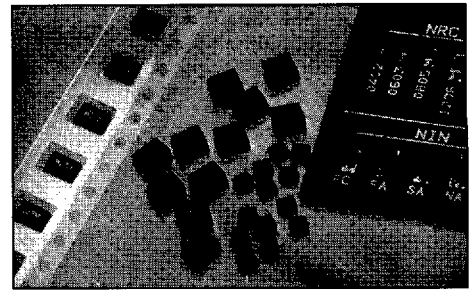


Molded Chip Wirewound Inductors

FEATURES

- EIA SIZES, A (1210), B (1812), C (1008) AND D (0805)
- EXCELLENT HIGH Q AND HIGH SRF CHARACTERISTICS
- BOTH FLOW AND REFLOW SOLDERING APPLICABLE
- HIGH INDUCTANCE AVAILABLE IN SMALL SIZE
- SHIELDED TYPE AVAILABLE ON SIZE A (1210) AND C (1008)
- EMBOSSED PLASTIC TAPE PACKAGE FOR AUTOMATIC PICK-PLACE



AVAILABLE TYPE AND RANGE

EIA Size	Size Code	Size (L x W x H mm)	NIC Type	Inductance Range	Style	Page
0805	D	2.0 x 1.25 x 1.25	NIN-FD	0.82 ~ 4.7 μ H	Standard	173
			NIN-ND	3.9nH ~ 1.0 μ H	High Frequency	172
1008	C	2.5 x 2.0 x 1.6	NIN-FC	0.22 ~ 100 μ H	Standard	175
			NIN-SC	27 ~ 100 μ H	Shielded	177
			NIN-NC	10nH ~ 0.82 μ H	High Frequency	176
			NIN-PC	1.0 ~ 33 μ H	High Current	177
			NIN-FA	0.22 ~ 220 μ H	Standard	178
1210	A	3.2 x 2.5 x 2.2	NIN-SA	10 ~ 270 μ H	Shielded	180
			NIN-NA	47nH ~ 8.2 μ H	High Frequency	179
			NIN-PA	1.0 ~ 330 μ H	High Current	180
1812	B	4.5 x 3.2 x 3.2	NIN-FB	0.10 ~ 1000 μ H	Standard	173,174

SPECIFICATIONS

Specifications	Sizes	0805	1008	1210	1812
Inductance Range		3.9nH ~ 4.7 μ H	10nH ~ 100 μ H	47nH ~ 270 μ H	0.10 μ H ~ 1000 μ H
Inductance Tolerance		\pm 10% (K), \pm 5% (J)	\pm 20% (M), \pm 10% (K), \pm 5% (J)		\pm 10% (K), \pm 5% (J)
Operating Temperature Range		-40°C ~ +85°C			
Insulation Resistance		1,000 Megohm Min (@ 100Vdc, Termination to Case)			
Withstanding Voltage		250 Vdc for 1 minute (Termination to Case)			
Q-Factor, Self Resonant Frequency DC Resistance, Rated DC Current and Inductance Tolerance		See Individual Product Listings			

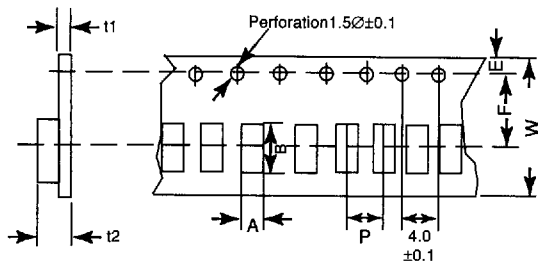
ENVIRONMENTAL CHARACTERISTICS

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	After 5 Seconds at -260°C (5 Min. 120°C Pre-Heat)
Low Frequency Vibration	Within \pm 5% of Initial Value	After 2 Hrs per Axis, 10 ~ 55Hz, 1.5 mm Ampl
Thermal Shock	(3) Q Factor Shall Be	After 100 cycles (-40° to +85°C) 30 Min. Each
Low Temperature Storage	Within \pm 10% of Initial Value	After 500 Hrs at -40°C
High Temperature Load Life	(1) No Evidence of Damage (2) Inductance Shall Be Within \pm 10% of Initial Value	After 500 Hrs at +85°C with rated DC Current
Humidity Load Life	(3) Q Factor Shall Be Within \pm 10% of Initial Value	After 500 Hrs at 60°C with 90 ~ 95% RH with Rated DC Current



SURFACE MOUNT

PACKAGING SPECIFICATIONS

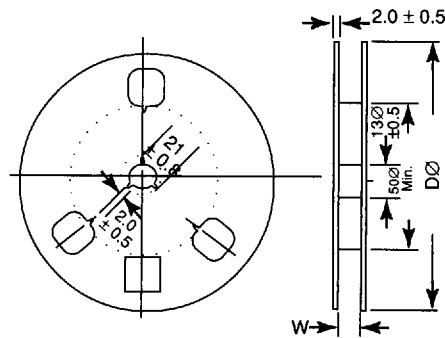


CARRIER TAPE DIMENSIONS IN mm

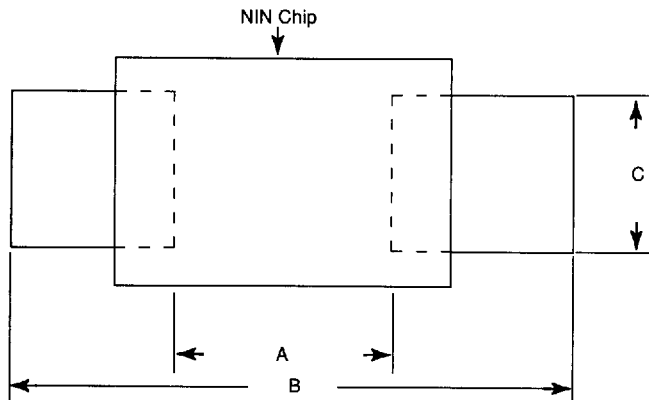
	Type	Size	W ±0.3	A ±0.2	B ±0.2	P ±0.1	E ±0.1	F ±0.1	t1	t2
A	FD/ND	D	8.0	1.45	2.25	4.0	1.75	3.5	0.25	2.0
B	FC/NC/PC/SC	C	8.0	2.4	2.9	4.0	1.75	3.5	0.3	1.85
C	FA/NA/PA/SA	A	8.0	2.8	3.6	4.0	1.75	3.5	0.3	2.3
D	FB	B	12.0	3.6	4.9	8.0	1.75	5.5	0.3	3.4

DIMENSIONS IN mm

	Type	Size	DØ ±2	W ±1.5	Qty/Reel
A	FD/ND	D	178	9.0	3000 pcs
B	FC/NC/PC/SC	C	178	10.0	2000 pcs
C	FA/NA/PA/SA	A	178	10.0	2000 pcs
D	FB	B	178	14.0	500 pcs



RECOMMENDED LAND PATTERNS FOR FLOW AND REFLOW SOLDERING



DIMENSIONS IN mm

	Type	Size	A	B	C
A	FD/ND	D	1.0~1.2	3.0~3.8	0.9~1.3
B	FC/NC/PC/SC	C	1.4~1.5	3.5~4.0	1.2~1.6
C	FA/NA/PA/SA	A	1.6~2.0	4.0~4.6	1.9~2.4
D	FB	B	2.4~2.6	5.5~6.0	2.0~3.0

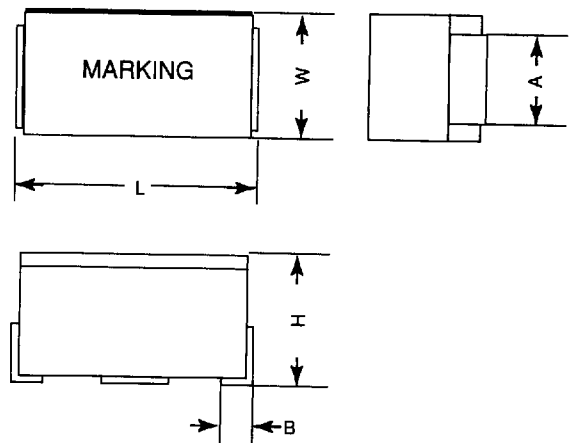
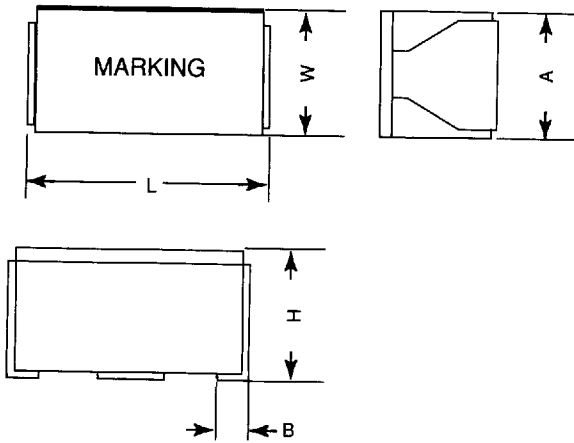
SURFACE MOUNT



DIMENSIONS IN mm

SIZE A, C AND D

SIZE B



SURFACE MOUNT

EIA Size	Size Code	Dim. L	Dim. W	Dim. H	Dim. A	Dim. B
0805	D	2.0 ^{+0.3} _{-0.2}	1.25 ± 0.3	1.25 ± 0.3	1.0 ± 0.1	0.4 ± 0.2
1008	C	2.5 ^{+0.3} _{-0.2}	2.0 ± 0.2	1.6 ± 0.2	1.2 ± 0.1	0.4 ± 0.2
1210	A	3.2 ± 0.3	2.5 ± 0.2	2.2 ± 0.2	1.9 ± 0.1	0.6 ± 0.2
1812	B	4.5 ± 0.3	3.2 ± 0.2	3.2 ± 0.2	1.9 ± 0.3	0.8 ± 0.3

PART MARKING

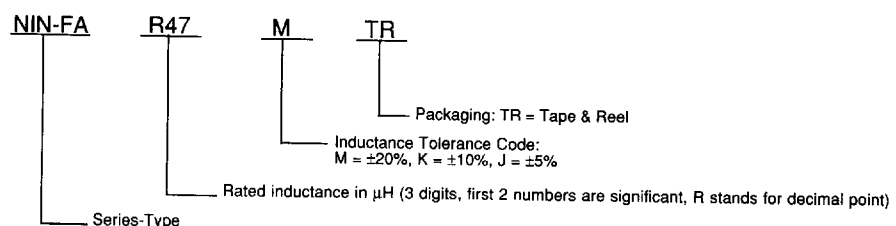
Inductance Tolerance	Marking for Tolerance	Example
±20%	M	2R2M
±10%	No Identification	470
±5%	J	270J

- (1) 3 digits system in μH
- (2) R indicates decimal point in μH Ex: 2R7 = 2.7 μH
Ex: R18 = .18 μH = 180nH
- (3) N indicates nanohenries (0.001 μH), Ex: 10N = 0.01 μH = 10nH

Applicable Guidelines:

- Recommended soldering conditions : Flow (wave): 250°C for 5 seconds max. following a preheating of 120°C for 5 minutes.
Reflow: 230°C for 10 seconds max. (preheating is also recommended)
- It is recommended to use NIN inductors below 70% of the specified DC current when it shall be operated at or near the maximum operating temperature.
- Avoid placing inductor over any metal pattern on the PCB, which may create mutual inductance problems.
- For mounting, it is suggested to secure chip inductor by means of epoxy adhesive curable by ultraviolet.
- 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.
- 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.

PART NUMBERING SYSTEM

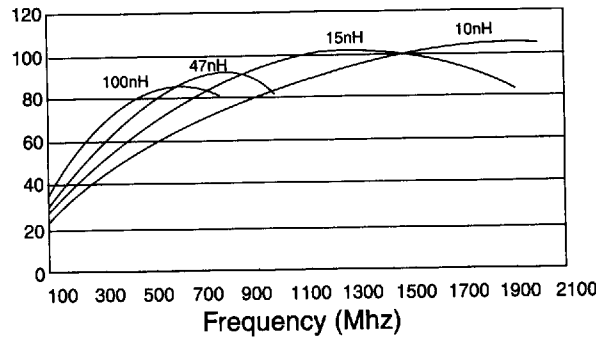


Molded Chip Wirewound Inductors

B-39-27
NIN Series

SURFACE MOUNT

Q vs Frequency
NIN-ND Series (0805 Size)
HIGH FREQUENCY TYPE



NIN-ND SERIES D SIZE (0805) HIGH FREQUENCY TYPE

NIC P/N	'L' Inductance (nH)	Tolerance		'Q' Factor (min.)	L & Q Test Freq.	SRF Mhz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
		(std)	(opt)					
NIN-ND3N9MTR	3.9	±20% (M)	—	6	100 Mhz	3000	0.08	540
NIN-ND4N7MTR	4.7	±20% (M)	—	6	100 Mhz	3000	0.08	540
NIN-ND5N6MTR	5.6	±20% (M)	—	6	100 Mhz	3000	0.10	540
NIN-ND6N8MTR	6.8	±20% (M)	—	8	100 Mhz	3000	0.12	540
NIN-ND8N2KTR	8.2	±10% (K)	—	8	100 Mhz	2500	0.13	540
NIN-ND10NKTR	10	±10% (K)	—	12	100 Mhz	2500	0.14	540
NIN-ND12NKTR	12	±10% (K)	—	12	100 Mhz	2500	0.18	535
NIN-ND15NKTR	15	±10% (K)	—	15	100 Mhz	2500	0.18	520
NIN-ND18NKTR	18	±10% (K)	—	15	100 Mhz	2000	0.22	480
NIN-ND22NKTR	22	±10% (K)	—	15	100 Mhz	2000	0.22	455
NIN-ND27NKTR	27	±10% (K)	—	18	100 Mhz	1800	0.26	455
NIN-ND33NxTR	33	±10% (K)	±5% (J)	18	100 Mhz	1500	0.30	395
NIN-ND39NxTR	39	±10% (K)	±5% (J)	18	100 Mhz	1500	0.31	390
NIN-ND47NxTR	47	±10% (K)	±5% (J)	18	100 Mhz	1000	0.35	385
NIN-ND56NxTR	56	±10% (K)	±5% (J)	18	100 Mhz	1000	0.39	360
NIN-ND68NxTR	68	±10% (K)	±5% (J)	18	100 Mhz	800	0.44	340
NIN-ND82NxTR	82	±10% (K)	±5% (J)	18	100 Mhz	800	0.48	330
NIN-NDR10xTR	100	±10% (K)	±5% (J)	10	25.2 Mhz	800	0.66	285
NIN-NDR12xTR	120	±10% (K)	±5% (J)	10	25.2 Mhz	600	0.76	275
NIN-NDR15xTR	150	±10% (K)	±5% (J)	10	25.2 Mhz	600	1.13	230
NIN-NDR18xTR	180	±10% (K)	±5% (J)	10	25.2 Mhz	600	1.24	195
NIN-NDR22xTR	220	±10% (K)	±5% (J)	10	25.2 Mhz	500	1.41	170
NIN-NDR27xTR	270	±10% (K)	±5% (J)	10	25.2 Mhz	300	1.50	165
NIN-NDR33xTR	330	±10% (K)	±5% (J)	10	25.2 Mhz	200	1.66	160
NIN-NDR39xTR	390	±10% (K)	±5% (J)	10	25.2 Mhz	150	1.82	150
NIN-NDR47xTR	470	±10% (K)	±5% (J)	10	25.2 Mhz	150	1.97	145
NIN-NDR56xTR	560	±10% (K)	±5% (J)	10	25.2 Mhz	100	2.07	140
NIN-NDR68xTR	680	±10% (K)	±5% (J)	10	25.2 Mhz	100	2.32	130
NIN-NDR82xTR	820	±10% (K)	±5% (J)	10	25.2 Mhz	80	2.60	125
NIN-ND1R0xTR	1000	±10% (K)	±5% (J)	8	7.96 Mhz	80	2.98	120

