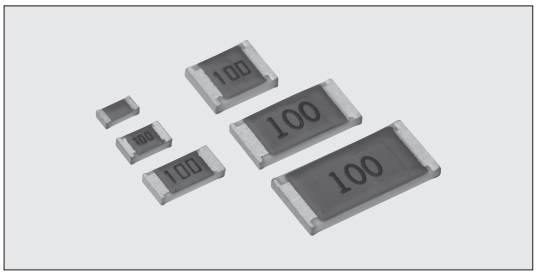
FUSING RESISTORS

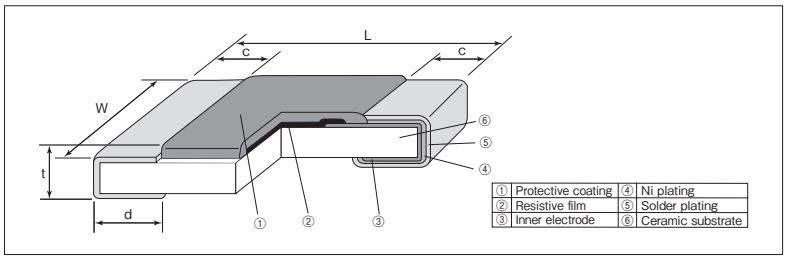
EU RoHS

RF73 Fusing Flat Chip Resistors



Coating color : Brown

■ Construction



■Features

- In normal condition, it works as a resistor and when excessive voltage is applied, it protects circuits by fusing quickly.
- The same shape as RK73 series.
- Recognized by safety standard UL1412. (1J is not recognized.)
- Suitable for both flow and reflow 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.

■Approval Awarded

RF73 2A, 2B, 2E, 2H, 3A :
UL1412 File No.E117262

■Reference Standards

IEC 60115-8
JIS C 5201-8
EIAJ RC-2124

■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	0.5	2.14
2A (0805)	2.0	1.25±0.1	0.4±0.2	$0.3^{+0.2}_{-0.1}$		4.54
2B (1206)	3.2	1.6±0.2	0.5±0.3	$0.4^{+0.2}_{-0.1}$	0.6	9.14
2E (1210)		2.6±0.2				15.5
2H (2010)	5.0	2.5±0.2				24.3
3A (2512)	6.3	3.1±0.2				37.1

■ Type Designation

Example

RF73	2B	T	TD	100	J
Product Code	Power Rating	Terminal Surface Material	Taping	Nominal Resistance	Resistance Tolerance
	1J :0.063W 2A:0.1W 2B:0.125W 2E:0.25W 2H:0.5W 3A:1.0W	T : Sn (L : Sn/Pb)	TD: 4mm pitch punch paper TE: 4mm pitch plastic embossed BK:Bulk	3 digits	J : ±5%

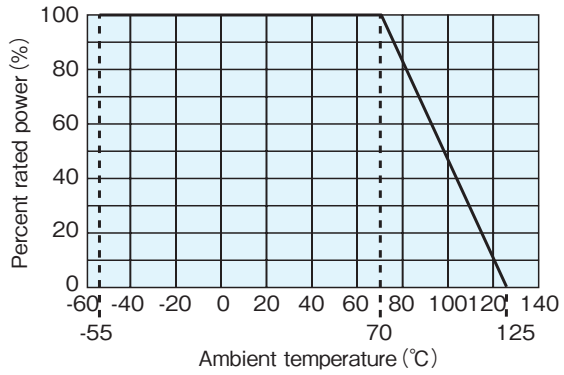
The terminal surface material lead free is standard.
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping, please refer to APPENDIX C on the back pages.

■ Ratings

Type	Power Rating	Resistance Range (Ω) E24	Resistance Tolerance	Fusing Characteristics Fusing Power Resistance Range					Fusing Time	T.C.R. (×10⁻⁶/K)	Taping & Q'ty/Reel (pcs) TD	TE
1J	0.063W	1~100	J : ±5%		2.6W 1.0Ω	2.4W 1.1~20Ω	2.1W 22~100Ω		60s Max.	+1000~−500 (1.0~3.3Ω) ±500 (3.6~100Ω)	5,000	—
2A	0.1W	0.2~510		3.0W 0.2~0.47Ω	2.6W 0.51~1.0Ω	2.4W 1.1~20Ω	2.1W 22~100Ω	2.0W 110~510Ω		+1000~−500 (0.2~4.3Ω) ±500 (4.7~510Ω)	5,000	4,000※1
2B	0.125W			3.75W 0.2~0.47Ω	2.875W 0.51~10Ω	2.5W 11~24Ω	2.0W 27~100Ω	1.75W 110~510Ω			5,000	4,000※1
2E	0.25W			4.5W 0.2~0.47Ω	4.1W 0.51~4.7Ω	3.5W 5.1~27Ω	3.2W 30~100Ω	3.0W 110~510Ω			5,000	4,000※1
2H	0.5W			5.5W 0.2~0.47Ω	5.0W 0.51~4.7Ω	4.0W 5.1~27Ω	3.5W 30~100Ω	3.2W 110~510Ω			—	4,000
3A	1.0W			6.5W 0.2~0.47Ω	6.0W 0.51~4.7Ω	5.0W 5.1~30Ω	4.5W 33~100Ω	4.0W 110~510Ω			—	4,000

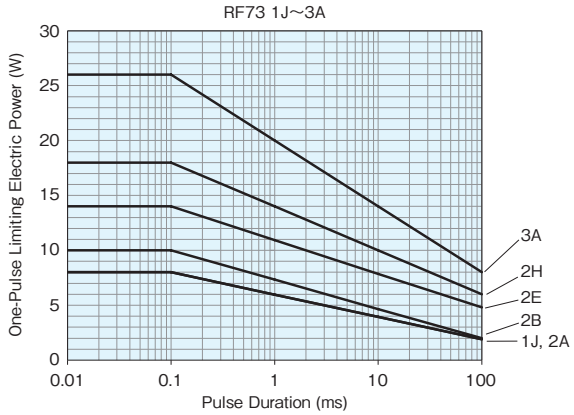
Rated Ambient Temperature : +70℃
Operating Temperature Range : −55℃~+125℃
※1 Standard packaging : TD(4mm pitch punch paper)

■ Derating Curve



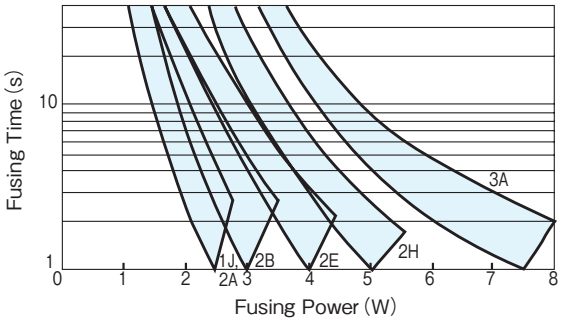
For resistors operated at an ambient temperature of 70℃ or higher, the power shall be derated in accordance with derating curve on the left.

■ One-Pulse Limiting Electric Power



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.

■ Example of Fusing Characteristics



■ 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)	5	2	Rated voltage×2 for 5s (Except 2E, 2H, 3A : ×1.5)
Resistance to soldering heat	3	0.5	260℃±5℃, 10s±1s
Rapid change of temperature	0.5 : 2A~3A 3 : 1J	0.3 : 2A~3A 0.6 : 1J	−55℃ (30min.) /+125℃ (30min.) 5 cycles
Moisture resistance	5	2	40℃±2℃, 90%~95%RH, 500h 1.5h ON/0.5h OFF cycle
Endurance at 70℃	5	1	70℃±2℃, 1000h 1.5h ON/0.5h OFF cycle
High temperature exposure	1	0.6	+125℃, 100h

■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 2H/3A 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 2H/3A. 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.
- Maximum open-circuit voltage is the maximum value of the voltage applicable to both ends of resistors, when a fuse resistor becomes open conditions in a circuit. It differs according to the form of a product and a resistance value and is specified individually. The maximum open-circuit voltage is the lower one, whichever the voltage 1000 times of the rated power or the voltage shown in below table. Use the components under the voltage applied between the terminals of resistors to be under the maximum open-circuit voltage regardless of normal operating or abnormal operating time of equipment.

Type	1J	2A	2B	2E	2H	3A
Maximum Open-Circuit Voltage	50V	50V	50V	50V	100V	100V