

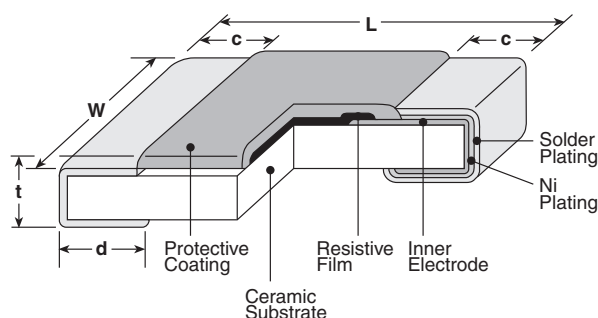
# 10-ohm 0.5%, 1%, 2%, 5% tolerance thick film current sense resistor



## features

- RuO<sub>2</sub> thick film resistor element
- Anti-leaching nickel barrier terminations
- Meets or exceeds EIA 575, EIA PDP-100, MIL-R-55342F
- Marking: Three or four digits on indigo protective coat, 1E size: no marking, 1H: no marking, black protective coat
- Products with lead-free terminations meet EU RoHS requirements. Pb located in glass material, electrode and resistor element is exempt per Annex 1, exemption 5 of EU directive 2005/95/EC

## dimensions and construction



| NEW | Type<br>(Inch Size Code) | Dimensions inches (mm)                                                                 |                                                                                        |                         |                                                                                       |                          |
|-----|--------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|--------------------------|
|     |                          | L                                                                                      | W                                                                                      | c                       | d                                                                                     | t                        |
|     | <b>1H</b><br>(0201)      | .024±.001<br>(0.6±0.03)                                                                | .012±.001<br>(0.3±0.03)                                                                | .004±.002<br>(0.1±0.05) | .006±.002<br>(0.15±0.05)                                                              | .009±.001<br>(0.23±0.03) |
|     | <b>1E</b><br>(0402)      | .039 <sup>+0.004</sup> / <sub>-.002</sub><br>(1.0 <sup>+0.1</sup> / <sub>-0.05</sub> ) | .02 <sup>+0.004</sup> / <sub>-.002</sub><br>(0.5 <sup>+0.1</sup> / <sub>-0.05</sub> )  | .01±.004<br>(0.25±0.1)  | .01±.004<br>(0.25±0.1)                                                                | .014±.002<br>(0.35±0.05) |
|     | <b>1J</b><br>(0603)      | .063±.008<br>(1.6±0.2)                                                                 | .031 <sup>+0.006</sup> / <sub>-.004</sub><br>(0.8 <sup>+0.15</sup> / <sub>-0.1</sub> ) | .014±.004<br>(0.35±0.1) | .014±.004<br>(0.35±0.1)                                                               | .018±.004<br>(0.45±0.1)  |
|     | <b>2A</b><br>(0805)      | .079±.008<br>(2.0±0.2)                                                                 | .049±.004<br>(1.25±0.1)                                                                | .016±.008<br>(0.4±0.2)  | .012 <sup>+0.008</sup> / <sub>-.004</sub><br>(0.3 <sup>+0.2</sup> / <sub>-0.1</sub> ) | .02±.004<br>(0.5±0.1)    |
|     | <b>2B</b><br>(1206)      | .126±.008<br>(3.2±0.2)                                                                 | .063±.008<br>(1.6±0.2)                                                                 | .02±.012<br>(0.5±0.3)   | .016 <sup>+0.008</sup> / <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> / <sub>-0.1</sub> ) | .024±.004<br>(0.6±0.1)   |
|     | <b>2E</b><br>(1210)      |                                                                                        | .102±.008<br>(2.6±0.2)                                                                 |                         |                                                                                       |                          |
|     | <b>2H</b><br>(2010)      |                                                                                        | .098±.008<br>(2.5±0.2)                                                                 |                         |                                                                                       |                          |
|     | <b>W2H</b><br>(2010)     |                                                                                        |                                                                                        |                         | .026±.006<br>(0.65±0.15)                                                              |                          |
|     | <b>3A</b><br>(2512)      | .248±.008<br>(6.3±0.2)                                                                 | .122±.008<br>(3.1±0.2)                                                                 |                         | .016 <sup>+0.008</sup> / <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> / <sub>-0.1</sub> ) |                          |
|     | <b>W3A</b><br>(2512)     |                                                                                        |                                                                                        |                         | .026±.006<br>(0.65±0.15)                                                              |                          |

## ordering information

| New Part # | SR73 | 2B                                                         | T                                                                                                                                    | TD                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1R00                                                                                                                                                                                                                                                                      | F                                      |
|------------|------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| Type       |      | Size                                                       | Termination Material                                                                                                                 | Packaging                                                                                                                                                                                                                                                                                                                                                                                                                                             | Nominal Resistance                                                                                                                                                                                                                                                        | Tolerance                              |
|            |      | 1H<br>1E<br>1J<br>2A<br>2B<br>2E<br>2H<br>3A<br>W2H<br>W3A | T: Sn<br>(Other termination styles may be available, please contact factory for options)<br>G: Au (2A: 0.1Ω - 10Ω - contact factory) | TCM: 0201 only:<br>7" 2mm pitch pressed paper<br>TPL: 0402 only: 2mm pitch punch paper<br>TP: 0402, 0603, 0805: 7" 2mm pitch punch paper<br>TD: 0603, 0805, 1206, 1210:<br>7" 2mm pitch punched paper<br>TDD: 0603, 0805, 1206, 1210:<br>10" paper tape<br>TE: 0805, 1206, 1210, 2010 & 2512:<br>7" punched plastic<br>TED: 0805, 1206, 1210, 2010 & 2512:<br>10" punched plastic<br>For further information on packaging, please refer to Appendix A | ±2%, ±5%: 2 significant figures + 1 multiplier "R" indicates decimal on value <10Ω<br>±1%: 3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω<br>All values less than 0.1Ω (100mΩ) are expressed in mΩ with "L" as decimal<br>Example: 20mΩ = 20L0 | D: ±0.5%<br>F: ±1%<br>G: ±2%<br>J: ±5% |

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

12/01/08

### applications and ratings

|     | Part Designation*    | Power Rating<br>@ 70°C        | T.C.R.<br>(ppm/°C)<br>Max. | Resistance Range** |                                                      |                                             |                                             | Absolute<br>Maximum<br>Working<br>Voltage | Maximum<br>Overload<br>Voltage<br>(5 Secs. Max.) | Operating<br>Temperature<br>Range |
|-----|----------------------|-------------------------------|----------------------------|--------------------|------------------------------------------------------|---------------------------------------------|---------------------------------------------|-------------------------------------------|--------------------------------------------------|-----------------------------------|
| NEW | SR731H<br>(0201)     | 0.1W                          | 0~ ±400                    | —                  | 1Ω - 10Ω                                             | —                                           | 0.47Ω - 10Ω                                 | 1.0V                                      | 2.5V                                             | -55°C to<br>+125°C                |
|     | SR731E<br>(0402)     | 1/8W (.125W)<br>1/6W (.166W') | ±200<br>±300<br>±500       | —<br>—<br>—        | 0.51Ω - 10Ω***<br>0.2Ω - 0.47Ω***<br>0.1Ω - 0.18Ω*** | 0.51Ω - 10Ω<br>0.2Ω - 0.47Ω<br>0.1Ω - 0.18Ω | 0.51Ω - 10Ω<br>0.2Ω - 0.47Ω<br>0.1Ω - 0.18Ω | 1.11V                                     | 2.79V                                            | -55°C<br>to<br>+150°C             |
|     | SR731J<br>(0603)     | 1/5W (.2W)                    | ±200                       | —                  | 0.1Ω - 10Ω                                           | 0.1Ω - 10Ω                                  | 0.1Ω - 10Ω                                  | 1.41V                                     | 3.53V                                            |                                   |
|     | SR732A<br>(0805)     | 1/4W (.25W)<br>1/3W (.33W')   | ±100                       | 0.15Ω - 10Ω        | 0.1Ω - 10Ω                                           | —                                           | —                                           | 1.58V                                     | 3.95V                                            |                                   |
|     |                      |                               | ±200                       | —                  | —                                                    | 0.1Ω - 10Ω                                  | 0.1Ω - 10Ω                                  |                                           |                                                  |                                   |
|     |                      |                               | ±500                       | —                  | —                                                    | —                                           | 0.051Ω - 0.091Ω                             |                                           |                                                  |                                   |
|     |                      |                               | ±800                       | —                  | —                                                    | —                                           | 0.030Ω - 0.047Ω                             |                                           |                                                  |                                   |
|     | SR732B<br>(1206)     | 1/3W (.33W)<br>1/2W (.5W')    | ±100                       | 0.15Ω - 10Ω        | 0.1Ω - 10Ω                                           | —                                           | —                                           | 1.81V                                     | 4.54V                                            |                                   |
|     |                      |                               | ±200                       | —                  | —                                                    | 0.1Ω - 10Ω                                  | 0.1Ω - 10Ω                                  |                                           |                                                  |                                   |
|     |                      |                               | ±500                       | —                  | —                                                    | —                                           | 0.056Ω - 0.091Ω                             |                                           |                                                  |                                   |
|     |                      |                               | ±800                       | —                  | —                                                    | —                                           | 0.030Ω - 0.051Ω                             |                                           |                                                  |                                   |
|     | SR732E<br>(1210)     | 1/2W (.5W)<br>2/3W (.66W')    | ±100                       | —                  | 0.1Ω - 10Ω                                           | —                                           | —                                           | 2.23V                                     | 5.59V                                            |                                   |
|     |                      |                               | ±200                       | —                  | —                                                    | 0.1Ω - 10Ω                                  | 0.047Ω - 10Ω                                |                                           |                                                  |                                   |
|     |                      |                               | ±500                       | —                  | —                                                    | —                                           | 0.036Ω - 0.043Ω                             |                                           |                                                  |                                   |
|     |                      |                               | ±1000                      | —                  | —                                                    | —                                           | 0.024Ω - 0.033Ω                             |                                           |                                                  |                                   |
|     | SR732H/W2H<br>(2010) | 3/4W (.75W)                   | ±100                       | —                  | 0.1Ω - 10Ω                                           | —                                           | —                                           | 2.73V                                     | 6.84V                                            |                                   |
|     |                      |                               | ±200                       | —                  | —                                                    | 0.1Ω - 10Ω                                  | 0.1Ω - 10Ω                                  |                                           |                                                  |                                   |
|     |                      |                               | ±500                       | —                  | —                                                    | —                                           | 0.056Ω - 0.091Ω                             |                                           |                                                  |                                   |
|     |                      |                               | ±800                       | —                  | —                                                    | —                                           | 0.033Ω - 0.051Ω                             |                                           |                                                  |                                   |
|     | SR733A/W3A<br>(2512) | 1W                            | ±100                       | —                  | 0.1Ω - 10Ω                                           | —                                           | —                                           | 3.16V                                     | 7.90V                                            |                                   |
|     |                      |                               | ±200                       | —                  | —                                                    | 0.1Ω - 10Ω                                  | 0.1Ω - 10Ω                                  |                                           |                                                  |                                   |
|     |                      |                               | ±500                       | —                  | —                                                    | —                                           | 0.056Ω - 0.091Ω                             |                                           |                                                  |                                   |
|     |                      |                               | ±800                       | —                  | —                                                    | —                                           | 0.039Ω - 0.051Ω                             |                                           |                                                  |                                   |

\* Parenthesis indicate EIA package size codes.

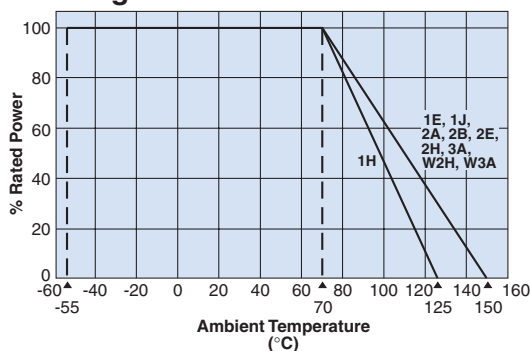
\*\* See Appendix D for available decade values.

\*\*\* 1H, 1E (F: ±1%) E-24 values only.

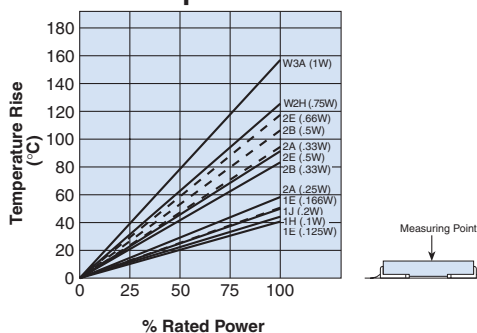
† Please contact factory for limitation of Surface Mount Temp. Rise

### environmental applications

#### Derating Curve



#### Surface Temperature Rise



### Performance Characteristics

| Parameter                   | Requirement Δ R            |                  | Test Method                                                              |
|-----------------------------|----------------------------|------------------|--------------------------------------------------------------------------|
|                             | Limit                      | Typical          |                                                                          |
| Resistance                  | Within specified tolerance | —                | 25°C                                                                     |
| T.C.R.                      | Within specified T.C.R.    | —                | +25°C/-55°C and +25°C/+125°C                                             |
| Overload (Short time)       | ±2%                        | ±0.5%            | Rated Voltage x 2.5 for 5 seconds                                        |
| Resistance to Solder Heat   | ±3%*, ±1%**                | ±0.75%*, ±0.3%** | 260°C ± 5°C, 10 seconds ± 1 second                                       |
| Rapid Change of Temperature | ±1%                        | ±0.3%            | -40°C (30 minutes), +125°C (30 minutes), 100 cycles                      |
| Moisture Resistance         | ±3%*, ±2%**                | ±1%              | 40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle          |
| Endurance at 70°C           | ±3%*, ±2%**                | ±1%              | 70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle                      |
| High Temperature Exposure   | ±1%                        | ±0.3%            | 1H: +125°C, 1000 hours; 1E, 1J, 2A, 2B, 2E, W2H, W3A: +155°C, 1000 hours |

\* 1H

\*\* 1E-W3A