

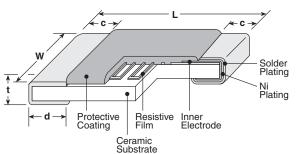


## thin (metal) film flat chip resistors

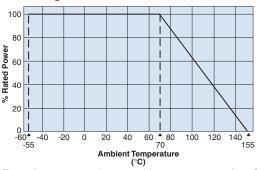
# features Nickel chromium thin film resistor element Products with lead-free terminations meet **EU RoHS requirements**

### NOT RECOMMENDED FOR NEW DESIGN: REPLACEMENT RN73H, RN73R

## dimensions and construction



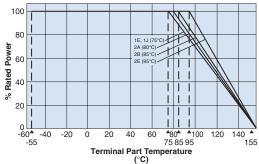
### **Derating Curve**



ordering information

For resistors operated at an ambient temperature of 70°C or above, a power rating shall be derated in accordance with the above derating curve.

Туре	<b>Dimensions</b> inches ( <i>mm</i> )						
(Inch Size Code)	L W		С	d	t		
RN73 1E (0402)	.039 +.004 002 (1.0 +0.1 -0.05)	.02±.002 (0.5±0.05)	.008±.004 (0.2±0.1)	.01 <sup>+.002</sup> / <sub>004</sub> (0.25 <sup>+0.05</sup> / <sub>-0.1</sub> )	.014±.002 (0.35±0.05)		
RN73 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)		
RN73 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)		
RN73 2B (1206)	.126±.008	.063±.008 (1.6±0.2)	.02±.012	.016 +.008	.024±.004		
RN73 2E (1210)	(3.2±0.2)	.098±.008 (2.5±0.2)	(0.5±0.3)	(0.4 +0.2)	(0.6±0.1)		



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.

	•					
RN73	2B	Т	TE	1002	В	25
Туре	Size	Termination Material	Packaging	Nominal Resistance	Tolerance	T.C.R. (ppm/°C)
	1E	T: Sn	TP: 0402: 7" 2mm pitch punch paper	3 significant	A: ±0.05%	05
	1J	L: SnPb	TD: 0603, 0805, 1206, 1210:	figures + 1	B: ±0.1%	10
	2A		7" 4mm pitch punched paper	multiplier	C: ±0.25%	25
	2B		TDD: 0603, 0805, 1206, 1210: 10" paper tape	"R" indicates decimal on	D: ±0.5%	50
	2E		TE: 0805, 1206, 1210: 7" embossed plastic		F: ±1.0%	100
			TED: 0805, 1206, 1210: 10" embossed plastic			
			For further information on packaging, please refer to Appendix A			

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

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#### 9/30/19







## thin (metal) film flat chip resistors

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## applications and ratings

Power Rating <sup>1</sup> Part @ 70°C Designation   High		0°C ັ	Rated Ambient	Rated Terminal Part	T.C.R. (ppm/°C)	Resistance Range (Ω) E-24, E-96, E-192*				Max.	Absolute Max. Overload			
Designation	General	Power	Temp.	Temp.			Max.	(A±0.05%)	(B±0.1%)	(C±0.25%)	(D±0.5%)	(F±1.0%)	Voltage	Voltage
RN731E	.063W	00014/	70°C	75°C	±25	—	100 - 100k	100 - 100k	10 - 120k	10 - 120k	50V	100V		
THUISTE	.063W - 70°C	700	75.0	±50		100 - 100k	100 - 100k	10 - 120k	10 - 120k	507	100 v			
			70°C	75°C	±5	1K - 47k	100 - 47k	—			75V	150V		
					±10	1K - 47k	100 - 47k	100 - 47k	100 - 47k	100 - 47k				
RN731J	.063W	.1W			±25	1K - 47k	15 - 360k	15 - 360k	10 - 360k	10 - 360k				
				±50	—	15 - 360k	15 - 360k	10 - 360k	10Ω - 360k					
					±100	—	_	—	10 - 360k	10 - 360k				
					±5	100 - 100k	100 - 100k	—						
				±10	100 - 100k	100 - 100k	100 - 100k	100 - 100k	100 - 100k					
RN732A	RN732A .1W .1	.125W	70°C	80°C	±25	51 - 100k	15 - 1M	15 - 1M	10 - 1M	10 - 1M	150V	300V		
				±50		15 - 1M	15 - 1M	10 - 1M	10 - 1M					
					±100	—		—	10 - 1M	10 - 1M				
			70°C	85°C	±5	100 - 300k	100 - 300k	—			200V	400V		
					±10	100 - 300k	100 - 300k	100 - 300k	100 - 300k	100 - 300k				
RN732B	RN732B .125W	.25W			±25	51 - 300k	15 - 1M	15 - 1M	10 - 1M	10 - 1M				
					±50		15 - 1M	15 - 1M	10 - 1M	10 - 1M				
					±100	—	—	—	10 - 1M	10 - 1M				
			– 70°C	95°C	±10	100 - 510k	100 - 510k	100 - 510k	100 - 510k	100 - 510k	200V	400V		
RN732E	25W	.25W —			±25	51 - 510k	15 - 1M	15 - 1M	10 - 1M	10 - 1M				
THU SEE	.2300				±50	_	15 - 1M	15 - 1M	10 - 1M	10 - 1M				
					±100	—	_	—	10 - 1M	10 - 1M				

\* No marking on E-192 values Operating Temperature Range: -55°C to +155°C <sup>1</sup> Reliability performance is different. Please confirm the performance table. If any questions should arise whether to use the "Rated Ambient Temperature" or the "Rated Terminal Part Temperature", please give priority to the "Rated Terminal Part Temperature." Prior to use and for more details refer to "Introduction of the derating curves on the terminal part temperature" in the beginning of the catalog.

## environmental applications

#### **Performance Characteristics**

	Requirement $\Delta$ R ±(%+0.05 $\Omega$ )				
Parameter	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 <sup>*</sup> /K) +25°C/-55°C and +25°C/+125°C: all others		
Overload (Short time)	General: ±0.1%	±0.01%	Rated Voltage x 2.5 or Max. overload voltage, whichever is less for 5 seconds		
	High Power: ±0.5%	±0.03%	Thated Vehage X 2.0 of Max. eveneda Vehage, Milenever ie iese ier e seconde		
Resistance to Solder Heat	±0.1%	±0.04%	$260^{\circ}C \pm 5^{\circ}C$ , 10 seconds $\pm 1$ second		
Rapid Change of Temperature	±0.25%	±0.03%	-55°C (30 minutes), +125°C (30 minutes), 300 cycles		
Maiatura Dasiatanas	General: ±0.5%	±0.06%	40%0 - 0%0 00% 05% DU 1000 hours 1 5 hr ON 0 5 hr OFF such		
Moisture Resistance	High Power: ±0.5%	±0.07%	40°C ± 2°C, 90%-95% RH, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle		
Endurance at 70°C	General: ±0.25%	±0.02%	70°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle		
	High Power: ±0.5%	±0.1%			
Lligh Temperature Experies	±0.25%	±0.1%	+125°C, 1000 hours		
High Temperature Exposure	±0.5%	±0.25%	+155°C, 1000 hours		

#### **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 (1kV and more: 1J, 2A, 2B, 2E 0.5kV and more: 1E, 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 (CI-) 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 Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use. 9/30/19

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