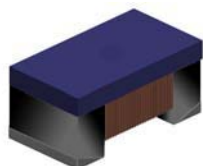


Wound Chip Inductors (Ferrite) – NL Series



These revolutionary, highly reliable wound chip inductors for automatic mounting, have been developed in response to the trend toward high density in electronic equipment.

With metal terminals and a body of heat resistant resin, these inductors offer many superior features.

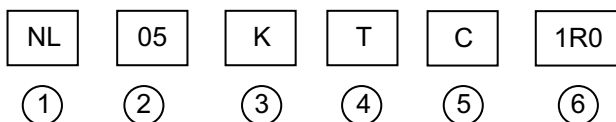
Feature

- Very strong solderability by flow soldering, soldering iron or wave soldering.
- Highly accurate dimensions, can be mounted automatically.
- Terminals are highly resistant to pull forces.
- Highly resistant to mechanical shocks and pressure.
- Highly reliable in environments of sudden temperature change and humidity. Super Q characteristics.

Application

- Micro televisions, liquid crystal televisions, video cameras, portable VCRs, car radios, car stereos, thin tape radios, television tuners, mobile telephones, radio and other electronic devices.

Part Numbering



Product Type

| Product Type | |
|--------------|-------------------------------|
| NL | Wound Chip Inductor (Ferrite) |

Dimensions (L×W×H)

| Codes | Dimensions (L×W×H) mm | EIA |
|-------|-----------------------|------|
| 05 | 2.0×1.2 | 0805 |
| 08 | 2.5×2.0 | 1008 |
| 10 | 3.2×2.5 | 1210 |
| 12 | 4.5×3.2 | 1812 |
| 20 | 5.6×5.0 | 2220 |

Inductance Tolerance

| Code | Type |
|------|------|
| J | 5% |
| K | 10% |

Packaging

| Code | Type |
|------|-------------|
| T | Taping Reel |

Current

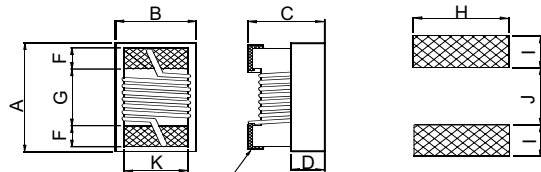
| Code | Type |
|------|---------------|
| | Standard |
| C | Large current |

Inductance

| Codes | Inductance |
|-------|------------|
| R12 | 120nH |
| R27 | 270nH |
| 2R7 | 2700nH |
| 100 | 10μH |

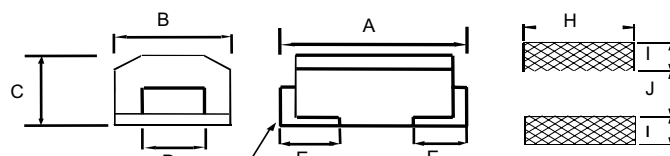
Dimensions

Figure 1



Terminal Wraparound:

Figure 2



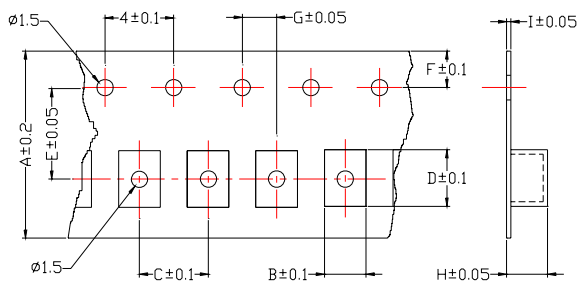
Terminal Wraparound:

Unit: mm

| Part No. | Size | Figure | A Max. | B Max. | C Max. | D Ref. | E | F | G | K Max. | H Max. | I Max. | J Max. |
|----------|------|--------|--------|--------|--------|--------|-----|------|------|--------|--------|--------|--------|
| NL05 | 0805 | 1 | 2.29 | 1.71 | 1.45 | 0.51 | - | 0.44 | 1.02 | 1.27 | 1.78 | 1.02 | 0.76 |
| NL08 | 1008 | 1 | 2.92 | 2.79 | 2.10 | 1.20 | - | 0.45 | 1.52 | 2.03 | 2.54 | 1.02 | 1.27 |
| NL10 | 1210 | 2 | 3.50 | 2.80 | 2.50 | 1.40 | 0.6 | - | - | - | 2.00 | 1.20 | 1.60 |
| NL12 | 1812 | 2 | 4.80 | 3.50 | 3.50 | 1.80 | 0.9 | - | - | - | 2.80 | 1.50 | 3.00 |
| NL20 | 2220 | 2 | 5.90 | 5.20 | 5.20 | 2.10 | 1.3 | - | - | - | 4.50 | 2.00 | 4.00 |
| NL08 (C) | 1008 | 1 | 2.92 | 2.79 | 2.10 | 1.20 | - | 0.51 | 1.52 | 2.03 | 2.54 | 1.02 | 1.27 |
| NL12 (C) | 1812 | 2 | 4.80 | 3.50 | 3.50 | 1.40 | 0.9 | - | - | - | 2.80 | 1.50 | 3.00 |
| NL20 (C) | 2220 | 2 | 5.90 | 5.20 | 5.20 | 1.80 | 1.3 | - | - | - | 4.50 | 2.00 | 4.00 |

Packaging

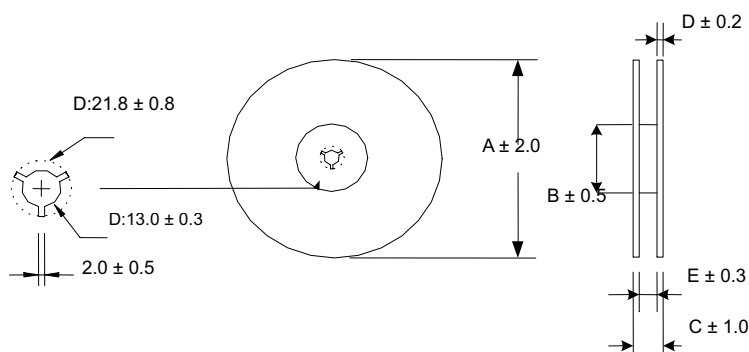
Tape Dimensions



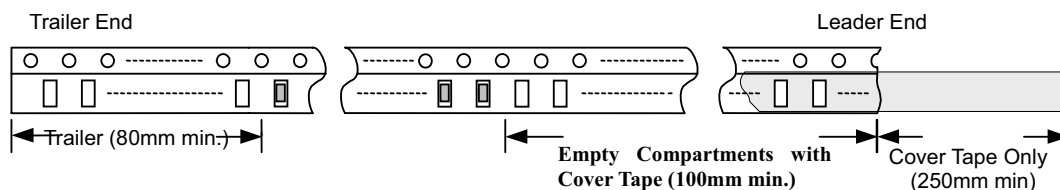
Unit: mm

| TYPE | Tape Dimensions | | | | | | | | | Reel Dimensions | | | | | Quantity /Reel |
|--------------|-----------------|------|----|------|-----|------|---|------|------|-----------------|----|----|-----|------|----------------|
| | A | B | C | D | E | F | G | H | I | A | B | C | D | E | |
| NL05(201614) | 8 | 1.85 | 4 | 2.45 | 3.5 | 1.75 | 2 | 1.45 | 0.23 | 178 | 60 | 12 | 1.5 | 9 | 2000 |
| NL08(252018) | 8 | 2.80 | 4 | 2.95 | 3.5 | 1.75 | 2 | 2.22 | 0.23 | 178 | 60 | 12 | 1.5 | 9 | 2000 |
| NL10(322522) | 8 | 2.96 | 4 | 3.60 | 3.5 | 1.75 | 2 | 2.40 | 0.23 | 178 | 60 | 12 | 1.5 | 9 | 2000 |
| NL12(453232) | 12 | 3.30 | 8 | 5.00 | 5.5 | 1.75 | 2 | 3.50 | 0.30 | 178 | 60 | 16 | 1.4 | 13.2 | 500 |
| NL20(565050) | 16 | 5.35 | 12 | 6.10 | 7.5 | 1.75 | 2 | 5.50 | 0.35 | 330 | 80 | 22 | 2.3 | 17.4 | 1000 |

Reel Dimensions (Unit: mm)

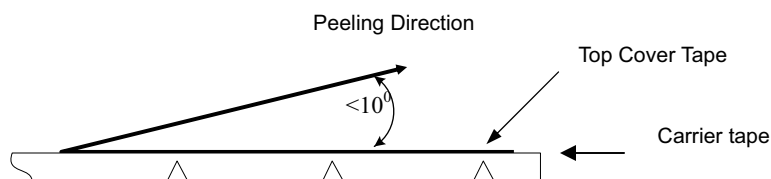


Leader / Trailer Tape (Unit: mm)



Peel-off Force

Peel-off force should be in the range of 0.1~0.6N at a peel-off speed of 300±10 mm/min



Environmental Characteristics

1-1 Mechanical Performance

| No | Item | Specification | Test Method |
|-------|------------------------------|--|---|
| 1-1-1 | Vibration | Appearance: No damage L change: within±10% Q change: within±30% RDC: within specification | Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs |
| 1-1-2 | Resistance to Soldering Heat | Appearance: No damage | Pre-heating: 150℃, 1min Solder Temperature: 260±5℃ Immersion Time: 10±1sec |
| 1-1-3 | Solderability | The electrodes shall be at least 90% covered with new solder coating | Lead-free inductor: after fluxing(alpha 100 or equiv), inductor shall be dipped in a melted solder bath at 245±5℃, 5±0.5 seconds. |

1-2 Environmental Performance

| No | Item | Specification | Test Method | | | | | | | | | | | | | | | |
|-------|-----------------------------|--|--|------|-----------------|------------|---|-------|----|---|------|---|---|------|----|---|------|---|
| 1-2-1 | Temperature Cycle | Appearance: No damage L change: within±10% Q change: within±30% RDC: within specification | One cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (℃)</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25±3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25±2</td> <td>3</td> </tr> <tr> <td>3</td> <td>85±3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25±2</td> <td>3</td> </tr> </tbody> </table> Total: 100cycles Measured after exposure in the room condition for 24hrs | Step | Temperature (℃) | Time (min) | 1 | -25±3 | 30 | 2 | 25±2 | 3 | 3 | 85±3 | 30 | 4 | 25±2 | 3 |
| Step | Temperature (℃) | Time (min) | | | | | | | | | | | | | | | | |
| 1 | -25±3 | 30 | | | | | | | | | | | | | | | | |
| 2 | 25±2 | 3 | | | | | | | | | | | | | | | | |
| 3 | 85±3 | 30 | | | | | | | | | | | | | | | | |
| 4 | 25±2 | 3 | | | | | | | | | | | | | | | | |
| 1-2-2 | Humidity Resistance | | Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |
| 1-2-3 | High Temperature Resistance | | Temperature: 85±3℃ Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |
| 1-2-4 | Low Temperature Resistance | | Temperature: -25±3℃ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs | | | | | | | | | | | | | | | |

Standard Electrical Specifications

■ **Wound Chip Inductors (Ferrite) – NL05 Series (0805)**



| Part Number | Inductance (μH) | Tolerance (±%) | Q Min | Test Frequency (MHz) | Self Resonant Frequency (MHz)Min | DC Resistance (Ω)max | Rated current (mA)max |
|-------------|-----------------|----------------|-------|----------------------|----------------------------------|----------------------|-----------------------|
| NL05□TR12 | 0.12 | J,K | 20 | 25.2 | 700 | 0.18 | 1100 |
| NL05□TR15 | 0.15 | J,K | 20 | 25.2 | 900 | 0.18 | 1100 |
| NL05□TR18 | 0.18 | J,K | 20 | 25.2 | 600 | 0.20 | 800 |
| NL05□TR22 | 0.22 | J,K | 20 | 25.2 | 550 | 0.25 | 700 |
| NL05□TR27 | 0.27 | J,K | 20 | 25.2 | 550 | 0.30 | 700 |
| NL05□TR33 | 0.33 | J,K | 20 | 25.2 | 550 | 0.35 | 650 |
| NL05□TR39 | 0.39 | J,K | 20 | 25.2 | 420 | 0.35 | 600 |
| NL05□TR47 | 0.47 | J,K | 20 | 25.2 | 350 | 0.45 | 600 |
| NL05□TR56 | 0.56 | J,K | 20 | 25.2 | 300 | 0.45 | 550 |
| NL05□TR68 | 0.68 | J,K | 20 | 25.2 | 300 | 0.60 | 500 |
| NL05□TR82 | 0.82 | J,K | 20 | 25.2 | 300 | 0.55 | 500 |
| NL05□T1R0 | 1.00 | J,K | 15 | 7.96 | 280 | 0.80 | 450 |
| NL05□T1R2 | 1.20 | J,K | 15 | 7.96 | 280 | 0.90 | 400 |
| NL05□T1R5 | 1.50 | J,K | 15 | 7.96 | 250 | 1.05 | 350 |
| NL05□T1R8 | 1.80 | J,K | 15 | 7.96 | 120 | 0.90 | 350 |
| NL05□T2R2 | 2.20 | J,K | 15 | 7.96 | 110 | 1.10 | 320 |
| NL05□T2R7 | 2.70 | J,K | 15 | 7.96 | 70 | 1.20 | 320 |
| NL05□T3R3 | 3.30 | J,K | 15 | 7.96 | 60 | 1.50 | 300 |
| NL05□T3R9 | 3.90 | J,K | 15 | 7.96 | 55 | 1.60 | 300 |
| NL05□T4R7 | 4.70 | J,K | 15 | 7.96 | 45 | 2.10 | 200 |
| NL05□T5R6 | 5.60 | J,K | 15 | 7.96 | 40 | 2.30 | 250 |
| NL05□T6R8 | 6.80 | J,K | 15 | 7.96 | 36 | 2.70 | 200 |
| NL05□T8R2 | 8.20 | J,K | 15 | 7.96 | 33 | 3.30 | 180 |
| NL05□T100 | 10 | J,K | 10 | 2.52 | 30 | 4.00 | 180 |

1.DC current at which the inductance drops 10%(typ) from its value without current.

2.Operating temperature range -25℃ to 85℃.

3.Tolerance: J = ±5%, K = ±10%

4.Packaging: Clear tape and reel (standard)

5. L , Q : HP4291 for 0.12uH~82uH

6.SRF: HP4291

7.RDC: AX-1152B

Standard Electrical Specifications

■ **Wound Chip Inductors (Ferrite) – NL08 Series (1008)**



| Part Number | Inductance (μH) | Tolerance (±%) | Q Min | Test Frequency (MHz) | Self Resonant Frequency (MHz)Min | DC Resistance (Ω) max. | Rated current (mA) max. |
|-------------|-----------------|----------------|-------|----------------------|----------------------------------|------------------------|-------------------------|
| NL08□TR12 | 0.12 | J,K | 30 | 25.2 | 800 | 0.10 | 1200 |
| NL08□TR15 | 0.15 | J,K | 30 | 25.2 | 800 | 0.15 | 1200 |
| NL08□TR18 | 0.18 | J,K | 30 | 25.2 | 600 | 0.20 | 1200 |
| NL08□TR22 | 0.22 | J,K | 30 | 25.2 | 600 | 0.25 | 1200 |
| NL08□TR27 | 0.27 | J,K | 30 | 25.2 | 425 | 0.30 | 1200 |
| NL08□TR33 | 0.33 | J,K | 30 | 25.2 | 400 | 0.20 | 1100 |
| NL08□TR39 | 0.39 | J,K | 30 | 25.2 | 375 | 0.40 | 1000 |
| NL08□TR47 | 0.47 | J,K | 30 | 25.2 | 350 | 0.45 | 900 |
| NL08□TR56 | 0.56 | J,K | 30 | 25.2 | 325 | 0.30 | 850 |
| NL08□TR68 | 0.68 | J,K | 30 | 25.2 | 300 | 0.40 | 800 |
| NL08□TR82 | 0.82 | J,K | 30 | 25.2 | 260 | 0.45 | 800 |
| NL08□T1R0 | 1.0 | J,K | 25 | 7.96 | 245 | 0.50 | 800 |
| NL08□T1R2 | 1.2 | J,K | 25 | 7.96 | 230 | 0.55 | 800 |
| NL08□T1R5 | 1.5 | J,K | 25 | 7.96 | 182 | 0.65 | 750 |
| NL08□T1R8 | 1.8 | J,K | 25 | 7.96 | 135 | 0.80 | 750 |
| NL08□T2R2 | 2.2 | J,K | 25 | 7.96 | 105 | 0.95 | 750 |
| NL08□T2R7 | 2.7 | J,K | 25 | 7.96 | 70 | 1.05 | 750 |
| NL08□T3R3 | 3.3 | J,K | 25 | 7.96 | 55 | 1.15 | 730 |
| NL08□T3R9 | 3.9 | J,K | 25 | 7.96 | 48 | 1.25 | 700 |
| NL08□T4R7 | 4.7 | J,K | 25 | 7.96 | 43 | 1.28 | 650 |
| NL08□T5R6 | 5.6 | J,K | 25 | 7.96 | 42 | 1.35 | 640 |
| NL08□T6R8 | 6.8 | J,K | 25 | 7.96 | 39 | 1.60 | 630 |
| NL08□T8R2 | 8.2 | J,K | 25 | 7.96 | 36 | 1.80 | 600 |
| NL08□T100 | 10 | J,K | 20 | 2.52 | 33 | 2.30 | 600 |
| NL08□T120 | 12 | J,K | 20 | 2.52 | 28 | 2.40 | 550 |
| NL08□T150 | 15 | J,K | 20 | 2.52 | 24 | 2.70 | 450 |
| NL08□T180 | 18 | J,K | 20 | 2.52 | 20 | 2.80 | 400 |
| NL08□T220 | 22 | J,K | 20 | 2.52 | 18 | 3.30 | 400 |
| NL08□T270 | 27 | J,K | 20 | 2.52 | 17 | 3.50 | 360 |
| NL08□T330 | 33 | J,K | 20 | 2.52 | 16 | 4.00 | 350 |
| NL08□T390 | 39 | J,K | 18 | 2.52 | 15 | 5.50 | 330 |
| NL08□T470 | 47 | J,K | 18 | 2.52 | 14 | 5.90 | 300 |
| NL08□T560 | 56 | J,K | 18 | 2.52 | 13 | 6.80 | 270 |
| NL08□T680 | 68 | J,K | 18 | 2.52 | 12 | 9.50 | 250 |
| NL08□T820 | 82 | J,K | 18 | 2.52 | 10 | 11.0 | 200 |
| NL08□T101 | 100 | J,K | 12 | 1 | 8 | 11.0 | 120 |

1.DC current at which the inductance drops 10%(typ) from its value without current.

2.Operating temperature range -25℃ to 85℃.

3.Tolerance: J = ±5%, K = ±10%

4.Packaging: Clear tape and reel (standard)

5. L , Q : HP4291 for 0.12uH~100uH

6.SRF: HP4291

7.RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) – NL10 Series / Molding (1210)

| Part Number | Inductance (μH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL10□T10N | 0.010 | K,M | 15 | 100 | 2500 | 0.13 | 450 |
| NL10□T12N | 0.012 | K,M | 17 | 100 | 2300 | 0.14 | 450 |
| NL10□T15N | 0.015 | K,M | 19 | 100 | 2100 | 0.16 | 450 |
| NL10□T18N | 0.018 | K,M | 21 | 100 | 1900 | 0.18 | 450 |
| NL10□T22N | 0.022 | K,M | 23 | 100 | 1700 | 0.20 | 450 |
| NL10□T27N | 0.027 | K,M | 23 | 100 | 1500 | 0.22 | 450 |
| NL10□T33N | 0.033 | K,M | 25 | 100 | 1400 | 0.24 | 450 |
| NL10□T39N | 0.039 | K,M | 25 | 100 | 1300 | 0.27 | 450 |
| NL10□T47N | 0.047 | K,M | 26 | 100 | 1200 | 0.30 | 450 |
| NL10□T56N | 0.056 | K,M | 26 | 100 | 1100 | 0.33 | 450 |
| NL10□T68N | 0.068 | K,M | 27 | 100 | 1000 | 0.36 | 450 |
| NL10□T82N | 0.082 | K,M | 27 | 100 | 900 | 0.40 | 450 |

| Part Number | Inductance (μH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL10□TR10 | 0.10 | K | 30 | 25.2 | 700 | 0.44 | 450 |
| NL10□TR12 | 0.12 | K | 30 | 25.2 | 500 | 0.22 | 450 |
| NL10□TR15 | 0.15 | K | 30 | 25.2 | 450 | 0.25 | 450 |
| NL10□TR18 | 0.18 | K | 30 | 25.2 | 400 | 0.28 | 450 |
| NL10□TR22 | 0.22 | K | 30 | 25.2 | 350 | 0.32 | 450 |
| NL10□TR27 | 0.27 | K | 30 | 25.2 | 320 | 0.36 | 450 |
| NL10□TR33 | 0.33 | K | 30 | 25.2 | 300 | 0.40 | 450 |
| NL10□TR39 | 0.39 | K | 30 | 25.2 | 250 | 0.45 | 450 |
| NL10□TR47 | 0.47 | K | 30 | 25.2 | 220 | 0.50 | 450 |
| NL10□TR56 | 0.56 | K | 30 | 25.2 | 180 | 0.55 | 450 |
| NL10□TR68 | 0.68 | K | 30 | 25.2 | 160 | 0.60 | 450 |
| NL10□TR82 | 0.82 | K | 30 | 25.2 | 140 | 0.65 | 450 |
| NL10□T1R0 | 1.0 | K | 30 | 7.96 | 95 | 0.70 | 400 |
| NL10□T1R2 | 1.2 | K | 30 | 7.96 | 80 | 0.75 | 390 |
| NL10□T1R5 | 1.5 | K | 30 | 7.96 | 70 | 0.85 | 370 |
| NL10□T1R8 | 1.8 | K | 30 | 7.96 | 60 | 0.90 | 350 |
| NL10□T2R2 | 2.2 | K | 30 | 7.96 | 50 | 1.00 | 320 |
| NL10□T2R7 | 2.7 | K | 30 | 7.96 | 45 | 1.10 | 290 |
| NL10□T3R3 | 3.3 | K | 30 | 7.96 | 40 | 1.20 | 260 |
| NL10□T3R9 | 3.9 | K | 30 | 7.96 | 37 | 1.30 | 250 |
| NL10□T4R7 | 4.7 | K | 30 | 7.96 | 32 | 1.50 | 220 |
| NL10□T5R6 | 5.6 | K | 30 | 7.96 | 30 | 1.60 | 200 |
| NL10□T6R8 | 6.8 | K | 30 | 7.96 | 27 | 1.80 | 180 |
| NL10□T8R2 | 8.2 | K | 30 | 7.96 | 25 | 2.00 | 170 |
| NL10□T100 | 10 | K | 30 | 2.52 | 20 | 2.10 | 150 |
| NL10□T120 | 12 | K | 30 | 2.52 | 18 | 2.50 | 140 |
| NL10□T150 | 15 | K | 30 | 2.52 | 17 | 2.80 | 130 |
| NL10□T180 | 18 | K | 30 | 2.52 | 15 | 3.30 | 120 |
| NL10□T220 | 22 | K | 30 | 2.52 | 14 | 3.70 | 110 |
| NL10□T270 | 27 | K | 30 | 2.52 | 13 | 5.00 | 80 |
| NL10□T330 | 33 | K | 30 | 2.52 | 12 | 5.60 | 70 |
| NL10□T390 | 39 | K | 30 | 2.52 | 12 | 6.40 | 65 |
| NL10□T470 | 47 | K | 30 | 2.52 | 10 | 7.00 | 60 |
| NL10□T560 | 56 | K | 30 | 2.52 | 9 | 8.00 | 55 |
| NL10□T680 | 68 | K | 30 | 2.52 | 9 | 9.00 | 50 |
| NL10□T820 | 82 | K | 30 | 2.52 | 8 | 10.00 | 45 |
| NL10□T101 | 100 | K | 20 | 0.796 | 7 | 11.00 | 40 |
| NL10□T121 | 120 | K | 20 | 0.796 | 7 | 12.00 | 70 |
| NL10□T151 | 150 | K | 20 | 0.796 | 6 | 15.00 | 65 |
| NL10□T181 | 180 | K | 20 | 0.796 | 6 | 17.00 | 60 |
| NL10□T221 | 220 | K | 20 | 0.796 | 5 | 21.00 | 50 |

- 1.DC current at which the inductance drops 10%(typ) from its value without current.
- 2.Operating temperature range -25℃ to 85℃.
- 3.Tolerance: K = ±10%, M = ±20%
- 4.Packaging: Clear tape and reel (standard)
5. L , Q : HP4291 for 0.010uH~82uH ; HP4284 for 100uH~220uH
- 6.SRF: HP4291
- 7.RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) – NL12 Series / Molding (1812)

| Part Number | Inductance (μH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL12□TR10 | 0.10 | K | 28 | 25.2 | 700 | 0.44 | 450 |
| NL12□TR12 | 0.12 | K | 30 | 25.2 | 500 | 0.22 | 450 |
| NL12□TR15 | 0.15 | K | 30 | 25.2 | 450 | 0.25 | 450 |
| NL12□TR18 | 0.18 | K | 30 | 25.2 | 400 | 0.28 | 450 |
| NL12□TR22 | 0.22 | K | 30 | 25.2 | 350 | 0.32 | 450 |
| NL12□TR27 | 0.27 | K | 30 | 25.2 | 320 | 0.36 | 450 |
| NL12□TR33 | 0.33 | K | 30 | 25.2 | 300 | 0.40 | 450 |
| NL12□TR39 | 0.39 | K | 30 | 25.2 | 350 | 0.45 | 450 |
| NL12□TR47 | 0.47 | K | 30 | 25.2 | 220 | 0.50 | 450 |
| NL12□TR56 | 0.56 | K | 30 | 25.2 | 180 | 0.55 | 450 |
| NL12□TR68 | 0.68 | K | 30 | 25.2 | 160 | 0.60 | 450 |
| NL12□TR82 | 0.82 | K | 30 | 25.2 | 140 | 0.67 | 450 |
| NL12□T1R0 | 1.0 | K | 50 | 7.96 | 100 | 0.50 | 450 |
| NL12□T1R2 | 1.2 | K | 50 | 7.96 | 80 | 0.55 | 430 |
| NL12□T1R5 | 1.5 | K | 50 | 7.96 | 70 | 0.60 | 410 |
| NL12□T1R8 | 1.8 | K | 50 | 7.96 | 60 | 0.65 | 390 |
| NL12□T2R2 | 2.2 | K | 50 | 7.96 | 55 | 0.70 | 380 |
| NL12□T2R7 | 2.7 | K | 50 | 7.96 | 50 | 0.75 | 370 |
| NL12□T3R3 | 3.3 | K | 50 | 7.96 | 45 | 0.80 | 355 |
| NL12□T3R9 | 3.9 | K | 50 | 7.96 | 40 | 0.90 | 330 |
| NL12□T4R7 | 4.7 | K | 50 | 7.96 | 35 | 1.00 | 315 |
| NL12□T5R6 | 5.6 | K | 50 | 7.96 | 33 | 1.10 | 300 |
| NL12□T6R8 | 6.8 | K | 50 | 7.96 | 27 | 1.20 | 285 |
| NL12□T8R2 | 8.2 | K | 50 | 7.96 | 25 | 1.40 | 270 |
| NL12□T100 | 10 | K | 50 | 2.52 | 20 | 1.60 | 250 |
| NL12□T120 | 12 | K | 50 | 2.52 | 18 | 2.00 | 225 |
| NL12□T150 | 15 | K | 50 | 2.52 | 17 | 2.50 | 200 |
| NL12□T180 | 18 | K | 50 | 2.52 | 15 | 2.80 | 190 |
| NL12□T220 | 22 | K | 50 | 2.52 | 13 | 3.20 | 180 |
| NL12□T270 | 27 | K | 50 | 2.52 | 12 | 3.60 | 170 |
| NL12□T330 | 33 | K | 50 | 2.52 | 11 | 4.00 | 160 |
| NL12□T390 | 39 | K | 50 | 2.52 | 10 | 4.50 | 150 |
| NL12□T470 | 47 | K | 50 | 2.52 | 10 | 5.00 | 140 |
| NL12□T560 | 56 | K | 50 | 2.52 | 9 | 5.50 | 135 |
| NL12□T680 | 68 | K | 50 | 2.52 | 9 | 6.00 | 130 |
| NL12□T820 | 82 | K | 50 | 2.52 | 8 | 7.00 | 120 |
| NL12□T101 | 100 | K | 40 | 0.796 | 7 | 8.00 | 110 |
| NL12□T121 | 120 | K | 40 | 0.796 | 6 | 8.00 | 110 |
| NL12□T151 | 150 | K | 40 | 0.796 | 5 | 9.00 | 105 |
| NL12□T181 | 180 | K | 40 | 0.796 | 5 | 9.50 | 102 |
| NL12□T221 | 220 | K | 40 | 0.796 | 4 | 12.0 | 100 |
| NL12□T271 | 270 | K | 40 | 0.796 | 3 | 12.0 | 92 |
| NL12□T331 | 330 | K | 40 | 0.796 | 3 | 14.0 | 85 |
| NL12□T391 | 390 | K | 40 | 0.796 | 3 | 16.0 | 80 |
| NL12□T471 | 470 | K | 40 | 0.796 | 3 | 26.0 | 62 |
| NL12□T561 | 560 | K | 30 | 0.796 | 2 | 30.0 | 50 |
| NL12□T681 | 680 | K | 30 | 0.796 | 2 | 40.0 | 50 |
| NL12□T821 | 820 | K | 30 | 0.796 | 2 | 35.0 | 30 |
| NL12□T102 | 1000 | K | 30 | 0.252 | 2 | 46.0 | 30 |

- 1.DC current at which the inductance drops 10%(typ) from its value without current.
- 2.Operating temperature range -25°C to 85°C.
- 3.Tolerance: K = ±10%
- 4.Packaging: Clear tape and reel (standard)
5. L , Q : HP4291 for 0.10uH~82uH ; HP4284 for 100uH~1000uH
- 6.SRF: HP4291
- 7.RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) – NL20 Series (2220)

| Part Number | Inductance (mH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL20□T-122 | 1.2 | J,K | 30 | 0.252 | 1.5 | 17 | 75 |
| NL20□T-152 | 1.5 | J,K | 30 | 0.252 | 1.4 | 20 | 70 |
| NL20□T-182 | 1.8 | J,K | 30 | 0.252 | 1.3 | 30 | 60 |
| NL20□T-222 | 2.2 | J,K | 30 | 0.252 | 1.2 | 35 | 55 |
| NL20□T-272 | 2.7 | J,K | 30 | 0.252 | 1.1 | 55 | 45 |
| NL20□T-332 | 3.3 | J,K | 30 | 0.252 | 1 | 60 | 40 |
| NL20□T-392 | 3.9 | J,K | 30 | 0.252 | 1 | 70 | 38 |
| NL20□T-472 | 4.7 | J,K | 30 | 0.252 | 0.9 | 78 | 36 |
| NL20□T-562 | 5.6 | J,K | 30 | 0.252 | 0.8 | 85 | 33 |
| NL20□T-682 | 6.8 | J,K | 30 | 0.252 | 0.7 | 110 | 30 |
| NL20□T-822 | 8.2 | J,K | 30 | 0.252 | 0.6 | 125 | 28 |
| NL20□T-103 | 10 | J,K | 20 | 0.0796 | 0.5 | 150 | 25 |

1.DC current at which the inductance drops 10%(typ) from its value without current.

2.Operating temperature range -25℃ to 85℃.

3.Tolerance: J = ±5% , K = ±10%

4.Packaging: Clear tape and reel (standard)

5. L , Q : HP4284

6.SRF: HP4291

7.RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) Large Current – NL08 Series (1008)

| Part Number | Inductance (μH) | Tolerance (±%) | Q Min | Test Frequency (MHz) | Self Resonant Frequency (MHz)min | DC Resistance (Ω)max | Rated current (mA) |
|-------------|-----------------|----------------|-------|----------------------|----------------------------------|----------------------|--------------------|
| NL08□TC1R0 | 1.0 | J,K | 22 | 7.96 | 350 | 0.35 | 1500 |
| NL08□TC1R2 | 1.2 | J,K | 25 | 7.96 | 300 | 0.40 | 1200 |
| NL08□TC1R5 | 1.5 | J,K | 25 | 7.96 | 300 | 0.45 | 1200 |
| NL08□TC1R8 | 1.8 | J,K | 25 | 7.96 | 300 | 0.55 | 1100 |
| NL08□TC2R2 | 2.2 | J,K | 22 | 7.96 | 250 | 0.60 | 1050 |
| NL08□TC2R7 | 2.7 | J,K | 25 | 7.96 | 70 | 0.70 | 1000 |
| NL08□TC3R3 | 3.3 | J,K | 22 | 7.96 | 55 | 0.75 | 900 |
| NL08□TC3R9 | 3.9 | J,K | 25 | 7.96 | 50 | 0.80 | 900 |
| NL08□TC4R7 | 4.7 | J,K | 22 | 7.96 | 45 | 0.90 | 800 |
| NL08□TC5R6 | 5.6 | J,K | 22 | 7.96 | 42 | 1.05 | 750 |
| NL08□TC6R8 | 6.8 | J,K | 22 | 7.96 | 40 | 1.00 | 750 |
| NL08□TC8R2 | 8.2 | J,K | 22 | 7.96 | 36 | 1.30 | 700 |
| NL08□TC100 | 10 | J,K | 20 | 2.52 | 35 | 1.50 | 700 |
| NL08□TC100 | 12 | J,K | 20 | 2.52 | 30 | 1.70 | 550 |
| NL08□TC150 | 15 | J,K | 20 | 2.52 | 24 | 1.90 | 500 |
| NL08□TC180 | 18 | J,K | 20 | 2.52 | 20 | 2.60 | 470 |
| NL08□TC220 | 22 | J,K | 20 | 2.52 | 18 | 2.80 | 470 |
| NL08□TC220 | 27 | J,K | 20 | 2.52 | 17 | 3.40 | 400 |
| NL08□TC330 | 33 | J,K | 20 | 2.52 | 16 | 3.50 | 400 |

- 1.DC current at which the inductance drops 10%(typ) from its value without current.
- 2.Operating temperature range -25°C to 85°C.
- 3.Tolerance: J = ±5% , K = ±10%
- 4.Packaging: Clear tape and reel (standard)
5. L , Q : HP4291
- 6.SRF: HP4291
- 7.RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) Large Current – NL12 Series (1812)

| Part Number | Inductance (μH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL12□TC1R0 | 1.0 | K | 10 | 7.96 | 200 | 0.11 | 1050 |
| NL12□TC1R2 | 1.2 | K | 10 | 7.96 | 160 | 0.12 | 1000 |
| NL12□TC1R5 | 1.5 | K | 10 | 7.96 | 130 | 0.15 | 950 |
| NL12□TC1R8 | 1.8 | K | 10 | 7.96 | 100 | 0.16 | 900 |
| NL12□TC2R2 | 2.2 | K | 10 | 7.96 | 80 | 0.18 | 850 |
| NL12□TC2R7 | 2.7 | K | 10 | 7.96 | 60 | 0.20 | 800 |
| NL12□TC3R3 | 3.3 | K | 10 | 7.96 | 45 | 0.22 | 750 |
| NL12□TC3R9 | 3.9 | K | 10 | 7.96 | 40 | 0.24 | 700 |
| NL12□TC4R7 | 4.7 | K | 10 | 7.96 | 35 | 0.27 | 650 |
| NL12□TC5R6 | 5.6 | K | 10 | 7.96 | 30 | 0.30 | 650 |
| NL12□TC6R8 | 6.8 | K | 10 | 7.96 | 28 | 0.35 | 600 |
| NL12□TC8R2 | 8.2 | K | 10 | 7.96 | 25 | 0.40 | 600 |
| NL12□TC100 | 10 | K | 10 | 2.52 | 22 | 0.50 | 550 |
| NL12□TC120 | 12 | K | 10 | 2.52 | 21 | 0.60 | 500 |
| NL12□TC150 | 15 | K | 10 | 2.52 | 20 | 0.70 | 450 |
| NL12□TC180 | 18 | K | 10 | 2.52 | 19 | 0.80 | 400 |
| NL12□TC220 | 22 | K | 10 | 2.52 | 18 | 0.90 | 370 |
| NL12□TC270 | 27 | K | 10 | 2.52 | 16 | 1.20 | 330 |
| NL12□TC330 | 33 | K | 10 | 2.52 | 14 | 1.40 | 300 |
| NL12□TC390 | 39 | K | 10 | 2.52 | 12 | 1.60 | 280 |
| NL12□TC470 | 47 | K | 10 | 2.52 | 11.5 | 1.90 | 260 |
| NL12□TC560 | 56 | K | 10 | 2.52 | 11 | 2.20 | 240 |
| NL12□TC680 | 68 | K | 10 | 2.52 | 10 | 2.60 | 220 |
| NL12□TC820 | 82 | K | 10 | 2.52 | 9 | 3.50 | 200 |
| NL12□TC101 | 100 | K | 20 | 0.796 | 8 | 4.00 | 180 |
| NL12□TC121 | 120 | K | 20 | 0.796 | 7.5 | 4.50 | 160 |
| NL12□TC151 | 150 | K | 20 | 0.796 | 7 | 6.50 | 140 |
| NL12□TC181 | 180 | K | 20 | 0.796 | 6.5 | 7.50 | 120 |
| NL12□TC221 | 220 | K | 20 | 0.796 | 5.5 | 9.00 | 120 |
| NL12□TC271 | 270 | K | 20 | 0.796 | 5 | 11.0 | 100 |
| NL12□TC331 | 330 | K | 20 | 0.796 | 4 | 13.0 | 90 |
| NL12□TC391 | 390 | K | 20 | 0.796 | 3.8 | 23.0 | 80 |
| NL12□TC471 | 470 | K | 20 | 0.796 | 3.5 | 26 | 75 |
| NL12□TC561 | 560 | K | 20 | 0.796 | 2.8 | 30 | 70 |
| NL12□TC681 | 680 | K | 20 | 0.796 | 2.6 | 40 | 65 |
| NL12□TC821 | 820 | K | 20 | 0.796 | 2.5 | 45 | 60 |
| NL12□TC102 | 1000 | K | 20 | 0.796 | 2.3 | 50 | 55 |

1. DC current at which the inductance drops 10%(typ) from its value without current.

2. Operating temperature range -25°C to 85°C.

3. Tolerance: K = ±10%

4. Packaging: Clear tape and reel (standard)

5. L, Q : HP4291 for 0.10uH~82uH ; HP4284 for 100uH~1000uH

6. SRF: HP4291

7. RDC: AX-1152B



Standard Electrical Specifications

■ Wound Chip Inductors (Ferrite) Large Current – NL20 Series (2220)

| Part Number | Inductance (μH) | Tolerance (± %) | Q Min. | Test Frequency (MHz) | Self Resonant Frequency (MHz)min. | DC Resistance (Ω)max. | Rated current (mA) |
|-------------|-----------------|-----------------|--------|----------------------|-----------------------------------|-----------------------|--------------------|
| NL20□TC1R0 | 1.0 | J,K | 10 | 7.96 | 95 | 0.03 | 1800 |
| NL20□TC1R2 | 1.2 | J,K | 10 | 7.96 | 70 | 0.035 | 1700 |
| NL20□TC1R5 | 1.5 | J,K | 10 | 7.96 | 55 | 0.04 | 1600 |
| NL20□TC1R8 | 1.8 | J,K | 10 | 7.96 | 47 | 0.05 | 1400 |
| NL20□TC2R2 | 2.2 | J,K | 10 | 7.96 | 42 | 0.06 | 1300 |
| NL20□TC2R7 | 2.7 | J,K | 10 | 7.96 | 37 | 0.07 | 1200 |
| NL20□TC3R3 | 3.3 | J,K | 10 | 7.96 | 34 | 0.08 | 1120 |
| NL20□TC3R9 | 3.9 | J,K | 10 | 7.96 | 32 | 0.09 | 1050 |
| NL20□TC4R7 | 4.7 | J,K | 10 | 7.96 | 29 | 0.11 | 950 |
| NL20□TC5R6 | 5.6 | J,K | 10 | 7.96 | 26 | 0.13 | 880 |
| NL20□TC6R8 | 6.8 | J,K | 10 | 7.96 | 24 | 0.15 | 810 |
| NL20□TC8R2 | 8.2 | J,K | 10 | 7.96 | 22 | 0.18 | 750 |
| NL20□TC100 | 10 | J,K | 10 | 2.52 | 19 | 0.21 | 690 |
| NL20□TC120 | 12 | J,K | 10 | 2.52 | 17 | 0.25 | 630 |
| NL20□TC150 | 15 | J,K | 10 | 2.52 | 16 | 0.30 | 580 |
| NL20□TC180 | 18 | J,K | 10 | 2.52 | 14 | 0.36 | 530 |
| NL20□TC220 | 22 | J,K | 10 | 2.52 | 13 | 0.43 | 480 |
| NL20□TC270 | 27 | J,K | 10 | 2.52 | 11.5 | 0.52 | 440 |
| NL20□TC330 | 33 | J,K | 10 | 2.52 | 10.5 | 0.62 | 400 |
| NL20□TC390 | 39 | J,K | 10 | 2.52 | 9.5 | 0.72 | 370 |
| NL20□TC470 | 47 | J,K | 10 | 2.52 | 8.5 | 0.85 | 340 |
| NL20□TC560 | 56 | J,K | 10 | 2.52 | 7.8 | 1.00 | 310 |
| NL20□TC680 | 68 | J,K | 10 | 2.52 | 7 | 1.2 | 290 |
| NL20□TC820 | 82 | J,K | 10 | 2.52 | 6.4 | 1.4 | 270 |
| NL20□TC101 | 100 | J,K | 20 | 0.796 | 6 | 1.6 | 250 |
| NL20□TC121 | 120 | J,K | 20 | 0.796 | 5.4 | 1.9 | 230 |
| NL20□TC151 | 150 | J,K | 20 | 0.796 | 4.8 | 2.2 | 210 |
| NL20□TC181 | 180 | J,K | 20 | 0.796 | 4.4 | 2.8 | 190 |
| NL20□TC221 | 220 | J,K | 20 | 0.796 | 3.9 | 3.4 | 170 |
| NL20□TC271 | 270 | J,K | 20 | 0.796 | 3.6 | 4.2 | 155 |
| NL20□TC331 | 330 | J,K | 20 | 0.796 | 3.2 | 4.9 | 140 |
| NL20□TC391 | 390 | J,K | 20 | 0.796 | 2.9 | 5.8 | 130 |
| NL20□TC471 | 470 | J,K | 20 | 0.796 | 2.6 | 7 | 120 |
| NL20□TC561 | 560 | J,K | 20 | 0.796 | 2.4 | 8.5 | 110 |
| NL20□TC681 | 680 | J,K | 20 | 0.796 | 2.2 | 10 | 100 |
| NL20□TC821 | 820 | J,K | 20 | 0.796 | 2 | 13 | 90 |
| NL20□TC102 | 1000 | J,K | 20 | 0.252 | 1.8 | 15 | 85 |

1. DC current at which the inductance drops 10%(typ) from its value without current.

2. Operating temperature range -25°C to 85°C.

3. Tolerance: J = ±10% , K = ±10%

4. Packaging: Clear tape and reel (standard)

5. L , Q : HP4291 for 1.0uH~82uH ; HP4284 for 100uH~1000uH

6. SRF: HP4291

7. RDC: AX-1152B