

RK73B1HRTTC162J Datasheet

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DiGi Electronics Part Number	RK73B1HRTTC162J-DG
Manufacturer	KOA Speer Electronics, Inc.
Manufacturer Product Number	RK73B1HRTTC162J
Description	RES 1.6K OHM 5% 1/20W 0201
Detailed Description	1.6 kOhms ±5% 0.05W, 1/20W Chip Resistor 0201 (0603 Metric) Anti-Sulfur, Automotive AEC-Q200 Thick Film

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Purchase and inquiry

Manufacturer Product Number:

RK73B1HRTTC162J

Series:

RK73-RT

Resistance:

1.6 kOhms

Power (Watts):

0.05W, 1/20W

Features:

Anti-Sulfur, Automotive AEC-Q200

Operating Temperature:

-55°C ~ 155°C

Supplier Device Package:

0201

Size / Dimension:

0.024" L x 0.012" W (0.60mm x 0.30mm)

Number of Terminations:

2

Base Product Number:

RK73B1H

Manufacturer:

KOA Speer Electronics, Inc.

Product Status:

Not For New Designs

Tolerance:

±5%

Composition:

Thick Film

Temperature Coefficient:

±200ppm/°C

Package / Case:

0201 (0603 Metric)

Ratings:

AEC-Q200

Height - Seated (Max):

0.010" (0.26mm)

Failure Rate:

-

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8533.21.0030

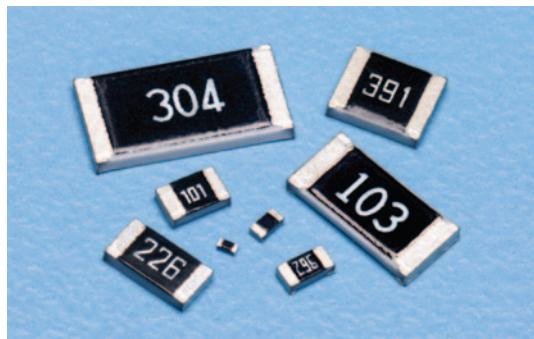
Moisture Sensitivity Level (MSL):

1 (Unlimited)

ECCN:

EAR99

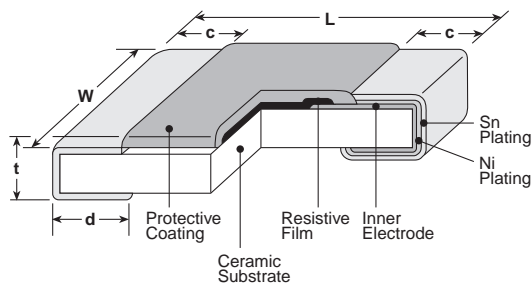
flat chip resistors (anti-sulfuration)



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 ^{+0.004} _{-.002} (1.0 ^{+0.1} _{-.05})	.02±.002 (0.5±0.05)	.008±.004 (0.2±0.1)	.01 ^{+0.002} _{-.004} (0.25 ^{+0.05} _{-.01})	.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 ^{+0.008} _{-.004} (0.3 ^{+0.2} _{-.01})	.02±.004 (0.5±0.1)
2B (1206)	.126±.008 (3.2±0.2)	.063±.008 (1.6±0.2)		.016 ^{+0.008} _{-.004} (0.4 ^{+0.2} _{-.01})	
2E (1210)		.102±.008 (2.6±0.2)			
W2H (2010)	.197±.008 (5.0±0.2)	.098±.008 (2.5±0.2)	.02±.012 (0.5±0.3)		.024±.004 (0.6±0.1)
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.



RK73-RT

flat chip resistors (anti-sulfuration)

resistors

applications and ratings

RK73B/RK73H

Part Designation	Power Rating	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.	Resistance Range				Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range													
					RK73H		RK73B																	
					D±0.5% E24, E96	F±1% E24, E96 ¹	G±2% E24	J±5% E24																
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		70°C	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				70°C	125°C	±100	100Ω - 1MΩ	10Ω - 1MΩ	—		—		75V	100V	-55°C to +155°C								
							±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ		1Ω - 10MΩ												
1J (0603)	0.1W						70°C	125°C	±100	1.02kΩ - 1MΩ		1.02kΩ - 1MΩ		—	—		75V	100V	-55°C to +155°C					
									±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								70°C	125°C		±100		100Ω - 1MΩ	10Ω - 1MΩ		—	—		150V	200V	-55°C to +155°C		
		±200									—	1.02MΩ - 10MΩ		10Ω - 10MΩ	1Ω - 10MΩ									
2B (1206)	0.25W	70°C									125°C	±100		100Ω - 1MΩ	10Ω - 1MΩ		—	—		200V	400V		-55°C to +155°C	
												±200		—	1.02MΩ - 10MΩ		10Ω - 10MΩ	1Ω - 10MΩ						
2E (1210)	0.5W		70°C	125°C								±100	100Ω - 1MΩ	10Ω - 1MΩ	—		—							
												±200	—	—	10Ω - 1MΩ		1Ω - 1MΩ							
W2H (2010)	0.75W				70°C	125°C						±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—	200V	400V		-55°C to +155°C				
												±200	—	1 - 9.76 1.02MΩ - 10MΩ	1Ω - 10MΩ	1Ω - 10MΩ								
W3A (2512)	1W						70°C	125°C				±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—								
												±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ								
W3A2 (2512)	2W ²											95°C	95°C	±100	10Ω - 1MΩ	10Ω - 1MΩ	—	—	200V		400V			-55°C to +155°C
														±200	—	1.02MΩ - 10MΩ	10Ω - 10MΩ	1Ω - 10MΩ						

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

¹The 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)				1A	2A	
1J (0603)			2A			
2A (0805)				10A		
2B (1206)						
2E (1210)						
W2H (2010)						
W3A (2512)						

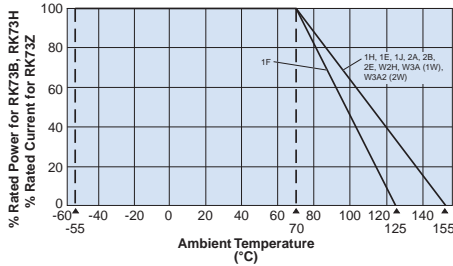


flat chip resistors (anti-sulfuration)

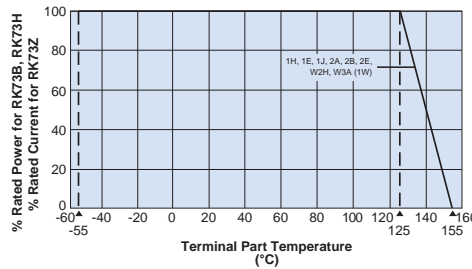
environmental applications

Derating Curve

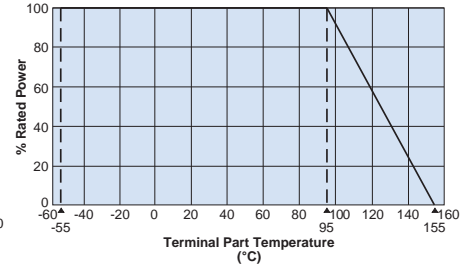
RK73B-RK73H-RK73Z-RT
Ambient Temperature



RK73B-RK73H-RK73Z-RT
Terminal Part Temperature



RK73B-RK73H-RT
Terminal Part Temperature W3A2

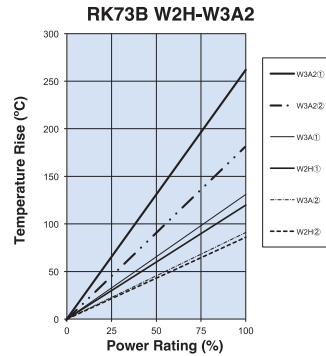
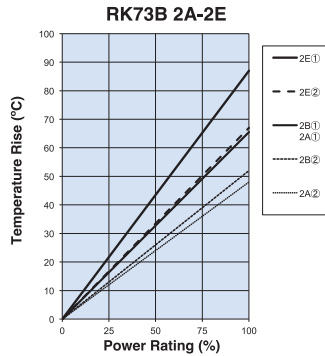
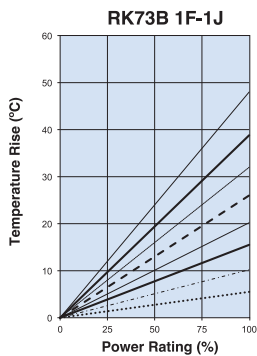


For resistors operated at an ambient temperature of 70°C or higher, the power (for RK73B, RK73H) or a current rating (for RK73Z) shall be derated in accordance with the above derating curve.

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.

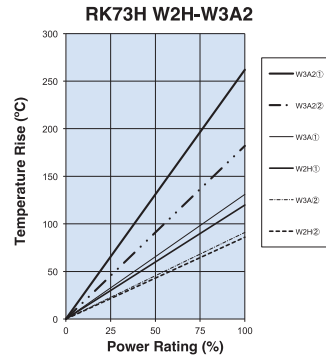
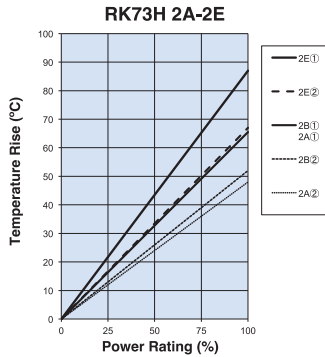
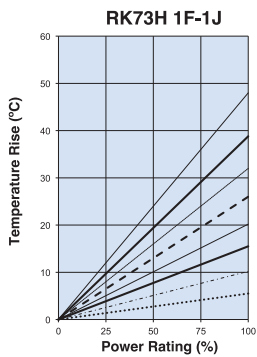
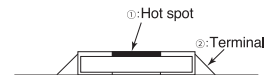
Please refer to "Introduction of the derating curves based on the terminal part temperature" on the beginning of our catalog before use.

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.

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

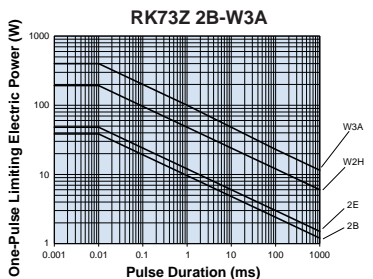
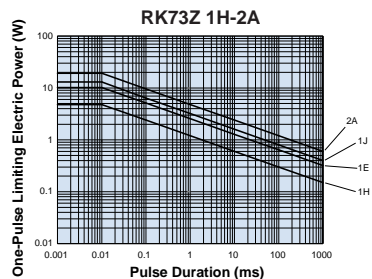
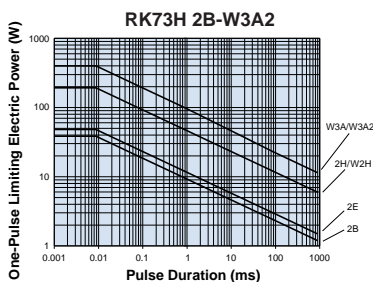
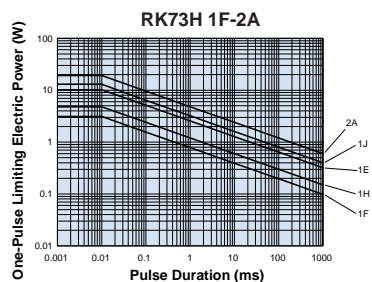
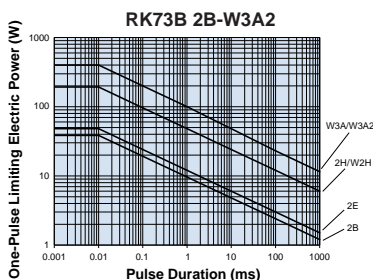
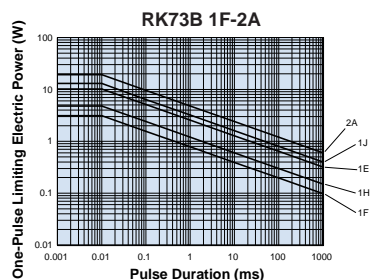


Please refer to conventional products for characteristic data such as temperature rise.

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



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 \pm (%+0.1Ω)		RK73Z Requirement		Test Method
	Limit	Typical	Limit	Typical	
Resistance	Within specified tolerance	—	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	$R \leq 90\text{m}\Omega$: 1H $R \leq 40\text{m}\Omega$: All others	25°C
T.C.R.	Within specified T.C.R.	—	—	—	+25°C/-55°C and +25°C/+125°C
Overload (Short time)	$\pm 2\%$	$\pm 1\%$: 1F $\pm 0.8\%$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	$R \leq 90\text{m}\Omega$: 1H $R \leq 40\text{m}\Omega$: 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	$\pm 1\%$: $10\Omega \leq R \leq 1\text{M}\Omega$ $\pm 3\%$: $R < 10\Omega$, $R > 1\text{M}\Omega$	$\pm 1\%$: $R < 10\Omega$, $R > 1\text{M}\Omega$ $\pm 0.5\%$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	$R \leq 90\text{m}\Omega$: 1H $R \leq 40\text{m}\Omega$: All others	260°C \pm 5°C, 10 seconds \pm 1 second
Rapid Change of Temperature	$\pm 1\%$: 1F $\pm 0.5\%$: All others	$\pm 0.5\%$: 1F $\pm 0.3\%$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	$R \leq 90\text{m}\Omega$: 1H $R \leq 40\text{m}\Omega$: All others	-55°C (30 minutes) / +125°C (30 minutes), 100 cycles
Moisture Resistance	$\pm 2\%$: 1J, 2A, 2B $\pm 3\%$: All others	$\pm 0.75\%$: 1J, 2A, 2B $\pm 1.5\%$: 1F $\pm 1\%$: All others	$R \leq 150\text{m}\Omega$: 1H $R \leq 100\text{m}\Omega$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	40°C \pm 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 70°C	$\pm 2\%$: 1J, 2A, 2B $\pm 3\%$: All others	$\pm 0.75\%$: 1J, 2A, 2B $\pm 1\%$: All others	$R \leq 150\text{m}\Omega$: 1H $R \leq 100\text{m}\Omega$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	70°C \pm 2°C or rated terminal part temperature \pm 2°C 1000h 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	$\pm 1\%$	$\pm 0.5\%$	$R \leq 150\text{m}\Omega$: 1H $R \leq 100\text{m}\Omega$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	+125°C, 1000 hours: 1F; +155°C, 1000 hours: 1H, 1E, 1J, 2A, 2B, 2E, W2H, W3A
Sulfuration Test	$\pm 5\%$	$\pm 0.3\%$: 1F, 1H $\pm 0.2\%$: All others	$R \leq 150\text{m}\Omega$: 1H $R \leq 100\text{m}\Omega$: All others	$R \leq 100\text{m}\Omega$: 1H $R \leq 50\text{m}\Omega$: All others	Soaked in industrial oil with 3.5% sulfur concentration 105°C \pm 3°C, 500 hours

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

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