

Type RN73 Series

Key Features

- High precision - TCR 5ppm/°C and 10ppm/°C
- Tolerance down to 0.01%
- Thin film (nichrome)
- Choice of packages
- Stable high frequency performance
- Temperature range -55°C to +155°C

Applications

- Communications
- Instrumentation
- Industrial controls
- Medical



The RN73 series is a high stability precision chip resistor range offering various power dissipations relating to chip size, TCR's down to 5ppm/°C and resistance tolerances to 0.01%. The resistor is produced with three sputtered layers giving optimum performance. Values are restricted to the E96 and E24 value grids. The RN73 has accurate and uniform physical dimensions to facilitate placement.

Characteristics - Electrical

	0402						0603						0805					
Rated Power @ 70°C:	0.063W						0.063W						0.1W					
Resistance Range (Ohms) Min: Max:	49R9	49R9	49R9	49R9	49R9	49R9	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R3	24R9	4R3
	5K0	15K	5K0	15K	5K0	15K	15K	100K	15K	332K	15K	332K	30K	200K	30K	511K	30K	511K
Tolerance (%):	0.01		0.05		0.1		0.01		0.05		0.1		0.01		0.05		0.1	
Code Letter:	L		A		B		L		A		B		L		A		B	
Selection Series:	E24 & E96						E24 & E96						E24 & E96					
Temp. Coefficient (ppm/°C):	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10
Code Letter:	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Limiting Element Voltage:	25V						50V						100V					
Max. Overload Voltage:	50V						100V						200V					
Operating Temp. Range:	-55 to +155°C						-55 to +155°C						-55 to +155°C					
Climatic Category (°C):	55/125/55						55/125/55						55/125/55					
Insulation Resistance Dry Min:	1000MΩ						1000MΩ						1000MΩ					
Stability:	0.5%						0.5%						0.5%					

	1206						1210						2010					
Rated Power @ 70°C:	0.125W						0.2W						0.25W					
Resistance Range (Ohms) Min: Max:	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7
	50K	562K	50K	1M0	50K	1M0	50K	500K	50K	1M0	50K	1M0	100K	500K	100K	1M0	100K	1M0
Tolerance (%):	0.01		0.05		0.1		0.01		0.05		0.1		0.01		0.05		0.1	
Code Letter:	L		A		B		L		A		B		L		A		B	
Selection Series:	E24 & E96						E24 & E96						E24 & E96					
Temp. Coefficient (ppm/°C):	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10	5	10
Code Letter:	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C	A	C
Limiting Element Voltage:	150V						150V						150V					
Max. Overload Voltage:	300V						300V						300V					
Operating Temp. Range:	-55 to +155°C						-55 to +155°C						-55 to +155°C					
Climatic Category (°C):	55/125/55						55/125/55						55/125/55					
Insulation Resistance Dry Min:	1000MΩ						1000MΩ						1000MΩ					
Stability:	0.5%						0.5%						0.5%					

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	2512					
Rated Power @ 70°C:	0.5W					
Resistance Range (Ohms) Min:	24R9	24R9	24R9	4R7	24R9	4R7
	Max:	100K	500K	100K	1M0	100K
Tolerance (%):	0.01		0.05		0.1	
Code Letter:	L		A		B	
Selection Series:	E24 & E96					
Temp. Coefficient (ppm/°C):	5	10	5	10	5	10
Code Letter:	A	C	A	C	A	C
Limiting Element Voltage:	150V					
Max. Overload Voltage:	300V					
Operating Temp. Range:	-55 to +155°C					
Climatic Category (°C):	55/125/55					
Insulation Resistance Dry Min:	1000MΩ					
Stability:	0.5%					

Characteristics - Environmental

	Requirement		Test Method
	Tol. ≤ 0.05%	Tol. > 0.05%	
Temperature Coefficient of Resistance (TCR):	As per TCRs specified in value range table on page 1		+25/-55/+25/+125/+25°C
Short Time Overload:	ΔR ±0.05%	ΔR ±0.2%	RCWV* 2.5 or max. overload voltage for 5 seconds
	ΔR ±0.2% for high power rating		
Insulation Resistance:	>1000MΩ		Apply 100VDC for 1 minute
Endurance:	ΔR ±0.05%	ΔR ±0.2%	70 ±2°C, max. working voltage for 1000hrs with 1.5hrs "ON" and 0.5hrs "OFF"
	>7kΩ ΔR ±0.5%		
	ΔR ±0.5% for high power rating		
Damp Heat with Load:	ΔR ±0.05%	ΔR ±0.3%	40 ±2°C, 90 - 95% R.H. max. working voltage hrs with 1.5hrs "ON" and 0.5hrs "OFF"
	ΔR ±0.5% for high power rating		
Bending Strength:	ΔR ±0.05%	ΔR ±0.2%	Bending amplitude 3mm for 10 seconds
Solderability:	95% min. coverage		245 ±5°C for 3 seconds
Resistance to Soldering Heat:	ΔR ±0.05%	ΔR ±0.2%	260 ±5°C for 10 seconds
Dielectric Withstand Voltage:	By type		Max. overload voltage for 1 minute
Thermal Shock:	ΔR ±0.05%	ΔR ±0.25%	-55°C to +150°C, 100 cycles
Low Temperature Operation:	ΔR ±0.05%	ΔR ±0.2%	1 hour, -65°C, followed by 45 minutes of RCWV
	ΔR ±0.5% for high power rating		

Reference Standards: MIL-STD-202, JIS-C 5201-1

Storage Temperature: 25±3°C; Humidity < 80%RH

Power Derating Curve



For resistors operated in ambient temperatures above 70°C, power rating must be derated in accordance with this curve.

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Dimensions



Part Number	L	W	H	D	d	Weight (g) 1000 pieces
RN73 1E (0402)	1.00+/-0.05	0.50+/-0.05	0.30+/-0.05	0.20+/-0.10	0.20+/-0.10	0.54
RN73 1J (0603)	1.55+/-0.10	0.80+/-0.10	0.45+/-0.10	0.30+/-0.20	0.30+/-0.20	1.83
RN73 2A (0805)	2.00+/-0.15	1.25+/-0.15	0.55+/-0.10	0.30+/-0.20	0.40+/-0.25	4.71
RN73 2B (1206)	3.05+/-0.15	1.55+/-0.15	0.55+/-0.10	0.42+/-0.20	0.35+/-0.25	9.02
RN73 2E (1210)	3.10+/-0.15	2.40+/-0.15	0.55+/-0.10	0.40+/-0.20	0.55+/-0.25	10
RN73 2H (2010)	4.90+/-0.15	2.40+/-0.15	0.55+/-0.10	0.60+/-0.30	0.50+/-0.25	23.61
RN73 3A (2512)	6.30+/-0.15	3.10+/-0.15	0.55+/-0.10	0.60+/-0.30	0.50+/-0.25	38.08

Marking Codes - Case Sizes 0805 to 2512

IEC 4 Digit Marking

Resistance:	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
Marking Code:	1000	2201	1002	4992	1003

Case Sizes 0603

E24 3 Digit Marking - Example: 101=100Ω 102=1KΩ

E24	10	11	12	13	15	16	18	20	22	24	27	30
	33	36	39	43	47	51	56	62	68	75	82	91

E96 3 Digit Marking - Examples: 14C=13K7Ω, 13C=13K3Ω, 68B=4K99Ω, 68X=49.9Ω



0603 E96 Marking Code Table

Code	E96		Code	E96		Code	E96		Code	E96	
01	100		25	178		49	316		73	562	
02	102		26	182		50	324		74	576	
03	105		27	187		51	332		75	590	
04	107		28	191		52	340		76	604	
05	110		29	196		53	348		77	619	
06	113		30	200		54	357		78	634	
07	115		31	205		55	365		79	649	
08	118		32	210		56	374		80	665	
09	121		33	215		57	383		81	681	
10	124		34	221		58	392		82	698	
11	127		35	226		59	402		83	715	
12	130		36	232		60	412		84	732	
13	133		37	237		61	422		85	750	
14	137		38	243		62	432		86	768	
15	140		39	249		63	442		87	787	
16	143		40	255		64	453		88	806	
17	147		41	261		65	464		89	825	
18	150		42	267		66	475		90	845	
19	154		43	274		67	487		91	866	
20	158		44	280		68	499		92	887	
21	162		45	287		69	511		93	909	
22	165		46	294		70	523		94	931	
23	169		47	301		71	536		95	953	
24	174		48	309		72	549		96	976	
Code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10 ⁰	10 ¹	10 ²	10 ³	10 ⁴	10 ⁵	10 ⁶	10 ⁷	10 ⁻¹	10 ⁻²	10 ⁻³

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Recommend Land Pattern



Type	A	B	C
RN73 1E (0402)	0.5	0.5	0.60 ±0.2
RN73 1J (0603)	0.8	1.0	0.90 ±0.2
RN73 2A (0805)	1.0	1.0	1.35 ±0.2
RN73 2B (1206)	2.0	1.15	1.70 ±0.2
RN73 2E (1210)	2.0	1.15	2.50 ±0.2
RN73 2H (2010)	3.6	1.4	2.50 ±0.2
RN73 3A (2512)	4.9	1.6	3.10 ±0.2

Packaging Quantity & Reel Specifications



Type	øA	øB	øC	W	T	Paper Tape (EA)	Embossed Plastic Tape (EA)
RN73 1E (0402)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	9.5 ±1.0	11.5 ±1.0	*250 / 1000 / 5000	-
RN73 1J (0603)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	9.5 ±1.0	11.5 ±1.0	*250 / 1000 / 5000	-
RN73 2A (0805)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	9.5 ±1.0	11.5 ±1.0	*250 / 1000 / 5000	-
RN73 2B (1206)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	9.5 ±1.0	11.5 ±1.0	*250 / 1000 / 5000	-
RN73 2E (1210)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	9.5 ±1.0	11.5 ±1.0	*250 / 1000 / 5000	-
RN73 2H (2010)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	13.5 ±1.0	15.5 ±1.0	-	4000
RN73 3A (2512)	178.0 ±1.0	60.0 +1.0	13.5 ± 0.7	13.5 ±1.0	15.5 ±1.0	-	4000

* 250 piece packs supplied in sealed bags of cut tape length

Type RN73 Series

Paper Tape Specification



Type	A	B	W	E	F	P ₀	P ₁	P ₂	ϕD ₀	T
RN73 1E (0402)	0.70 ±0.05	1.16 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	2.00 ±0.05	2.00 ±0.05	1.55 ±0.05	0.40 ±0.03
RN73 1J (0603)	1.10 ±0.05	1.90 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.60 ±0.03
RN73 2A (0805)	1.60 ±0.05	2.37 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.75 ±0.05
RN73 2B (1206)	2.00 ±0.05	3.55 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.10	4.00 ±0.10	2.00 ±0.05	1.55 ±0.05	0.75 ±0.05
RN73 2E (1210)	2.75 ±0.05	3.40 ±0.05	8.00 ±0.10	1.75 ±0.05	3.5 ±0.05	4.00 ±0.05	4.00 ±0.10	2.00 ±0.05	1.60 ±0.10	0.75 ±0.05

Embossed Plastic Tape Specifications



Type	A	B	W	E	F	P ₀	P ₁	P ₂	ϕD ₀	T
RN73 2H (2010)	2.85 ±0.10	5.45 ±0.10	12.0 ±0.10	1.75 ±0.10	5.5 ±0.05	4.00 ±0.05	4.00 ±0.10	2.00 ±0.05	1.50 +0.10	1.00 ±0.20
RN73 3A (2512)	3.40 ±0.10	6.65 ±0.10	12.0 ±0.10	1.75 ±0.10	5.5 ±0.05	4.00 ±0.05	4.00 ±0.10	2.00 ±0.05	1.50 +0.10	1.00 ±0.20

How to Order

RN73	C	2A	100K	B	TDF
Common Part	Temp. Coefficient	Package Size	Resistor Value	Tolerance	Packaging
RN73 - High precision resistors (RoHS compliant)	A - ±5ppm/°C *C - ±10ppm/°C * Preferred stock item	1E - 0402 * 1J - 0603 * 2A - 0805 2B - 1206 2E - 1210 2H - 2010 3A - 2512 * Preferred stock item	100R (100 ohms) 1K0 (1000 ohms) 100K (100,000 ohms)	A - ±0.05% *B - ±0.1% L - ±0.01% * Preferred stock item	TG - 250 Cut tape length (1E, 1J, 2A, 2B) TDF - 1000 REEL (1E, 1J, 2A, 2B) TD - 5000 REEL (1E, 1J, 2A, 2B, 2E) TDG - 250 REEL (1E, 1J, 2A only) TE - 4000 REEL (2H, 3A only)

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