# Molded Chip Wirewound Inductors

NIN Series

## 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

**RoHS Compliant**
includes all homogeneous materials
*See Part Number System for Details

## AVAILABLE TYPE AND RANGE

| EIA Size | Size Code | Size (L x W x H mm) | NIC Type | Inductance Range | Style |
|---|---|---|---|---|---|
| 1008 | C | 2.5 x 2.0 x 1.6 | NIN-FC | 0.22 ~ 100 µH | Standard |
| | | | NIN-NC | 10nH ~ 0.82 µH | High Frequency |
| | | | NIN-PC | 1.0 ~ 33 µH | High Current |
| 1210 | A | 3.2 x 2.5 x 2.2 | NIN-FA | 0.22 ~ 220 µH | Standard |
| | | | NIN-NA | 47nH ~ 8.2 µH | High Frequency |
| | | | NIN-PA | 1.0 ~ 330 µH | High Current |
| 1812 | B | 4.5 x 3.2 x 3.2 | NIN-FB | 0.10 ~ 1000 µH | Standard |

## SPECIFICATIONS

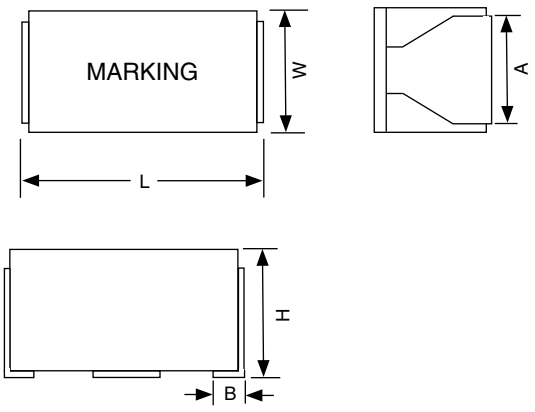
| Specifications | Case Size | | |
|---|---|---|---|
| | 1008 | 1210 | 1812 |
| Inductance Range | 10nH ~ 100 µH | 47nH ~ 330µH | 0.10µH ~ 1000 µH |
| Inductance Tolerance | ±20% (M), ±10% (K), ±5% (J) | | ±10% (K), ±5% (J) |
| Operating Temperature Range | -25°C ~ +85°C (at 100% of rated voltage) | | |
| 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

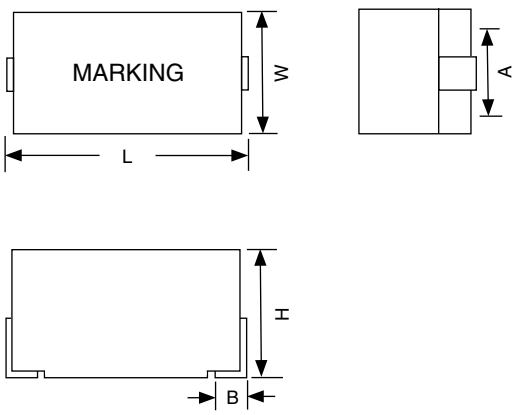
| Test | Specification | Test Method & Condition |
|---|---|---|
| Solderability | 90% Min. Coverage | After 3 Sec. Dip in +230°C Solder Pot (Post Flux) |
| Humidity | (1) No Evidence of Damage<br>(2) Inductance Shall Be Within ±5% of initial Value<br>(3) Q Factor Shall Be Within ±10 of initial Value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

## DIMENSIONS (mm)

SIZE A and C




SIZE B




| EIA Size | Size Code | Dim. L | Dim. W | Dim. H | Dim. A | Dim. B |
|---|---|---|---|---|---|---|
| 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 | 1.1 ± 0.2 | 1.2 ± 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 = 2.7µH
Ex:R18 = .18µH = 180nH

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

**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.

## PART NUMBER SYSTEM

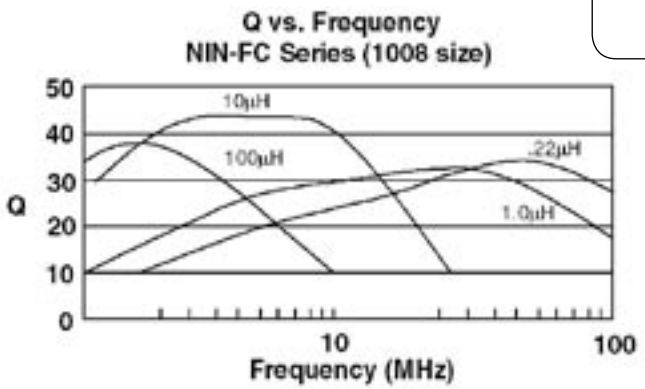
NIN-FA R47 M TR F

- F — Lead Free/RoHS compliant (99.3% Sn, 0.7% Cu)
- TR — Packaging: TR = Tape & Reel
- M — Inductance Tolerance Code: M = ±20%, K = ±10%, J = ±5%
- R47 — Rated inductance in µH (3 digits, first 2 numbers are significant, R stands for decimal point)
- NIN-FA — Series-Type

# Molded Chip Wirewound Inductors

NIN Series

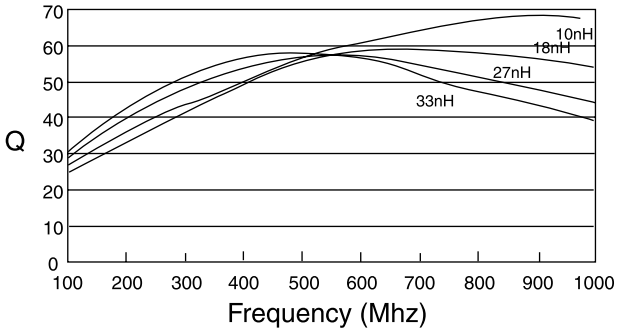
For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**




**NIN-FC SERIES** **C SIZE (1008)** **STANDARD TYPE**

| NIC P/N | 'L' Inductance (μH) | Tolerance | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-FCR22xTR | 0.22 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 230 | 0.70 | 190 |
| NIN-FCR27xTR | 0.27 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 210 | 0.75 | 180 |
| NIN-FCR33xTR | 0.33 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 190 | 0.85 | 170 |
| NIN-FCR39xTR | 0.39 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 175 | 0.95 | 160 |
| NIN-FCR47xTR | 0.47 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 160 | 1.00 | 155 |
| NIN-FCR56xTR | 0.56 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 150 | 1.10 | 150 |
| NIN-FCR68xTR | 0.68 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 135 | 1.25 | 140 |
| NIN-FCR82xTR | 0.82 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 125 | 1.4 | 130 |
| NIN-FC1R0 xTR | 1.0 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 115 | 0.65 | 195 |
| NIN-FC1R2 xTR | 1.2 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 100 | 0.75 | 180 |
| NIN-FC1R5 xTR | 1.5 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 90 | 0.85 | 170 |
| NIN-FC1R8 xTR | 1.8 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 85 | 0.95 | 160 |
| NIN-FC2R2xTR | 2.2 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 80 | 1.05 | 155 |
| NIN-FC2R7 xTR | 2.7 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 75 | 1.20 | 145 |
| NIN-FC3R3 xTR | 3.3 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 65 | 1.30 | 135 |
| NIN-FC3R9 xTR | 3.9 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 60 | 1.40 | 130 |
| NIN-FC4R7 xTR | 4.7 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 55 | 1.55 | 125 |
| NIN-FC5R6 xTR | 5.6 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 50 | 1.75 | 120 |
| NIN-FC6R8 xTR | 6.8 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 45 | 1.95 | 115 |
| NIN-FC8R2 xTR | 8.2 | ±10% (K) | ±5% (J) | 25 | 7.96 Mhz | 40 | 2.20 | 105 |
| NIN-FC100 xTR | 10 | ±10% (K) | ±5% (J) | 25 | 2.52 Mhz | 32 | 3.50 | 80 |
| NIN-FC120 xTR | 12 | ±10% (K) | ±5% (J) | 25 | 2.52 Mhz | 30 | 3.80 | 75 |
| NIN-FC150 xTR | 15 | ±10% (K) | ±5% (J) | 25 | 2.52 Mhz | 28 | 4.40 | 70 |
| NIN-FC180 xTR | 18 | ±10% (K) | ±5% (J) | 25 | 2.52 Mhz | 25 | 5.00 | 65 |
| NIN-FC220 xTR | 22 | ±10% (K) | ±5% (J) | 25 | 2.52 Mhz | 22 | 5.80 | 60 |
| NIN-FC270 xTR | 27 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 21 | 6.30 | 115 |
| NIN-FC330 xTR | 33 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 20 | 7.10 | 110 |
| NIN-FC390 xTR | 39 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 18 | 9.50 | 90 |
| NIN-FC470 xTR | 47 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 17 | 11.0 | 80 |
| NIN-FC560 xTR | 56 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 16 | 12.1 | 75 |
| NIN-FC680 xTR | 68 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 15 | 16.6 | 70 |
| NIN-FC820 xTR | 82 | ±10% (K) | ±5% (J) | 20 | 2.52 Mhz | 13 | 19.0 | 65 |
| NIN-FC101 xTR | 100 | ±10% (K) | ±5% (J) | 15 | 0.796 Mhz | 12 | 21.0 | 60 |

Q vs Frequency
NIN-NC Series (1008 size)
High Frequency Type




For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-NC SERIES** **C SIZE (1008)** **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-NC10NKTR | 10 | ±10% (K) | --- | 10 | 100 Mhz | 2500 | 0.32 | 280 |
| NIN-NC12NKTR | 12 | ±10% (K) | --- | 10 | 100 Mhz | 2200 | 0.34 | 270 |
| NIN-NC15NKTR | 15 | ±10% (K) | --- | 10 | 100 Mhz | 1800 | 0.38 | 255 |
| NIN-NC18NKTR | 18 | ±10% (K) | --- | 10 | 100 Mhz | 1550 | 0.40 | 250 |
| NIN-NC22NKTR | 22 | ±10% (K) | --- | 15 | 100 Mhz | 1350 | 0.43 | 240 |
| NIN-NC27NKTR | 27 | ±10% (K) | --- | 15 | 100 Mhz | 1150 | 0.47 | 230 |
| NIN-NC33NxTR | 33 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 1000 | 0.51 | 220 |
| NIN-NC39NxTR | 39 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 890 | 0.55 | 215 |
| NIN-NC47NxTR | 47 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 770 | 0.59 | 205 |
| NIN-NC56NxTR | 56 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 670 | 0.63 | 200 |
| NIN-NC68NxTR | 68 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 590 | 0.68 | 190 |
| NIN-NC82NxTR | 82 | ±10% (K) | ±5% (J) | 15 | 100 Mhz | 520 | 0.73 | 185 |
| NIN-NCR10xTR | 100 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 460 | 0.80 | 175 |
| NIN-NCR12xTR | 120 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 400 | 0.87 | 170 |
| NIN-NCR15xTR | 150 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 340 | 0.98 | 160 |
| NIN-NCR18xTR | 180 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 300 | 1.05 | 155 |
| NIN-NCR22xTR | 220 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 260 | 1.15 | 145 |
| NIN-NCR27xTR | 270 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 230 | 1.25 | 140 |
| NIN-NCR33xTR | 330 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 200 | 1.37 | 135 |
| NIN-NCR39xTR | 390 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 180 | 1.47 | 130 |
| NIN-NCR47xTR | 470 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 160 | 1.58 | 125 |
| NIN-NCR56xTR | 560 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 145 | 1.70 | 120 |
| NIN-NCR68xTR | 680 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 130 | 1.85 | 110 |
| NIN-NCR82xTR | 820 | ±10% (K) | ±5% (J) | 10 | 25.2 Mhz | 100 | 2.10 | 100 |

# Molded Chip Wirewound Inductors

NIN Series

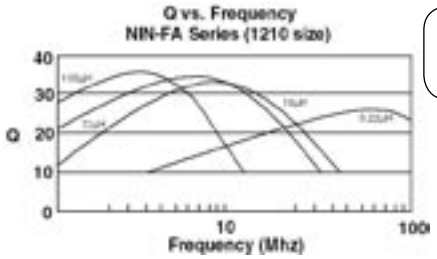
For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-PC SERIES C SIZE (1008) HIGH CURRENT TYPE**

| NIC P/N | 'L' Inductance (µH) | Tolerance | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-PC1R0MTR | 1.0 | ±20% | --- | 10 | 7.96 Mhz | 95 | 0.45 | 475 |
| NIN-PC1R5MTR | 1.5 | ±20% | --- | 10 | 7.96 Mhz | 85 | 0.55 | 435 |
| NIN-PC2R2MTR | 2.2 | ±20% | --- | 10 | 7.96 Mhz | 65 | 0.65 | 390 |
| NIN-PC3R3MTR | 3.3 | ±20% | --- | 8 | 7.96 Mhz | 55 | 0.85 | 340 |
| NIN-PC4R7MTR | 4.7 | ±20% | --- | 8 | 7.96 Mhz | 43 | 1.2 | 285 |
| NIN-PC6R8KTR | 6.8 | ±10% | --- | 8 | 7.96 Mhz | 39 | 1.3 | 275 |
| NIN-PC100KTR | 10 | ±10% | --- | 20 | 2.52 Mhz | 32 | 2.2 | 210 |
| NIN-PC120KTR | 12 | ±10% | --- | 20 | 2.52 Mhz | 25 | 2.7 | 195 |
| NIN-PC150KTR | 15 | ±10% | --- | 20 | 2.52 Mhz | 21 | 3.2 | 175 |
| NIN-PC220KTR | 22 | ±10% | --- | 20 | 2.52 Mhz | 18 | 4.0 | 160 |
| NIN-PC330KTR | 33 | ±10% | --- | 20 | 2.52 Mhz | 16 | 6.5 | 120 |

# Molded Chip Wirewound Inductors

NIN Series



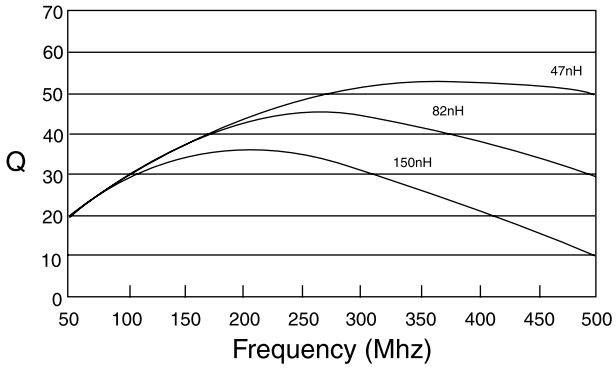

For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-FA SERIES** **A SIZE (1210)** **STANDARD TYPE**

| NIC P/N | 'L' Inductance (µH) | Tolerance | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-FAR22xTR | 0.22 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 230 | 0.29 | 360 |
| NIN-FAR27xTR | 0.27 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 210 | 0.32 | 345 |
| NIN-FAR33xTR | 0.33 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 190 | 0.35 | 330 |
| NIN-FAR39xTR | 0.39 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 175 | 0.39 | 305 |
| NIN-FAR47xTR | 0.47 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 160 | 0.44 | 290 |
| NIN-FAR56xTR | 0.56 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 150 | 0.49 | 275 |
| NIN-FAR68xTR | 0.68 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 135 | 0.55 | 260 |
| NIN-FAR82xTR | 0.82 | ±20% (M) | ±10% (K) | 25 | 25.2 Mhz | 125 | 0.61 | 245 |
| NIN-FA1R0xTR | 1.0 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 115 | 0.69 | 230 |
| NIN-FA1R2xTR | 1.2 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 100 | 0.75 | 215 |
| NIN-FA1R5xTR | 1.5 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 90 | 0.75 | 210 |
| NIN-FA1R8xTR | 1.8 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 85 | 0.82 | 200 |
| NIN-FA2R2xTR | 2.2 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 80 | 0.95 | 190 |
| NIN-FA2R7xTR | 2.7 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 75 | 1.1 | 180 |
| NIN-FA3R3xTR | 3.3 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 65 | 1.2 | 180 |
| NIN-FA3R9xTR | 3.9 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 60 | 1.3 | 175 |
| NIN-FA4R7xTR | 4.7 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 55 | 1.5 | 165 |
| NIN-FA5R6xTR | 5.6 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 50 | 1.6 | 160 |
| NIN-FA6R8xTR | 6.8 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 45 | 1.8 | 150 |
| NIN-FA8R2xTR | 8.2 | ±10% (K) | ±5% (J) | 30 | 7.96 Mhz | 40 | 2.0 | 140 |
| NIN-FA100xTR | 10 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 36 | 2.1 | 140 |
| NIN-FA120xTR | 12 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 33 | 2.5 | 125 |
| NIN-FA150xTR | 15 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 30 | 2.8 | 120 |
| NIN-FA180xTR | 18 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 27 | 3.3 | 110 |
| NIN-FA220xTR | 22 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 25 | 3.7 | 105 |
| NIN-FA270xTR | 27 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 22 | 5.0 | 90 |
| NIN-FA330xTR | 33 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 20 | 5.6 | 85 |
| NIN-FA390xTR | 39 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 20 | 6.4 | 80 |
| NIN-FA470xTR | 47 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 15 | 7.0 | 75 |
| NIN-FA560xTR | 56 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 15 | 8.0 | 70 |
| NIN-FA680xTR | 68 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 15 | 9.0 | 65 |
| NIN-FA820xTR | 82 | ±10% (K) | ±5% (J) | 30 | 2.52 Mhz | 11 | 10 | 60 |
| NIN-FA101xTR | 100 | ±10% (K) | ±5% (J) | 20 | 0.796 Mhz | 10 | 10 | 60 |
| NIN-FA121xTR | 120 | ±10% (K) | ±5% (J) | 20 | 0.796 Mhz | 10 | 11 | 55 |
| NIN-FA151xTR | 150 | ±10% (K) | ±5% (J) | 20 | 0.796 Mhz | 8 | 15 | 50 |
| NIN-FA181xTR | 180 | ±10% (K) | ±5% (J) | 20 | 0.796 Mhz | 7 | 17 | 50 |
| NIN-FA221xTR | 220 | ±10% (K) | ±5% (J) | 20 | 0.796 Mhz | 7 | 21 | 45 |

Q vs Frequency
NIN-NA Series (1210 Size)

For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**




**NIN-NA SERIES** **A SIZE (1210)** **HIGH FREQUENCY**

| NIC P/N | 'L' Inductance (µH) | Tolerance | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|
| NIN-NA47NMTR | 0.047 | ±20% (M) | 10 | 100 Mhz | 680 | 0.20 | 450 |
| NIN-NA56NMTR | 0.056 | ±20% (M) | 10 | 100 Mhz | 600 | 0.22 | 420 |
| NIN-NA68NMTR | 0.068 | ±20% (M) | 10 | 100 Mhz | 540 | 0.25 | 400 |
| NIN-NA82NMTR | 0.082 | ±20% (M) | 10 | 100 Mhz | 500 | 0.27 | 380 |
| NIN-NAR10MTR | 0.10 | ±20% (M) | 10 | 100 Mhz | 450 | 0.30 | 360 |
| NIN-NAR12MTR | 0.12 | ±20% (M) | 10 | 25.2 Mhz | 400 | 0.67 | 240 |
| NIN-NAR15MTR | 0.15 | ±20% (M) | 10 | 25.2 Mhz | 350 | 0.72 | 230 |
| NIN-NAR18MTR | 0.18 | ±20% (M) | 10 | 25.2 Mhz | 320 | 0.81 | 220 |
| NIN-NAR22KTR | 0.22 | ±10% (K) | 10 | 25.2 Mhz | 280 | 0.90 | 210 |
| NIN-NAR27KxTR | 0.27 | ±10% (K) | 10 | 25.2 Mhz | 250 | 1.0 | 200 |
| NIN-NAR33KTR | 0.33 | ±10% (K) | 10 | 25.2 Mhz | 220 | 1.1 | 190 |
| NIN-NAR39KTR | 0.39 | ±10% (K) | 10 | 25.2 Mhz | 200 | 1.2 | 180 |
| NIN-NAR47KTR | 0.47 | ±10% (K) | 10 | 25.2 Mhz | 180 | 1.4 | 175 |
| NIN-NAR56KTR | 0.56 | ±10% (K) | 10 | 25.2 Mhz | 160 | 1.5 | 170 |
| NIN-NAR68KTR | 0.68 | ±10% (K) | 10 | 25.2 Mhz | 150 | 1.7 | 155 |
| NIN-NAR82KTR | 0.82 | ±10% (K) | 10 | 25.2 Mhz | 135 | 1.9 | 145 |
| NIN-NA1R0JTR | 1.0 | ±5% (J) | 13 | 7.96 Mhz | 120 | 2.1 | 125 |
| NIN-NA1R2JTR | 1.2 | ±5% (J) | 13 | 7.96 Mhz | 110 | 2.3 | 120 |
| NIN-NA1R5JTR | 1.5 | ±5% (J) | 13 | 7.96 Mhz | 95 | 2.7 | 115 |
| NIN-NA1R8JTR | 1.8 | ±5% (J) | 13 | 7.96 Mhz | 85 | 3.0 | 110 |
| NIN-NA2R2JTR | 2.2 | ±5% (J) | 13 | 7.96 Mhz | 80 | 3.2 | 110 |
| NIN-NA2R7JTR | 2.7 | ±5% (J) | 13 | 7.96 Mhz | 70 | 3.6 | 105 |
| NIN-NA3R3JTR | 3.3 | ±5% (J) | 13 | 7.96 Mhz | 62 | 4.2 | 100 |
| NIN-NA3R9JTR | 3.9 | ±5% (J) | 13 | 7.96 Mhz | 57 | 4.4 | 95 |
| NIN-NA4R7JTR | 4.7 | ±5% (J) | 13 | 7.96 Mhz | 52 | 7.7 | 70 |
| NIN-NA5R6JTR | 5.6 | ±5% (J) | 13 | 7.96 Mhz | 46 | 8.7 | 65 |
| NIN-NA6R8JTR | 6.8 | ±5% (J) | 13 | 7.96 Mhz | 42 | 10 | 60 |
| NIN-NA8R2JTR | 8.2 | ±5% (J) | 13 | 7.96 Mhz | 38 | 11 | 60 |

For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-PA SERIES** **A SIZE (1210)** **HIGH CURRENT TYPE**

| NIC P/N | 'L' Inductance (µH) | Tolerance | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-PA1R0MTR | 1.0 | ±20% (M) | ---- | 7 | 7.96 Mhz | 150 | 0.15 | 600 |
| NIN-PA1R5MTR | 1.5 | ±20% (M) | ---- | 7 | 7.96 Mhz | 110 | 0.18 | 550 |
| NIN-PA2R2MTR | 2.2 | ±20% (M) | ---- | 7 | 7.96 Mhz | 80 | 0.23 | 500 |
| NIN-PA3R3MTR | 3.3 | ±20% (M) | ---- | 7 | 7.96 Mhz | 58 | 0.28 | 400 |
| NIN-PA4R7MTR | 4.7 | ±20% (M) | ---- | 7 | 7.96 Mhz | 46 | 0.34 | 350 |
| NIN-PA6R8MTR | 6.8 | ±20% (M) | ---- | 7 | 7.96 Mhz | 38 | 0.42 | 300 |
| NIN-PA100KTR | 10 | ±10% (K) | ---- | 15 | 2.52 Mhz | 23 | 0.50 | 240 |
| NIN-PA120KTR | 12 | ±10% (K) | ---- | 15 | 2.52 Mhz | 21 | 0.60 | 230 |
| NIN-PA150KTR | 15 | ±10% (K) | ---- | 15 | 2.52 Mhz | 18 | 0.74 | 220 |
| NIN-PA180KTR | 18 | ±10% (K) | ---- | 15 | 2.52 Mhz | 17 | 0.90 | 205 |
| NIN-PA220KTR | 22 | ±10% (K) | ---- | 15 | 2.52 Mhz | 15 | 1.15 | 185 |
| NIN-PA270KTR | 27 | ±10% (K) | ---- | 15 | 2.52 Mhz | 13 | 1.45 | 165 |
| NIN-PA330KTR | 33 | ±10% (K) | ---- | 15 | 2.52 Mhz | 12 | 1.65 | 155 |
| NIN-PA390KTR | 39 | ±10% (K) | ---- | 15 | 2.52 Mhz | 11 | 1.90 | 145 |
| NIN-PA470KTR | 47 | ±10% (K) | ---- | 15 | 2.52 Mhz | 9.5 | 2.25 | 135 |
| NIN-PA560KTR | 56 | ±10% (K) | ---- | 15 | 2.52 Mhz | 8.5 | 3.30 | 110 |
| NIN-PA680KTR | 68 | ±10% (K) | ---- | 15 | 2.52 Mhz | 7.5 | 3.70 | 105 |
| NIN-PA820KTR | 82 | ±10% (K) | ---- | 15 | 2.52 Mhz | 7.0 | 4.20 | 100 |
| NIN-PA101KTR | 100 | ±10% (K) | ---- | 20 | 0.796 Mhz | 6.5 | 5.0 | 90 |
| NIN-PA121KTR | 120 | ±10% (K) | ---- | 20 | 0.796 Mhz | 6.0 | 7.0 | 75 |
| NIN-PA151KTR | 150 | ±10% (K) | ---- | 20 | 0.796 Mhz | 5.5 | 8.0 | 70 |
| NIN-PA181KTR | 180 | ±10% (K) | ---- | 20 | 0.796 Mhz | 5.0 | 9.5 | 65 |
| NIN-PA221KTR | 220 | ±10% (K) | ---- | 20 | 0.796 Mhz | 4.0 | 11.0 | 60 |
| NIN-PA271KTR | 270 | ±10% (K) | ---- | 20 | 0.796 Mhz | 3.5 | 14.5 | 55 |
| NIN-PA331KTR | 330 | ±10% (K) | ---- | 20 | 0.796 Mhz | 3.0 | 16.0 | 50 |

# Molded Chip Wirewound Inductors

NIN Series

For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-FB SERIES** **B-SIZE (1812)** **STANDARD VALUES**

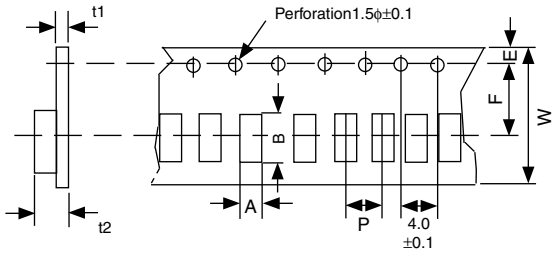
| NIC P/N | 'L' Inductance (uH) | Tolerance | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-FBR10xTR | 0.10 | ±20% (M) | ±10% (K) | 28 | 25.2 Mhz | 700 | 0.44 | 450 |
| NIN-FBR12xTR | 0.12 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 500 | 0.22 | 450 |
| NIN-FBR15xTR | 0.15 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 450 | 0.25 | 450 |
| NIN-FBR18xTR | 0.18 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 400 | 0.28 | 450 |
| NIN-FBR22xTR | 0.22 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 350 | 0.32 | 450 |
| NIN-FBR27xTR | 0.27 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 320 | 0.36 | 450 |
| NIN-FBR33xTR | 0.33 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 300 | 0.40 | 450 |
| NIN-FBR39xTR | 0.39 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 250 | 0.45 | 450 |
| NIN-FBR47xTR | 0.47 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 220 | 0.50 | 450 |
| NIN-FBR56xTR | 0.56 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 180 | 0.55 | 450 |
| NIN-FBR68xTR | 0.68 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 160 | 0.60 | 450 |
| NIN-FBR82xTR | 0.82 | ±20% (M) | ±10% (K) | 30 | 25.2 Mhz | 140 | 0.67 | 450 |
| NIN-FB1R0xTR | 1.0 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 100 | 0.50 | 450 |
| NIN-FB1R2xTR | 1.2 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 80 | 0.55 | 430 |
| NIN-FB1R5xTR | 1.5 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 70 | 0.60 | 410 |
| NIN-FB1R8xTR | 1.8 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 60 | 0.65 | 390 |
| NIN-FB2R2xTR | 2.2 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 55 | 0.70 | 380 |
| NIN-FB2R7xTR | 2.7 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 50 | 0.75 | 370 |
| NIN-FB3R3xTR | 3.3 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 45 | 0.80 | 355 |
| NIN-FB3R9xTR | 3.9 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 40 | 0.90 | 330 |
| NIN-FB4R7xTR | 4.7 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 35 | 1.0 | 315 |
| NIN-FB5R6xTR | 5.6 | ±20% (M) | ±10% (K) | 50 | 7.96 Mhz | 33 | 1.1 | 300 |
| NIN-FB6R8xTR | 6.8 | ±10% (K) | ±5% (J) | 50 | 7.96 Mhz | 27 | 1.2 | 285 |
| NIN-FB8R2xTR | 8.2 | ±10% (K) | ±5% (J) | 50 | 7.96 Mhz | 25 | 1.4 | 270 |

For Quality Factor (**Q**) and Inductance (**L**) over Frequency curves see **www.RFpassives.com**

**NIN-FB SERIES** **B-SIZE (1812)** **STANDARD VALUES**

| NIC P/N | 'L' Inductance (µH) | Tolerancce | | 'Q' Factor (min.) | L & Q Test Freq. | SRF Mhz (min.) | DC Resistance (ohms) Max. | Rated DC Current (mA) Max. |
|---|---|---|---|---|---|---|---|---|
| | | (std) | (opt) | | | | | |
| NIN-FB100xTR | 10 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 20 | 1.6 | 250 |
| NIN-FB120xTR | 12 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 18 | 2.0 | 225 |
| NIN-FB150xTR | 15 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 17 | 2.5 | 200 |
| NIN-FB180xTR | 18 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 15 | 2.8 | 190 |
| NIN-FB220xTR | 22 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 13 | 3.2 | 180 |
| NIN-FB270xTR | 27 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 12 | 3.6 | 170 |
| NIN-FB330xTR | 33 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 11 | 4.0 | 160 |
| NIN-FB390xTR | 39 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 10 | 4.5 | 150 |
| NIN-FB470xTR | 47 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 10 | 5.0 | 140 |
| NIN-FB560xTR | 56 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 9.3 | 5.5 | 135 |
| NIN-FB680xTR | 68 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 9.0 | 6.0 | 130 |
| NIN-FB820xTR | 82 | ±10% (K) | ±5% (J) | 50 | 2.52 Mhz | 8.2 | 7.0 | 120 |
| NIN-FB101xTR | 100 | ±10% (K) | ±5% (J) | 40 | 2.52 Mhz | 6.7 | 8.8 | 110 |
| NIN-FB121xTR | 120 | ±10% (K) | ±5% (J) | 40 | 1.5 Mhz | 6.1 | 10 | 110 |
| NIN-FB151xTR | 150 | ±10% (K) | ±5% (J) | 40 | 1.5 Mhz | 5.5 | 11 | 105 |
| NIN-FB181xTR | 180 | ±10% (K) | ±5% (J) | 40 | 1.5 Mhz | 5.1 | 13 | 102 |
| NIN-FB221xTR | 220 | ±10% (K) | ±5% (J) | 40 | 0.796 Mhz | 4.5 | 13 | 100 |
| NIN-FB271xTR | 270 | ±10% (K) | ±5% (J) | 40 | 0.796 Mhz | 4.1 | 14 | 85 |
| NIN-FB331xTR | 330 | ±10% (K) | ±5% (J) | 40 | 0.796 Mhz | 3.7 | 16 | 85 |
| NIN-FB391xTR | 390 | ±10% (K) | ±5% (J) | 40 | 0.796 Mhz | 3.3 | 19 | 80 |
| NIN-FB471xTR | 470 | ±10% (K) | ±5% (J) | 40 | 0.796 Mhz | 3.3 | 31 | 55 |
| NIN-FB561xTR | 560 | ±10% (K) | ±5% (J) | 30 | 0.796 Mhz | 2.7 | 35 | 50 |
| NIN-FB681xTR | 680 | ±10% (K) | ±5% (J) | 30 | 0.796 Mhz | 2.5 | 39 | 50 |
| NIN-FB821xTR | 820 | ±10% (K) | ±5% (J) | 30 | 0.796 Mhz | 2.4 | 45 | 30 |
| NIN-FB102xTR | 1000 | ±10% (K) | ±5% (J) | 30 | 0.796 Mhz | 2.1 | 53 | 30 |

## PACKAGING SPECIFICATIONS

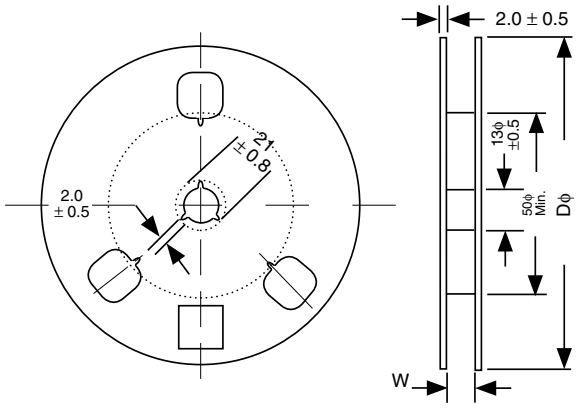



### CARRIER TAPE DIMENSIONS (mm)

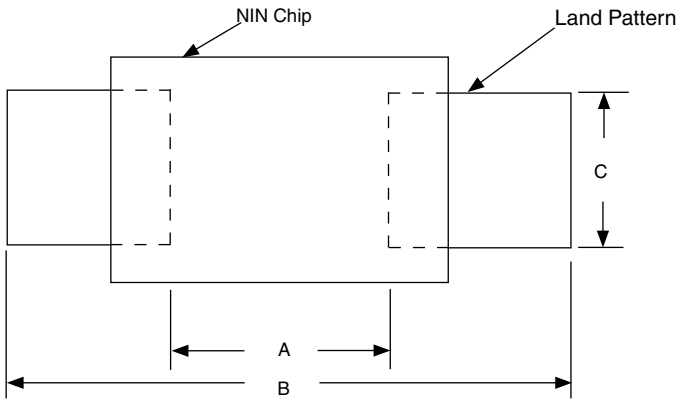
| Case Code | Type | Size | W ±0.3 | A ±0.2 | B ±0.2 | P ±0.1 | E ±0.1 | F ±0.1 | t1 | t2 |
|---|---|---|---|---|---|---|---|---|---|---|
| B | FC/NC/PC | C | 8.0 | 2.4 | 2.9 | 4.0 | 1.75 | 3.5 | 0.25 | 1.85 |
| C | FA/NA/PA | A | 8.0 | 2.8 | 3.6 | 4.0 | 1.75 | 3.5 | 0.25 | 2.4 |
| D | FB | B | 12.0 | 3.6 | 4.9 | 8.0 | 1.75 | 5.5 | 0.3 | 3.5 |

### DIMENSIONS (mm)

| Case Code | Type | Size | DØ ±2 | W ±1.5 | Qty/Reel |
|---|---|---|---|---|---|
| B | FC/NC/PC | C | 180 | 9.0 | 2000 pcs |
| C | FA/NA/PA | A | 180 | 9.0 | 2000 pcs |
| D | FB | B | 180 | 13.0 | 500 pcs |




## RECOMMENDED LAND PATTERNS FOR FLOW AND REFLOW SOLDERING




### DIMENSIONS (mm)

| | Type | Size | A | B | C |
|---|---|---|---|---|---|
| B | FC/NC/PC | C | 1.4~1.5 | 3.5~4.0 | 1.2~1.6 |
| C | FA/NA/PA | 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 |