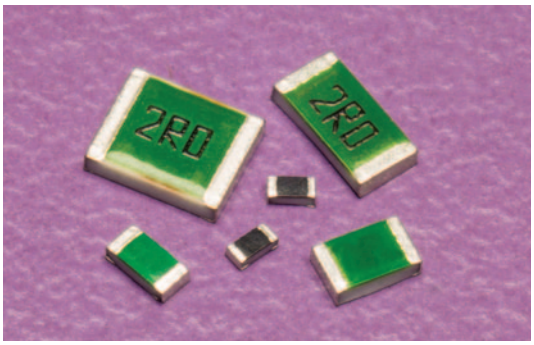
KOA SPEER ELECTRONICS, INC.

SG73P-RT

endured pulse power flat chip resistors (anti-surge, anti-sulfuration)

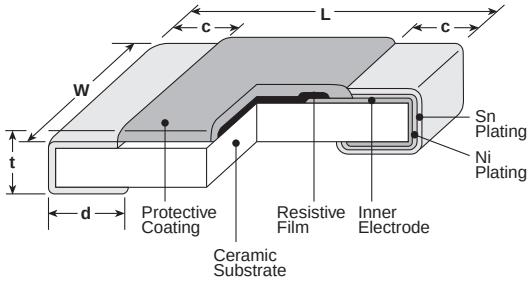


features

EU RoHS COMPLIANT

- Excellent anti-sulfuration characteristic due to using high sulfuration-proof inner top electrode material
- Superior to RK73 series chip resistors in pulse withstanding voltage and high power
- SG73P (for pulse) are able to select resistance tolerance is available from ±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
SG73P 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)
SG73P 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)
SG73P 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)
SG73P 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)
SG73P 2E (1210)		.102±.008 (2.6±0.2)			

ordering information

SG73P	2A	R	T	TD	103	J
Type	Power Rating	Characteristic	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
SG73P	1E 1J 2A 2B 2E	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%

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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
SG73P 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								
SG73P 1J (0603) NEW>	0.2W	70°C	135°C	±100*1					150V	200V	
	0.5W	—	105°C						400V	600V (800V)*2	
SG73P 2A (0805) NEW>	0.25W	70°C	125°C	±200							
	0.75W	—	105°C								
SG73P 2B (1206) NEW>	0.33W	70°C	125°C	±200					200V	400V	
	1.0W	—	105°C								
SG73P 2E (1210) NEW>	0.5W	70°C	125°C	±200							
	1.5W	—	105°C								

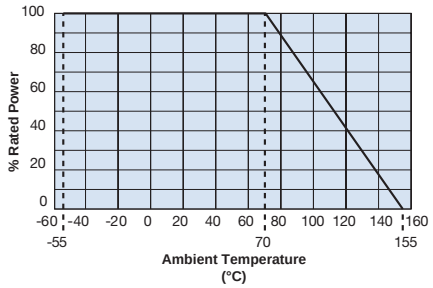
*1 Cold T.C.R. (-55°C ~ +25°C) is ±150x10^{-6}/K. *2 Applies when power rating is 0.4W or lower.

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

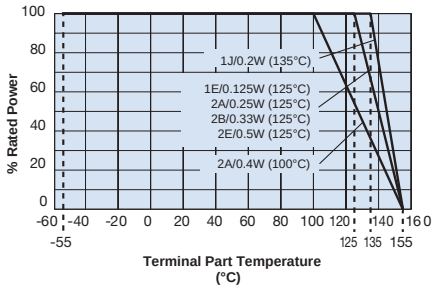
If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the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

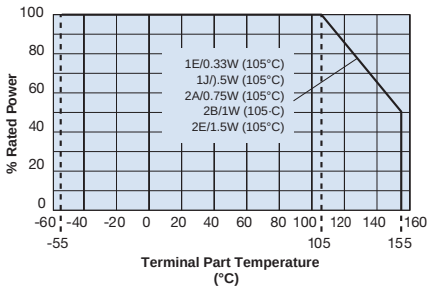
environmental applications

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.



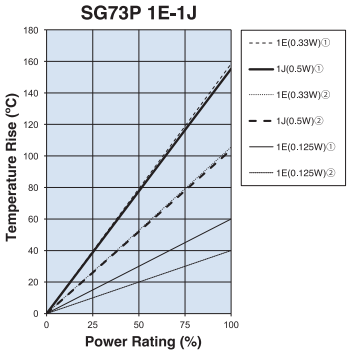


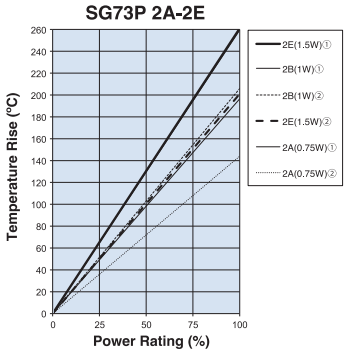
For resistors operated at a terminal part temperature of described for each size or above, a power rating shall be derated in accordance with the derating curve.

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.

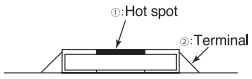
Temperature Rise



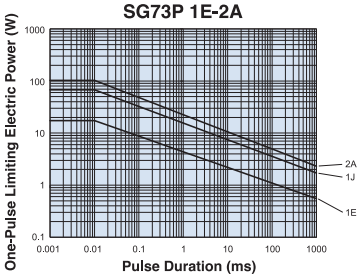


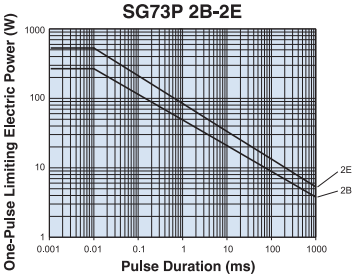
Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

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



One-Pulse Limiting Electric Power





The maximum applicable voltage is equal to the max. overload voltage. Please ask us about the resistance characteristic of continuous applied pulse. The pulse endurance values are not assured values,so be sure to check the products on actual equipment when you use them.

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 5 seconds Type: 1E / 1J / 2A / 2B / 2E Overload: 1.25W / 2.063W / 2W(1.6W*2) / 3W / 4W
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 1000h 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

Please refer to conventional products for characteristic data such as temperature rise.
Additional environmental applications can also be found at www.koaspeer.com