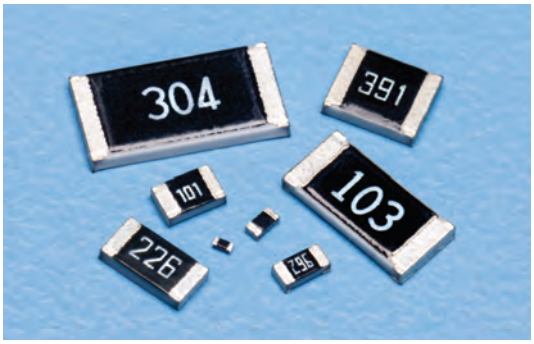
KOA SPEER ELECTRONICS, INC.

RK73-RT

flat chip resistors (anti-sulfuration)

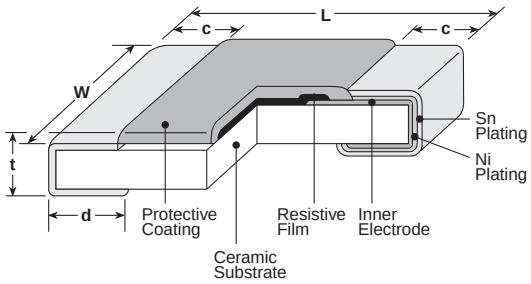
EU RoHS COMPLIANT



features

- Excellent anti-sulfuration characteristic due to using high sulfuration-proof inner top electrode material
- Excellent heat resistance and weather resistance are ensured by the use of metal glaze thick film
- High stability and high reliability with the triple-layer structure of electrode
- Suitable for both flow and reflow
- 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: 0201 (1H), 0402 (1E), 0603 (1J), 0805 (2A), 1206 (2B), 1210 (2E), 2010 (W2H), 2512 (W3A)

dimensions and construction



Type (Inch Size Code)	Dimensions inches (mm) L	W	c	d	t
1F (01005)	.016±.001 (0.4±0.02)	.008±.001 (0.2±0.02)	.004±.001 (0.1±0.03)	.004±.001 (0.11±0.03)	.005±.001 (0.13±0.02)
1H (0201)	.024±.001 (0.6±0.03)	.012±.001 (0.3±0.03)	.004±.002 (0.1±0.05)	.006±.002 (0.15±0.05)	.009±.001 (0.23±0.03)
1E (0402)	.039 +.004 -.002 (1.0 +0.1 -0.05)	.02±.002 (0.5±0.05)	.008±.004 (0.2±0.1)	.01 +.002 -.004 (0.25 +0.05 -0.1)	.014±.002 (0.35±0.05)
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)
2A (0805)	.079±.008 (2.0±0.2)	.049±.004 (1.25±0.1)	.016±.008 (0.4±0.2)	.012 +.008 -.004 (0.3 +0.2 -0.1)	.02±.004 (0.5±0.1)
2B (1206)	.126±.008 (3.2±0.2)	.063±.008 (1.6±0.2)	.02±.012 (0.5±0.3)	.016 +.008 -.004 (0.4 +0.2 -0.1)	.024±.004 (0.6±0.1)
2E (1210)		.102±.008 (2.6±0.2)			
W2H (2010)	.197±.008 (5.0±0.2)	.098±.008 (2.5±0.2)		.026±.006 (0.65±0.15)	
W3A/ W3A2[1] (2512)	.248±.008 (6.3±0.2)	.122±.008 (3.1±0.2)			

[1] RK73Z exempt

ordering information

RK73H	2A	R	T	TD	1002	F
Type	Power Rating	Characteristic	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance
RK73B RK73H RK73Z	1F 1H 1E 1J 2A 2B 2E W2H W3A W3A2	R: Anti-Sulfur	T: Sn	TX: 4mm width - 1mm pitch plastic embossed TBL - TCM: 2mm pitch press paper *[2] TPL - TP: 2mm pitch punch paper TD: 4mm pitch punch paper TE: 4mm pitch plastic embossed For further information on packaging, please refer to Appendix A	RK73B: 3 digits RK73H: 4 digits RK73Z: None	D: ±0.5% F: ±1% G: ±2% J: ±5%

[2] Standard taping specification of 1H is TCM. Previously available "TC (10,000pcs/Reel)" is not recommended for new designs.

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applications and ratings

RK73B/RK73H

Part Designation	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.	Resistance Range RK73H D±0.5% E24, E96	RK73H F±1% E24, E96[3]	RK73B G±2% E24	RK73B J±5% E24	Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
1F	0.03W	70°C	—	±200	—	100kΩ - 2MΩ[2]	100kΩ - 1MΩ	100kΩ - 10MΩ	20V	30V	-55°C to +125°C
				±250		10Ω - 91kΩ[2]	10Ω - 91kΩ	10Ω - 91kΩ			
				0 - +300		—	1Ω - 9.1Ω	1Ω - 9.1Ω			
1H	0.05W		125°C	±200	100Ω - 100kΩ	100Ω - 1MΩ	—	100 - 1M	25V	50V	-55°C to +155°C
				±300	—	10Ω - 97.6Ω		10Ω - 91Ω			
1E	0.1W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	75V	100V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
1J	0.1W			±100	1.02kΩ - 1MΩ	1.02kΩ - 1MΩ	—	—			
				±200	—	1.02MΩ - 10MΩ	1.1kΩ - 10MΩ	1.1kΩ - 10MΩ			
	0.125W			±100	100Ω - 1kΩ	10Ω - 1kΩ	—	—			
				±200	—	—	10Ω - 1kΩ	1Ω - 1kΩ			
2A	0.25W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	150V	200V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
2B	0.25W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	200V	400V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
2E	0.5W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	—	10Ω - 1MΩ	1Ω - 1MΩ			
W2H	0.75W			±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	1 - 9.76 1.02MΩ - 10MΩ	1Ω - 10MΩ	1Ω - 10MΩ			
W3A	1W			±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
W3A2	2W[4]		95°C	±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			

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

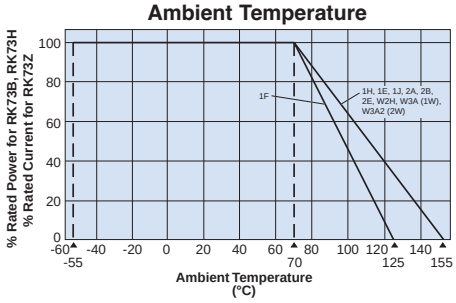
[3]The nominal resistance value for RK73H1F (F:±1%) is E24

[4] If you use at the rated power, please keep the condition that the terminal of the resistor is below the rated terminal part temperature. Please refer to the derating curves based on the terminal temperature.

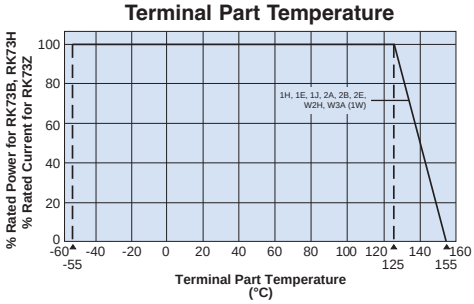
If any questions arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature," in your usage conditions, please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves in the terminal part temperature" in the beginning of the catalog.
While using under high power, the temperature of the product may increase depending on the condition of heat dissipation from PCB.
Be sure to check the terminal part temperature as well as precautions to use on delivery specification before use.

Derating Curve

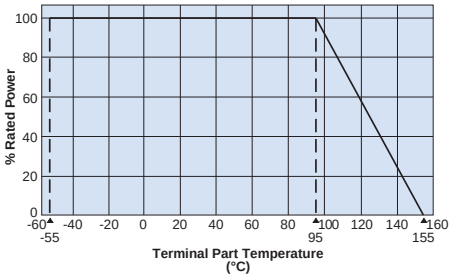
RK73B-RK73H-RK73Z-RT
Ambient Temperature



RK73B-RK73H-RK73Z-RT
Terminal Part Temperature



RK73B-RK73H-RT
Terminal Part Temperature W3A2



For resistors operated at an ambient temperature of 70°C or higher, the power (for RK73B, RK73H) or a current rating (for RK73Z) 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.

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KOA SPEER ELECTRONICS, INC.

RK73-RT

flat chip resistors (anti-sulfuration)

applications and ratings (continued)

RK73Z

Part Designation	Rated Ambient Temperature	Rated Terminal Part Temperature	Resistance	Current Rating	Maximum Surge Current	Operating Temperature Range
1H	+70°C	+125°C	100mΩ max.	0.5A	1A	-55°C to +155°C
1E			50mΩ max.	1A	2A	
1J						
2A				2A	5A	
2B					10A	
2E						
W2H						
W3A						

environmental applications

Performance Characteristics

Parameter	RK73H, RK73B Requirement Δ R ±(%+0.1Ω)		RK73Z Requirement		Test Method
	Limit	Typical	Limit	Typical	
Resistance	Within specified tolerance	—	R≤100mΩ: 1H R≤50mΩ: All others	R≤90mΩ: 1H R≤40mΩ: All others	25°C
T.C.R.	Within specified T.C.R.	—	—	—	+25°C/-55°C and +25°C/+125°C
Overload (Short time)	±2%	±1%: 1F ±0.8%: All others	R≤100mΩ: 1H R≤50mΩ: All others	R≤90mΩ: 1H R≤40mΩ: All others	RK73B, RK73H Rated Voltage x 2.5 for 5 seconds (1E, 2B, W3A2: Rated Voltage x 2 for 5 seconds) RK73Z: Max. overload current for 5 seconds
Resistance to Solder Heat	±1%:10Ω≤R≤1MΩ ±3%: R<10Ω, R>1MΩ	±1%: R<10Ω, R>1MΩ ±0.5%: All others	R≤100mΩ: 1H R≤50mΩ: All others	R≤90mΩ: 1H R≤40mΩ: All others	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±1%: 1F ±0.5%: All others	±0.5%: 1F ±0.3%: All others	R≤100mΩ: 1H R≤50mΩ: All others	R≤90mΩ: 1H R≤40mΩ: All others	-55°C (30 minutes), +125°C (30 minutes), 100 cycles
Moisture Resistance	±2%: 1J, 2A, 2B ±3%: All others	±0.75%: 1J, 2A, 2B ±1.5%: 1F ±1%: All others	R≤150mΩ: 1H R≤100mΩ: All others	R≤100mΩ: 1H R≤50mΩ: All others	40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	±2%: 1J, 2A, 2B ±3%: All others	±0.75%: 1J, 2A, 2B ±1%: All others	R≤150mΩ: 1H R≤100mΩ: All others	R≤100mΩ: 1H R≤50mΩ: All others	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±1%	±0.5%	R≤150mΩ: 1H R≤100mΩ: All others	R≤100mΩ: 1H R≤50mΩ: All others	+125°C, 1000 hours: 1F; +155°C, 1000 hours: 1H, 1E, 1J, 2A, 2B, 2E, W2H, W3A
Sulfuration Test	±5%	±0.3%: 1F, 1H ±0.2%: All others	R≤150mΩ: 1H R≤100mΩ: All others	R≤100mΩ: 1H R≤50mΩ: All others	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.