

High Reliability Power Inductors MS590PNB



- High current, low DCR shielded power inductors
- 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

Maximum part temperature +155°C (ambient + temp rise).

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
MS590PNB102NSZ	1.0 ±30%	5.8	6.5	70	100	19.12	21.18	22.76	6.00	8.00
MS590PNB152NSZ	1.5 ±30%	8.8	9.8	56	80.0	14.44	16.40	17.64	5.30	7.60
MS590PNB222NSZ	2.2 ±30%	11.5	12.8	39	55.0	12.32	14.00	15.08	5.20	7.30
MS590PNB332NSZ	3.3 ±30%	12.6	14.0	29	42.0	10.88	12.22	13.12	5.00	7.00
MS590PNB472MSZ	4.7 ±20%	13.9	15.5	27	38.0	9.92	11.10	12.00	4.50	7.00
MS590PNB562MSZ	5.6 ±20%	14.9	16.6	21	30.0	8.54	9.60	10.38	4.00	6.40
MS590PNB682MSZ	6.8 ±20%	16.6	18.5	19.0	27.0	7.80	8.80	9.44	3.80	5.90
MS590PNB822MSZ	8.2 ±20%	20.2	22.5	18.0	26.0	6.44	7.38	7.98	3.40	4.80
MS590PNB103MSZ	10 ±20%	21.5	23.9	15.0	22.0	6.00	6.92	7.48	3.00	4.00
MS590PNB123MSZ	12 ±20%	24.5	27.3	14.0	20.0	5.68	6.56	7.08	2.80	3.70
MS590PNB153MSZ	15 ±20%	30.7	34.2	12.6	18.0	5.34	6.04	6.54	2.60	3.50
MS590PNB183MSZ	18 ±20%	35.4	39.4	11.2	16.0	4.82	5.54	6.00	2.50	3.30
MS590PNB223MSZ	22 ±20%	36.6	40.7	10.5	15.0	4.42	5.04	5.44	2.30	3.10
MS590PNB273MSZ	27 ±20%	51.3	57.0	9.0	13.0	3.78	4.32	4.68	2.10	2.90
MS590PNB333MSZ	33 ±20%	54.9	61.0	8.7	12.4	3.50	4.00	4.34	2.00	2.70
MS590PNB393MSZ	39 ±20%	58.0	64.5	8.4	12.0	3.32	3.80	4.14	1.90	2.60
MS590PNB473MSZ	47 ±20%	80.1	89.0	8.0	11.6	2.84	3.26	3.54	1.85	2.50
MS590PNB563MSZ	56 ±20%	82.5	91.7	7.3	10.5	2.64	3.04	3.28	1.75	2.40
MS590PNB683MSZ	68 ±20%	94.5	105.0	7.0	10.0	2.46	2.82	3.04	1.70	2.30
MS590PNB823MSZ	82 ±20%	131.6	146.3	6.0	8.6	2.24	2.54	2.74	1.60	2.20
MS590PNB104MSZ	100 ±20%	141.8	157.6	5.5	7.8	2.06	2.34	2.54	1.50	2.10
MS590PNB124KSZ	120 ±10%	193.3	214.8	4.8	6.8	1.84	2.08	2.28	1.38	1.85
MS590PNB154KSZ	150 ±10%	215.4	239.4	4.5	6.4	1.64	1.90	2.06	1.20	1.66
MS590PNB184KSZ	180 ±10%	254.2	282.5	4.3	6.1	1.46	1.70	1.84	1.14	1.58
MS590PNB224KSZ	220 ±10%	314.1	349.0	3.9	5.5	1.30	1.48	1.60	1.00	1.42
MS590PNB274KSZ	270 ±10%	368.8	409.8	3.0	4.3	1.18	1.38	1.48	0.90	1.45
MS590PNB334KSZ	330 ±10%	481.3	534.8	2.8	4.0	1.04	1.20	1.30	0.84	1.16
MS590PNB394KSZ	390 ±10%	517.5	575.0	2.5	3.6	1.00	1.16	1.28	0.78	1.08
MS590PNB474KSZ	470 ±10%	721.2	801.4	2.1	3.0	0.906	1.00	1.10	0.70	0.96
MS590PNB564KSZ	560 ±10%	773.1	859.0	2.0	2.8	0.872	0.980	1.02	0.64	0.88
MS590PNB684KSZ	680 ±10%	867.6	964.0	1.8	2.6	0.782	0.886	0.956	0.58	0.80
MS590PNB824KSZ	820 ±10%	1158	1287	1.7	2.5	0.692	0.784	0.854	0.53	0.73
MS590PNB105KSZ	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:

MS590PNB824KSZ

Testing: Z = Unscreened

H = Group A screening per Coilcraft CP-SA-10001

T = Screening per MIL-STD-981

U = Screening per EEE-INST-002

F = Screening per ESCC 3201

All screening performed to the document's latest revision

Custom screening also available

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 25°C that causes the specified inductance drop from its value without current.
6. Current that causes the specified temperature rise from 25°C ambient. This information is for reference only and does not represent absolute maximum ratings.
7. Electrical specifications at 25°C.
- Refer to Doc 362 "Soldering Surface Mount Components" before soldering.

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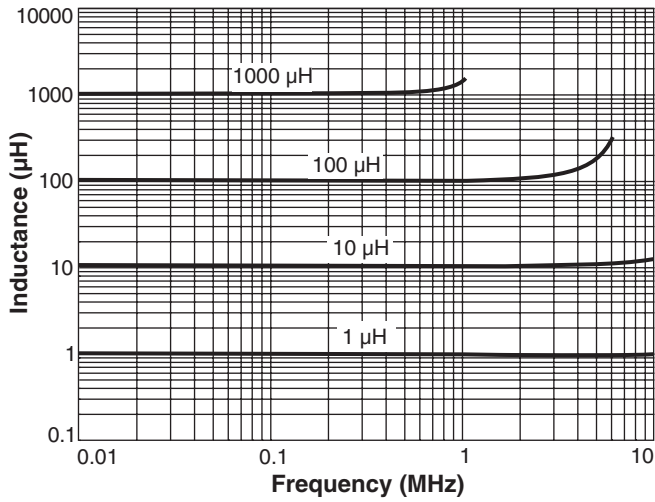
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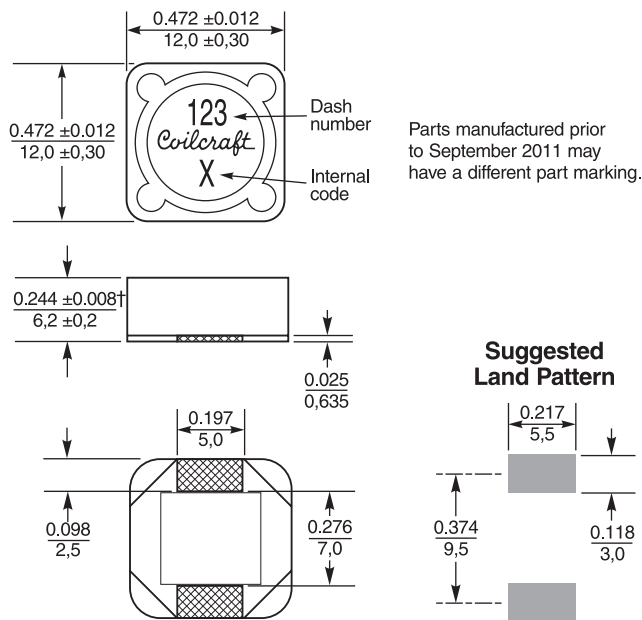
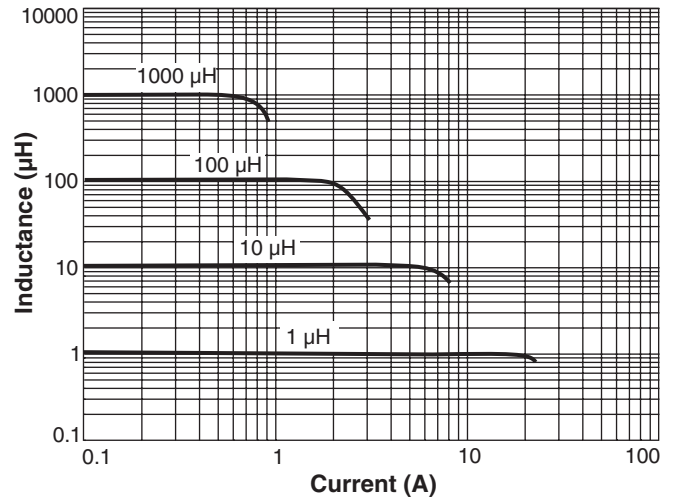
This product may not be used in medical or high risk applications without prior Coilcraft approval. Specifications subject to change without notice. Please check our web site for latest information.

MS590PNB Series

Typical L vs Frequency



Typical L vs Current



† Height dimension is after mounting. For maximum height dimension before mounting, add 0.006 in / 0,152 mm.

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

