KOA SPEER ELECTRONICS, INC.

RN73H

high heat resistance metal film chip resistor

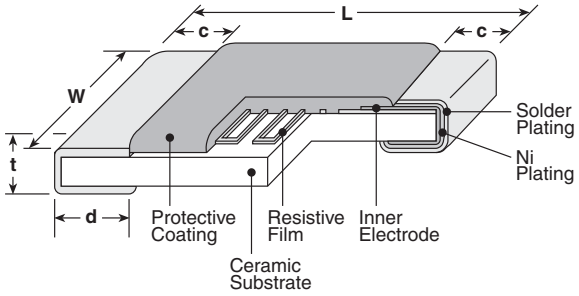
EU RoHS COMPLIANT



features

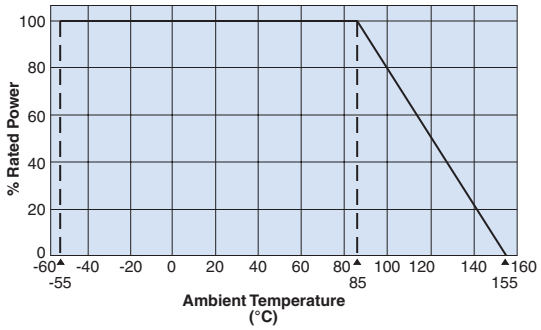
- High precision type ±0.05% is available with standard products
- Improved moisture resistance by glass passivation layer
- High reliability and high stability at elevated temperatures
- Low current noise
- Products with lead-free terminations meet EU RoHS requirements
- Rated ambient temperature: 85°C, rated up to +155°C
- AEC-Q200 Qualified: 0402 (1E), 0603 (1J), 0805 (2A), 1206 (2B), 1210 (2E)

dimensions and construction



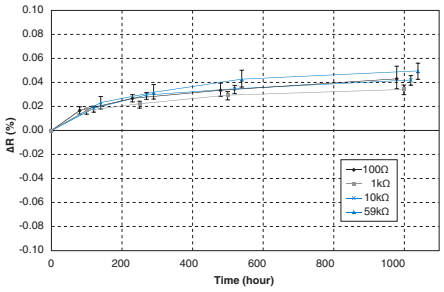
Type (Inch Size Code)	Dimensions inches (mm) L	W	c	d	t
1E (0402)	.039 +.004 -.002 (1.0 +0.1 -0.05)	.020±.002 (0.5±0.05)	.010±.004 (0.25±0.1)	.010 +.002 -.004 (0.25 +0.05 -0.1)	.014±.002 (0.35±0.05)
1J (0603)	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.012±.004 (0.3±0.1)	.012±.004 (0.3±0.1)	.018±.004 (0.45±0.1)
2A (0805)	.079±.008 (2.0±0.2)	.049±.008 (1.25±0.2)	.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)		.098±.008 (2.5±0.2)			

Derating Curve



For resistors operated at an ambient temperature of 85°C or above, a power rating shall be derated in accordance with the above derating curve.

High Temperature Exposure (155°C, 1000 Hr) RN73H2A



ordering information

New Part #

RN73H	2B	T	TD	1002	B	25
Type	Size	Termination Material	Packaging	Nominal Resistance	Resistance Tolerance	T.C.R. (ppm/°C)
	1E: 0.063W 1J: 0.1W 2A: 0.125W 2B: 0.25W 2E: 0.25W	T: Sn	TP: 0402 only: 7" 2mm pitch punched paper TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper TDD: 0603, 0805, 1206, 1210: 10" paper tape TE: 0805, 1206, 1210: 7" embossed plastic TED: 0805, 1206, 1210: 10" embossed plastic For further information on packaging, please refer to Appendix A	3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω	A: ±0.05% B: ±0.1% C: ±0.25% D: ±0.5% F: ±1.0%	05 10 25 50 100

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

11/27/14

applications and ratings

Part Designation	Power Rating @ 85°C	T.C.R. (ppm/°C) Max.	Resistance Range E-24, E-96, E-192* (A±0.05%)	(B±0.1%)	(C±0.25%)	(D±0.5%)	(F±1.0%)	Maximum Working Voltage	Maximum Overload Voltage	Operating Temp. Range
RN73H1E	1/16W (.063W)	±10	—	100Ω - 10kΩ	100Ω - 10kΩ	100Ω - 10kΩ	100Ω - 10kΩ	50V	75V	-55°C to +155°C
		±25	—	100Ω - 300kΩ	100Ω - 300kΩ	47Ω - 300kΩ	47Ω - 300kΩ			
		±50	—	100Ω - 300kΩ	100Ω - 300kΩ	10Ω - 300kΩ	10Ω - 300kΩ			
RN73H1J	1/10W (.10W)	±5	100Ω - 47kΩ	100Ω - 47kΩ	—	—	—	75V	150V	
		±10	100Ω - 59kΩ	100Ω - 59kΩ	100Ω - 59kΩ	100Ω - 59kΩ	100Ω - 59kΩ			
		±25	51Ω - 59kΩ	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±50	—	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±100	—	—	—	10Ω - 1MΩ	10Ω - 1MΩ			
RN73H2A	1/8W (.125W)	±5	100Ω - 100kΩ	100Ω - 100kΩ	—	—	—	100V	200V	
		±10	100Ω - 100kΩ	100Ω - 100kΩ	100Ω - 100kΩ	100Ω - 100kΩ	100Ω - 100kΩ			
		±25	51Ω - 100kΩ	15Ω - 1MΩ	15Ω - 1MΩ	3Ω - 1MΩ	3Ω - 1MΩ			
		±50	—	15Ω - 1MΩ	15Ω - 1MΩ	3Ω - 1MΩ	3Ω - 1MΩ			
		±100	—	—	—	3Ω - 1MΩ	3Ω - 1MΩ			
RN73H2B	1/4W (.25W)	±5	100Ω - 300kΩ	100Ω - 300kΩ	—	—	—	150V	300V	
		±10	100Ω - 300kΩ	100Ω - 300kΩ	100Ω - 300kΩ	100Ω - 300kΩ	100Ω - 300kΩ			
		±25	51Ω - 300kΩ	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±50	—	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±100	—	—	—	10Ω - 1MΩ	10Ω - 1MΩ			
RN73H2E	1/4W (.25W)	±10	100Ω - 510kΩ	100Ω - 510kΩ	100Ω - 510kΩ	100Ω - 510kΩ	100Ω - 510kΩ	200V	400V	
		±25	51Ω - 510kΩ	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±50	—	15Ω - 1MΩ	15Ω - 1MΩ	10Ω - 1MΩ	10Ω - 1MΩ			
		±100	—	—	—	10Ω - 1MΩ	10Ω - 1MΩ			

* No marking on E-192 values

environmental applications

Performance Characteristics

Parameter	Requirement Δ R ±(%+0.05Ω) Limit	Typical	Test Method
Resistance	Within specified tolerance	—	25°C
T.C.R.	Within specified T.C.R.	—	+25°C/-55°C and +25°C/+155°C**
Overload (Short time)	±0.05%	±0.01%	Rated Voltage x 2.5 or Max. overload voltage, whichever is less for 5 seconds
Resistance to Solder Heat	±0.05%*	±0.01%	260°C ± 5°C, 10 seconds ± 1 second
Rapid Change of Temperature	±0.1%*	±0.02%	1E, 1J, 2A: -55°C (30 minutes), +155°C (30 minutes), 1000 cycles 2B, 2E: -55°C (30 minutes), +155°C (30 minutes), 500 cycles
Moisture Resistance	±0.1%*	±0.05%	85°C ± 2°C, 85%±5%RH, 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle
Endurance at 85°C	±0.1%*	±0.05%	85°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle
High Temperature Exposure	±0.1%*	±0.05%	+155°C, 1000 hours

* Depends on resistance value, please contact KOA Speer for details. ** Test conditions differ depending on resistance value

Precautions for Use

- The properly and electrostatically measured taping materials are used for the components, but attention should be paid to the fact that there is some danger the parts absorb on the top tapes to cause a failure in the mounting and the parts are destructed by static electricity (1J, 2A, 2B, 2E: 1kV and more, 1E: 0.5kV and more at Human Body Model 100pF, 1.5kΩ) to change the resistance in the conditions of an excessive dryness or after the parts are given vibration for a long time as they are packaged on the tapes. Similarly, care should be given not to apply the excessive static electricity when mounting on the boards.
- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. while perspiration and saliva include ionic impurities like sodium (Na+), chlorine (Cl–) etc. Therefore these kinds of ionic substances may induce electrical corrosion when they invade into the products. Either thorough washing or using RMA solder and flux are necessary since lead free solder contains ionic substances. Washing process is needed, before putting on moisture proof material in order to prevent electrical corrosion.
- Please pay attention that the top of an iron does not direct touch to the components. There is a risk that may cause a change in resistance. Take care that another risk may happen that the protecting coat is carbonized in an instant when touched directly by the top of the iron, also climatic-proof for electric corrosion or insulation of protecting coat may be dropped down. Be sure not to give high temperature on the top of the iron as it will degrade the protecting coat.
- Avoid storing components under direct sun rays, high temperature/humidity. Direct sun rays will cause quality change of taping and difficulty of keeping appropriate peeling strength. 5～35°C/35～75%RH, there is no deterioration of solderability for 12 months, but take special care for storing, because condensation, dust, and toxic gas like hydrogen sulfide, sulfurous acid gas, hydrogen chloride, etc. may drop solderability.
- The upper electrodes could be peeled off when a heat-resistant masking tape is attached to the mounted chip resistors and then detached from them. It is confirmed that the adhesiveness gets stronger due to the exposure to heat under mounting. Accordingly, we recommend the use of masking tape be refrained. If the use of heat-resistant masking tape is unavoidable, please make sure that the adhesives on the tape do not directly come in contact with the product.

For Surface Temperature Rise Graph see Environmental Applications. Additional environmental applications can also be found at www.koaspeer.com

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