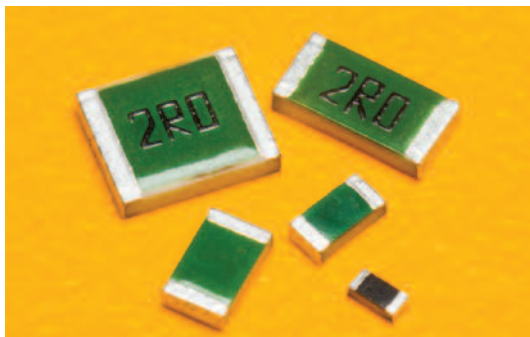
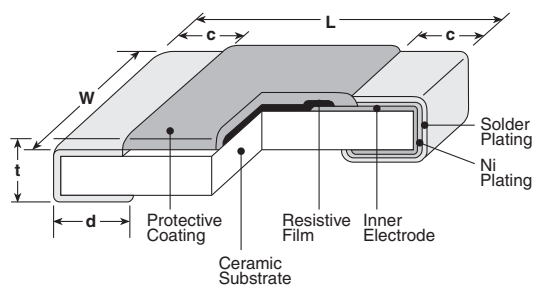




### features

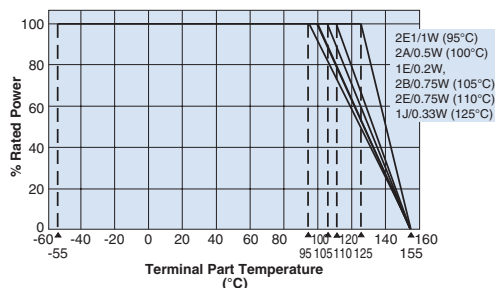
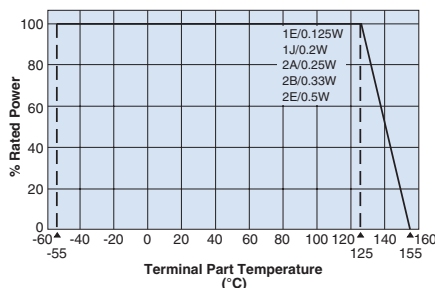
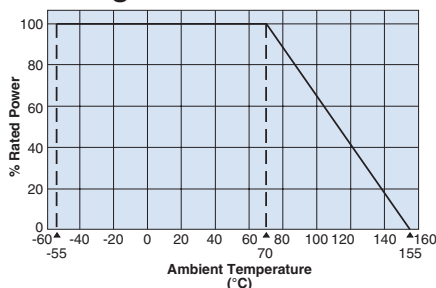
- Superior to RK73B/RK73H series in pulse withstanding voltage and high power
- Down to  $\pm 0.5\%$  tolerance
- Products with lead-free terminations meet EU RoHS requirements. EU RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- AEC-Q200 Qualified

### dimensions and construction



| Type<br>(Inch Size Code)      | Dimensions inches (mm)                                                                                                      |                                     |                                                                                                                           |                                                                                                                             |                                      |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
|                               | L                                                                                                                           | W                                   | c                                                                                                                         | d                                                                                                                           | t                                    |
| SG73P1E<br>(0402)             | .039 $\begin{smallmatrix} +.004 \\ -.002 \end{smallmatrix}$<br>(1.0 $\begin{smallmatrix} +0.1 \\ -0.05 \end{smallmatrix}$ ) | .02 $\pm$ .002<br>(0.5 $\pm$ 0.05)  | .006 $\pm$ .004<br>(0.15 $\pm$ 0.1)                                                                                       | .010 $\begin{smallmatrix} +.002 \\ -.004 \end{smallmatrix}$<br>(0.25 $\begin{smallmatrix} +0.05 \\ -.1 \end{smallmatrix}$ ) | .014 $\pm$ .002<br>(0.35 $\pm$ 0.05) |
| SG73P1J<br>(0603)             | .063 $\pm$ .008<br>(1.6 $\pm$ 0.2)                                                                                          | .031 $\pm$ .004<br>(0.8 $\pm$ 0.1)  | .012 $\pm$ .004<br>(0.3 $\pm$ 0.1)                                                                                        | .012 $\pm$ .004<br>(0.3 $\pm$ 0.1)                                                                                          | .018 $\pm$ .004<br>(0.45 $\pm$ 0.1)  |
| SG73P2A<br>(0805)             | .079 $\pm$ .008<br>(2.0 $\pm$ 0.2)                                                                                          | .049 $\pm$ .004<br>(1.25 $\pm$ 0.1) | .012 $\begin{smallmatrix} +.008 \\ -.004 \end{smallmatrix}$<br>(0.3 $\begin{smallmatrix} +0.2 \\ -.1 \end{smallmatrix}$ ) | .012 $\begin{smallmatrix} +.008 \\ -.004 \end{smallmatrix}$<br>(0.3 $\begin{smallmatrix} +0.2 \\ -.1 \end{smallmatrix}$ )   | .02 $\pm$ .004<br>(0.5 $\pm$ 0.1)    |
| SG73P2B<br>(1206)             | .126 $\pm$ .008<br>(3.2 $\pm$ 0.2)                                                                                          | .063 $\pm$ .008<br>(1.6 $\pm$ 0.2)  | .016 $\begin{smallmatrix} +.008 \\ -.004 \end{smallmatrix}$<br>(0.4 $\begin{smallmatrix} +0.2 \\ -.1 \end{smallmatrix}$ ) | .016 $\begin{smallmatrix} +.008 \\ -.004 \end{smallmatrix}$<br>(0.4 $\begin{smallmatrix} +0.2 \\ -.1 \end{smallmatrix}$ )   | .024 $\pm$ .004<br>(0.6 $\pm$ 0.1)   |
| SG73P2E<br>SG73P2E1<br>(1210) |                                                                                                                             | .102 $\pm$ .008<br>(2.6 $\pm$ 0.2)  |                                                                                                                           |                                                                                                                             |                                      |

### 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. If you want to use the rated power of  $\ast 2$ ,  $\ast 3$ , please use the derating curve based on the terminal part temperature on the right hand side.

### ordering information

| SG73P | 2B                                | T                    | TD                                                                                                                                                                                                                           | 102                                                                                                                                                                                                                     | K                                                              |
|-------|-----------------------------------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|
| Type  | Size                              | Termination Material | Packaging                                                                                                                                                                                                                    | Nominal Resistance                                                                                                                                                                                                      | Tolerance                                                      |
| SG73P | 1E<br>1J<br>2A<br>2B<br>2E<br>2E1 | T: Sn                | TP: 0402, 0603, 0805: 7" 2mm pitch punch paper<br>TD: 0603, 0805, 1206, 1210:<br>7" 4mm pitch punched paper<br>TE: 0805, 1206, 1210: 7" embossed plastic<br>For further information on packaging, please refer to Appendix A | $\pm 0.5\%$ , $\pm 1\%$ : 3 significant figures + 1 multiplier "R" indicates decimal on value $< 100\Omega$<br>$\pm 2\%$ , $\pm 5\%$ : 2 significant figures + 1 multiplier "R" indicates decimal on value $< 10\Omega$ | D: $\pm 0.5\%$<br>F: $\pm 1\%$<br>G: $\pm 2\%$<br>J: $\pm 5\%$ |

# anti-surge endured pulse power thick film chip resistor

## applications and ratings

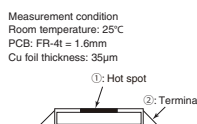
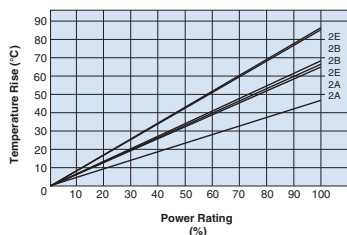
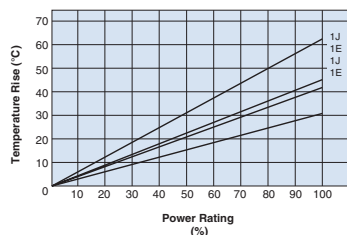
| Part Designation | Power Rating | Rated Ambient Temp. | Rated Terminal Part Temp. | T.C.R. (ppm/°C) Max. | Resistance Range (Ω)   |                       |                       | Absolute Maximum Working Voltage | Absolute Maximum Overload Voltage | Operating Temp. Range |  |
|------------------|--------------|---------------------|---------------------------|----------------------|------------------------|-----------------------|-----------------------|----------------------------------|-----------------------------------|-----------------------|--|
|                  |              |                     |                           |                      | (E-24)/E-96 (D±0.5%)   | (E-24)/E-96 (F±1%)    | (E-24) (G±2%, J±5%)   |                                  |                                   |                       |  |
| SG73P1E (0402)   | 0.125W       | 70°C                | 125°C                     | ±200                 | 10 - 1M                | 1 - 1M                | 1 - 10M               | 75V                              | 100V                              | -55°C to +155°C       |  |
|                  | 0.2W*2       |                     | 105°C                     |                      |                        |                       |                       |                                  |                                   |                       |  |
| SG73P1J (0603)   | 0.33W*2      |                     | 125°C                     | ±100                 | 510 - 576k             | 510 - 576k            | 510 - 560k            | 150V                             | 200V                              |                       |  |
|                  |              |                     |                           | ±100*1               | 10 - 499<br>590k - 1M  | 1 - 499<br>590k - 1M  | 1 - 470<br>620k - 10M |                                  |                                   |                       |  |
| SG73P2A (0805)   | 0.25W        |                     | 125°C                     | ±100                 | 100 - 100k             | 100 - 100k            | 100 - 100k            | 400V                             | 600V (800V)*3                     |                       |  |
|                  |              |                     |                           | ±200                 | 10 - 97.6<br>102k - 1M | 1 - 97.6<br>102k - 1M | 1 - 91<br>110k - 10M  |                                  |                                   |                       |  |
|                  | 0.5W*2       |                     | 100°C                     | ±100                 | 100 - 100k             | 100 - 100k            | 100 - 100k            |                                  |                                   |                       |  |
|                  |              |                     |                           | ±200                 | 10 - 97.6<br>102k - 1M | 1 - 97.6<br>102k - 1M | 1 - 91<br>110k - 10M  |                                  |                                   |                       |  |
| SG73P2B (1206)   | 0.33W        |                     | 125°C                     | ±100                 | 300 - 1M               | 300 - 1M              | 300 - 1M              | 200V                             | 400V                              |                       |  |
|                  |              |                     |                           | ±200                 | 10 - 294               | 1 - 294               | 1 - 270<br>1.2M - 10M |                                  |                                   |                       |  |
|                  | 0.75W*2      |                     | 105°C                     | ±100                 | 300 - 1M               | 300 - 1M              | 300 - 1M              |                                  |                                   |                       |  |
|                  |              |                     |                           | ±200                 | 10 - 294               | 1 - 294               | 1 - 270<br>1.2M - 10M |                                  |                                   |                       |  |
| SG73P2E (1210)   | 0.5W         |                     | 125°C                     | ±200                 | 10 - 1M                | 1 - 1M                | 1 - 10M               | 200V                             | 400V                              |                       |  |
|                  | 0.75W*2      |                     | 110°C                     |                      |                        |                       |                       |                                  |                                   |                       |  |
| SG73P2E1 (1210)  | 1.0W*2       |                     | 95°C                      | ±200                 | 10 - 1M                | 1 - 1M                | 1 - 10M               | 200V                             | 400V                              |                       |  |

Parentheses indicate EIA package size codes.

\*<sup>1</sup> Cold T.C.R. (-55°C ~ +25°C) is +150 x 10<sup>-6</sup>/K Rated voltage =  $\sqrt{\text{Power rating} \times \text{resistance value}}$  or max. working voltage, whichever is lower. Please contact KOA Speer for how to handle a specific surge/pulse. 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. \*<sup>2</sup> Rated power derating applies only if permitted Terminal Part Temp is not exceeded. \*<sup>3</sup> Applies when power rating is 0.4W or lower.

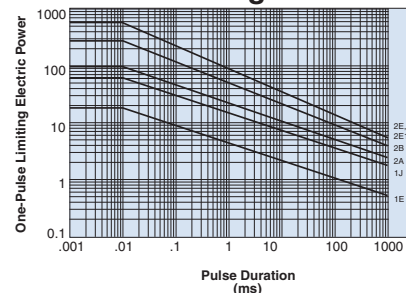
## environmental applications

### Temperature Rise



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 $\Delta R \pm(\%+0.1\Omega)$ |         | 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 (2A: 0.4W, 0.5W; 2B: 0.75W; 2E: 0.75W; 2E1: 1W rated power x 2 for 5 seconds) |
| Resistance to Solder Heat   | ±1%                                      | ±0.75%  | 260°C ± 5°C, 10 seconds ± 1 second                                                                              |
| Rapid Change of Temperature | ±0.5%                                    | ±0.3%   | -55°C (30 minutes), +125°C (30 minutes), 100 cycles                                                             |
| Moisture Resistance         | ±3%                                      | ±0.75%  | 40°C ± 2°C, 90%~95%RH, 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle                                                  |
| Endurance at 70°C           | ±3%                                      | ±0.75%  | 70°C ± 2°C, 1000 hours, 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)

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

11/20/19

# Mouser Electronics

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[SG73P2BTDD5101F](#) [SG73P2BTDD8201F](#) [SG73P2ETTD1001F](#) [SG73P2ATTD1000F](#) [SG73P2BTDD100J](#)  
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