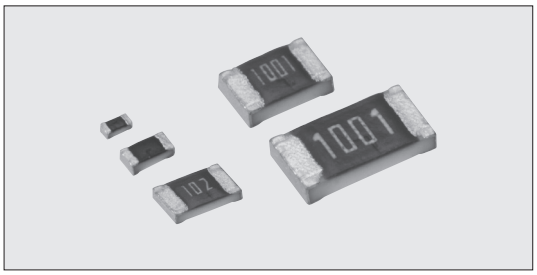
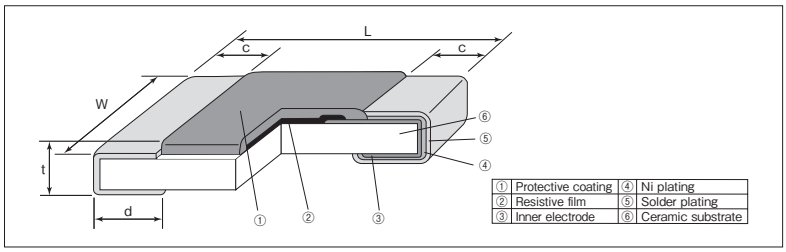
EU RoHS

RK73G Flat Chip Resistors (Ultra Precision Grade)



Coating color : Black (1H, 1E), Dark blue (1J, 2A, 2B)

■Construction



①	Protective coating	④	Ni plating
②	Resistive film	⑤	Solder plating
③	Inner electrode	⑥	Ceramic substrate

■Features

- Metal-glaze thick film resistor for surface mounting.
- High precision resistor with T.C.R. ±50×10^{-6}/K and tolerance ±0.25%.
- 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.
- AEC-Q200 Tested.

■Applications

- Car electronics, Industrial equipment, Industrial measurement
- Replacement of metal film chip resistors.

■Reference Standards

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

■Dimensions

Type (Inch Size Code)	Dimensions (mm) L	W	c	d	t	Weight(g) (1000pcs)
1H(0201)	0.6±0.03	0.3±0.03	0.1±0.05	0.15±0.05	0.23±0.03	0.14
1E(0402)	$1.0^{\pm0.1}_{-0.05}$	0.5±0.05	0.2±0.1	$0.25^{+0.05}_{-0.1}$	0.35±0.05	0.68
1E AT(0402)			0.25±0.1	0.3±0.15		
1J(0603)	1.6±0.2	0.8±0.1	0.3±0.1	0.3±0.1	0.45±0.1	2.14
1J AT(0603)			0.35±0.15	0.5±0.2		
2A(0805)	2.0±0.2	1.25±0.1	0.4±0.2	$0.3^{+0.2}_{-0.1}$	0.5±0.1	4.54
2A AT(0805)			0.45±0.25	0.6±0.2	0.55±0.1	
2B(1206)	3.2±0.2	1.6±0.2	0.5±0.3	$0.4^{+0.2}_{-0.1}$	0.6±0.1	9.14
2B AT(1206)			0.55±0.35	0.8±0.2		

■Type Designation

Example

RK73G	2A		T	TD	1002	D
Product Code	Power Rating	Characteristic	Terminal Surface Material	Taping	Nominal Resistance	Resistance Tolerance
	1H : 0.05W 1E : 0.1W 1J : 0.1W 2A : 0.125W 2B : 0.25W	Nil : Standard A : Heat shock resistance※1	T : Sn (L : Sn/Pb※2)	TCM : 2mm pitch press paper TPL・TP : 2mm pitch punch paper TD : 4mm pitch punch paper TE : 4mm pitch plastic embossed BK : Bulk	4 digits	C : ±0.25% D : ±0.5% F : ±1%

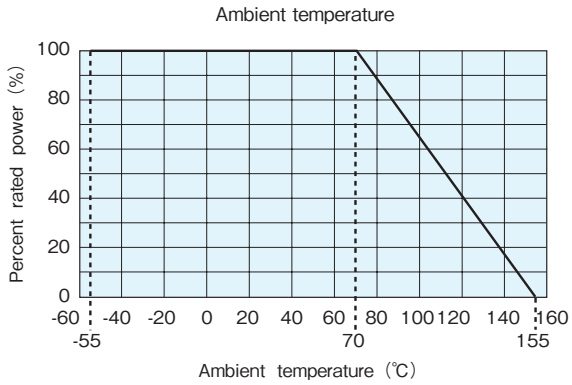
※1 With type A (1E,1J,2A,2B) only T is available as the terminal surface material. No resistance marking.
※2 With type 1H, only T is available as the terminal surface material.
The terminal surface material lead free is standard.
Contact us when you have control request for environmental hazardous material other than the substance specified by EU-RoHS.
For further information on taping, please refer to APPENDIX C on the back pages.

■Ratings

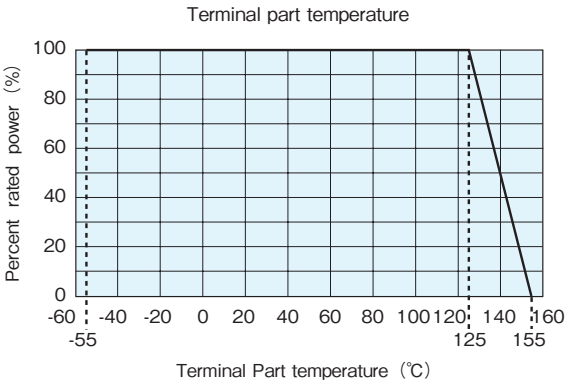
Type	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (×10^{-6}/K)	Resistance Range (Ω) C:±0.25% E24・E96	D:±0.5% E24・E96	F:±1% E24・E96	Max. Working Voltage	Max. Overload Voltage	Packaging & Q'ty /Reel (pcs) TCM※5	TPL・TP	TD	TE
1H	0.05W	70℃	125℃	±50	—	100～1M※3	100～1M※3	25V	50V	15,000	—	—	—
1E	0.1W				100～1M	10～1M	10～1M	50V	100V	—	TPL : 20,000 TP : 10,000	—	—
1J	0.1W							75V	150V	—	TP : 10,000※4	5,000	—
2A	0.125W							150V	200V	—	—	5,000	4,000※4
2B	0.25W							200V	400V	—	—	5,000	4,000※4

Operating Temperature Range : −55℃～+155℃
Rated voltage=$\sqrt{\text{Power Rating}\times\text{Resistance value}}$ or Max. working voltage, whichever is lower.
For flat chip jumper resistor, please refer to RK73Z series.
※3 The nominal resistance value for RK73G 1H (D : ±0.5%、F : ±1%) is E24.
※4 Standard packaging : TD(4mm pitch punch paper)
※5 Standard taping specification of 1H is TCM. Previously available "TC(10,000pcs/Reel)" is not recommended for new designs.
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.

■Derating Curve

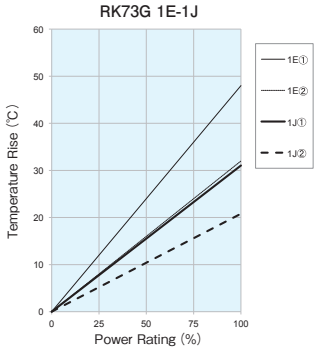


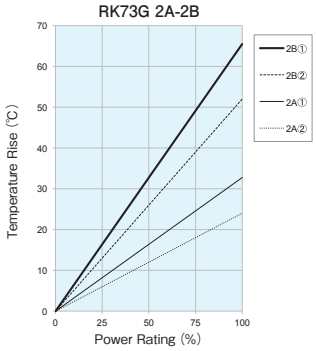
For resistors operated at an ambient temperature of 70℃ or higher, the power shall be derated in accordance with the above derating curve.



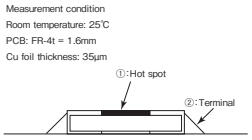
When the terminal part temperature of the resistor exceeds the rated terminal part temperature shown above, the power shall be derated according to the derating curve.
※Please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog before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

■Temperature Rise

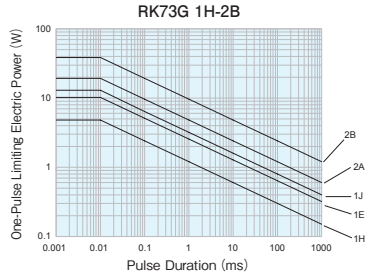




Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.



■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

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℃/+125℃ : 1H +25℃/−55℃ and +25℃/+125℃ : 1E, 1J, 2A, 2B
Overload (Short time)	2	0.6	Rated voltage×2.5 for 5s (1E, 2B : Rated voltage×2 for 5s)
Resistance to soldering heat	1	1 : 1H 0.4 : 1E, 1J, 2A, 2B	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 : 1H, 1E 2 : 1J, 2A, 2B	1 : 1H, 1E 0.6 : 1J, 2A, 2B	40℃±2℃, 90%~95%RH, 1000h 1.5h ON/0.5h OFF cycle
Endurance at 70℃ or rated terminal part temperature	3 : 1H, 1E 2 : 1J, 2A, 2B	1 : 1H, 1E 0.6 : 1J, 2A, 2B	70℃±2℃ or rated terminal part temperature ±2℃ 1000h 1.5h ON/0.5h OFF cycle
High temperature exposure	1	0.6	+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. 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.