

Outgassing Compliant Power Inductors AE590PNB



- High current, low DCR shielded power inductors
- Passes NASA low outgassing specifications
- High temperature materials allow operation in ambient temperatures up to 165°C.
- Tin-lead (Sn-Pb) terminations for the best possible board adhesion

Core material Ferrite

Terminations Tin-lead (63/37) over tin over nickel over phos bronze.

Weight: 2.8 g – 3.3 g

Ambient temperature –55°C to +105°C with Irms current, +105°C to +155°C with derated current

Storage temperature Component: –55°C to +155°C.
Tape and reel 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, 0.35 mm thick, 16 mm pocket spacing, 6.6 mm pocket depth

| Part number ¹ | Inductance ² (µH) | DCR ³ (mOhms) | | SRF ⁴ (MHz) | | Isat (A) ⁵ | | | Irms (A) ⁶ | |
|--------------------------|---------------------------------|-----------------------------|-------|---------------------------|------|-----------------------|-------------|-------------|-----------------------|--------------|
| | | typ | max | min | typ | 10% drop | 20% drop | 30% drop | 20°C rise | 40°C rise |
| AE590PNB102NSZ | 1.0 ±30% | 5.8 | 6.5 | 70 | 100 | 19.12 | 21.18 | 22.76 | 6.00 | 8.00 |
| AE590PNB152NSZ | 1.5 ±30% | 8.8 | 9.8 | 56 | 80.0 | 14.44 | 16.40 | 17.64 | 5.30 | 7.60 |
| AE590PNB222NSZ | 2.2 ±30% | 11.5 | 12.8 | 39 | 55.0 | 12.32 | 14.00 | 15.08 | 5.20 | 7.30 |
| AE590PNB332NSZ | 3.3 ±30% | 12.6 | 14.0 | 29 | 42.0 | 10.88 | 12.22 | 13.12 | 5.00 | 7.00 |
| AE590PNB472MSZ | 4.7 ±20% | 13.9 | 15.5 | 27 | 38.0 | 9.92 | 11.10 | 12.00 | 4.50 | 7.00 |
| AE590PNB562MSZ | 5.6 ±20% | 14.9 | 16.6 | 21 | 30.0 | 8.54 | 9.60 | 10.38 | 4.00 | 6.40 |
| AE590PNB682MSZ | 6.8 ±20% | 16.6 | 18.5 | 19.0 | 27.0 | 7.80 | 8.80 | 9.44 | 3.80 | 5.90 |
| AE590PNB822MSZ | 8.2 ±20% | 20.2 | 22.5 | 18.0 | 26.0 | 6.44 | 7.38 | 7.98 | 3.40 | 4.80 |
| AE590PNB103MSZ | 10 ±20% | 21.5 | 23.9 | 15.0 | 22.0 | 6.00 | 6.92 | 7.48 | 3.00 | 4.00 |
| AE590PNB123MSZ | 12 ±20% | 24.5 | 27.3 | 14.0 | 20.0 | 5.68 | 6.56 | 7.08 | 2.80 | 3.70 |
| AE590PNB153MSZ | 15 ±20% | 30.7 | 34.2 | 12.6 | 18.0 | 5.34 | 6.04 | 6.54 | 2.60 | 3.50 |
| AE590PNB183MSZ | 18 ±20% | 35.4 | 39.4 | 11.2 | 16.0 | 4.82 | 5.54 | 6.00 | 2.50 | 3.30 |
| AE590PNB223MSZ | 22 ±20% | 36.6 | 40.7 | 10.5 | 15.0 | 4.42 | 5.04 | 5.44 | 2.30 | 3.10 |
| AE590PNB273MSZ | 27 ±20% | 51.3 | 57.0 | 9.0 | 13.0 | 3.78 | 4.32 | 4.68 | 2.10 | 2.90 |
| AE590PNB333MSZ | 33 ±20% | 54.9 | 61.0 | 8.7 | 12.4 | 3.50 | 4.00 | 4.34 | 2.00 | 2.70 |
| AE590PNB393MSZ | 39 ±20% | 58.0 | 64.5 | 8.4 | 12.0 | 3.32 | 3.80 | 4.14 | 1.90 | 2.60 |
| AE590PNB473MSZ | 47 ±20% | 80.1 | 89.0 | 8.0 | 11.6 | 2.84 | 3.26 | 3.54 | 1.85 | 2.50 |
| AE590PNB563MSZ | 56 ±20% | 82.5 | 91.7 | 7.3 | 10.5 | 2.64 | 3.04 | 3.28 | 1.75 | 2.40 |
| AE590PNB683MSZ | 68 ±20% | 94.5 | 105.0 | 7.0 | 10.0 | 2.46 | 2.82 | 3.04 | 1.70 | 2.30 |
| AE590PNB823MSZ | 82 ±20% | 131.6 | 146.3 | 6.0 | 8.6 | 2.24 | 2.54 | 2.74 | 1.60 | 2.20 |
| AE590PNB104MSZ | 100 ±20% | 141.8 | 157.6 | 5.5 | 7.8 | 2.06 | 2.34 | 2.54 | 1.50 | 2.10 |
| AE590PNB124KSZ | 120 ±10% | 193.3 | 214.8 | 4.8 | 6.8 | 1.84 | 2.08 | 2.28 | 1.38 | 1.85 |
| AE590PNB154KSZ | 150 ±10% | 215.4 | 239.4 | 4.5 | 6.4 | 1.64 | 1.90 | 2.06 | 1.20 | 1.66 |
| AE590PNB184KSZ | 180 ±10% | 254.2 | 282.5 | 4.3 | 6.1 | 1.46 | 1.70 | 1.84 | 1.14 | 1.58 |
| AE590PNB224KSZ | 220 ±10% | 314.1 | 349.0 | 3.9 | 5.5 | 1.30 | 1.48 | 1.60 | 1.00 | 1.42 |
| AE590PNB274KSZ | 270 ±10% | 368.8 | 409.8 | 3.0 | 4.3 | 1.18 | 1.38 | 1.48 | 0.90 | 1.45 |
| AE590PNB334KSZ | 330 ±10% | 481.3 | 534.8 | 2.8 | 4.0 | 1.04 | 1.20 | 1.30 | 0.84 | 1.16 |
| AE590PNB394KSZ | 390 ±10% | 517.5 | 575.0 | 2.5 | 3.6 | 1.00 | 1.16 | 1.28 | 0.78 | 1.08 |
| AE590PNB474KSZ | 470 ±10% | 721.2 | 801.4 | 2.1 | 3.0 | 0.906 | 1.00 | 1.10 | 0.70 | 0.96 |
| AE590PNB564KSZ | 560 ±10% | 773.1 | 859.0 | 2.0 | 2.8 | 0.872 | 0.980 | 1.02 | 0.64 | 0.88 |
| AE590PNB684KSZ | 680 ±10% | 867.6 | 964.0 | 1.8 | 2.6 | 0.782 | 0.886 | 0.956 | 0.58 | 0.80 |
| AE590PNB824KSZ | 820 ±10% | 1158 | 1287 | 1.7 | 2.5 | 0.692 | 0.784 | 0.854 | 0.53 | 0.73 |
| AE590PNB105KSZ | 1000 ±10% | 1273 | 1415 | 1.6 | 2.4 | 0.588 | 0.672 | 0.726 | 0.48 | 0.68 |

1. When ordering, please specify **testing** code:

AE590PNB824KSZ

Testing: Z = COTS

H = Screening per Coilcraft
CP-SA-10001

N = Screening per Coilcraft
CP-SA-10004

- Inductance tested at 100 kHz, 0.1 Vrms, 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.
- DC current at which the inductance drops the specified amount from its value without current.
- 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

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Please check our website for latest information.

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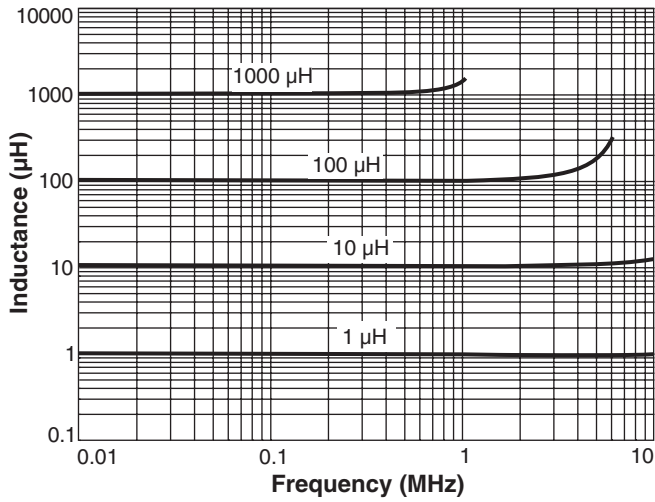
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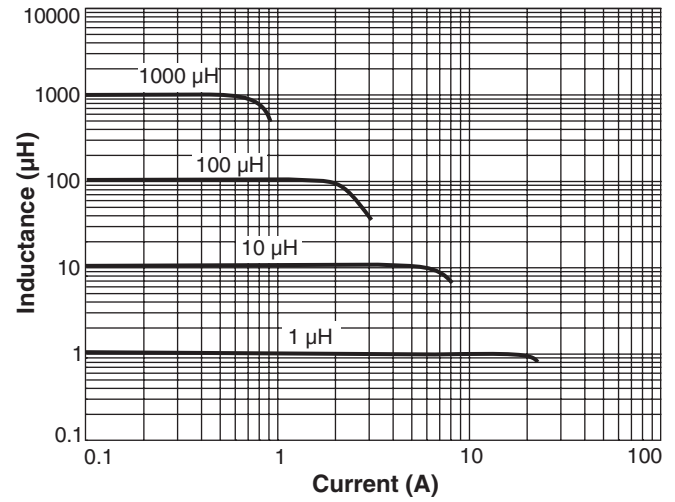
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AE590PNB Series

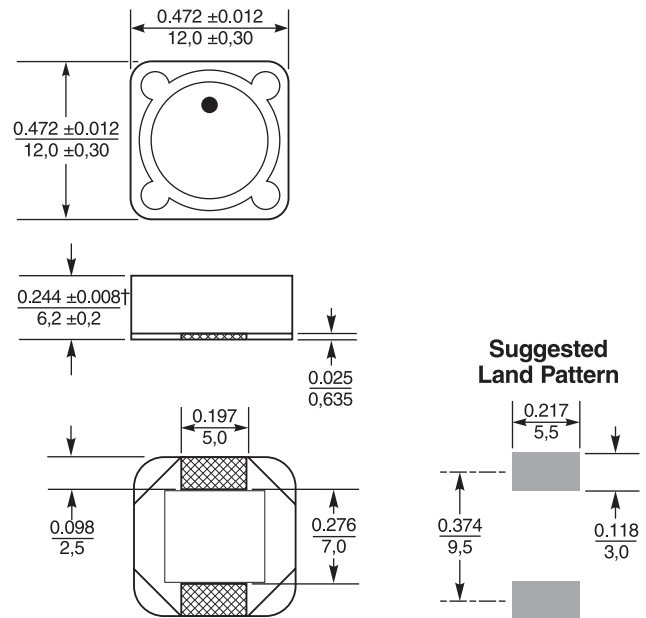
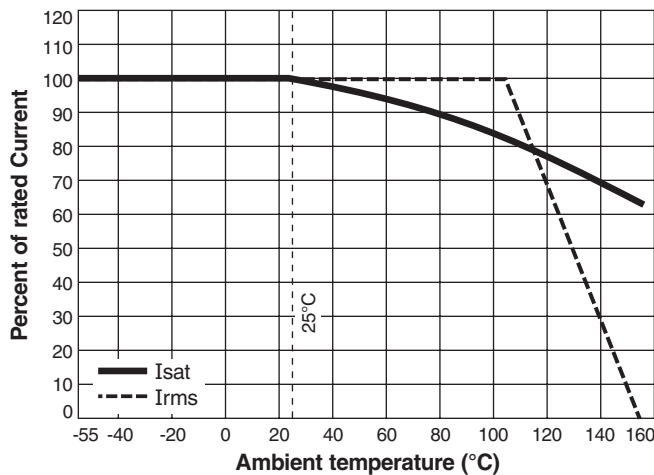
Typical L vs Frequency



Typical L vs Current



Current Derating



† Height dimension is after mounting. For maximum height dimension before mounting, add 0.006 in / 0.152 mm.

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