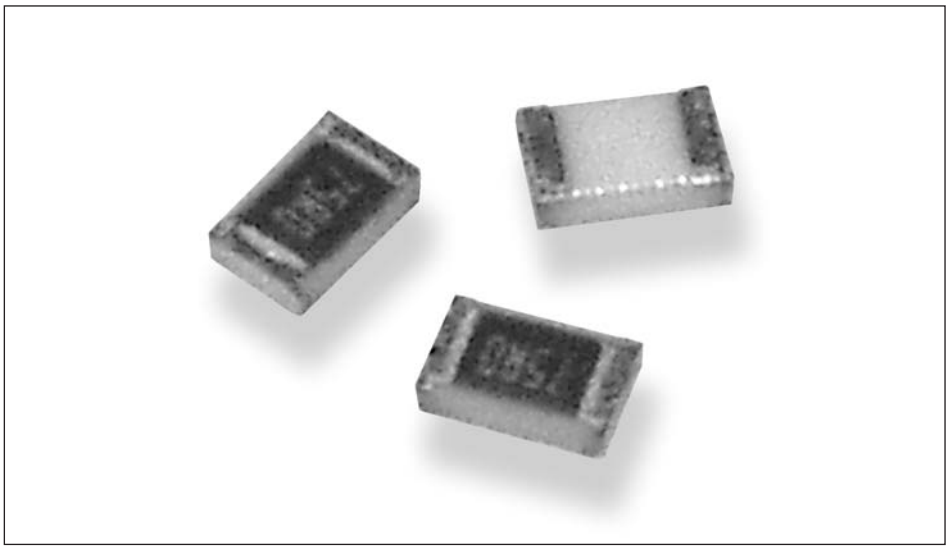
Type RN73 Series

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:	49R9	49R9	49R9	49R9	49R9	49R9	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R3	24R9	4R3
	Max:	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:	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7
	Max:	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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Type RN73 Series

		2512					
Rated Power @ 70°C:		0.5W					
Resistance Range (Ohms)	**Min:**	24R9	24R9	24R9	4R7	24R9	4R7
	Max:	100K	500K	100K	1M0	100K	1M0
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%					

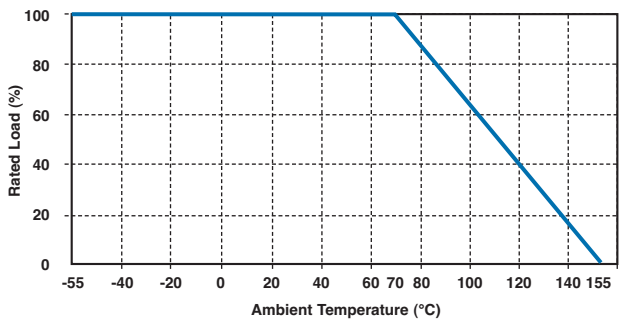
Characteristics - Environmental

	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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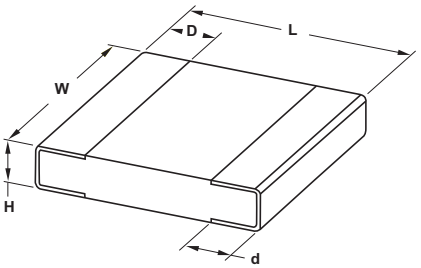
Type RN73 Series

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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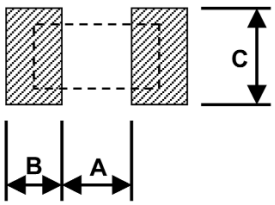
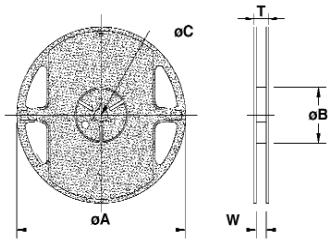
Type RN73 Series

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

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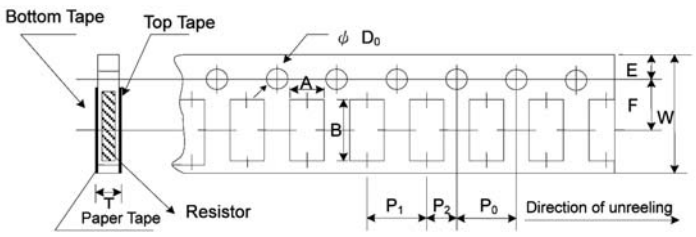
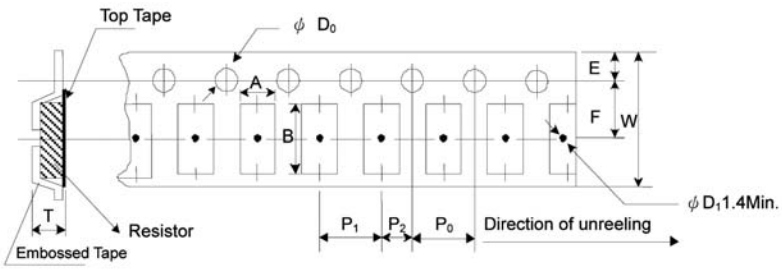
Type RN73 Series

Paper Tape Specification



Type	A	B	W	E	F	P_0	P_1	P_2	øD_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	øD_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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