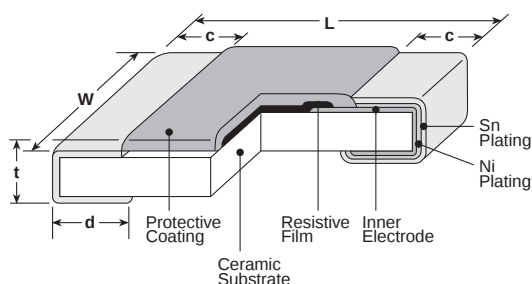




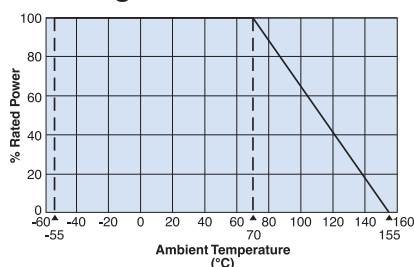
### features

- Superior to RK73 series chip resistors in surge withstanding voltage and pulse withstanding voltage
- Suitable for both reflow and flow solderings
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- AEC-Q200 Tested: 0603(1J), 0805(2A), 1206(2B), 1210(2E), 2010(2H/W2H), 2512(3A/W3A)

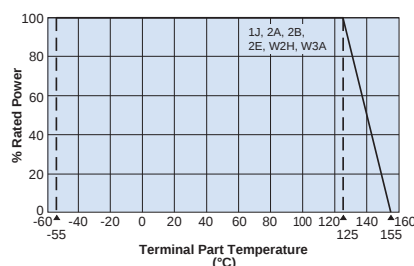
### dimensions and construction



### Derating Curve



For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the derating curve.



For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.

Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.

| Type<br>(Inch Size Code) | Dimensions inches (mm) |                         |                          |                                                                                   |                         |
|--------------------------|------------------------|-------------------------|--------------------------|-----------------------------------------------------------------------------------|-------------------------|
|                          | L                      | W                       | c                        | d                                                                                 | t                       |
| SG731J<br>(0603)         | .063±.008<br>(1.6±0.2) | .031±.004<br>(0.8±0.1)  | .012±.004<br>(0.3±0.1)   | .012±.004<br>(0.3±0.1)                                                            | .018±.004<br>(0.45±0.1) |
| SG731J AT<br>(0603)      |                        |                         | .014±.006<br>(0.35±0.15) | .02±.008<br>(0.5±0.2)                                                             |                         |
| SG732A<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>-.01</sub> ) | .02±.004<br>(0.5±0.1)   |
| SG732A AT<br>(0805)      |                        |                         | .018±.010<br>(0.45±0.25) | .024±.008<br>(0.6±0.2)                                                            | .022±.004<br>(0.55±0.1) |
| SG732B<br>(1206)         |                        | .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>-.01</sub> ) | .024±.004<br>(0.6±0.1)  |
| SG732B AT<br>(1206)      | .126±.008<br>(3.2±0.2) |                         | .022±.014<br>(0.55±0.35) | .031±.008<br>(0.8±0.2)                                                            |                         |
| SG732E<br>(1210)         |                        | .102±.008<br>(2.6±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>-.01</sub> ) |                         |
| SG732H<br>(2010)         | .197±.008<br>(5.0±0.2) | .098±.008<br>(2.5±0.2)  | .02±.012<br>(0.5±0.3)    | .026±.006<br>(0.65±0.15)                                                          |                         |
| SG73W2H<br>(2010)        |                        |                         |                          | .016 <sup>+0.008</sup> <sub>-.004</sub><br>(0.4 <sup>+0.2</sup> <sub>-.01</sub> ) |                         |
| SG733A<br>(2512)         | .248±.008<br>(6.3±0.2) | .122±.008<br>(3.1±0.2)  |                          | .026±.006<br>(0.65±0.15)                                                          |                         |
| SG73W3A<br>(2512)        |                        |                         |                          |                                                                                   |                         |

### ordering information

| SG73 | 2B                                             |                                                                                                                                                                                                                                                                                                                                                 | T                    | TD                                                                                                                                                               | 102                                                                                           | K                  |
|------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------|
| Type | Size                                           | Characteristics                                                                                                                                                                                                                                                                                                                                 | Termination Material | Packaging                                                                                                                                                        | Nominal Resistance                                                                            | Tolerance          |
| SG73 | 1J<br>2A<br>2B<br>2E<br>W2H<br>W3A<br>2H<br>3A | Nil: Standard<br>A: Heat shock resistance *1<br><br>*1 With type A, only T is available as the terminal surface material.<br>*2 With SG73 W2H, W3A only the symbol T is available as the terminal surface material.<br>The terminal surface material lead free is standard.<br>For further information on packaging, please refer to Appendix A | T: Sn<br>(L: Sn/Pb*) | TP: 0603, 0805: 7" 2mm pitch punch paper<br>TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper<br>TE: 0805, 1206, 1210, 2010 & 2512: 7" 4mm embossed plastic | ±10%, ±20%:<br>2 significant figures<br>+ 1 multiplier "R"<br>indicates decimal on value <10Ω | K: ±10%<br>M: ±20% |

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

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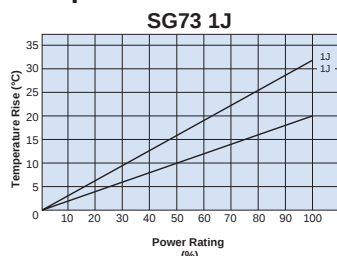
## applications and ratings

| Part Designation  | Power Rating | Rated Ambient Temp. | Rated Terminal Part Temp. | T.C.R. (ppm/°C) Max. | Resistance Range (E-12)<br>(K±10%, M±20%) | Absolute Maximum Working Voltage | Absolute Maximum Overload Voltage | Operating Temp. Range |
|-------------------|--------------|---------------------|---------------------------|----------------------|-------------------------------------------|----------------------------------|-----------------------------------|-----------------------|
| SG731J (0603)     | 0.1W         | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 | 50V                              | 100V                              | -55°C to +155°C       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |
| SG732A (0805)     | 0.125W       | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 | 150V                             | 200V                              |                       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |
| SG732B (1206)     | .33W         | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 | 200V                             | 400V                              |                       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |
| SG732E (1210)     | 0.5W         | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 |                                  |                                   |                       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |
| SG732H/W2H (2010) | 0.75W        | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 |                                  |                                   |                       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |
| SG733A/W3A (2512) | 1W           | 70°C                | 125°C                     | ±400                 | 1Ω - 8.2Ω                                 |                                  |                                   |                       |
|                   |              |                     |                           | ±200                 | 10Ω - 1MΩ                                 |                                  |                                   |                       |

Parentheses indicate EIA package size codes. Rated voltage =  $\sqrt{\text{Power rating} \times \text{resistance value}}$  or max. working voltage, whichever is lower. If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

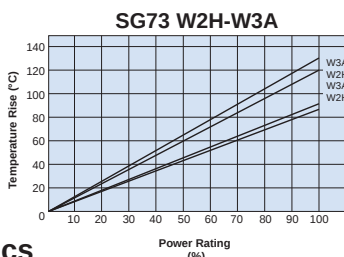
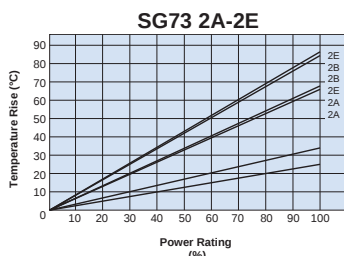
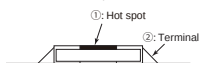
## environmental applications

### Temperature Rise

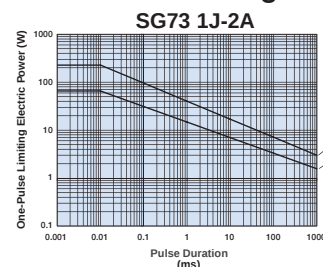


Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

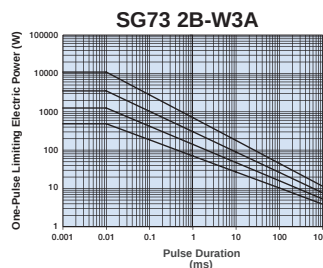
Measurement condition  
Room temperature: 25°C  
PCB: FR-4t = 1.6mm  
Cu foil thickness: 35μm



### One-Pulse Limiting Electric Power



The maximum applicable voltage is equal to the max. overload voltage. Please contact factory for resistance characteristics of continuous applied pulse.



## Performance Characteristics

| Parameter                   | Requirement Δ R ±(%+0.1Ω)                                                             |                                                                                         | 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   | ±1%                                                                                   | ±0.75%                                                                                  | 260°C ± 5°C, 10 seconds ± 1 second                                                                                                                                       |
| Rapid Change of Temperature | ±0.5%: Characteristic (Nil) Standard<br>±1%: Characteristic (A) Heat Shock Resistance | ±0.3%: Characteristic (Nil) Standard<br>±0.5%: Characteristic (A) Heat Shock Resistance | Characteristic (Nil) Standard: -55°C (30 min.) / +125°C (30 min.) 100 cycles<br>Characteristic (A) Heat Shock Resistance: -55°C (30 min.) / +125°C (30 min.) 1000 cycles |
| Moisture Resistance         | ±3%                                                                                   | ±0.75%                                                                                  | 40°C ± 2°C, 90%~95%RH, 1000 hours;<br>1.5 hr ON, 0.5 hr OFF cycle                                                                                                        |
| Endurance at 70°C           | ±3%                                                                                   | ±0.75%                                                                                  | 70°C ± 2°C or rated terminal part temperature ± 2°C, 1000 hours,<br>1.5 hr ON, 0.5 hr OFF cycle                                                                          |
| High Temperature Exposure   | ±1%                                                                                   | ±0.3%                                                                                   | +155°C, 1000 hours                                                                                                                                                       |

Additional environmental applications can also be found at [www.koaspeer.com](http://www.koaspeer.com)

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