

Type RN73 Series

Key Features

High precision -TCR 5ppm/°C and 10ppm/°C

Tolerance down to 0.01%

Thin film (nichrome)

Terminal finish – electroplated 100% matte Sn

Applications

Communications

Industrial Controls

Instrumentation

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.

Electrical Characteristics

				04	02					06	603			
Rated Power @ 70	0°C	0.063W							0.063W					
Resistance	Min	49R9	49R9	49R9	49R9	49R9	49R9	24R9	24R9	24R9	4R7	24R9	4R7	
Range Ω	Max	20K	20K	20K	20K	20K	100K	60K	100K	60K	332K	60K	511K	
Tolerance (%)		0.	01	0.	05	0	.1	0.0	01	0.	05	0	.1	
Code Letter			L	A	4	- 1	3	ı	L	,	4	В		
T.C.R. (PPM°C)		5 10 5 10 5 10 5 10 5					10	5	10					
Code Letter		Α	С	Α	С	Α	A C A C A C A				Α	С		
Selection Series		E24 & E96								E24 8	& E96			
Max operating Vo	ltage			25	5V					50	VC			
Max. Overload vo	ltage			50	OV					10	0V			
Operating Temp. I	range	-55 ~ +155°C -55 ~ +155°C												
Insulation Resistar	nce				0040			. 0000140						
(dry min.)		>9999MΩ					>9999ΜΩ							
Stability 0.5%					0.5%									



				08	05					12	:06		
Rated Power @ 70	0°C	0.1W							0.125W				
Resistance	Min	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7
Range Ω	Max	150K	200K	150K	1M0	150K	1M0	300K	499K	300K	1M5	300K	1M5
Tolerance (%)		0.	01	0.	05	0	.1	0.	01	0.	05	0	.1
Code Letter	Code Letter L			A	4	1	3		L	,	4	В	
T.C.R. (PPM°C)		5	10	5	10	5	10	5	10	5	10	5	10
Code Letter		Α	С	Α	С	Α	С	Α	С	Α	С	Α	С
Selection Series				E24 8	& E96					E24 8	& E96		
Max operating Vo	ltage			10	0V					15	0V		
Max. Overload vo	ltage			20	0V					30	0V		
Operating Temp.	range		-55 ~ +155°C							-55 ~ -	+155°C		
Insulation Resista	nce				0040	20.40			. 0000140				
(dry min.)		>9999MΩ			ZIVIZI			>9999MΩ					
Stability				0.!	5%	•				0.	5%	•	

				12	10					20	10			
Rated Power @ 70	0°C	0.25W							0.25W					
Resistance	Min	24R9	24R9	24R9	4R7	24R9	4R7	24R9	24R9	24R9	4R7	24R9	4R7	
Range Ω	Max	300K	499K	300K	1M0	300K	1M0	300K	499K	300K	1M0	300K	1M0	
Tolerance (%)		0.	01	0.	05	0	.1	0.	01	0.	05	0	.1	
Code Letter	L				4		В		L	,	4		3	
T.C.R. (PPM°C)		5 10 5 10 5 10 5 10 5 10					10	5	10					
Code Letter		Α	С	Α	С	Α	C A C A C A			Α	С			
Selection Series		E24 & E96								E24 8	& E96			
Max operating Vo	ltage			15	0V					15	0V			
Max. Overload vo	ltage			30	0V					30	0V			
Operating Temp.	range	-55 ~ +155°C -55 ~ +155°C												
Insulation Resista (dry min.)	nce	>9999MΩ >9999MΩ					9ΜΩ							
Stability	, ,													

				25	12		
Rated Power @ 7	0°C			0.5			
Resistance	Min	24R9	24R9	24R9	4R7	24R9	4R7
Range Ω	Max	300K	499K	300K	1M0	300K	1M0
Tolerance (%)	•	0.	01	0.	05	0	.1
Code Letter		L	ı	4		3	
T.C.R. (PPM°C)	л°С) 5			5	10	5	10
Code Letter		Α	С	Α	С	Α	С
Selection Series				E24 8	ፄ E96		
Max operating Vo	ltage			15	0V		
Max. Overload vo	ltage			30	0V		
Operating Temp.	range			-55 ~ -	+155°C		
Insulation Resista (dry min.)	nce	>9999MΩ					
Stability				0.5	5%		

Operating Voltage=V(P*R) or Max. operating voltage listed above, whichever is lower.

Overload Voltage=2.5*V(P*R) or Max. overload voltage listed above, whichever is lower.

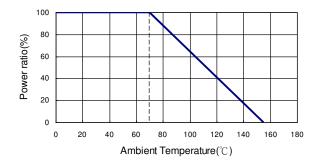


Environmental Characteristics

	Requ	irement	Total Months of			
Item	Tol. ≤0.05%	TOL. >0.05%	Test Method			
Temperature Coefficient		n Electrical Characteristics	MIL-STD-202 Method 304			
of Resistance (TCR)	ta	ables	+25/-55/+25/+125/+25°C			
			JIS-C-5201-1 5.5			
Short Time Overload	ΔR±0.05%	ΔR±0.2%	RCWV*2.5 or Max. overload voltage			
			whichever is lower for 5 seconds			
Insulation Resistance	>90	999ΜΩ	MIL-STD-202 Method 302			
			Apply 100VDC for 1 minute			
	ΔR±0.05%	ΔR±0.2%	MIL-STD-202 Method 108A			
Endurance	>7kO	ΔR±0.5%	70±2°C, RCWV for 1000 hrs with 1.5 hrs			
	- 7 1122	ZI(20.370	"ON" and 0.5 hrs "OFF"			
			MIL-STD-202 Method 103B			
Damp Heat with Load	ΔR±0.05%	ΔR±0.3%	40±2°C, 90~95% R.H. RCWV for 1000 hrs			
			with 1.5 hrs "ON" and 0.5 hrs "OFF"			
Bending Strength	ΔR±0.05%	ΔR±0.1%	JIS-C-5201-1 6.1.4			
bending Strength	ДИ.: 0.05%	ΔN±0.170	Bending amplitude 3 mm for 10 seconds			
Solderability	95% mi	n. coverage	MIL-STD-202 Method 208H			
Solderability	93761111	ii. coverage	245±5°C for 3 seconds			
Resistance to Soldering	ΔR±0.05%	ΔR±0.2%	MIL-STD-202 Method 210E			
Heat	ΔR±0.03%	ΔR±0.2%	260±5°C for 10 seconds			
Dielectric Withstand	D.	Tuno	MIL-STD-202 Method 301			
Voltage	Ву	Type	Max. overload voltage for 1 minute			
Thermal Shock	AD 10 050/	AD 10 25%	MIL-STD-202 Method 107G			
Thermal Shock	ΔR±0.05%	ΔR±0.25%	-55°C ~150°C, 100 cycles			
Law Tamparatura			JIS-C-5201-1 7.1			
Low Temperature	ΔR±0.05%	ΔR±0.2%	1 hour, -65°C, followed by 45 minutes of			
Operation			RCWV			
High Temperature	4.0	:0.50/	MIL-STD-202 Method 108			
Exposure	ΔΚ	±0.5%	At 155°C for 1000 hours			

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

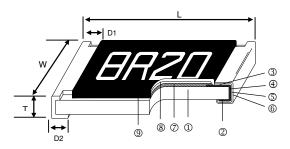
Derating Curve



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



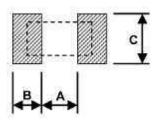
Construction and dimensions



1	Alumina Substrate	4	Edge Electrode (NiCr)	7	Resistor Layer (NiCr)
2	Bottom Electrode (Ag)	(5)	Barrier Layer (Ni)	8	Overcoat (Epoxy)
3	Top Electrode (Ag)	6	External Electrode (Sn)	9	Marking

Size	L (mm)	W (mm)	T (mm)	D1 (mm)	D2 (mm)	Weight (g) (1000 Pcs.)
0402	1.00±0.05	0.50±0.05	0.30±0.05	0.20±0.10	0.20±0.10	0.54
0603	1.55±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	1.83
0805	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.20	4.71
1206	3.05±0.15	1.55±0.15	0.55±0.10	0.42±0.20	0.35±0.25	9.02
1210	3.10±0.15	2.40±0.15	0.55±0.10	0.40±0.20	0.55±0.25	10
2010	4.90±0.15	2.40±0.15	0.55±0.10	0.60±0.30	0.50±0.25	23.61
2512	6.30±0.15	3.10±0.15	0.55±0.10	0.60±0.30	0.50±0.25	38.06

Suggested PCB Layout Plan



	Recomme	nded Land Pattern	
Size	Α	В	С
0402	0.50	0.50	0.60±0.2
0603	0.80	1.00	0.90±0.2
0805	1.00	1.00	1.35±0.2
1206	2.00	1.15	1.70±0.2
1210	2.00	1.15	2.50±0.2
2010	3.60	1.40	2.50±0.2
2512	4.90	1.60	3.10±0.2



Marking

Case sizes 0805 to 2512 IEC 4 Digit Marking:

Resistance	100R (100Ω)	2K2 (2.2kΩ)	10K (10kΩ)	499K (499kΩ)	100K (100kΩ)
Code	1000	2201	1002	4992	1003

Case Size 0603 E24 3 digit marking – Example 101 = 100R 102=1K0

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

Case size 0603 E96 3 digit marking – Examples 14C = 13K7 68B = 4K99 68X = 49R9

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

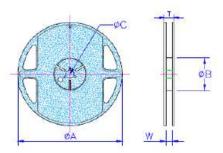
Code	Α	В	С	D	E	F	G	Н	Χ	Υ	Z
Multiplier	10°	10¹	10 ²	10 ³	10 ⁴	10 ⁵	10 ⁶	10 ⁷	10-1	10-2	10 ⁻³

NB For case size 0603 values other than E24 and E96 resistors will be supplied unmarked.

All resistors smaller than 0603 supplied unmarked.

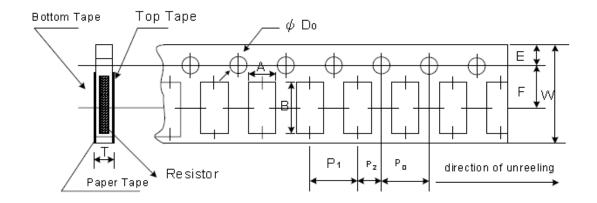
Packaging

Packing Quantity and Reel Specification



Size	ØA ±1.0	ØB ±1.0	ØC ±0.7	W ±1.0	T ±1.0	Paper Tape	Embossed Plastic Tape	
0402								
0603								
0805				9.5	11.5	1000 / 5000	N/A	
1206	178.0	60.0	13.5					
1210								
2010				12.5	15.5	N1/A	4000	
2512				13.5	15.5	N/A	4000	

Paper tape Specification



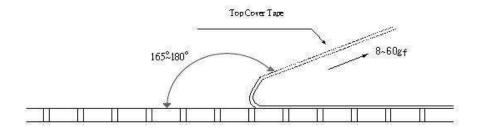
Size	A ±0.05	B ±0.05	W	E	F ±0.05	Po	P ₁	P ₂ ±0.05	ØD _o	T
			±0.10	±0.05						
0402	0.70	1.16					2.00 ±0.05			0.40 ±0.03
0603	1.10	1.90	8.00	1.75	3.5	4.00 ±0.10	4.00	2.00	1.55 ±0.05	0.60 ±0.03
0805	1.60	2.37					4.00			0.75
1206	2.00	3.55					±0.10			0.75 ±0.05
1210	2.75	3.40				4.00 ±0.05			1.60 ±0.10	±0.05



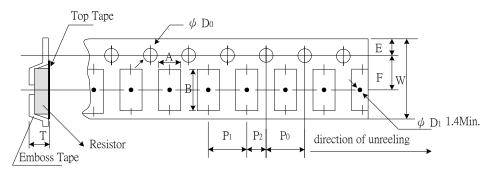
Peel force of top cover tape

The peel speed shall be about 300mm/min±5%

The peel force of top cover tape shall be between 8gf to 60gf



Embossed Plastic Tape Specifications

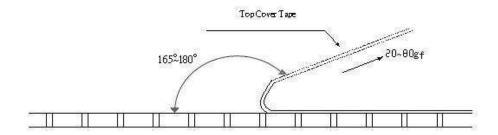


Туре	Α	В	W	E	F	P ₀	P ₁	P ₂	ØD₀	Т
2010	2.85±0.10	5.45±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20
2512	3.40±0.10	6.65±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20

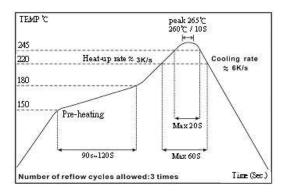
Peel force of top cover tape

The peel speed shall be about 300mm/min±5%

The peel force of top cover tape shall be between 20gf to 80g

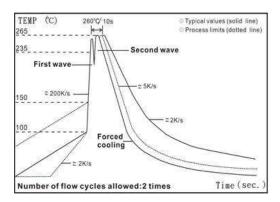


Reflow Solder Profile



Time of Reflow soldering at maximum temperature point 260°C = 10s

Wave Solder Profile



Time of Wave soldering at maximum temperature point 260°C = 10s

Time of Soldering Iron at maximum temperature point 410°C = 5s

How To Order

RN73	С	2A	100R	В	TD
Common Part	TCR	Package Size	Value	Tolerance	Packaging
RN73 - High Precision	A -±5ppm/°C	1E - 0402 1J – 0603	100R (100Ω)	L-±0.01%	TG – 250 cut tape length
Resistors	*C - ±10ppm/°C	2A - 0805 2B - 1206	1K0	A - ±0.05%	(1E, 1J, 2A, 2B)
		2E - 1210 2H - 2010	(1000Ω)	B - ±0.1%	TDF – 1000 reel (1E, 1J, 2A, 2B)
	*preferred stock item	3A - 2512	100K (100,000		TD – 5000 reel
			Ω)		(1E, 1J, 2A, 2B, 2E)
					TE – 4000 reel (2H, 3A only)

Mouser Electronics

Authorized Distributor

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

TE Connectivity:

RN73CA4K99BTDF RN73CA20KBTDF RN73CA200RBTDF RN73CA499RBTDF RN73CA887RBTDF RN73CA75KBTDF RN73CA24K9BTDF RN73C2A34K8BTDF RN73C2A5K23BTDF RN73C2A14KBTDF RN73C2A226RBTDF RN73C2A4K02BTDF RN73C2A51K1BTDF RN73C2A82K5BTDF RN73C2A1K3BTDF RN73C2A215RBTDF RN73C2A30K9BTDF RN73C2A4K42BTDF RN73C2A7K68BTDF RN73C2A9K53BTDF RN73C2A3K83BTDF RN73C2A732RBTDF RN73C2A100KBTDF RN73C2A10K7BTDF RN73C2A255RBTDF RN73C2A698RBTDF RN73C2A887RBTDF RN73C2A8K87BTDF RN73C2A576RBTDF RN73C2A2K74BTDF RN73C2A5K62BTDF RN73C2A1K4BTDF RN73C2A383RBTDF RN73C2A604RBTDF RN73C2A6K81BTDF RN73C2A332RBTDF RN73C2A402RBTDF RN73C2A422RBTDF RN73C2A931RBTDF RN73C2A12K4BTDF RN73C2A1K02BTDF RN73C2A1K91BTDF RN73C2A20K5BTDF RN73C2A49K9BTDF RN73C2A619RBTDF RN73C2A6K98BTDF RN73C2A1K82BTDF RN73C2A1K0BTDF RN73C2A7K32BTDF RN73C2A22K1BTDF RN73C2A301RBTDF RN73C2A31K6BTDF RN73C2A6K49BTDF RN73C2A11KBTDF RN73C2A133RBTDF RN73C2A1K37BTDF RN73C2A280RBTDF RN73C2A2K61BTDF RN73C2A90K9BTDF RN73C2A12K1BTDF RN73C2A1K13BTDF RN73C2A2K21BTDF RN73C2A665RBTDF RN73C2A127RBTDF RN73C2A9K76BTDF RN73C2A464RBTDF RN73C2A715RBTDF RN73C2A165RBTDF RN73C2A205RBTDF RN73C2A26K7BTDF RN73C2A3K01BTDF RN73C2A340RBTDF RN73C2A453RBTDF RN73CA100KBTDF RN73CA10K7BTDF RN73CA22K1BTDF RN73CA7K32BTDF RN73CA84K5BTDF RN73C2A24K9BTDF RN73C2A47K5BTG RN73C2A158RBTDF RN73C2A30K1BTDF RN73C2A4K99BTDF RN73C2A6K65BTDF RN73C2A432RBTG RN73CA100RBTDF RN73C2A1K74BTDF RN73C2A68K1BTDF RN73C2A1K1BTG RN73CA2K61BTDF RN73F2A1K0BTD RN73CA20K5BTDF RN73CA3K24BTDF RN73C2A18K7BTDF RN73C2A29K4BTDF RN73C2A6K19BTDF RN73C2A130RBTDF RN73C2A17K4BTDF RN73C2A2K55BTDF RN73C2A3K48BTDF