

## Anti Sulphur Chip Resistors

### ASC Series

- Special construction resists sulphide growth
- Withstands sulphur bearing fume environment
- Tested to ASTM-B809 ("Flowers-of-Sulphur")
- Suitable for industrial, automotive and roadside uses
- RoHS compliant matt tin finish terminations
- AEC-Q200 qualified



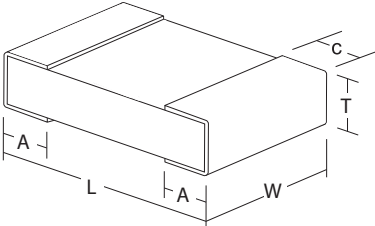
All parts are Pb-free and comply with EU Directive 2011/65/EU amended by (EU) 2015/863 (RoHS3)

### Electrical Data

|                                  |        | 0402                                | 0603 | 0805  | 1206 | 1210 | 2010 | 2512 |
|----------------------------------|--------|-------------------------------------|------|-------|------|------|------|------|
| Power rating @ 70°C              | watts  | 0.063                               | 0.1  | 0.125 | 0.25 | 0.33 | 0.75 | 1    |
| Resistance range                 | ohms   | 1R0 - 10M                           |      |       |      |      |      |      |
| Current Rating (zero ohm jumper) | amps   | 1                                   | 1    | 2     | 2    | 2.5  | 3.5  | 4    |
| Limiting element voltage         | volts  | 50                                  |      | 150   | 200  |      |      | 250  |
| TCR                              | ppm/°C | <10R: 200 10R to 1M0: 100 >1M0: 200 |      |       |      |      |      |      |
| Resistance tolerance             | %      | 1                                   |      |       |      |      |      |      |
| Standard values                  |        | E24, E96                            |      |       |      |      |      |      |
| Ambient temperature range        | °C     | -55 to +155                         |      |       |      |      |      |      |

### Physical Data

| Dimensions (mm) and weight (mg) |           |           |            |           |          |          |
|---------------------------------|-----------|-----------|------------|-----------|----------|----------|
|                                 | L         | W         | T          | C         | A        | Wt. nom. |
| 0402                            | 1.0 ±0.05 | 0.5 ±0.05 | 0.35 ±0.05 | 0.2 ±0.1  | 0.2 ±0.1 | 0.62     |
| 0603                            | 1.6 ±0.1  | 0.8 ±0.1  | 0.45 ±0.1  | 0.3 ±0.2  | 0.3 ±0.2 | 2.04     |
| 0805                            | 2.0 ±0.1  | 1.25 ±0.1 | 0.5 ±0.1   | 0.35 ±0.2 | 0.4 ±0.2 | 4.37     |
| 1206                            | 3.1 ±0.1  | 1.55 ±0.1 | 0.55 ±0.1  | 0.5 ±0.25 | 0.5 ±0.2 | 8.95     |
| 1210                            | 3.2 ±0.2  | 2.6 ±0.15 |            |           |          | 16.0     |
| 2010                            | 5.0 ±0.2  | 2.5 ±0.15 |            | 24.2      |          |          |
| 2512                            | 6.35 ±0.2 | 3.2 ±0.15 |            | 0.6 ±0.25 |          | 39.4     |
|                                 |           |           |            |           |          |          |



Wrap-around terminations  
(3 faces)

### Construction

Conductors, resistive element, glass inner protection and epoxy outer protection are applied to a 96% alumina substrate. The chips are supplied with wrap-around terminations suitable for soldering. The terminations have an electroplated nickel barrier and 100% matt tin finish.

### Marking

Sizes larger than 0603 are individually marked with 4 digits. The first three digits are the significant figures and the fourth defines the number of added zeros.

Size 0603, E24 values are marked with 3 digits. The first two digits are the significant figures and the third defines the number of added zeros.

Size 0603, E96 values are marked with a standard 3 digit EIA96 code.

Size 0402 has no marking.

The body protection and marking are resistant to all normal cleaning solvents suitable for printed circuits.

### General Note

TT Electronics reserves the right to make changes in product specification without notice or liability.

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### Performance Data

|                                                                                              |              | Maximum                                             |
|----------------------------------------------------------------------------------------------|--------------|-----------------------------------------------------|
| Load at rated power: 1000 hours cyclic load @ 70°C                                           | $\Delta R\%$ | 2% + 0.1 $\Omega$                                   |
| Short term overload: Lesser of 6.25 x rated power or 2 x LEV for s                           | $\Delta R\%$ | 1% + 0.05 $\Omega$                                  |
| Hydrogen Sulphide: 1000 hours 3-5ppm H <sub>2</sub> S, 50 $\pm$ 2°C, 92 $\pm$ 1% RH, no load | $\Delta R\%$ | 0.5% and no visual defects                          |
| Derating from rated power at 70°C                                                            |              | Linear to zero at 155°C                             |
| Dry heat: 1000 hours at 155°C                                                                | $\Delta R\%$ | 1% + 0.05 $\Omega$                                  |
| Damp heat 1000 hours 40°C 90-95% RH                                                          | $\Delta R\%$ | 2% + 0.1 $\Omega$                                   |
| Temperature rapid change -55 to 155°C, 5 cycles                                              | $\Delta R\%$ | 0.5% + 0.05 $\Omega$                                |
| Resistance to solder heat: 260 $\pm$ 5°C for 10s                                             | $\Delta R\%$ | 0.5% + 0.05 $\Omega$                                |
| Solderability: 245 $\pm$ 5°C for 3s                                                          |              | $\geq$ 95% coverage                                 |
| Solder leaching: 260 $\pm$ 5°C for 30s                                                       |              | Leached area $\leq$ 10% total, $\leq$ 5% individual |
| Board Flex: once for 5s, 2010 & 2512: 2mm, smaller sizes: 3mm                                | $\Delta R\%$ | 1% + 0.05 $\Omega$                                  |
| Insulation resistance @ 2 x LEV for 60s                                                      | ohms         | >10G                                                |

### Packaging

ASC resistors are supplied taped and reeled on a 7 or 10" reel as per IEC 286-3. The tape is 12mm wide embossed plastic tape for 2010 and 2512 sizes and 8mm wide paper tape for the smaller sizes.

## Ordering Procedure

**Example: ASC1210-22RFT5** (1210, 22 ohms  $\pm$ 1%, Pb-free)

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | S | C | 1 | 2 | 1 | 0 | - | 2 | 2 | R |   | F | T | 5 |
| 1 |   |   | 2 |   |   | 3 |   |   | 4 |   | 5 |   |   |   |

| 1    | 2    | 3                    | 4                | 5       |                        |                  |
|------|------|----------------------|------------------|---------|------------------------|------------------|
| Type | Size | Value                | Tolerance        | Packing |                        |                  |
| ASC  | 0402 | E24 = 3/4 characters | F = $\pm$ 1%     | T10     | 0402                   | 10,000 / 7" reel |
|      | 0603 | E96 = 3/4 characters | Blank for jumper | T5      | 0603, 0805, 1206, 1210 | 5000 / 10" reel  |
|      | 0805 | R = ohms             |                  | T4      | 2010, 2512             | 4000 / 7" reel   |
|      | 1206 | K = kilohms          |                  |         |                        |                  |
|      | 1210 | M = megohms          |                  |         |                        |                  |
|      | 2010 | R000 = Jumper        |                  |         |                        |                  |
|      | 2512 |                      |                  |         |                        |                  |

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