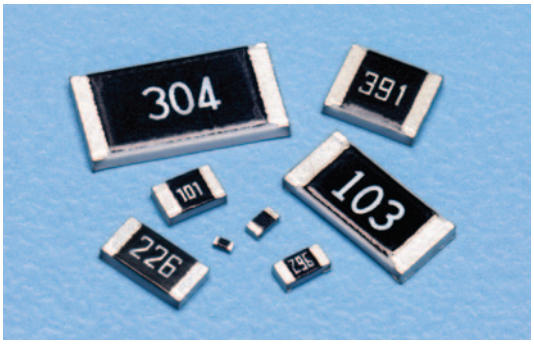
KOA SPEER ELECTRONICS, INC.

RK73-RT

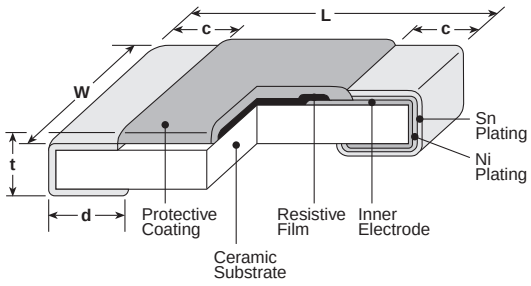
flat chip resistors (anti-sulfuration)



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* (2512)	.248±.008 (6.3±0.2)	.122±.008 (3.1±0.2)			

* 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 ** TPL - TP: 2mm pitch punch paper TD: 4mm pitch punch paper TE: 4mm pitch plastic embossed Other nonstandard reel sizes available, contact factory for other options 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%

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

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

11/04/24

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[1]	RK73B G±2% E24	RK73B J±5% E24	Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
1F (01005)	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 (0201)	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 (0402)	0.1W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	75V	100V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
1J (0603)	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 (0805)	0.25W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	150V	200V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
2B (1206)	0.25W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—	200V	400V	
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
2E (1210)	0.5W			±100	100Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	—	10Ω - 1MΩ	1Ω - 1MΩ			
W2H (2010)	0.75W			±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	1 - 9.76 1.02MΩ - 10MΩ	1Ω - 10MΩ	1Ω - 10MΩ			
W3A (2512)	1W			±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—			
				±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ			
W3A2 (2512)	2W[2]		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

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

[2] 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.

applications and ratings (continued)

RK73Z

Part Designation	Rated Ambient Temperature	Rated Terminal Part Temperature	Resistance	Current Rating	Maximum Surge Current	Operating Temperature Range
1H (0201)	+70°C	+125°C	100mΩ max.	0.5A	1A	-55°C to +155°C
1E (0402)			50mΩ max.	1A	2A	
1J (0603)						
2A (0805)				2A	5A	
2B (1206)					10A	
2E (1210)						
W2H (2010)						
W3A (2512)						

KOA SPEER ELECTRONICS, INC.

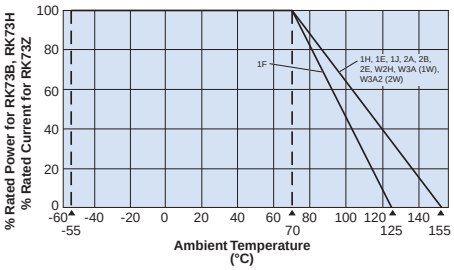
RK73-RT

flat chip resistors (anti-sulfuration)

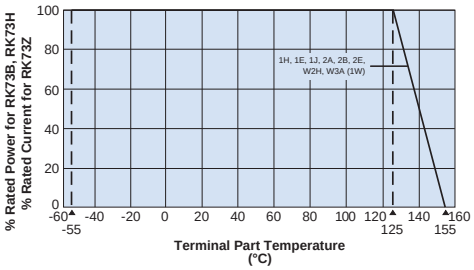
environmental applications

Derating Curve

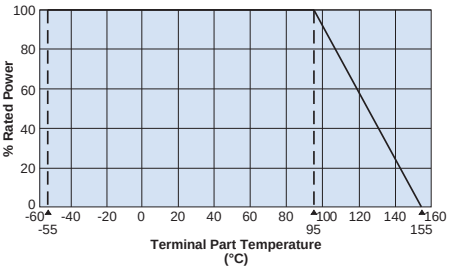
RK73B-RK73H-RK73Z-RT
Ambient Temperature



RK73B-RK73H-RK73Z-RT
Terminal Part Temperature



RK73B-RK73H-RT
Terminal Part Temperature W3A2



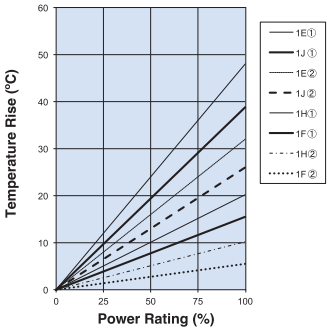
For resistors operated at an ambient temperature of 70℃ or higher, the power (for RK73B, RK73H) or a current rating (for RK73Z) shall be derated in accordance with the above derating curve.

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.

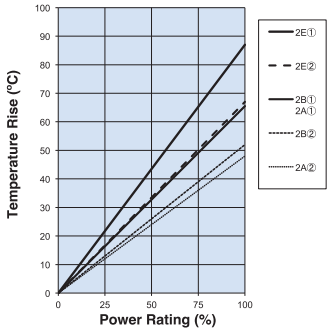
Please refer to “Introduction of the derating curves based on the terminal part temperature” on the beginning of our catalog before use.

Temperature Rise

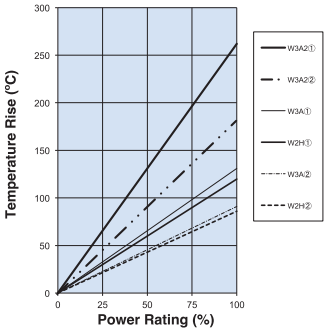
RK73B 1F-1J



RK73B 2A-2E

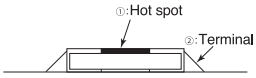


RK73B W2H-W3A2

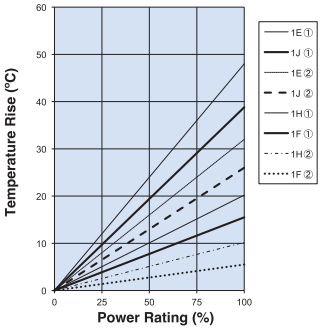


Regarding the temperature rise, the value of the temperature varies per conditions and board for use since the temperature is measured under our measuring conditions.

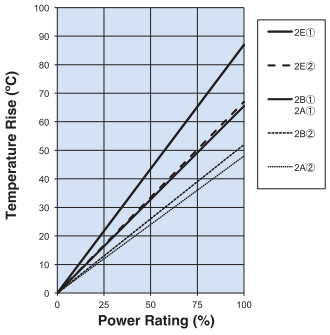
Measurement condition
Room temperature: 25°C
PCB: FR-4t = 1.6mm
Cu foil thickness: 35µm



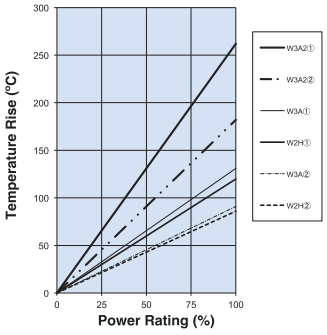
RK73H 1F-1J



RK73H 2A-2E



RK73H W2H-W3A2



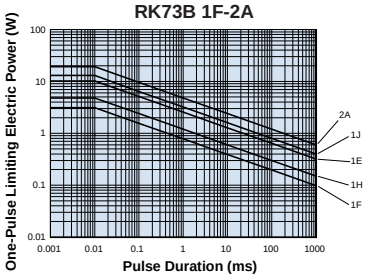
Please refer to conventional products for characteristic data such as temperature rise.

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

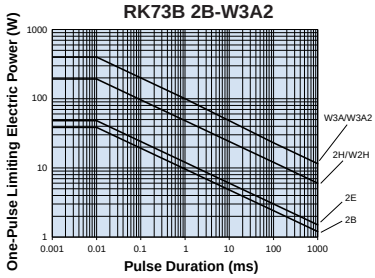
11/04/24

One-Pulse Limiting Electric Power

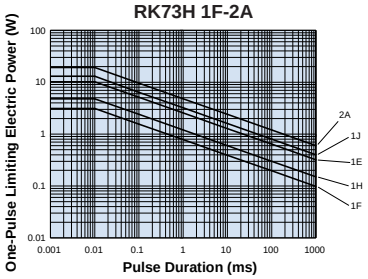
RK73B 1F-2A



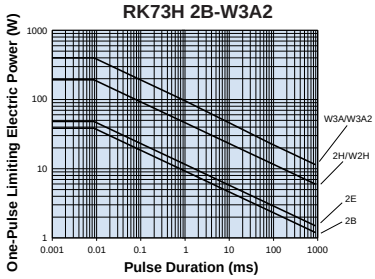
RK73B 2B-W3A2



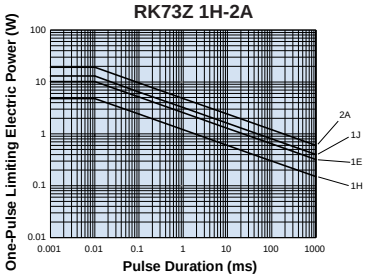
RK73H 1F-2A



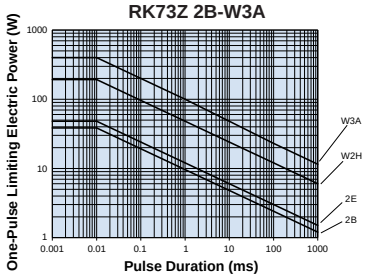
RK73H 2B-W3A2



RK73Z 1H-2A



RK73Z 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.

Please ask us about the resistance characteristic of continuous applied pulse. Please calculate One-Pulse Limiting Electric Power using upper limit of resistance (50mΩ or 100mΩ) for applied current. The pulse endurance values are not assured values,so be sure to check the products on actual equipment when you use them.

environmental applications

Performance Characteristics

Parameter	RK73H, RK73B Requirement ΔR ±(%+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 or rated terminal part temperature ± 2°C 1000h 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

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Mouser Electronics

Authorized Distributor

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KOA Speer:

RK73H2ARTD1503D RK73H2ARTD3322D RK73H1JRTTD2003F RK73H2BRTTD2002F RK73H2ARTTD1000F RK73H2BRTTD3483D RK73HW3ARTTE8454F RK73H2ERTTD9531F RK73H1JRTTD1332F RK73H1ERTTP1301D RK73H1ERTTP3300F RK73H2BRTTD4754F RK73H2ERTTD4701F RK73HW2HRTTE6191D RK73HW2HRTTE6202D RK73H2ARTTD1370F RK73H2BRTTD6343D RK73H2ARTTD1691F RK73H2BRTTD1804F RK73H2BRTTD33R0F RK73H1ERTTP2673F RK73H2ERTTD2260D RK73H2ERTTD7503F RK73HW2HRTTE1502D RK73HW2HRTTE2050F RK73HW3ARTTE2612D RK73H1ERTTP9312F RK73H2ARTTD4423D RK73H2ARTTD26R7F RK73HW2HRTTE36R5D RK73H1ERTTP9313D RK73H1JRTTD3161D RK73HW2HRTTE3164F RK73H1ERTTP5100F RK73H2ARTTD4121D RK73HW2HRTTE1333D RK73HW3ARTTE73R2F RK73HW3ARTTE4021F RK73HW3ARTTE2262F RK73H1JRTTD3743F RK73H2ARTTD2200F RK73H2ARTTD41R2F RK73HW2HRTTE20R0F RK73H2BRTTD14R7F RK73H2BRTTD2322F RK73H2BRTTD6342F RK73HW3ARTTE6494F RK73HW3ARTTE8201F RK73H1ERTTP1333D RK73H2ARTTD4643F RK73H2BRTTD7150F RK73HW2HRTTE2802D RK73H1JRTTD35R7F RK73H2ERTTD1620F RK73H1ERTTP7320D RK73H1ERTTP1543F RK73HW3ARTTE5760D RK73H2ARTTD1824F RK73HW3ARTTE2001F RK73H2ERTTD3321D RK73HW3ARTTE8874F RK73H2ARTTD1542D RK73H2ARTTD2941D RK73H2ARTTD1022D RK73HW2HRTTE8870F RK73HW3ARTTE5494F RK73H1JRTTD1541D RK73H2ARTTD1073F RK73H2BRTTD6203F RK73H1JRTTD9310D RK73H1JRTTD47R5F RK73H1JRTTD1584F RK73HW2HRTTE1651D RK73HW3ARTTE3650F RK73H2ARTTD6980D RK73H2ERTTD5231D RK73HW2HRTTE5103F RK73H1ERTTP7151D RK73H2ARTTD1133D RK73HW3ARTTE80R6D RK73HW3ARTTE3160F RK73H1JRTTD1000D RK73H1JRTTD1271D RK73HW3ARTTE3900D RK73H1ERTTP2152D RK73H1ERTTP4420D RK73H2ERTTD1602D RK73H2BRTTD4640D RK73HW2HRTTE1820D RK73H2ARTTD1543F RK73H1JRTTD7873F RK73H1JRTTD1784F RK73HW3ARTTE1000D RK73H2ERTTD4700D RK73H2ARTTD16R0F RK73HW3ARTTE8201D RK73H1ERTTP22R6F RK73H2BRTTD1182F RK73H1ERTTP11R8F RK73HW2HRTTE2704F