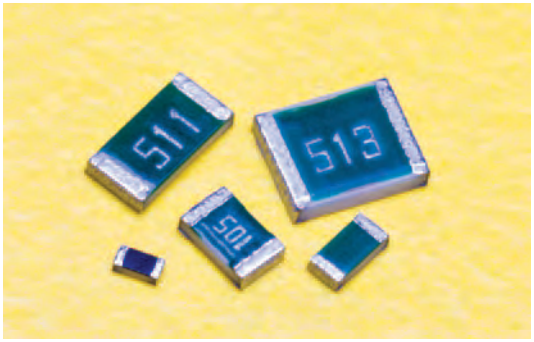
KOA SPEER ELECTRONICS, INC.

SG73S-RT

endured surge voltage flat chip resistors (anti-surge, anti-sulfuration)

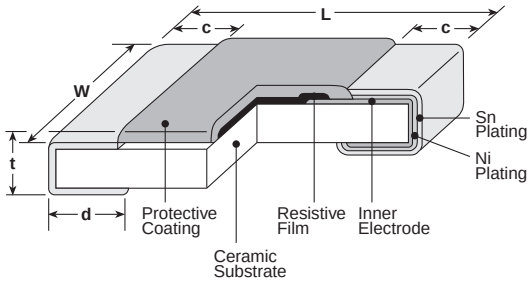


features

EU RoHS COMPLIANT

- Excellent anti-sulfuration characteristic due to using high sulfuration-proof inner top electrode material
- Superior to RK73 series chip resistors in surge withstanding voltage and high power
- Resistance tolerances for the SG73S series are available as low as 0.5%
- 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

dimensions and construction



Type (Inch Size Code)	Dimensions inches (mm) L	W	c	d	t
SG73S 1E, (0402)	.039 $^{+.004}_{-.002}$ (1.0 $^{+0.1}_{-0.05}$)	.020±.002 (0.5±0.05)	.006±.004 (0.15±0.1)	.010 $^{+.002}_{-.004}$ (0.25 $^{+0.05}_{-0.1}$)	.014±.002 (0.35±0.05)
SG73S 1J, (0603)	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.004 (0.45±0.1)
SG73S 2A, (0805)	.079±.008 (2.0±0.2)	.049±.004 (1.25±0.1)	.012 $^{+.008}_{-.004}$ (0.3 $^{+0.2}_{-0.1}$)	.012 $^{+.008}_{-.004}$ (0.3 $^{+0.2}_{-0.1}$)	.020±.004 (0.5±0.1)
SG73S 2B, (1206)	.126±.008 (3.2±0.2)	.063±.008 (1.6±0.2)	.016 $^{+.008}_{-.004}$ (0.4 $^{+0.2}_{-0.1}$)	.016 $^{+.008}_{-.004}$ (0.4 $^{+0.2}_{-0.1}$)	.024±.004 (0.6±0.1)
SG73S 2E, SG73S 2E1 (1210)		.102±.008 (2.6±0.2)			

ordering information

SG73S	2A	R	T	TD	103	J
Type	Power Rating	Characteristic	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
SG73S	1E 1J 2A 2B 2E 2E1	R: Anti-Sulfur	T: Sn	TP: 0402, 0603, 0805: 7" 2mm pitch punch paper TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper TE: 0805, 1206, 1210: 7" 4mm embossed plastic For further information on packaging, please refer to Appendix A	±0.5%, ±1%: 3 significant figures + 1 multiplier ±2%, ±5%: 2 significant figures + 1 multiplier "R" indicates decimal on value <10Ω	D: ±0.5% F: ±1% G: ±2% J: ±5%

4/20/23

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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 D: ±0.5% E-24, E-96	F: ±1% E-24, E-96	G: ±2% E-24	J: ±5% E-24	Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
SG73S 1E (0402) NEW>	0.125W	70°C	125°C	±200	100Ω - 1MΩ	10Ω - 1MΩ	10Ω - 10MΩ	1Ω - 10MΩ	75V	100V	-55°C to +155°C
	0.33W	—	105°C								
SG73S 1J (0603) NEW>	0.2W	70°C	135°C	±100*1					150V	200V	
	0.5W	—	105°C								
SG73S 2A (0805) NEW>	0.25W	70°C	125°C	±200					400V	600V (800V)*2	
	0.75W	—	105°C								
SG73S 2B (1206) NEW>	0.33W	70°C	125°C	±200					200V	400V	
	1.0W	—	105°C								
SG73S 2E (1210) NEW>	0.5W	70°C	125°C	±200							
	1.5W	—	105°C								
SG73S 2E1 (1210) NEW>	1.5W	—	105°C	±200							

*1 Cold T.C.R. (-55°C ~ +25°C) is ±150x10^{-6}/K

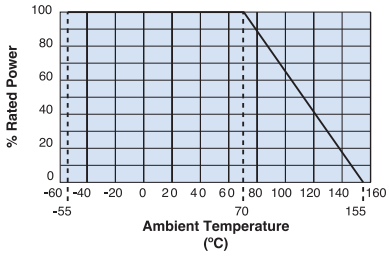
*2 Applies when power rating is 0.4W or lower.

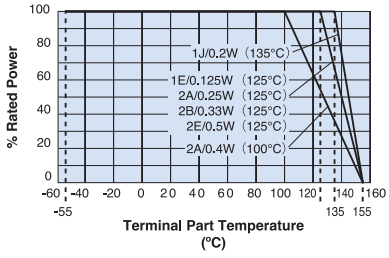
Rated voltage = $\sqrt{\text{Power rating x resistance value}}$ or max. working voltage, whichever is lower

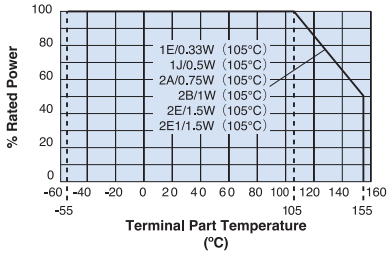
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

environmental applications

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.

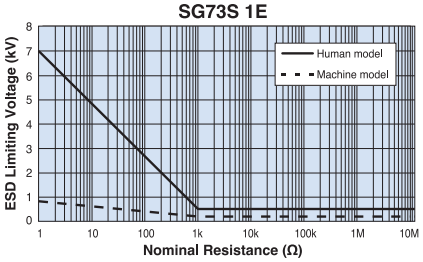
For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.
Please refer to "Introduction of the derating curve based on the terminal part temperature" in the beginning of our catalog before use.
If you want to use the rated power of *2, please use the derating curve based on the terminal part temperature above.

Additional environmental applications can also be found at www.koaspeer.com

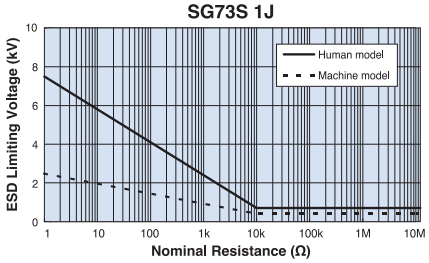
environmental applications (continued)

ESD Limiting Voltage

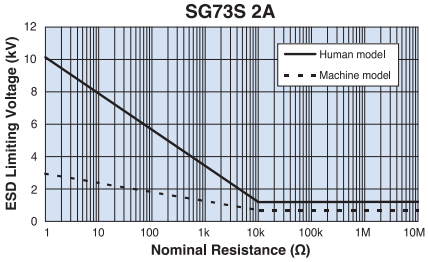
SG73S 1E



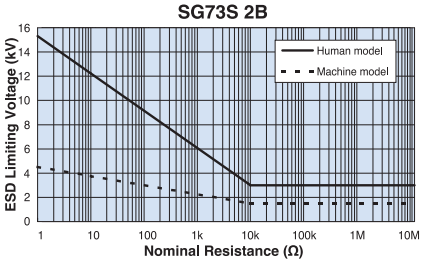
SG73S 1J



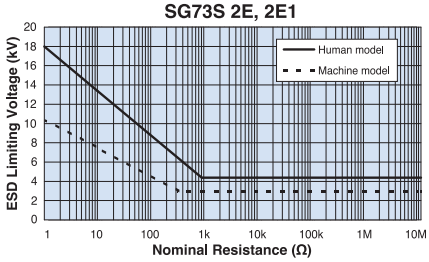
SG73S 2A



SG73S 2B

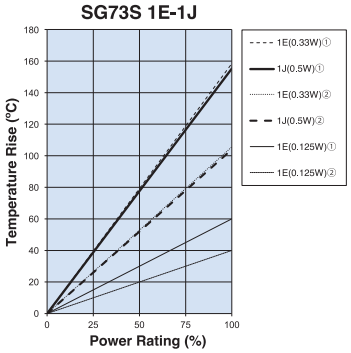


SG73S 2E, 2E1

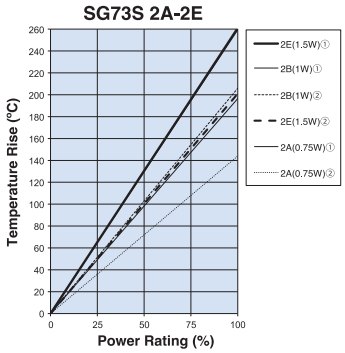


Temperature Rise

SG73S 1E-1J

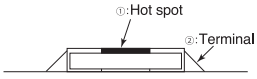


SG73S 2A-2E



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-4 t = 1.6mm
Cu foil thickness: 35µm



Performance Characteristics

Parameter	Requirement Δ R ±(%+0.1Ω) Limit	Typical	Test Method
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%	Overload for 5s
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 or rated terminal part temperature ± 2°C 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1%	±0.3%	+155°C, 1000 hours
Sulfuration Test	±5%	±0.2%	Soaked in industrial oil with 3.5% sulfur concentration 105°C ± 3°C, 500 hours

Type	1E	1J	2A	2B	2E	2E1
Overload	1.25W	2.063W	2W (1.6W*2)	3W	4W	4W

Please refer to conventional products for characteristic data such as temperature rise.