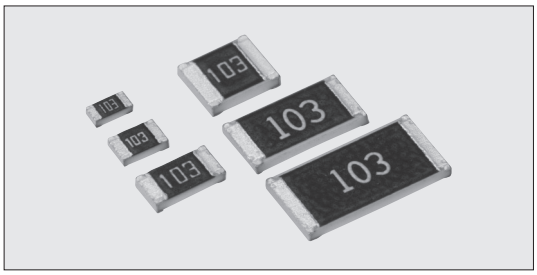
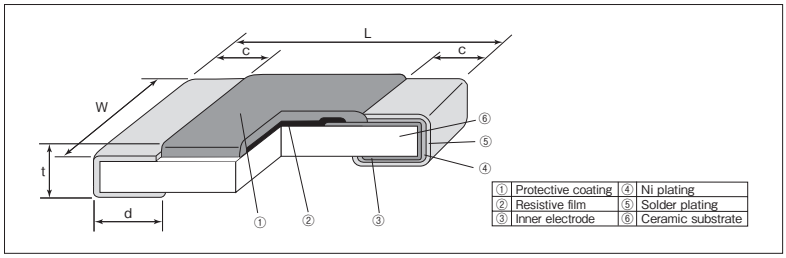
EU RoHS

SG73 Surge Current Flat Chip Resistors



Coating color：Wine red

■Construction



■Features

- Superior to RK73 series chip resistors in surge withstanding voltage and pulse withstanding voltage.
- Suitable for both reflow and flow solderings.
- Products with lead free termination meet EU-RoHS requirements. EU-RoHS regulation is not intended for Pb-glass contained in electrode, resistor element and glass.
- AEC-Q200 Tested.

■Applications

- E.C.U.
- Circuits to catch inductive lighting surge.

■Reference Standards

IEC 60115-8
JIS C 5201-8
EIAJ RC-2134C

■Dimensions

Type (Inch Size Code)	Dimensions (mm) L±0.2	W	c	d	t±0.1	Weight (g) (1000pcs)
1J (0603)	1.6	0.8±0.1	0.3±0.1	0.3±0.1	0.45	2.14
1J AT (0603)			0.35±0.15	0.5±0.2		
2A (0805)	2.0	1.25±0.1	0.4±0.2	$0.3^{+0.2}_{-0.1}$	0.5	4.54
2A AT (0805)			0.45±0.25	0.6±0.2	0.55	
2B (1206)	3.2	1.6±0.2	0.5±0.3	$0.4^{+0.2}_{-0.1}$	0.6	9.14
2B AT (1206)			0.55±0.35	0.8±0.2		
2E (1210)		2.6±0.2	0.5±0.3	$0.4^{+0.2}_{-0.1}$		15.5
W2H (2010) ※1	5.0	2.5±0.2		0.65±0.15		24.3
W3A (2512) ※1	6.3	3.1±0.2				37.1

※1 SG73 2H and SG73 3A are also still available (different "d" dimensions=$0.4^{+0.2}_{-0.1}$mm)

■Type Designation

Example

SG73	2A		T	TD	103	K
Product Code	Power Rating	Characteristic	Terminal Surface Material	Taping	Nominal Resistance	Resistance Tolerance
	1J:0.1W 2A:0.125W 2B:0.33W 2E:0.5W W2H:0.75W W3A:1W	Nil:Standard NEW A:Heat shock resistance※3	T:Sn (L:Sn/Pb※3)	TP:2mm pitch punch paper TD:4mm pitch punch paper TE:4mm pitch plastic embossed BK:Bulk	3桁	K:±10% M:±20%

※2 With type A, only T is available as the terminal surface material.
※3 With SG73 W2H, W3A only the symbol T is available as the terminal surface material.
The terminal surface material lead free is standard.
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping, please refer to APPENDIX C on the back pages.

■Ratings

Type	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (×10⁻⁶/K)	Resistance Range (Ω) K:±10% M:±20% E12	Max. Working Voltage	Max. Overload Voltage	Packaging & Q'ty/Reel (pcs) TP	TD	TE
1J	0.1W	70℃	125℃	±400	1～8.2	50V	100V	10,000	5,000	—
				±200	10～1M					
2A	0.125W	70℃	125℃	±400	1～8.2	150V	200V	10,000	5,000	4,000※4
				±200	10～1M					
2B	0.33W	70℃	125℃	±400	1～8.2	200V	400V	—	5,000	4,000※4
				±200	10～1M					
2E	0.5W	70℃	125℃	±400	1～8.2			—	5,000	4,000※4
				±200	10～1M					
W2H	0.75W	70℃	125℃	±400	1～8.2			—	—	4,000
				±200	10～1M					
W3A	1.0W	70℃	125℃	±400	1～8.2			—	—	4,000
				±200	10～1M					

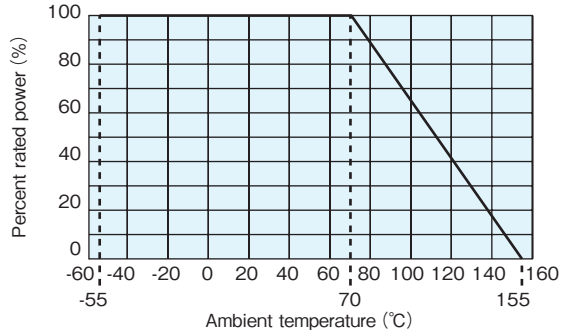
Operating Temperature Range：−55℃～+155℃
Rated voltage=$\sqrt{\text{Power Rating}\times\text{Resistance value}}$ or Max. working voltage, whichever is lower.
※4 Standard packaging：TD(4mm pitch punch paper)
If any questions arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature" in your usage conditions, please give priority to the "Rated Terminal Part Temperature".
For more details, please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.
Contact our sales representatives before you use our products for applications including automotives, medical equipment and aerospace equipment.
Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

Downloaded from Arrow.com.

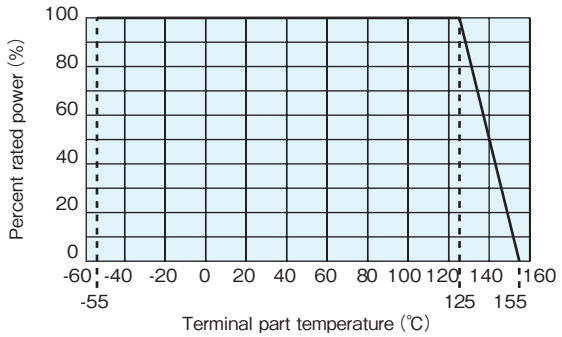
■Derating Curve

Ambient temperature



For resistors operated at an ambient temperature of 70℃ or higher, the power shall be derated in accordance with the above derating curve.

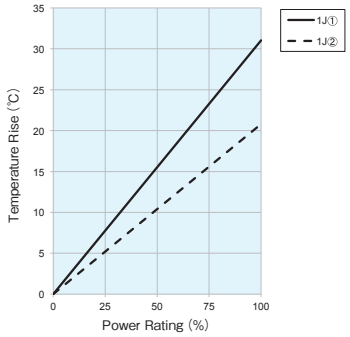
Terminal part temperature



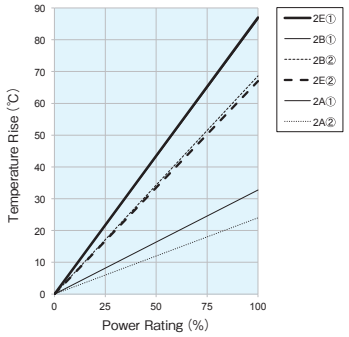
When the terminal part temperature of the resistor exceeds the rated terminal part temperature shown above, the power shall be derated according to the derating curve.
※Please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog before use.

■Temperature Rise

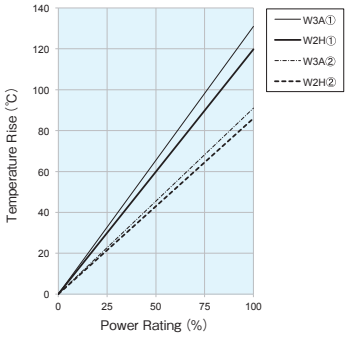
SG73 1J



SG73 2A-2E

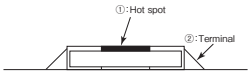


SG73 W2H-W3A



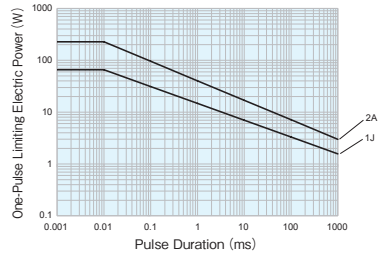
Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

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

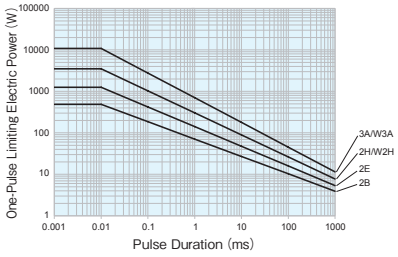


■One-Pulse Limiting Electric Power

SG73 1J-2A



SG73 2B-W3A



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

Test Items	Performance Requirements ΔR±(%+0.1Ω)		Test Methods
	Limit	Typical	
Resistance	Within specified tolerance	—	25℃
T.C.R.	Within specified T.C.R.	—	+25℃/−55℃ and +25℃/+125℃
Overload (Short time)	2	0.5	Rated voltage×2.5 for 5s
Resistance to soldering heat	1	0.75	260℃±5℃, 10s±1s
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℃ (30min.) /+125℃ (30min.) 100 cycles Characteristic「A」(Heat shock resistance) : −55℃ (30min.) /+125℃ (30min.) 1000 cycles
Moisture resistance	3	0.75	40℃±2℃, 90%～95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70℃ or rated terminal part temperature	3	0.75	70℃±2℃ or rated terminal part temperature ±2℃ 1000h 1.5h ON/0.5h OFF cycle
High temperature exposure	1	0.3	+155℃, 1000h

■Precautions for Use

- The substrate of chip resistors is alumina. Cracks may occur at the connection of solder (solder fillet portion) due to the difference of the coefficient of thermal expansion from a mounting board when heat stress like heat cycle, etc. are repeatedly given to them. Care should be taken to the occurrence of the cracks when the change in ambient temperature or ON/OFF of load is repeated, especially when large types of W2H/W3A which have large thermal expansion and also self heating. By general temperature cycle test using glass-epoxy (FR-4) boards under the maximum/minimum temperatures of operating temperature range, the crack does not occur easily in the types of 1J～2E, but the crack tends to occur in the types of W2H/W3A. The occurrence of the crack by heat stress may be influenced by the size of a pad, solder volume, heat radiation of mounting board etc., so please pay careful attention to designing when a big change in ambient temperature and conditions for use like ON/OFF of load can be assumed.

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.
Contact our sales representatives before you use our products for applications including automotives, medical equipment and aerospace equipment.
Malfunction or failure of the products in such applications may cause loss of human life or serious damage.

Downloaded from Arrow.com.