

# High Reliability Power Inductors ML590PNB



- 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:** 2.8 g – 3.3 g

**Ambient temperature** –55°C to +105°C with  $I_{rms}$  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, 0.35 mm thick, 16 mm pocket spacing, 6.6 mm pocket depth

Part number <sup>1</sup>	Inductance <sup>2</sup> ( $\mu$ H)	DCR <sup>3</sup> (mOhms)		SRF (MHz) <sup>4</sup>		Isat (A) <sup>5</sup>			Irms (A) <sup>6</sup>	
		typ	max	min	typ	10% drop	20% drop	30% drop	20°C rise	40°C rise
ML590PNB102NLZ	1.0 ±30%	5.8	6.5	70	100	19.12	21.18	22.76	6.00	8.00
ML590PNB152NLZ	1.5 ±30%	8.8	9.8	56	80.0	14.44	16.40	17.64	5.30	7.60
ML590PNB222NLZ	2.2 ±30%	11.5	12.8	39	55.0	12.32	14.00	15.08	5.20	7.30
ML590PNB332NLZ	3.3 ±30%	12.6	14.0	29	42.0	10.88	12.22	13.12	5.00	7.00
ML590PNB472MLZ	4.7 ±20%	13.9	15.5	27	38.0	9.92	11.10	12.00	4.50	7.00
ML590PNB562MLZ	5.6 ±20%	14.9	16.6	21	30.0	8.54	9.60	10.38	4.00	6.40
ML590PNB682MLZ	6.8 ±20%	16.6	18.5	19.0	27.0	7.80	8.80	9.44	3.80	5.90
ML590PNB822MLZ	8.2 ±20%	20.2	22.5	18.0	26.0	6.44	7.38	7.98	3.40	4.80
ML590PNB103MLZ	10 ±20%	21.5	23.9	15.0	22.0	6.00	6.92	7.48	3.00	4.00
ML590PNB123MLZ	12 ±20%	24.5	27.3	14.0	20.0	5.68	6.56	7.08	2.80	3.70
ML590PNB153MLZ	15 ±20%	30.7	34.2	12.6	18.0	5.34	6.04	6.54	2.60	3.50
ML590PNB183MLZ	18 ±20%	35.4	39.4	11.2	16.0	4.82	5.54	6.00	2.50	3.30
ML590PNB223MLZ	22 ±20%	36.6	40.7	10.5	15.0	4.42	5.04	5.44	2.30	3.10
ML590PNB273MLZ	27 ±20%	51.3	57.0	9.0	13.0	3.78	4.32	4.68	2.10	2.90
ML590PNB333MLZ	33 ±20%	54.9	61.0	8.7	12.4	3.50	4.00	4.34	2.00	2.70
ML590PNB393MLZ	39 ±20%	58.0	64.5	8.4	12.0	3.32	3.80	4.14	1.90	2.60
ML590PNB473MLZ	47 ±20%	80.1	89.0	8.0	11.6	2.84	3.26	3.54	1.85	2.50
ML590PNB563MLZ	56 ±20%	82.5	91.7	7.3	10.5	2.64	3.04	3.28	1.75	2.40
ML590PNB683MLZ	68 ±20%	94.5	105.0	7.0	10.0	2.46	2.82	3.04	1.70	2.30
ML590PNB823MLZ	82 ±20%	131.6	146.3	6.0	8.6	2.24	2.54	2.74	1.60	2.20
ML590PNB104MLZ	100 ±20%	141.8	157.6	5.5	7.8	2.06	2.34	2.54	1.50	2.10
ML590PNB124KLZ	120 ±10%	193.3	214.8	4.8	6.8	1.84	2.08	2.28	1.38	1.85
ML590PNB154KLZ	150 ±10%	215.4	239.4	4.5	6.4	1.64	1.90	2.06	1.20	1.66
ML590PNB184KLZ	180 ±10%	254.2	282.5	4.3	6.1	1.46	1.70	1.84	1.14	1.58
ML590PNB224KLZ	220 ±10%	314.1	349.0	3.9	5.5	1.30	1.48	1.60	1.00	1.42
ML590PNB274KLZ	270 ±10%	368.8	409.8	3.0	4.3	1.18	1.38	1.48	0.90	1.45
ML590PNB334KLZ	330 ±10%	481.3	534.8	2.8	4.0	1.04	1.20	1.30	0.84	1.16
ML590PNB394KLZ	390 ±10%	517.5	575.0	2.5	3.6	1.00	1.16	1.28	0.78	1.08
ML590PNB474KLZ	470 ±10%	721.2	801.4	2.1	3.0	0.906	1.00	1.10	0.70	0.96
ML590PNB564KLZ	560 ±10%	773.1	859.0	2.0	2.8	0.872	0.980	1.02	0.64	0.88
ML590PNB684KLZ	680 ±10%	867.6	964.0	1.8	2.6	0.782	0.886	0.956	0.58	0.80
ML590PNB824KLZ	820 ±10%	1158	1287	1.7	2.5	0.692	0.784	0.854	0.53	0.73
ML590PNB105KLZ	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:

**ML590PNB824KLZ**

**Testing:** Z = COTS

H = Screening per Coilcraft  
CP-SA-10001

N = Screening per Coilcraft  
CP-SA-10004

C = Custom screening (please  
specify when ordering)

2. Inductance tested at 100 kHz, 0.1 Vrms, 0 Adc using an Agilent/HP 4263B LCR meter or equivalent.

3. DCR measured on a micro-ohmmeter and a Coilcraft CCF858 test fixture.

4. SRF measured using an Agilent/HP 8753D network analyzer.

5. DC current at which the inductance drops the specified amount from its value without current.

6. Current that causes the specified temperature rise from 25°C ambient.

7. 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 ML599-1 Revised 06/15/10

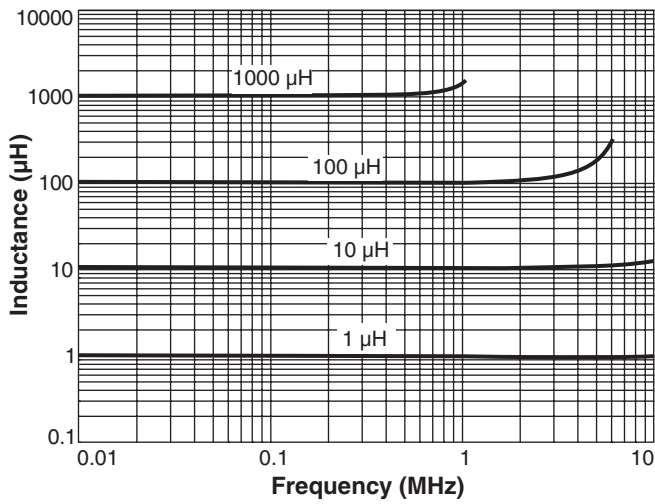
1102 Silver Lake Road  
Cary IL 60013

Phone 800-981-0363  
Fax 847-639-1508

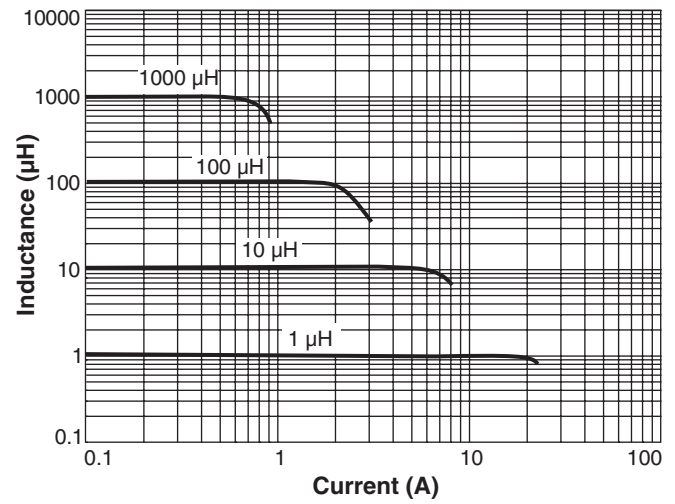
E-mail cps@coilcraft.com  
Web www.coilcraft-cps.com

# ML590PNB Series

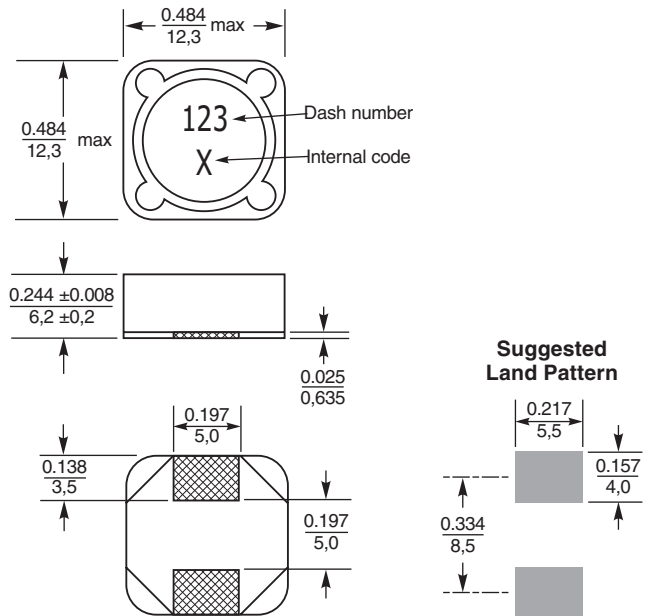
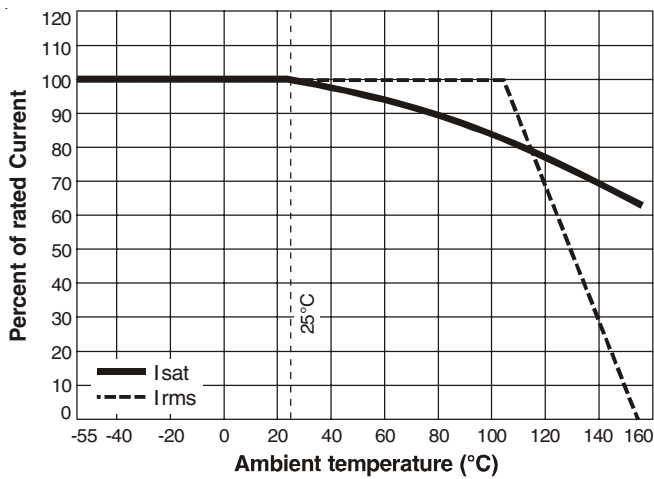
## Typical L vs Frequency



## Typical L vs Current



## Current Derating



Dimensions are in inches/mm