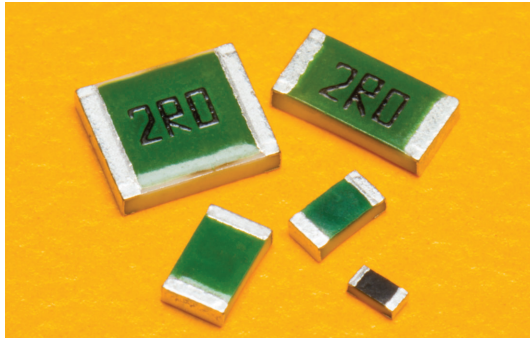




**THE DATASHEET OF  
SG73P1EWTP1002F**



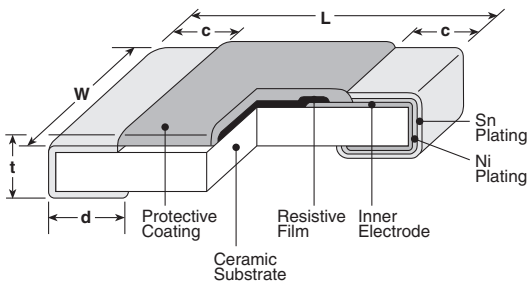
**anti-surge endured pulse power  
thick film chip resistor**



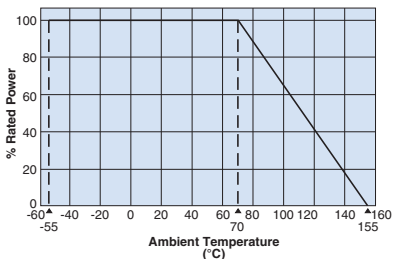
**features**

- Superior to RK73B/RK73H series in pulse withstanding voltage and high power
- Down to ±0.5% tolerance
- 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

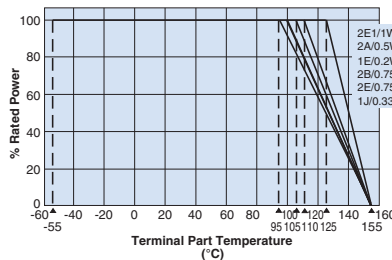
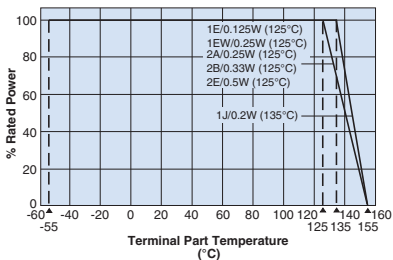
**dimensions and construction**



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

Type (Inch Size Code)	Dimensions inches (mm)				
	L	W	c	d	t
SG73P1E (0402)	.039 <sup>+0.004</sup> <sub>-.002</sub> (1.0 <sup>+0.1</sup> <sub>-0.05</sub> )	.02±.002 (0.5±0.05)	.006±.004 (0.15±0.1)	.010 <sup>+0.002</sup> <sub>-.004</sub> (0.25 <sup>+0.05</sup> <sub>-.1</sub> )	.014±.002 (0.35±0.05)
SG73P1EW (0402)	.039 <sup>+0.004</sup> <sub>-.002</sub> (1.0 <sup>+0.1</sup> <sub>-0.05</sub> )	.02±.002 (0.5±0.05)	.006±.004 (0.15±0.1)	.010 <sup>+0.002</sup> <sub>-.004</sub> (0.25 <sup>+0.05</sup> <sub>-.1</sub> )	.014±.002 (0.35±0.05)
SG73P1J (0603)			.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.004 (0.45±0.1)
SG73P1J AT (0603)	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.014±.006 (0.35±0.15)	.02±.008 (0.5±0.2)	
SG73P2A (0805)	.079±.008 (2.0±0.2)	.049±.004 (1.25±0.1)	.012 <sup>+0.008</sup> <sub>-.004</sub> (0.3 <sup>+0.2</sup> <sub>-.1</sub> )	.012 <sup>+0.008</sup> <sub>-.004</sub> (0.3 <sup>+0.2</sup> <sub>-.1</sub> )	.02±.004 (0.5±0.1)
SG73P2A AT (0805)			.018±.010 (0.45±0.25)	.024±.008 (0.6±0.2)	.022±.004 (0.55±0.1)
SG73P2B (1206)		.063±.008 (1.6±0.2)	.016 <sup>+0.008</sup> <sub>-.004</sub> (0.4 <sup>+0.2</sup> <sub>-.1</sub> )	.016 <sup>+0.008</sup> <sub>-.004</sub> (0.4 <sup>+0.2</sup> <sub>-.1</sub> )	
SG73P2B AT (1206)	.126±.008 (3.2±0.2)		.022±.014 (0.55±0.35)	.031±.008 (0.8±0.2)	.024±.004 (0.6±0.1)
SG73P2E SG73P2E1 (1210)		.102±.008 (2.6±0.2)	.016 <sup>+0.008</sup> <sub>-.004</sub> (0.4 <sup>+0.2</sup> <sub>-.1</sub> )	.016 <sup>+0.008</sup> <sub>-.004</sub> (0.4 <sup>+0.2</sup> <sub>-.1</sub> )	

**ordering information**

SG73P	2B		T	TD	1001	F
Type	Size	Characteristic	Termination Material	Packaging	Nominal Resistance	Tolerance
SG73P	1E 1EW 1J 2A 2B 2E 2E1	Nil: Standard A: Heat shock resistance *1  *1 With type A, only T is available as the terminal surface material. Contact us when you have control request for environmental hazardous material other than the substance specified by EU RoHS. For further information on packaging, please refer to Appendix A	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	±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%

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

7/08/23

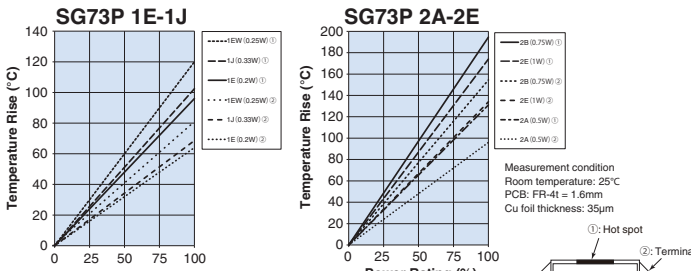
## applications and ratings

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	±100	10 - 1M	10 - 1M	10 - 1M				
SG73P1EW (0402)	0.25W*2		125°C	±200	—	1 - 9.76	1 - 9.1	1.1M - 10M	75V		100V
			135°C	±100	510 - 576k	510 - 576k	510 - 560k				
SG73P1J (0603)	0.2W		125°C	±100	10 - 499	1 - 499	1 - 470	150V	200V		
			125°C	±100**	590k - 1M	590k - 1M	620k - 10M				
	0.33W*2		125°C	±100	510 - 576k	510 - 576k	510 - 560k				
			125°C	±100**	10 - 499	1 - 499	1 - 470				
SG73P2A (0805)	0.25W		125°C	±100	100 - 100k	100 - 100k	100 - 100k	400V	600V (800V)*3		
			125°C	±200	10 - 97.6	1 - 97.6	1 - 91				
	100°C		±100	102k - 1M	102k - 1M	110k - 10M					
			±200	10 - 97.6	1 - 97.6	110k - 10M					
SG73P2B (1206)	0.33W	125°C	±100	300 - 1M	300 - 1M	300 - 1.1M	200V	400V			
		125°C	±200	10 - 294	1 - 294	1 - 270					
	105°C	±100	300 - 1M	300 - 1M	300 - 1.1M						
		±200	10 - 294	1 - 294	1 - 270						
SG73P2E (1210)	0.5W	125°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V			
	0.75W*2	110°C	±200	10 - 1M	1 - 1M	1 - 10M					
SG73P2E1 (1210)	1.0W*2	95°C	±200	10 - 1M	1 - 1M	1 - 10M	200V	400V			

Parenteses indicate EIA package size codes. \*\* Cold T.C.R. (-55°C ~ +25°C) is  $+150 \times 10^{-6}/K$  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. \*2 Rated power derating applies only if permitted Terminal Part Temp is not exceeded. \*3 Applies when power rating is 0.4W or lower.

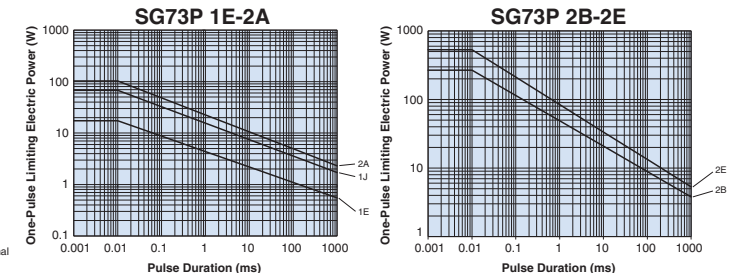
## environmental applications

## 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.

## 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 ±(%+0.1%)		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 (1EW: 0.25W; 2A: 0.4W, 0.5W; 2B: 0.75W; 2E: 0.75W; 2E1: 1W rated voltage 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%: Characteristic (Nil) Standard ±1%: Characteristic (A) Heat Shock Resistance	±0.3%: Characteristic (Nil) Standard ±0.5%: Characteristic (A) Heat Shock Resistance	Characteristic (Nil) Standard: -55°C (30 min.)/+125°C (30 min.) 100 cycles 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; 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.

11/09/23

## Looking for pricing, stock, or lifecycle information?

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