KOA SPEER ELECTRONICS, INC.

SG73S

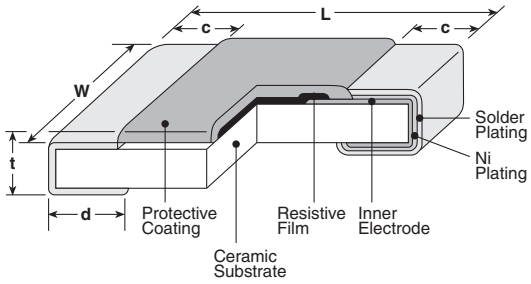
anti-surge endured surge voltage thick film chip resistor

EU RoHS COMPLIANT

features

- Superior to RK73B/RK73H series in surge withstanding voltage and high power
- ESD withstanding; down to ±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 (Inch Size Code)	Dimensions inches (mm) L	W	c	d	t
SG73S1E (0402)	.039 $^{+.004}_{-.002}$ (1.0 $^{+0.1}_{-0.05}$)	.02±.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)
SG73S1J (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)
SG73S2A (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 $^{+0.2}_{-0.1}$)	.02±.004 (0.5±0.1)
SG73S2B (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)
NEW SG73S2E SG73S2E1 (1210)		.102±.008 (2.6±0.2)			

ordering information

SG73S	2B	T	TD	102	K
Type	**Size**	**Termination Material**	**Packaging**	**Nominal Resistance**	**Tolerance**
SG73S	1E 1J 2A 2B 2E **NEW** 2E1	T: Sn	TP: 0402, 0603, 0805: 7" 2mm pitch punch paper TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper TDD: 0603, 0805, 1206, 1210: 10" paper tape TE: 0805, 1206, 1210: 7" embossed plastic TED: 0805, 1206, 1210: 10" embossed plastic For further information on packaging, please refer to Appendix A	±0.5%, ±1%: 3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω ±2%, ±5%: 2 significant figures + 1 multiplier "R" indicates decimal on value <10Ω	D: ±0.5% F: ±1% G: ±2% J: ±5%

8/24/18

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anti-surge endured surge voltage thick film chip resistor

applications and ratings

Part Designation	Power Rating @ 70°C	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.	Resistance Range (Ω) (E-24)/E-96 (D±0.5%)	(E-24)/E-96 (F±1%)	(E-24) (G±2%, J±5%)	Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
SG73S1E (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							
SG73S1J (0603)	0.2W	70°C	125°C	±100	510 - 576k	510 - 576k	510 - 560k	150V	200V	
				±100*1	10 - 499 590k - 1M	1 - 499 590k - 1M	1 - 470 620k - 10M			
	0.33W*2	—	125°C	±100	510 - 576k	510 - 576k	510 - 560k			
				±100*1	10 - 499 590k - 1M	1 - 499 590k - 1M	1 - 470 620k - 10M			
SG73S2A (0805)	0.25W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	400V	600V (800V)*3	
	0.5W*2	—	100°C							
SG73S2B (1206)	0.33W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	
	0.75W*2	—	105°C							
NEW SG73S2E (1210)	0.5W	70°C	125°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	
	0.75W*2	—	110°C							
SG73S2E1 (1210)	1W	—	95°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V	

Parentheses indicate EIA package size codes.

*1 Cold T.C.R. (-55°C ~ +25°C) is +150 x 10^{-6}/K

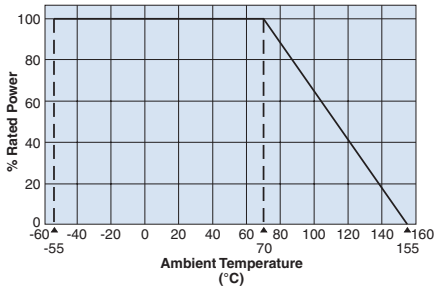
Rated voltage = $\sqrt{\text{Power rating x resistance value}}$ or max. working voltage, whichever is lower

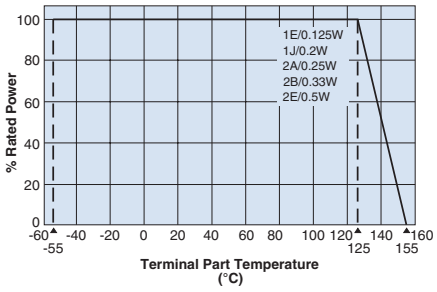
Please contact KOA Speer for how to handle a specific surge/pulse

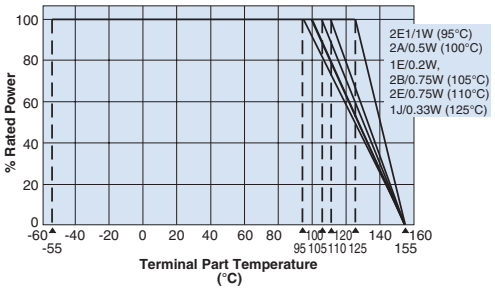
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog. *2 If you want to use the rated power of *2, *3 please reference below. *3 Applies when power rating is 0.4W or lower.

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,*3 please use the derating curve based on the terminal part temperature on the right hand side.

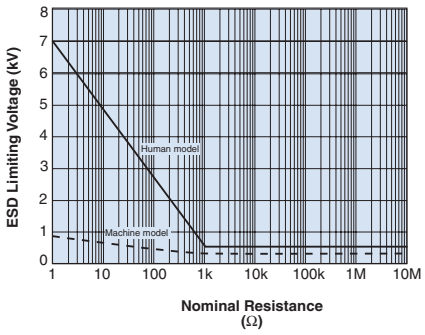
Additional environmental applications can also be found at www.koaspeer.com

10/25/18

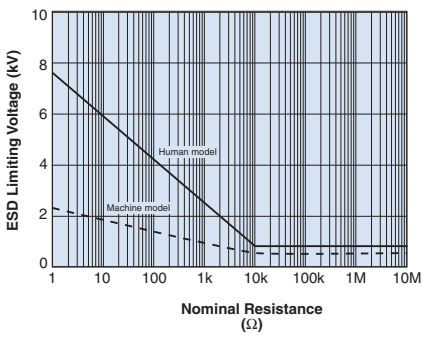
environmental applications (continued)

ESD Limiting Voltage

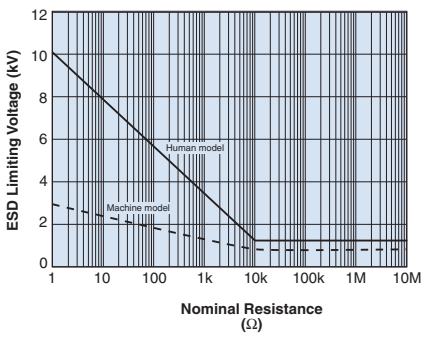
SG73S 1E



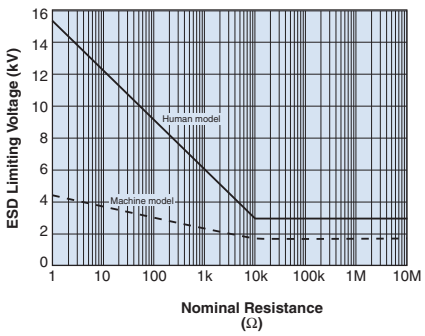
SG73S 1J



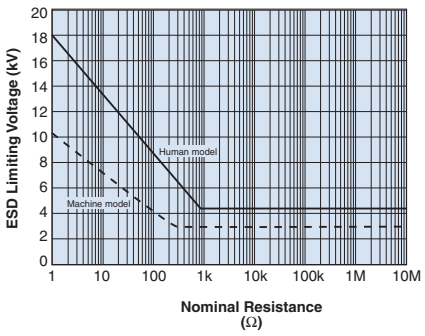
SG73S 2A



SG73S 2B



SG73S 2E, 2E1



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%	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