

# High-Reliability Power Inductors ML612PNB



- High current, low DCR shielded power inductors
- High temperature materials allow operation in ambient temperatures up to 155°C

**Core material** Ferrite

**Terminations** Matte tin over nickel over phos bronze.

**Weight:** 3.8 g – 4.6 g

**Ambient temperature** –55°C to +105°C with I<sub>rms</sub> current, +105°C to +155°C with derated current

**Storage temperature** Component: –55°C to +155°C.  
Packaging: –55°C to +80°C

**Resistance to soldering heat** Max three 40 second reflows at +260°C, parts cooled to room temperature between cycles

**Moisture Sensitivity Level (MSL)** 1 (unlimited floor life at <30°C / 85% relative humidity)

**Enhanced crush-resistant packaging** 500/13" reel;  
Plastic tape: 24 mm wide, 0.4 mm thick, 16 mm pocket spacing, 8.1 mm pocket depth

| Part number <sup>1</sup> | Inductance <sup>2</sup><br>(µH) | DCR <sup>3</sup><br>(mOhms) |       | SRF<br>(MHz) <sup>4</sup> |     | Isat (A) <sup>5</sup> |             |             | I <sub>rms</sub> (A) <sup>6</sup> |              |
|--------------------------|---------------------------------|-----------------------------|-------|---------------------------|-----|-----------------------|-------------|-------------|-----------------------------------|--------------|
|                          |                                 | typ                         | max   | min                       | typ | 10%<br>drop           | 20%<br>drop | 30%<br>drop | 20°C<br>rise                      | 40°C<br>rise |
| ML612PNB102NLZ           | 1.0 ±30%                        | 6.3                         | 7.0   | 80                        | 115 | 31.84                 | 35.04       | 36.84       | 7.1                               | 10.1         |
| ML612PNB142NLZ           | 1.4 ±30%                        | 8.8                         | 9.8   | 60                        | 85  | 25.04                 | 27.76       | 29.52       | 6.8                               | 9.8          |
| ML612PNB222NLZ           | 2.2 ±30%                        | 9.4                         | 10.5  | 42                        | 60  | 22.56                 | 24.80       | 25.96       | 6.3                               | 9.2          |
| ML612PNB272NLZ           | 2.7 ±30%                        | 10.1                        | 11.3  | 28                        | 40  | 18.76                 | 20.72       | 22.04       | 6.1                               | 8.6          |
| ML612PNB392NLZ           | 3.9 ±30%                        | 11.7                        | 13.0  | 25                        | 35  | 16.52                 | 18.24       | 19.20       | 5.7                               | 7.7          |
| ML612PNB472MLZ           | 4.7 ±20%                        | 13.9                        | 15.5  | 23                        | 33  | 15.30                 | 16.90       | 17.76       | 4.3                               | 6.2          |
| ML612PNB562MLZ           | 5.6 ±20%                        | 15.7                        | 17.5  | 21                        | 30  | 13.38                 | 14.86       | 15.74       | 4.3                               | 6.2          |
| ML612PNB682MLZ           | 6.8 ±20%                        | 19.1                        | 21.3  | 16                        | 23  | 12.10                 | 13.56       | 14.20       | 4.2                               | 6.0          |
| ML612PNB822MLZ           | 8.2 ±20%                        | 20.3                        | 22.6  | 14                        | 20  | 11.38                 | 12.60       | 13.28       | 4.1                               | 5.9          |
| ML612PNB103MLZ           | 10 ±20%                         | 21.8                        | 24.3  | 12                        | 17  | 10.62                 | 11.82       | 12.48       | 4.0                               | 5.7          |
| ML612PNB123MLZ           | 12 ±20%                         | 23.2                        | 25.8  | 11                        | 15  | 8.90                  | 9.88        | 10.44       | 3.7                               | 5.2          |
| ML612PNB153MLZ           | 15 ±20%                         | 27.9                        | 31.0  | 9.0                       | 13  | 8.36                  | 9.32        | 9.94        | 3.5                               | 4.9          |
| ML612PNB183MLZ           | 18 ±20%                         | 30.8                        | 34.3  | 8.4                       | 12  | 8.00                  | 8.88        | 9.36        | 3.0                               | 4.5          |
| ML612PNB223MLZ           | 22 ±20%                         | 35.5                        | 39.5  | 7.7                       | 11  | 7.08                  | 7.88        | 8.34        | 2.9                               | 4.0          |
| ML612PNB273MLZ           | 27 ±20%                         | 45.0                        | 50.0  | 7.0                       | 10  | 6.32                  | 7.08        | 7.54        | 2.6                               | 3.6          |
| ML612PNB333MLZ           | 33 ±20%                         | 61.9                        | 68.8  | 6.6                       | 9.5 | 5.96                  | 6.56        | 6.98        | 2.3                               | 3.1          |
| ML612PNB393MLZ           | 39 ±20%                         | 69.1                        | 76.8  | 6.0                       | 8.5 | 5.38                  | 5.94        | 6.28        | 2.1                               | 3.0          |
| ML612PNB473MLZ           | 47 ±20%                         | 72.3                        | 80.4  | 5.3                       | 7.5 | 4.76                  | 5.40        | 5.66        | 2.0                               | 2.9          |
| ML612PNB563MLZ           | 56 ±20%                         | 80.2                        | 89.2  | 4.9                       | 7.0 | 4.40                  | 4.98        | 5.30        | 1.9                               | 2.7          |
| ML612PNB683MLZ           | 68 ±20%                         | 91.3                        | 101.5 | 4.6                       | 6.5 | 3.92                  | 4.46        | 4.74        | 1.8                               | 2.6          |
| ML612PNB823MLZ           | 82 ±20%                         | 125.9                       | 139.9 | 3.5                       | 5.0 | 3.66                  | 4.08        | 4.38        | 1.6                               | 2.3          |
| ML612PNB104MLZ           | 100 ±20%                        | 135.1                       | 150.2 | 3.1                       | 4.5 | 3.12                  | 3.56        | 3.78        | 1.5                               | 2.2          |
| ML612PNB124KLZ           | 120 ±10%                        | 182.3                       | 202.6 | 3.0                       | 4.3 | 3.02                  | 3.36        | 3.58        | 1.4                               | 1.9          |
| ML612PNB154KLZ           | 150 ±10%                        | 216.5                       | 240.6 | 2.9                       | 4.1 | 2.60                  | 2.94        | 3.10        | 1.3                               | 1.8          |
| ML612PNB184KLZ           | 180 ±10%                        | 229.0                       | 254.5 | 2.8                       | 4.0 | 2.36                  | 2.68        | 2.84        | 1.2                               | 1.7          |
| ML612PNB224KLZ           | 220 ±10%                        | 323.6                       | 359.6 | 2.4                       | 3.4 | 2.24                  | 2.50        | 2.62        | 1.0                               | 1.6          |
| ML612PNB274KLZ           | 270 ±10%                        | 415.6                       | 461.8 | 2.2                       | 3.1 | 1.94                  | 2.18        | 2.34        | 0.90                              | 1.2          |
| ML612PNB334KLZ           | 330 ±10%                        | 487.3                       | 541.5 | 2.0                       | 2.9 | 1.72                  | 1.92        | 2.06        | 0.80                              | 1.0          |
| ML612PNB394KLZ           | 390 ±10%                        | 533.6                       | 592.9 | 1.9                       | 2.7 | 1.62                  | 1.82        | 1.92        | 0.75                              | 1.0          |
| ML612PNB474KLZ           | 470 ±10%                        | 707.5                       | 786.2 | 1.6                       | 2.2 | 1.44                  | 1.64        | 1.74        | 0.66                              | 0.90         |
| ML612PNB564KLZ           | 560 ±10%                        | 777.4                       | 863.8 | 1.4                       | 2.0 | 1.40                  | 1.54        | 1.66        | 0.60                              | 0.80         |
| ML612PNB684KLZ           | 680 ±10%                        | 1045                        | 1162  | 1.2                       | 1.7 | 1.24                  | 1.32        | 1.46        | 0.55                              | 0.75         |
| ML612PNB824KLZ           | 820 ±10%                        | 1166                        | 1296  | 1.0                       | 1.4 | 1.14                  | 1.28        | 1.42        | 0.50                              | 0.70         |
| ML612PNB105KLZ           | 1000 ±10%                       | 1334                        | 1482  | 0.90                      | 1.3 | 0.982                 | 1.08        | 1.18        | 0.48                              | 0.68         |

1. When ordering, please specify testing code:

ML612PNB105KLZ

Testing: Z = COTS

H = Screening per Coilcraft  
CP-SA-10001

N = Screening per Coilcraft  
CP-SA-10004

C = Custom screening (please  
specify when ordering)

- Inductance tested at 100 kHz, 0.1 V<sub>rms</sub>, 0 Adc using an Agilent/HP 4263B LCR meter or equivalent.
- DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.
- SRF measured using an Agilent/HP 8753D network analyzer.
- Typical DC current at which the inductance drops the specified amount from its value without current.
- Typical current that causes the specified temperature rise from 25°C ambient.
- Electrical specifications at 25°C.  
Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

**Coilcraft CPS**  
CRITICAL PRODUCTS & SERVICES

Specifications subject to change without notice.

Please check our website for latest information. Document ML598-1 Revised 06/15/10

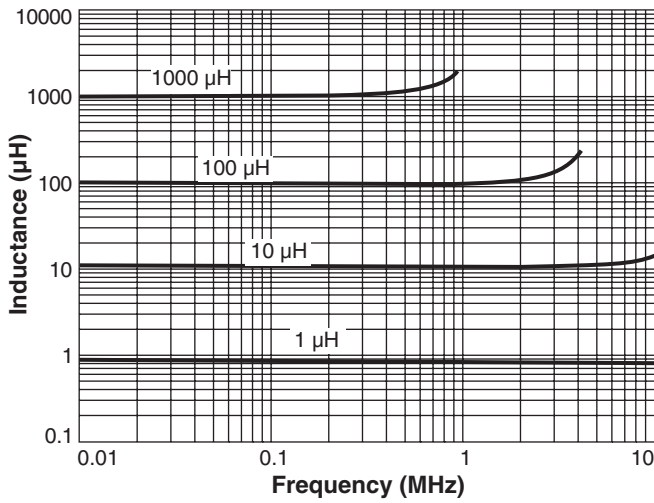
1102 Silver Lake Road  
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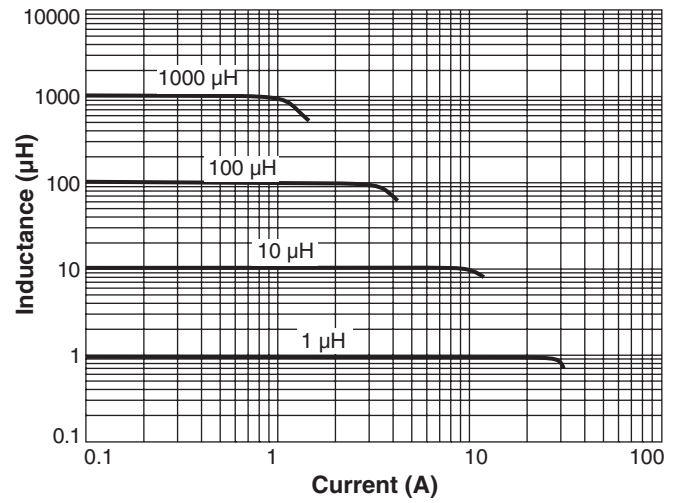
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# ML612PNB Series

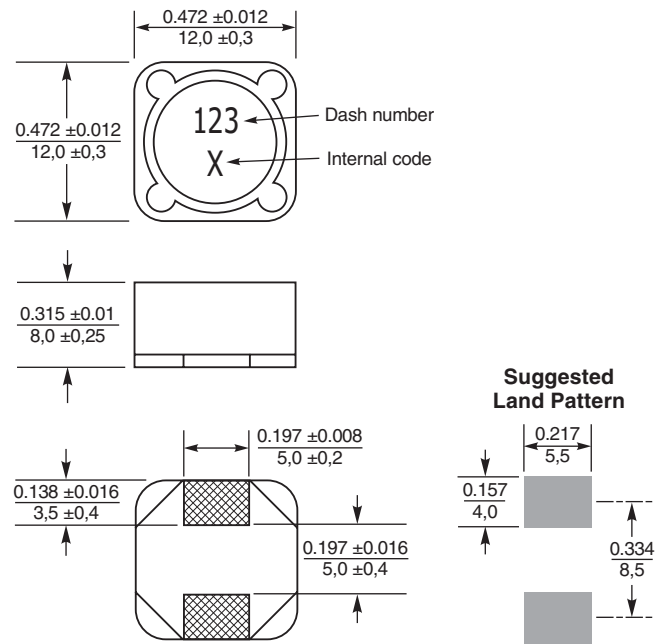
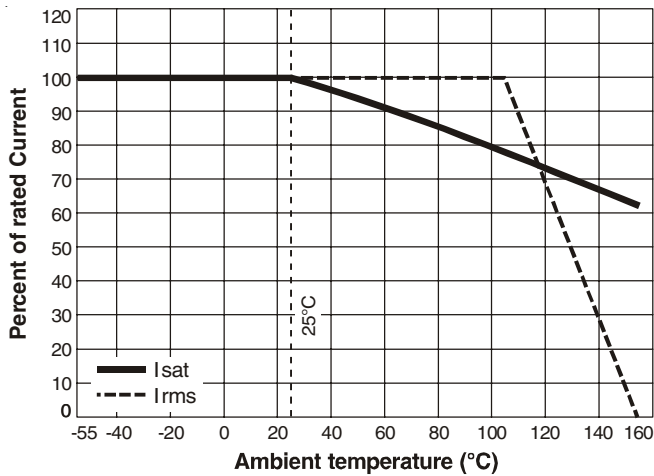
## Typical L vs Frequency



## Typical L vs Current



## Current Derating



Dimensions are in  $\frac{\text{inches}}{\text{mm}}$