

### Metal Film (Thin Film) Chip Resistors, High Reliability Type

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Type: **ERA 1A, 2A, 3A, 6A, 8A**

#### Features

- High reliability ..... Stable at high temperature and humidity  
(85 °C 85 %RH rated load, Category temperature range : -55 °C 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
- AEC-Q200 qualified
- RoHS compliant

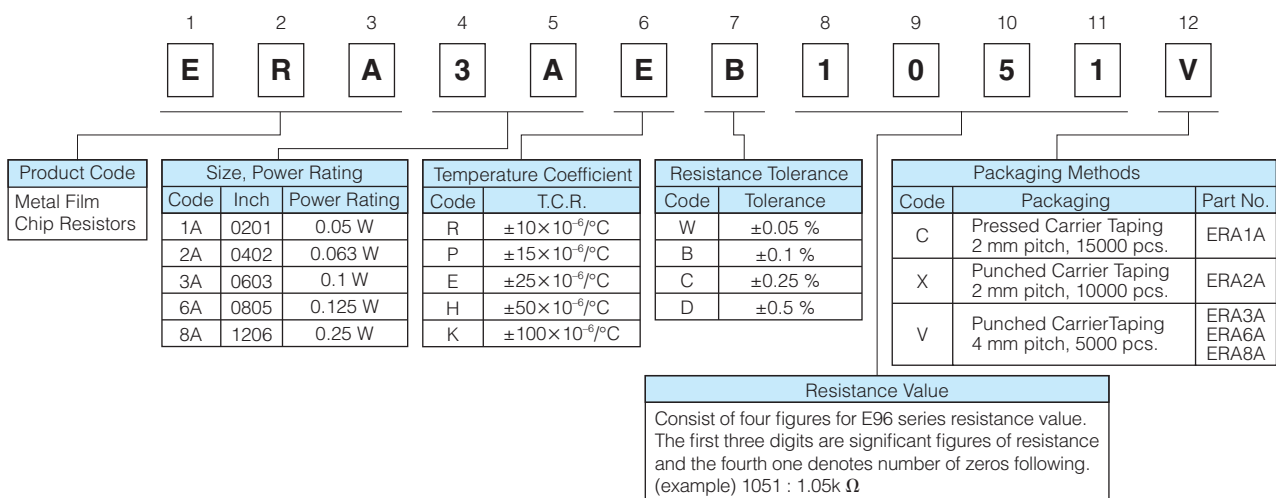
■ **As for Packaging Methods, Land Pattern, Soldering Conditions and Safety Precautions,**  
Please see Data Files

#### Explanation of Part Numbers

- E24 Series



- E96 Series and other Resistance values



note : Duplicated resistance values as E24 series part numbers shall follow E24 part numbers.  
(apply three digit resistance value)

### Construction



### Dimensions in mm (not to scale)



| Part No.<br>(inch size) | Dimensions (mm)       |                       |                       |                       |                       | Mass (Weight)<br>[g/1000pcs.] |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------------|
|                         | L                     | W                     | a                     | b                     | t                     |                               |
| ERA1A (0201)            | 0.60 <sup>±0.03</sup> | 0.30 <sup>±0.03</sup> | 0.15 <sup>±0.05</sup> | 0.15 <sup>±0.05</sup> | 0.23 <sup>±0.03</sup> | 0.14                          |
| ERA2A (0402)            | 1.00 <sup>±0.10</sup> | 0.50 <sup>±0.05</sup> | 0.15 <sup>±0.10</sup> | 0.25 <sup>±0.10</sup> | 0.35 <sup>±0.05</sup> | 0.6                           |
| ERA3A (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 (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 (1206)            | 3.20 <sup>±0.20</sup> | 1.60 <sup>±0.15</sup> | 0.50 <sup>±0.25</sup> | 0.50 <sup>±0.25</sup> | 0.60 <sup>±0.10</sup> | 8                             |

### Ratings

| Part No.<br>(inch size) | Power Rating<br>at 85 °C<br>(W) | Limiting Element<br>Voltage <sup>(1)</sup><br>(V) | Maximum<br>Overload Voltage <sup>(2)</sup><br>(V) | Part No.<br>(detail) | Resistance<br>Tolerance<br>(%) | T.C.R.<br>(×10 <sup>-6</sup> /°C) | Resistance<br>Range <sup>(3)(4)</sup><br>(Ω) | Category<br>Temperature Range<br>(°C) |
|-------------------------|---------------------------------|---|---|----------------------|--------------------------------|-----------------------------------|--|---------------------------------------|
| ERA1A<br>(0201)         | 0.05                            | 25  | 50  | ERA1AEB              | ±0.1                           | ±25                               | 100 to 10k (E24, E96)                        | -55 to +155                           |
|                         |                                 |   |   | ERA1AEC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA1ARC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA1ARB              | ±0.1                           | ±10                               | 100 to 10k (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA1ARW              | ±0.05                          |                                   |  |                                       |
| ERA2A<br>(0402)         | 0.063                           | 50  | 100   | ERA2AKD              | ±0.5                           | ±100                              | 10 to 46.4 (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA2AED              | ±0.5                           |                                   |  |                                       |
|                         |                                 |   |   | ERA2AEC              | ±0.25                          | ±25                               | 47 to 100k (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA2AEB              | ±0.1                           |                                   |  |                                       |
|                         |                                 |   |   | ERA2APC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA2APB              | ±0.1                           | ±15                               | 200 to 47k (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA2ARC              | ±0.25                          |                                   |  |                                       |
| ERA2ARB                 | ±0.1                            | ±10   | 200 to 47k (E24, E96)                             |                      |                                |                                   |  |                                       |
| ERA3A<br>(0603)         | 0.1                             | 75  | 150   | ERA3AHD              | ±0.5                           | ±50                               | 10 to 46.4 (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA3AED              | ±0.5                           |                                   |  |                                       |
|                         |                                 |   |   | ERA3AEC              | ±0.25                          | ±25                               | 47 to 330k (E24, E96)                        |                                       |
|                         |                                 |   |   | ERA3AEB              | ±0.1                           |                                   |  |                                       |
|                         |                                 |   |   | ERA3APC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA3APB              | ±0.1                           | ±15                               | 470 to 100k (E24, E96)                       |                                       |
|                         |                                 |   |   | ERA3ARC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA3ARB              | ±0.1                           | ±10                               | 1k to 100k (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                           |                                   |  |                                       |
|                         |                                 |   |   | ERA6AEC              | ±0.25                          | ±25                               | 47 to 1M (E24, E96)                          |                                       |
|                         |                                 |   |   | ERA6AEB              | ±0.1                           |                                   |  |                                       |
|                         |                                 |   |   | ERA6APC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA6APB              | ±0.1                           | ±15                               | 470 to 100k (E24, E96)                       |                                       |
|                         |                                 |   |   | ERA6ARC              | ±0.25                          |                                   |  |                                       |
| ERA6ARB                 | ±0.1                            | ±10   | 1k to 100k (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                           |                                   |  |                                       |
|                         |                                 |   |   | ERA8AEC              | ±0.25                          | ±25                               | 47 to 1M (E24, E96)                          |                                       |
|                         |                                 |   |   | ERA8AEB              | ±0.1                           |                                   |  |                                       |
|                         |                                 |   |   | ERA8APC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA8APB              | ±0.1                           | ±15                               | 470 to 100k (E24, E96)                       |                                       |
|                         |                                 |   |   | ERA8ARC              | ±0.25                          |                                   |  |                                       |
|                         |                                 |   |   | ERA8ARB              | ±0.1                           | ±10                               | 1k to 100k (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  $SOTV = 2.5 \times RCWV$  or max. Overload Voltage listed above whichever less.  
 (3) E192 series resistance values are also available. Please contact us for details.  
 (4) Duplicated resistance values between E96, E192 and E24 series shall follow E24 Part Numbers. (apply three digit resistance value)

### 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.

