

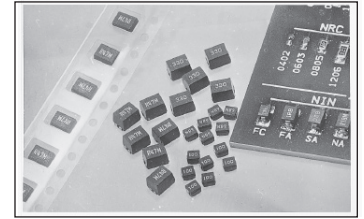
NIN Series

Mold Chip Wirewound Surface Mount Inductors



FEATURES

- EIA SIZES A (1210), B (1812), AND C (1008)
- EXCELLENT HIGH Q AND HIGH SRF CHARACTERISTICS
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE
- HIGH INDUCTANCE AVAILABLE IN SMALL SIZE
- EMBOSSED PLASTIC TAPE PACKAGE FOR AUTOMATIC PICK-PLACE



AVAILABLE TYPE AND SPECIFICATIONS

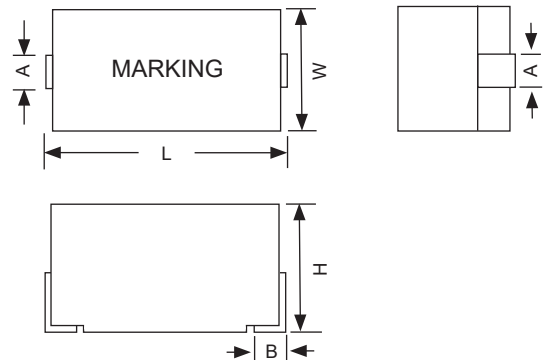
Specifications	Case Size		
	NIN-xC (1008)	NIN-xA (1210)	NIN-xB (1812)
NIN-Fx (Standard) Inductance Range	N/A	0.1 ~ 180 μ H	0.1 ~ 1000 μ H
NIN-Px (High Current) Inductance Range	1.0 ~ 33 μ H	1.0 ~ 330 μ H	1.0 ~ 680 μ H
Inductance Tolerances	\pm 20% (M), \pm 10% (K), \pm 5% (J)		
Operating Temperature Range	-40°C ~ +105°C (Includes Self Heating)		
Insulation Resistance	1,000 MegOhm Min. (@ 100Vdc, Termination to Case)		
Withstanding Voltage	250Vdc for 1 minute (Termination to Case)		
Q Factor, Self Resonant Frequency, DC Resistance, Rated DC Current and Inductance Tolerance	See Individual Product Listings		

Note 1: NIN-N Family option are no longer recommended for new designs. View announcement for more information

Note 2: Extended values, tolerances, and enhanced versions are available please contact NIC for more details.

DIMENSIONS (mm)

EIA Size	Size Code	Dim. L	Dim. W	Dim. H	Dim. A	Dim. B
1008	C	2.5 \pm 0.2	2.0 \pm 0.2	1.8 \pm 0.2	1.4 \pm 0.1	0.4 typ.
1210	A	3.2 \pm 0.4	2.5 \pm 0.2	2.2 \pm 0.2	1.9 \pm 0.1	0.4 typ.
1812	B	4.5 \pm 0.4	3.2 \pm 0.2	3.2 \pm 0.2	1.2 \pm 0.2	1.0 typ.



PART MARKING

Case Size	Value Marking	Tolerance Marking	Example
NIN-PC 1008	No	No	N/A
NIN-FA 1210	Yes	Yes	3R3J
NIN-PA 1210	Yes	No	470
NIN-FB & PB	Yes	No	270

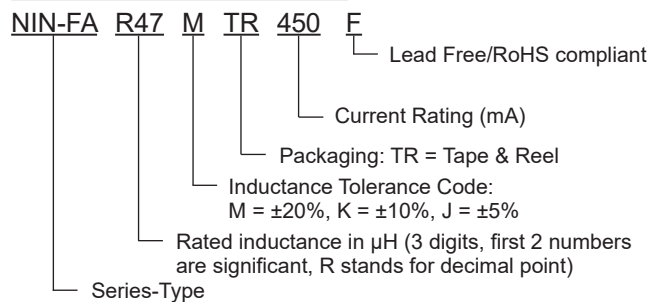
(1) 3 digits system in μ H

(2) R indicates decimal point in μ H

Ex:2R7 = 2.7 μ H
Ex:R18 = .18 μ H = 180nH

(3) N indicates nanohenries (0.001 μ H), Ex: 10N = 0.01 μ H = 10nH

PART NUMBER SYSTEM*



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ENVIRONMENTAL CHARACTERISTICS

Test	Specification	Test Method & Condition
Solderability	90% Min. Coverage	After 3 Sec. Dip in +230°C Solder Pot (Post Flux)
Humidity	(1) No Evidence of Damage	After 500 Hrs at +60°C and 90~95% RH
Soldering Effect	(2) Inductance Shall Be Within ±5% of Initial Value	After 5 Sec. at +260°C (5 min. 120°C Pre-Heat)
Low Frequency Vibration	(3) Q Factor Shall Be Within ±10% of Initial Value	After 2 Hrs per Axis, 10 ~ 55Hz, 1.5mm Amplitude
Thermal Shock		After 100 Cycles (-40°C ~ +85°C) 30 Min. Each
Low Temperature Storage		After 500 Hrs at -25°C
High Temperature Load Life	(1) No Evidence of Damage (2) Inductance Shall Be Within ±10% of Initial Value	After 500 Hrs. at +85°C with Rated DC Current
Humidity Load Life	(3) Q Factor Shall Be Within ±10% of Initial Value	After 500 Hrs at +60°C with 90~95% RH at Rated DC Current

Applicable Guidelines:

1. Recommended soldering conditions :

Flow (wave): 250°C for 5 sec. max. (preheating of 120°C for 5 minutes.)

Reflow: 250°C for 10 sec. max., total time above 230°C is 40 sec. max. (preheating 150°C ~ 180°C/120 sec. max.)

2. Avoid placing inductor over any metal pattern on the PCB, which may create mutual inductance problems.

3. For mounting, it is suggested to secure chip inductor by means of epoxy adhesive curable by ultraviolet.

4. Ultrasonic cleaning is not recommended. If it is necessary, the cleaning conditions must be examined so as not to create mechanical damage by unexpected resonant vibration. Please contact our engineering department.

5. An excessive mechanical force may effect the electrical and magnetic properties of chip inductors. Make sure not to use any stress greater than 2Kg when component is placed.

NIN Series

Mold Chip Wirewound Surface Mount Inductors



NIN-FA Series A SIZE (1210) Standard Type

NIC P/N	'L' Inductance (μH)	Tolerance	'Q' Factor (min.)	L & Q Test Frequency	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(std)					
NIN-FAR10JTR450F	0.1	5%	28	100	700	0.44	450
NIN-FAR12JTR450F	0.12	5%	30	25.2	500	0.22	450
NIN-FAR15JTR450F	0.15	5%	30	25.2	450	0.25	450
NIN-FAR18JTR450F	0.18	5%	30	25.2	400	0.28	450
NIN-FAR22JTR450F	0.22	5%	30	25.2	350	0.32	450
NIN-FAR27JTR450F	0.27	5%	30	25.2	320	0.36	450
NIN-FAR33JTR450F	0.33	5%	30	25.2	300	0.40	450
NIN-FAR39JTR450F	0.39	5%	30	25.2	250	0.45	450
NIN-FAR47JTR450F	0.47	5%	30	25.2	220	0.50	450
NIN-FAR56JTR450F	0.56	5%	30	25.2	180	0.55	450
NIN-FAR68JTR450F	0.68	5%	30	25.2	160	0.60	450
NIN-FAR82JTR450F	0.82	5%	30	25.2	140	0.65	450
NIN-FA1R0JTR400F	1.0	5%	30	7.96	120	0.70	400
NIN-FA1R2JTR390F	1.2	5%	30	7.96	100	0.75	390
NIN-FA1R5JTR370F	1.5	5%	30	7.96	85	0.85	370
NIN-FA1R8JTR350F	1.8	5%	30	7.96	80	0.90	350
NIN-FA2R2JTR320F	2.2	5%	30	7.96	75	1.0	320
NIN-FA2R7JTR290F	2.7	5%	30	7.96	70	1.1	290
NIN-FA3R3JTR260F	3.3	5%	30	7.96	60	1.2	260
NIN-FA4R7JTR220F	4.7	5%	30	7.96	50	1.5	220
NIN-FA5R6JTR200F	5.6	5%	30	7.96	45	1.6	200
NIN-FA6R8JTR180F	6.8	5%	30	7.96	40	1.8	180
NIN-FA8R2JTR170F	8.2	5%	30	7.96	35	2.0	170
NIN-FA100JTR150F	10	5%	30	2.52	30	2.1	150
NIN-FA120JTR140F	12	5%	30	2.52	20	2.5	140
NIN-FA150JTR130F	15	5%	30	2.52	20	2.8	130
NIN-FA180JTR120F	18	5%	30	2.52	20	3.3	120
NIN-FA220JTR110F	22	5%	30	2.52	20	3.7	110
NIN-FA270JTR80F	27	5%	30	2.52	20	5.0	80
NIN-FA330JTR70F	33	5%	30	2.52	17	5.6	70
NIN-FA390JTR65F	39	5%	30	2.52	16	6.4	65
NIN-FA470JTR60F	47	5%	30	2.52	15	7.0	60
NIN-FA560JTR55F	56	5%	30	2.52	13	8.0	55
NIN-FA680JTR50F	68	5%	30	2.52	12	9.0	50
NIN-FA820JTR45F	82	5%	30	2.52	11	10	45
NIN-FA101JTR40F	100	5%	20	0.796	10	10	40
NIN-FA121JTR70F	120	5%	20	0.796	10	11	70
NIN-FA151JTR65F	150	5%	20	0.796	8	15	65
NIN-FA181JTR60F	180	5%	20	0.796	7	17	60
NIN-FA221JTR50F	220	5%	20	0.796	7	21	50

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NIN Series

Mold Chip Wirewound Surface Mount Inductors



NIN-FB Series B SIZE (1812) Standard Type

NIC P/N	'L' Inductance (μH)	Tolerance	'Q' Factor (min.)	L & Q Test Frequency	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(Std, Opt)					
NIN-FBR10xTR800F	0.1	20%,10%	35	25.2	300	0.18	800
NIN-FBR12xTR770F	0.12	20%,10%	35	25.2	280	0.20	770
NIN-FBR15xTR730F	0.15	20%,10%	35	25.2	250	0.22	730
NIN-FBR18xTR700F	0.18	20%,10%	35	25.2	220	0.24	700
NIN-FBR22xTR665F	0.22	20%,10%	40	25.2	200	0.25	665
NIN-FBR27xTR635F	0.27	20%,10%	40	25.2	180	0.26	635
NIN-FBR33xTR605F	0.33	20%,10%	40	25.2	165	0.28	605
NIN-FBR39xTR575F	0.39	20%,10%	40	25.2	150	0.30	575
NIN-FBR47xTR545F	0.47	20%,10%	40	25.2	145	0.32	545
NIN-FBR56xTR520F	0.56	20%,10%	40	25.2	140	0.36	520
NIN-FBR68xTR500F	0.68	20%,10%	40	25.2	135	0.40	500
NIN-FBR82xTR475F	0.82	20%,10%	40	25.2	130	0.45	475
NIN-FB1R0xTR450F	1.0	20%,10%	50	7.96	100	0.50	450
NIN-FB1R2xTR430F	1.2	20%,10%	50	7.96	80	0.55	430
NIN-FB1R5xTR410F	1.5	20%,10%	50	7.96	70	0.60	410
NIN-FB1R8xTR390F	1.8	20%,10%	50	7.96	60	0.65	390
NIN-FB2R2xTR380F	2.2	20%,10%	50	7.96	55	0.70	380
NIN-FB2R7xTR370F	2.7	20%,10%	50	7.96	50	0.75	370
NIN-FB3R3xTR355F	3.3	20%,10%	50	7.96	45	0.80	355
NIN-FB3R9xTR330F	3.9	20%,10%	50	7.96	40	0.90	330
NIN-FB4R7xTR315F	4.7	20%,10%	50	7.96	35	1.0	315
NIN-FB5R6xTR300F	5.6	20%,10%	50	7.96	33	1.1	300
NIN-FB6R8xTR285F	6.8	20%,10%	50	7.96	27	1.2	285
NIN-FB8R2xTR270F	8.2	20%,10%	50	7.96	25	1.4	270
NIN-FB100xTR250F	10	10%, 5%	50	2.52	20	1.6	250
NIN-FB120xTR225F	12	10%, 5%	50	2.52	18	2.0	225
NIN-FB150xTR200F	15	10%, 5%	50	2.52	17	2.5	200
NIN-FB180xTR190F	18	10%, 5%	50	2.52	15	2.8	190
NIN-FB220xTR180F	22	10%, 5%	50	2.52	13	3.2	180
NIN-FB270xTR170F	27	10%, 5%	50	2.52	12	3.6	170
NIN-FB330xTR160F	33	10%, 5%	50	2.52	11	4.0	160
NIN-FB390xTR150F	39	10%, 5%	50	2.52	10	4.5	150
NIN-FB470xTR140F	47	10%, 5%	50	2.52	10	5.0	140
NIN-FB560xTR135F	56	10%, 5%	50	2.52	9	5.5	135
NIN-FB680xTR130F	68	10%, 5%	50	2.52	9	6.0	130
NIN-FB820xTR120F	82	10%, 5%	50	2.52	8	7.0	120
NIN-FB101xTR110F	100	10%, 5%	40	0.796	8	8.0	110
NIN-FB121xTR110F	120	10%, 5%	40	0.796	6	8.0	110
NIN-FB151xTR105F	150	10%, 5%	40	0.796	5	9.0	105
NIN-FB181xTR102F	180	10%, 5%	40	0.796	5	9.5	102
NIN-FB221xTR100F	220	10%, 5%	40	0.796	4	10	100
NIN-FB271xTR92F	270	10%, 5%	40	0.796	4	12	92
NIN-FB331xTR85F	330	10%, 5%	40	0.796	3.5	14	85
NIN-FB391xTR80F	390	10%, 5%	40	0.796	3	19	80
NIN-FB471xTR62F	470	10%, 5%	40	0.796	3	26	62
NIN-FB561xTR50F	560	10%, 5%	30	0.796	3	30	50
NIN-FB681xTR50F	680	10%, 5%	30	0.796	3	30	50
NIN-FB821xTR30F	820	10%, 5%	30	0.796	2.5	35	30
NIN-FB102xTR30F	1000	10%, 5%	20	0.252	2.5	40	30

Performance Passives By Design

NIN Series

Mold Chip Wirewound Surface Mount Inductors



NIN-PC Series C SIZE (1008) High Current Type

NIC P/N	'L' Inductance (μH)	Tolerance	'Q' Factor (min.)	L & Q Test Frequency	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(std)					
NIN-PC1R0MTR475F	1.0	20	20	7.96	200	0.34	475
NIN-PC1R5MTR435F	1.5	20	20	7.96	165	0.42	435
NIN-PC2R2MTR390F	2.2	20	20	7.96	95	0.50	390
NIN-PC3R3MTR340F	3.3	20	20	7.96	55	0.65	340
NIN-PC4R7MTR285F	4.7	20	20	7.96	43	0.80	285
NIN-PC6R8MTR275F	6.8	20	20	7.96	39	1.0	275
NIN-PC100KTR210F	10	10	30	2.52	32	1.69	210
NIN-PC150KTR175F	15	10	30	2.52	21	2.2	175
NIN-PC220KTR160F	22	10	30	2.52	18	2.8	160
NIN-PC330KTR120F	33	10	30	2.52	16	4.2	120

*Part Number System updated to reflect new format and PCN. Older part number availability are subject to EOL/PCN . Please view announcement for more information. Please view [archived datasheet](#) for original part number specifications

NIN-PA Series A SIZE (1210) High Current Type

NIC P/N	'L' Inductance (μH)	Tolerance	'Q' Factor (min.)	L & Q Test Frequency	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(std)					
NIN-PA1R0MTR1000F	1.0	20	10	7.96	100	0.06	1000
NIN-PA1R5MTR830F	1.5	20	10	7.96	80	0.11	830
NIN-PA2R2MTR770F	2.2	20	10	7.96	68	0.13	770
NIN-PA3R3MTR690F	3.3	20	10	7.96	54	0.16	690
NIN-PA4R7MTR620F	4.7	20	15	7.96	46	0.2	620
NIN-PA6R8MTR530F	6.8	20	15	7.96	38	0.27	530
NIN-PA100KTR450F	10	10	15	2.52	30	0.36	450
NIN-PA150KTR370F	15	10	15	2.52	26	0.56	370
NIN-PA220KTR300F	22	10	15	2.52	21	0.77	300
NIN-PA330KTR240F	33	10	15	2.52	17	1.1	240
NIN-PA470KTR180F	47	10	15	2.52	14	1.64	180
NIN-PA680KTR140F	68	10	15	2.52	12	2.8	140
NIN-PA101KTR120F	100	10	15	0.796	10	3.7	120
NIN-PA151KTR100F	150	10	20	0.796	8	6.1	100
NIN-PA221KTR80F	220	10	20	0.796	7	8.4	80
NIN-PA331KTR70F	330	10	20	0.796	6	12.3	70

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NIN Series

Mold Chip Wirewound Surface Mount Inductors



NIN-PB Series B SIZE (1812) High Current Type

NIC P/N	'L' Inductance (μH)	Tolerance	'Q' Factor (min.)	L & Q Test Frequency	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(std)					
NIN-PB1R0KTR1050F	1.0	10	10	7.96	200	0.11	1050
NIN-PB1R2KTR1000F	1.2	10	10	7.96	160	0.12	1000
NIN-PB1R5KTR950F	1.5	10	10	7.96	130	0.15	950
NIN-PB1R8KTR900F	1.8	10	10	7.96	100	0.16	900
NIN-PB2R2KTR850F	2.2	10	10	7.96	80	0.18	850
NIN-PB2R7KTR800F	2.7	10	10	7.96	60	0.20	800
NIN-PB3R3KTR750F	3.3	10	10	7.96	45	0.22	750
NIN-PB3R9KTR700F	3.9	10	10	7.96	40	0.24	700
NIN-PB4R7KTR650F	4.7	10	10	7.96	35	0.27	650
NIN-PB5R6KTR650F	5.6	10	10	7.96	30	0.30	650
NIN-PB6R8KTR600F	6.8	10	10	7.96	28	0.35	600
NIN-PB8R2KTR600F	8.2	10	10	7.96	25	0.40	600
NIN-PB100KTR550F	10	10	10	2.52	22	0.50	550
NIN-PB120KTR500F	12	10	10	2.52	21	0.60	500
NIN-PB150KTR450F	15	10	10	2.52	20	0.70	450
NIN-PB180KTR400F	18	10	10	2.52	19	0.80	400
NIN-PB220KTR370F	22	10	10	2.52	18	0.90	370
NIN-PB270KTR330F	27	10	10	2.52	16	1.2	330
NIN-PB330KTR300F	33	10	10	2.52	14	1.4	300
NIN-PB390KTR280F	39	10	10	2.52	12	1.6	280
NIN-PB470KTR260F	47	10	10	2.52	11.5	1.9	260
NIN-PB560KTR240F	56	10	10	2.52	11	2.2	240
NIN-PB680KTR220F	68	10	10	2.52	10	2.6	220
NIN-PB820KTR200F	82	10	10	2.52	9	3.5	200
NIN-PB101KTR180F	100	10	20	0.796	8	4.0	180
NIN-PB121KTR160F	120	10	20	0.796	7.5	4.5	160
NIN-PB151KTR140F	150	10	20	0.796	7	6.5	140
NIN-PB181KTR120F	180	10	20	0.796	6.5	7.5	120
NIN-PB221KTR120F	220	10	20	0.796	5.5	9.0	120
NIN-PB271KTR100F	270	10	20	0.796	5	11	100
NIN-PB331KTR90F	330	10	20	0.796	4	13	90
NIN-PB681KTR65F	680	10	20	0.796	2.5	22.8	65

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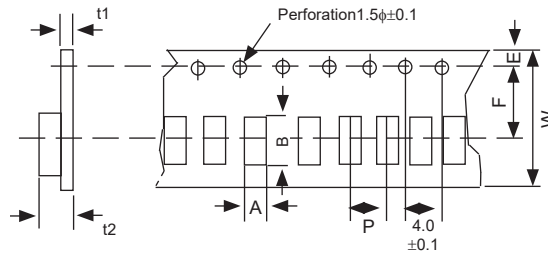
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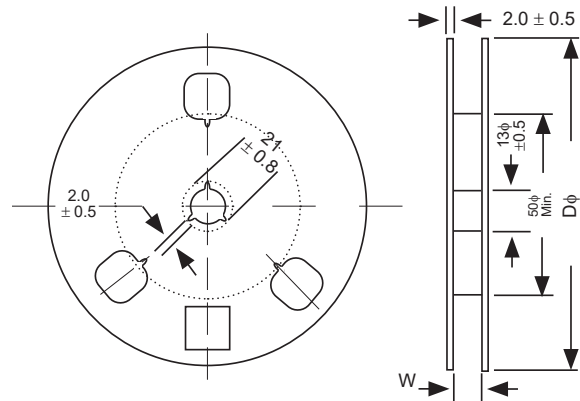
CARRIER TAPE DIMENSIONS (mm)

Case Code	Type	Size	W±0.3	A±0.2	B±0.2	P±0.1	E±0.1	F±0.1	t1	t2
C	PC	1008	8.0	2.4	2.9	4.0	1.75	3.5	0.3	2.1
A	FA/PA	1210	8.0	2.8	3.6	4.0	1.75	3.5	0.3	2.3
B	FB/PB	1812	12.0	3.7	4.9	8.0	1.75	5.5	0.6	3.50

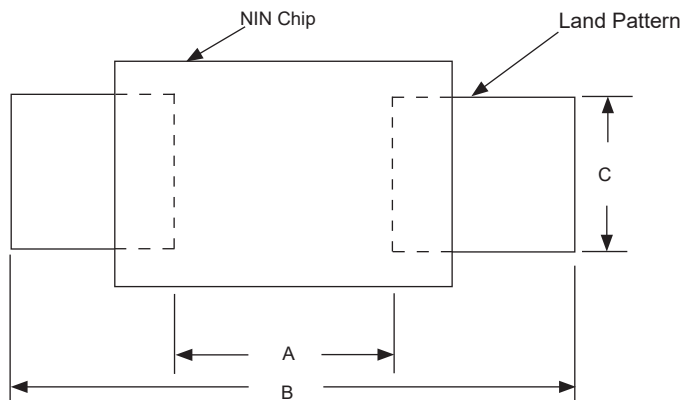


DIMENSIONS (mm)

Case Code	Type	Size	Dφ±2.0	W±1.5	Qty/Reel
C	PC	1008	180	9.0	2000 pcs
A	FA/PA	1210	180	9.0	2000 pcs
B	FB/PB	1812	180	13.0	500 pcs



RECOMMENDED LAND PATTERNS FOR FLOW AND REFLOW SOLDERING



DIMENSIONS (mm)

Case Code	Type	Size	A	B	C
C	PC	1008	1.4~1.5	3.5~4.0	1.2~1.6
A	FA/PA	1210	1.6~2.0	4.0~4.6	1.9~2.4
B	FB/PB	1812	2.0~2.6	5.0~6.0	1.4~2.4