

### 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

Please see Pages 40 to 43

#### ■ Recommended Land Pattern

Please see Pages 44 to 45

#### ■ Recommended Soldering Conditions

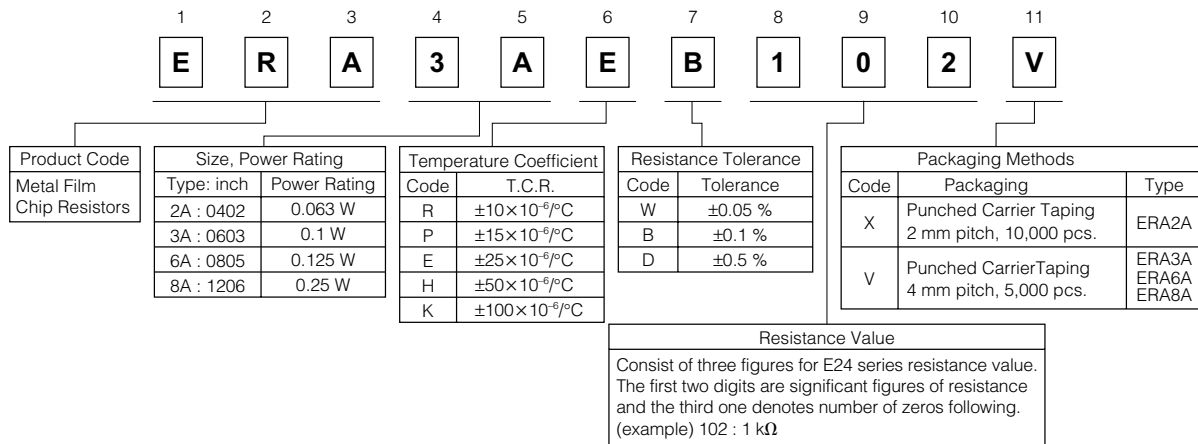
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#### ■ Safety Precautions

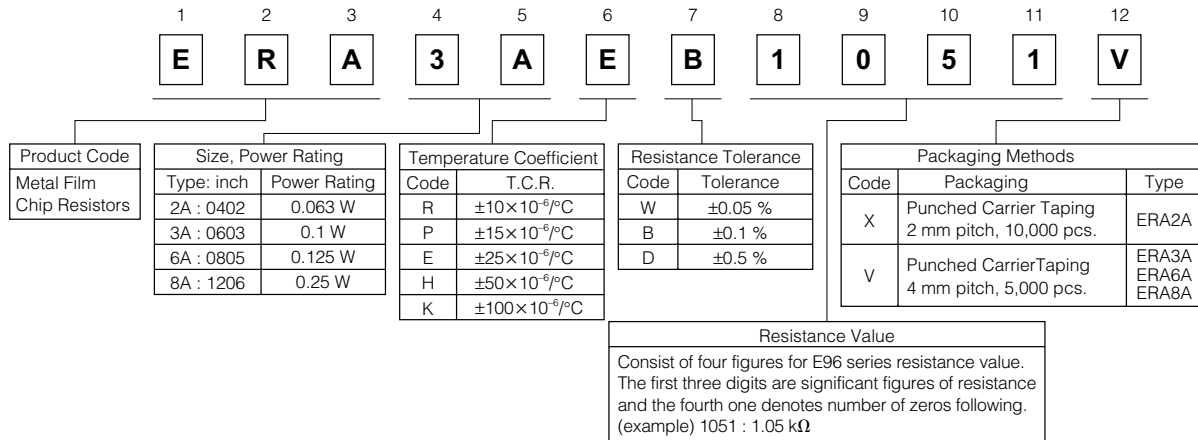
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#### ■ Explanation of Part Numbers

- E24 Series



- E96 Series



### Construction



### Dimensions in mm (not to scale)



| Type<br>(inch size) | Dimensions (mm)       |                             |                       |                       |                       | Mass (Weight)<br>[g/1000pcs.] |
|---------------------|-----------------------|-----------------------------|-----------------------|-----------------------|-----------------------|-------------------------------|
|                     | L                     | W                           | a                     | b                     | t                     |                               |
| ERA2A<br>(0402)     | 1.00 <sup>±0.10</sup> | 0.50 <sup>+0.10/-0.05</sup> | 0.15 <sup>±0.10</sup> | 0.25 <sup>±0.10</sup> | 0.35 <sup>±0.05</sup> | 0.6                           |
| ERA3A<br>(0603)     | 1.60 <sup>±0.20</sup> | 0.80 <sup>±0.20</sup>       | 0.30 <sup>±0.20</sup> | 0.30 <sup>±0.20</sup> | 0.45 <sup>±0.10</sup> | 2                             |
| ERA6A<br>(0805)     | 2.00 <sup>±0.20</sup> | 1.25 <sup>±0.10</sup>       | 0.40 <sup>±0.25</sup> | 0.40 <sup>±0.25</sup> | 0.50 <sup>±0.10</sup> | 4                             |
| ERA8A<br>(1206)     | 3.20 <sup>±0.20</sup> | 1.60 <sup>+0.05/-0.15</sup> | 0.50 <sup>±0.25</sup> | 0.50 <sup>±0.25</sup> | 0.60 <sup>±0.10</sup> | 8                             |

### Ratings

| Type<br>(inch size) | Power Rating<br>at 85 °C<br>(W) | Limiting Element<br>Voltage <sup>(1)</sup><br>(V) | Maximum<br>Overload<br>Voltage <sup>(2)</sup><br>(V) | Type<br>(detail) | Resistance<br>Tolerance<br>(%) | T.C.R.<br>(×10 <sup>-6</sup> /°C) | Resistance<br>Range <sup>(3)</sup><br>(Ω) | Category<br>Temperature<br>Range<br>(°C) |
|---------------------|---------------------------------|---|--|------------------|--------------------------------|-----------------------------------|---|--|
| ERA2A<br>(0402)     | 0.063                           | 25  | 50   | ERA2AKD          | ±0.5                           | ±100                              | 10 to 46.4 (E24, E96)                     | -55 to +155                              |
|                     |                                 |   |  | ERA2AED          | ±0.5                           |                                   | ±25                                       |  |
|                     |                                 |   |  | ERA2AEB          | ±0.1                           |                                   |   |  |
| ERA3A<br>(0603)     | 0.1                             | 75  | 150  | ERA3AHD          | ±0.5                           | ±50                               | 10 to 46.4 (E24, E96)                     |  |
|                     |                                 |   |  | ERA3AED          | ±0.5                           |                                   | ±25                                       |  |
|                     |                                 |   |  | ERA3AEB          | ±0.1                           | ±15                               | 470 to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA3APB          | ±0.1                           |                                   | 1 k to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA3ARB          | ±0.1                           | ±10                               | 1 k to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA3ARW          | ±0.05                          |                                   |   |  |
| ERA6A<br>(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                           | ±15                               | 470 to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA6APB          | ±0.1                           |                                   | 1 k to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA6ARB          | ±0.1                           | ±10                               | 1 k to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA6ARW          | ±0.05                          |                                   |   |  |
| ERA8A<br>(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                           | ±15                               | 470 to 100 k (E24, E96)                   |  |
|                     |                                 |   |  | ERA8APB          | ±0.1                           |                                   | 1 k 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  $SOTV = 2.5 \times \text{Power Rating}$  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.

