KOA SPEER ELECTRONICS, INC.

RN73H

long term precision thin (metal) film flat chip resistors (high reliability, for automotive)

EU RoHS COMPLIANT

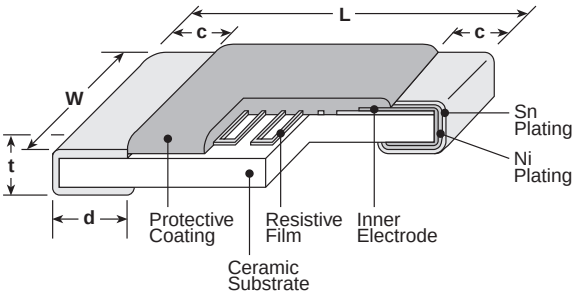
features

- AEC-Q200 Tested
- Endurance at 85°C (3,000h): ΔR of ±0.1%
- High temperature exposure: ΔR of ±0.1%
- High precision type ±0.05% is available
- Low current noise
- High reliability and high stability at elevated temperatures
- Improved moisture resistance by glass passivation layer
- Products meet EU RoHS requirements
- Rated ambient temperature: 85°C, rated up to +155°C
- Sulfur resistance verified according to ASTM B 809-95

applications

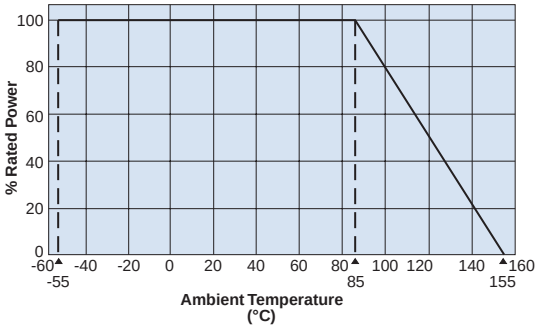
- Automotive electronics
- Industrial equipment
- Measurement equipment

dimensions and construction

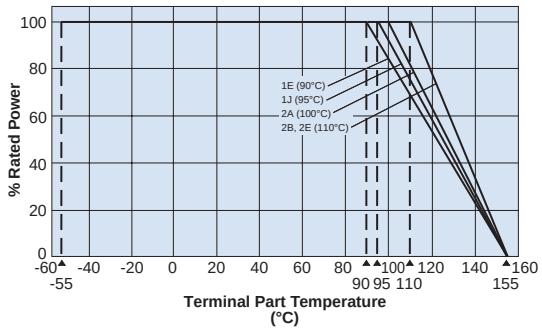


Type (Inch Size Code)	Dimensions inches (mm) L	W	c	d	t
1E (0402)	.039 $^{+.004}_{-.002}$ (1.0 $^{+0.1}_{-0.05}$)	.020±.002 (0.5±0.05)	.010±.004 (0.25±0.1)	.010 $^{+.002}_{-.004}$ (0.25 $^{+0.05}_{-0.1}$)	.014±.002 (0.35±0.05)
1J (0603)	.063±.008 (1.6±0.2)	.031±.004 (0.8±0.1)	.012±.004 (0.3±0.1)	.012±.004 (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.



For resistors operated terminal part temperature of described for each size or above, a power rating shall be derated in accordance with derating curve. Please refer to "Introduction of the derating curves based on the terminal part temperature" in the beginning of our catalog before use.

ordering information

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 G: Au (1E, 1J only)	TP: 0402 only: 7" 2mm pitch punched paper TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper TE: 0805, 1206, 1210: 7" 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

8/18/22

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applications and ratings

Part Designation	Power Rating @ 85°C	Rated Ambient Temp.	Rated Terminal Part Temp.	T.C.R. (ppm/°C) Max.	Resistance Range (Ω) 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
RN73H1E	1/16W (.063W)	85°C	90°C	±5	—	220 - 10k	—	—	—	50V	100V
				±10	—	47 - 100k	47 - 100k	47 - 100k	47 - 100k		
				±25	—	47 - 300k	47 - 300k	47 - 300k	47 - 300k		
				±50	—	47 - 300k	47 - 300k	10 - 300k	10 - 300k		
RN73H1J	1/10W (.10W)	85°C	95°C	±5	100 - 59k	100 - 59k	—	—	—	75V	150V
				±10	47 - 59k	47 - 360k	47 - 360k	47 - 360k	47 - 360k		
				±25	47 - 59k	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±50	—	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±100	—	—	—	10 - 1M	10 - 1M		
RN73H2A	1/8W (.125W)	85°C	100°C	±5	100 - 100k	100 - 100k	—	—	—	150V	300V
				±10	47 - 100k	47 - 1M	47 - 1M	47 - 1M	47 - 1M		
				±25	47 - 100k	15 - 1.5M	15 - 1.5M	10 - 1.5M	10 - 1.5M		
				±50	—	15 - 1.5M	15 - 1.5M	10 - 1.5M	10 - 1.5M		
				±100	—	—	—	10 - 1.5M	10 - 1.5M		
RN73H2B	1/4W (.25W)	85°C	110°C	±5	100 - 300k	100 - 300k	—	—	—	200V	400V
				±10	47 - 300k	47 - 1M	47 - 1M	47 - 1M	47 - 1M		
				±25	47 - 300k	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±50	—	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±100	—	—	—	10 - 1M	10 - 1M		
RN73H2E	1/4W (.25W)	85°C	110°C	±10	100 - 510k	100 - 510k	100 - 510k	100 - 510k	100 - 510k	200V	400V
				±25	51 - 510k	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±50	—	15 - 1M	15 - 1M	10 - 1M	10 - 1M		
				±100	—	—	—	10 - 1M	10 - 1M		

* No marking on E-192 values Operating Temperature: -55°C to +155°C

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/+125°C: T.C.R. +5 (x10^{-6}K); +25°C/-55°C and +25°C/+155°C: other
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%*	±0.03%	85°C ± 2°C, 3000 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.

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.
- 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.
- When high-pressure shower cleaning is implemented, there is a possibility of exfoliation of the top electrodes caused by the water pressure stress so please avoid the implementation.
- If the implementation is unavoidable, then please evaluate the products beforehand.

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

11/28/22

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

KOA Speer:

RN73H2ETTD1422D50 RN73H2ETTD1422F25 RN73H2ETTD1422F50 RN73H2ETTD1423B10
RN73H2ETTD1423C50 RN73H2ETTD1423D25 RN73H2ETTD1423D50 RN73H2ETTD1423F25
RN73H2ETTD1423F50 RN73H2ETTD1430B10 RN73H2ETTD1430C50 RN73H2ETTD1430D25
RN73H2ETTD1430D50 RN73H2ETTD1430F25 RN73H2ETTD1430F50 RN73H2ETTD1431B10
RN73H2ETTD1431C50 RN73H2ETTD1431D25 RN73H2ETTD1431D50 RN73H2ETTD1431F25
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