant figures of resistance and the third one denotes number of zeros following.
(example) 102 : 1 kΩ

- E96 Series

1	2	3	4	5	6	7	8	9	10	11	12
E	R	A	3	A	E	B	1	0	5	1	V

Product Code

Metal Film Chip Resistors

Size, Power Rating

Type: inch	Power Rating
2A : 0402	0.063 W
3A : 0603	0.1 W
6A : 0805	0.125 W
8A : 1206	0.25 W

Temperature Coefficient

Code	T.C.R.
R	±10×10^{-6}/°C
P	±15×10^{-6}/°C
E	±25×10^{-6}/°C
H	±50×10^{-6}/°C
K	±100×10^{-6}/°C

Resistance Tolerance

Code	Tolerance
W	±0.05 %
B	±0.1 %
C	±0.25 %
D	±0.5 %

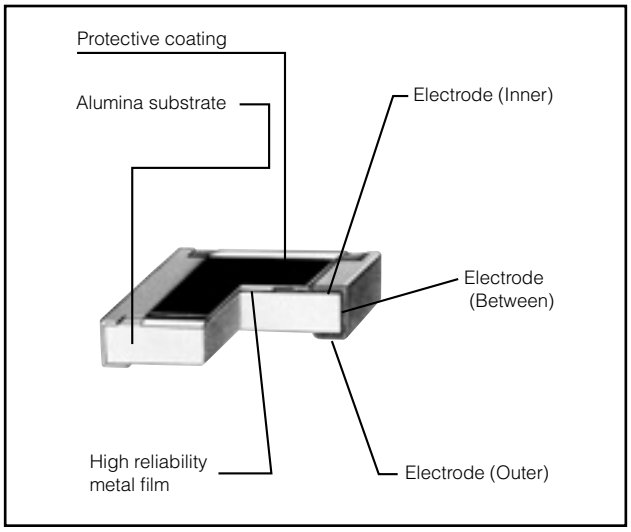
Packaging Methods

Code	Packaging	Type
X	Punched Carrier Taping 2 mm pitch, 10,000 pcs.	ERA2A
V	Punched CarrierTaping 4 mm pitch, 5,000 pcs.	ERA3A ERA6A ERA8A

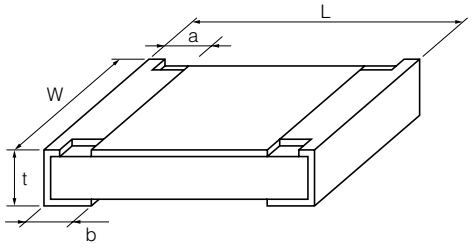
Resistance Value

Consist of four figures for E96 series resistance value. The first three digits are significant figures of resistance and the fourth one denotes number of zeros following.
(example) 1051 : 1.05 kΩ

■ Construction



■ Dimensions in mm (not to scale)



Type (inch size)	Dimensions (mm)					Mass (Weight) [g/1000pcs.]
	L	W	a	b	t	
ERA2A (0402)	$1.00^{\pm0.10}$	$0.50^{+0.10}_{-0.05}$	$0.15^{\pm0.10}$	$0.25^{\pm0.10}$	$0.35^{\pm0.05}$	0.6
ERA3A (0603)	$1.60^{\pm0.20}$	$0.80^{\pm0.20}$	$0.30^{\pm0.20}$	$0.30^{\pm0.20}$	$0.45^{\pm0.10}$	2
ERA6A (0805)	$2.00^{\pm0.20}$	$1.25^{\pm0.10}$	$0.40^{\pm0.25}$	$0.40^{\pm0.25}$	$0.50^{\pm0.10}$	4
ERA8A (1206)	$3.20^{\pm0.20}$	$1.60^{+0.05}_{-0.15}$	$0.50^{\pm0.25}$	$0.50^{\pm0.25}$	$0.60^{\pm0.10}$	8

■ Ratings

Type (inch size)	Power Rating at 85 °C (W)	Limiting Element Voltage(1) (V)	Maximum Overload Voltage(2) (V)	Type (detail)	Resistance Tolerance (%)	T.C.R. ($\times10^{-6}$/°C)	Resistance Range(3) (Ω)	Category Temperature Range (°C)
ERA2A (0402)	0.063	25	50	ERA2AKD	±0.5	±100	10 to 46.4 (E24, E96)	–55 to +155
				ERA2AED	±0.5	±25	47 to 100 k (E24, E96)	
				ERA2AEB	±0.1			
				ERA2APB	±0.1	±15	200 to 47 k (E24, E96)	
				ERA2ARC	±0.25	±10	200 to 47 k (E24, E96)	
				ERA2ARB	±0.1			
ERA3A (0603)	0.1	75	150	ERA3AHD	±0.5	±50	10 to 46.4 (E24, E96)	
				ERA3AED	±0.5	±25	47 to 330 k (E24, E96)	
				ERA3AEB	±0.1			
				ERA3APB	±0.1	±15	470 to 100 k (E24, E96)	
				ERA3ARB	±0.1	±10	1 k to 100 k (E24, E96)	
				ERA3ARW	±0.05			
ERA6A (0805)	0.125	100	200	ERA6AHD	±0.5	±50	10 to 46.4 (E24, E96)	
				ERA6AED	±0.5	±25	47 to 1 M (E24, E96)	
				ERA6AEB	±0.1			
				ERA6APB	±0.1	±15	470 to 100 k (E24, E96)	
				ERA6ARB	±0.1	±10	1 k to 100 k (E24, E96)	
				ERA6ARW	±0.05			
ERA8A (1206)	0.25	150	300	ERA8AHD	±0.5	±50	10 to 46.4 (E24, E96)	
				ERA8AED	±0.5	±25	47 to 1 M (E24, E96)	
				ERA8AEB	±0.1			
				ERA8APB	±0.1	±15	470 to 100 k (E24, E96)	
				ERA8ARB	±0.1	±10	1 k to 100 k (E24, E96)	
				ERA8ARW	±0.05			

(1) Rated Continuous Working Voltage (RCWV) shall be determined from RCWV=$\sqrt{\text{Rated Power} \times \text{Resistance Values}}$, or Limiting Element Voltage listed above, whichever less.
(2) Overload (Short-time Overload) Test Voltage (SOTV) shall be determined from SOTV=2.5 × Power Rating or max. Overload Voltage listed above whichever less.
(3) E192 series resistance values are also available. Please contact us for details.

Power Derating Curve

For resistors operated in ambient temperatures above 85 °C, power rating shall be derated in accordance with the figure on the right.