

Multilayer Chip Inductors

NML Series

FEATURES

- Designed for High Frequency Applications
- Available in EIA 0201, 0402 and 0603 Case Sizes
- High Q and SRF Characteristics
- Tight Tolerance D (0.3nH) and J (5%)
- Tape and Reel Packaging for Automatic Pick & Place

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details



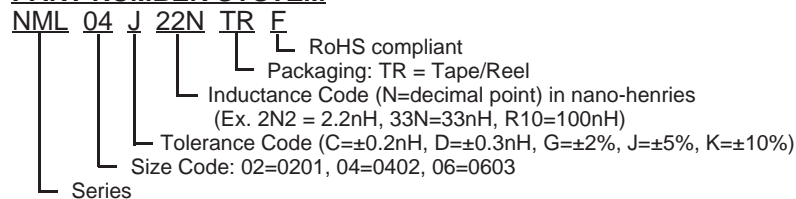
SPECIFICATIONS

NML Multilayer High Frequency Inductors			
Specifications	0201	0402	0603
Inductance Range	0.3 ~ 56nH	1 ~ 220nH	1 ~ 330nH
Operating Temperature Range	-40°C ~ +85°C		
Q-Factor, Self Resonant Frequency, DC Resistance, Rated DC Current and Inductance Tolerance	See Individual Product Listings		

ENVIRONMENTAL CHARACTERISTICS

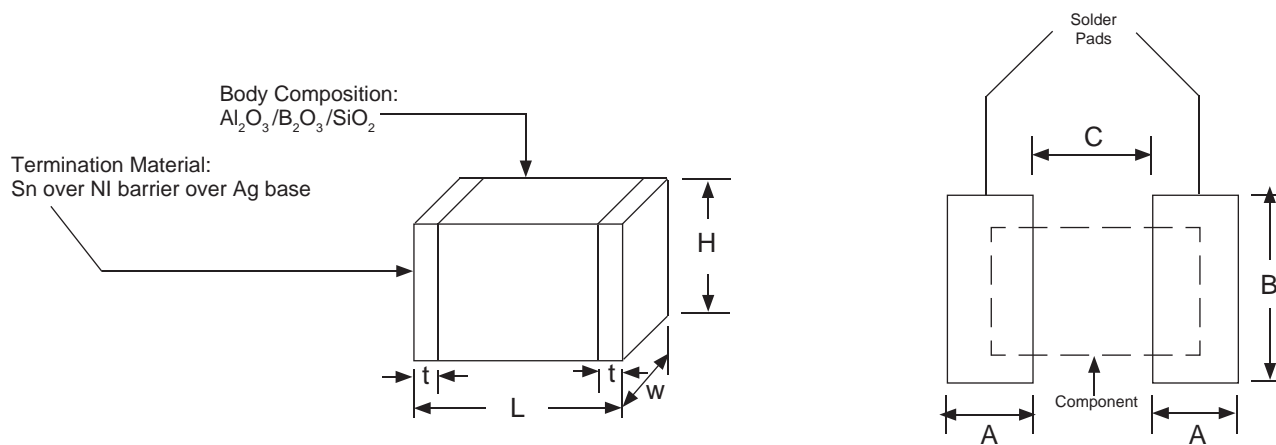
Test	Specification	Test Method & Condition
Solderability	75% Min. Coverage	After 5 Sec. Dip in +230°C Solder Pot (Post Flux)
Humidity Resistance	(1) No Evidence of Damage (2) Inductance Shall Be Within ±10% of Initial Value (3) Q Factor Shall Be Within ±20% of Initial Value	After 500 Hrs at +40°C and 90~95% RH (No Load)
Soldering Effect		After 10 Sec. at +270°C (1 Minute, 150°C Pre-Heat)
Thermal Shock		After 5 Cycles , +85°C to -40°C within 3 minutes
High Temperature Load Life		After 500 hours at +85°C with Rated DC Current
Humidity Load Life		After 500 Hrs at +40°C with 90~95% RH at Rated DC Current

PART NUMBER SYSTEM



COMPONENT AND LAND PATTERN DIMENSIONS

Series	L	W	H	t	A	B	C
NML02	0.6 ± 0.03	0.3 ± 0.03	0.33 max.	0.1 ~ 0.2	0.20 ~ 0.30	0.25 ~ 0.30	0.15 ~ 0.35
NML04	1.0 ± 0.10	0.5 ± 0.10	0.5 ± 0.10	0.1 ~ 0.3	0.35 ~ 0.45	0.40 ~ 0.50	0.30 ~ 0.50
NML06	1.6 ± 0.15	0.8 ± 0.15	0.8 ± 0.15	0.2 ~ 0.6	0.70 ~ 0.80	0.60 ~ 0.80	0.70 ~ 1.00



NML02 SERIES VALUES AND SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tolerance (std)*	'Q' Factor (min.)	L & Q Test Freq.	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
NML02C0N3TRF	0.3	±0.2nH(C)	4.0	100MHz	10000	0.07	250
NML02C0N4TRF	0.4	±0.2nH(C)	4.0	100MHz	10000	0.07	250
NML02C0N5TRF	0.5	±0.2nH(C)	4.0	100MHz	10000	0.08	250
NML02C0N6TRF	0.6	±0.2nH(C)	4.0	100MHz	10000	0.08	250
NML02C0N7TRF	0.7	±0.2nH(C)	4.0	100MHz	10000	0.09	250
NML02C0N8TRF	0.8	±0.2nH(C)	4.0	100MHz	10000	0.10	250
NML02C0N9TRF	0.9	±0.2nH(C)	4.0	100MHz	10000	0.10	250
NML02D1N0TRF	1.0	±0.3nH(D)	4.0	100MHz	10000	0.14	250
NML02D1N1TRF	1.1	±0.3nH(D)	4.0	100MHz	10000	0.14	250
NML02D1N2TRF	1.2	±0.3nH(D)	4.0	100MHz	10000	0.14	250
NML02D1N3TRF	1.3	±0.3nH(D)	4.0	100MHz	10000	0.14	250
NML02D1N5TRF	1.5	±0.3nH(D)	4.0	100MHz	10000	0.18	230
NML02D1N6TRF	1.6	±0.3nH(D)	4.0	100MHz	10000	0.18	230
NML02D1N8TRF	1.8	±0.3nH(D)	4.0	100MHz	10000	0.19	200
NML02D2N0TRF	2.0	±0.3nH(D)	4.0	100MHz	8800	0.20	200
NML02D2N2TRF	2.2	±0.3nH(D)	4.0	100MHz	8800	0.22	200
NML02D2N4TRF	2.4	±0.3nH(D)	4.0	100MHz	8300	0.24	200
NML02D2N7TRF	2.7	±0.3nH(D)	5.0	100MHz	7700	0.25	200
NML02D3N0TRF	3.0	±0.3nH(D)	5.0	100MHz	7200	0.28	180
NML02K3N3TRF	3.3	±10%(K)	5.0	100MHz	6700	0.30	180
NML02K3N6TRF	3.6	±10%(K)	5.0	100MHz	6400	0.30	170
NML02K3N9TRF	3.9	±10%(K)	5.0	100MHz	6000	0.30	170
NML02K4N3TRF	4.3	±10%(K)	5.0	100MHz	5700	0.40	150
NML02K4N7TRF	4.7	±10%(K)	5.0	100MHz	5300	0.40	150
NML02K5N1TRF	5.1	±10%(K)	5.0	100MHz	5000	0.40	150
NML02K5N6TRF	5.6	±10%(K)	5.0	100MHz	4200	0.40	150
NML02K6N2TRF	6.2	±10%(K)	5.0	100MHz	3800	0.44	150
NML02J6N8TRF	6.8	±5%(J)	5.0	100MHz	3500	0.50	150
NML02J7N5TRF	7.5	±5%(J)	5.0	100MHz	3300	0.53	150
NML02J8N2TRF	8.2	±5%(J)	5.0	100MHz	3200	0.55	150
NML02J9N1TRF	9.1	±5%(J)	5.0	100MHz	3000	0.62	150
NML02J10NTRF	10	±5%(J)	5.0	100MHz	2800	0.65	150
NML02J12NTRF	12	±5%(J)	5.0	100MHz	2400	0.70	100
NML02J15NTRF	15	±5%(J)	5.0	100MHz	2200	0.80	100
NML02J18NTRF	18	±5%(J)	5.0	100MHz	2100	0.90	100
NML02J22NTRF	22	±5%(J)	5.0	100MHz	1800	1.20	100
NML02J27NTRF	27	±5%(J)	4.0	100MHz	1800	1.80	50
NML02J33NTRF	33	±5%(J)	4.0	100MHz	1700	2.10	50
NML02J39NTRF	39	±5%(J)	4.0	100MHz	1500	2.40	50
NML02J47NTRF	47	±5%(J)	4.0	100MHz	1300	2.80	50
NML02J56NTRF	56	±5%(J)	4.0	100MHz	1100	3.00	50

*Other tolerances available. Contact NIC for availability.



NML04 SERIES

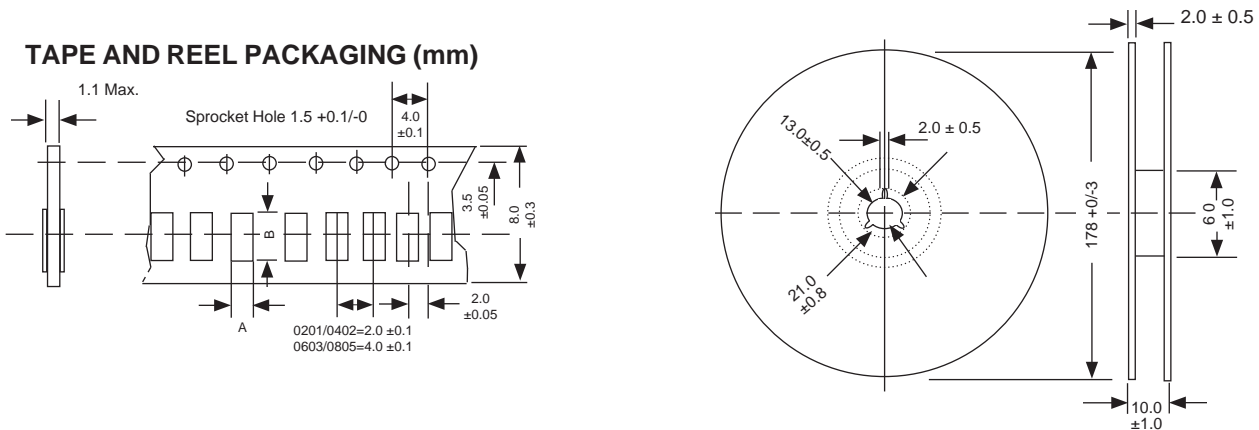
VALUES AND SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tolerance (std)	'Q' Factor (min.)	L & Q Test Freq.	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
NML04D1N0TRF	1.0	±0.3nH(D)	8.0	100MHz	13500	0.12	300
NML04D1N2TRF	1.2	±0.3nH(D)	8.0	100MHz	13500	0.12	300
NML04D1N5TRF	1.5	±0.3nH(D)	8.0	100MHz	13500	0.13	300
NML04D1N8TRF	1.8	±0.3nH(D)	8.0	100MHz	12000	0.14	300
NML04D2N0TRF	2.0	±0.3nH(D)	8.0	100MHz	12000	0.16	300
NML04D2N2TRF	2.2	±0.3nH(D)	8.0	100MHz	12000	0.16	300
NML04D2N7TRF	2.7	±0.3nH(D)	8.0	100MHz	10000	0.17	300
NML04D3N3TRF	3.3	±0.3nH(D)	8.0	100MHz	8000	0.19	300
NML04D3N9TRF	3.9	±0.3nH(D)	8.0	100MHz	8000	0.22	300
NML04D4N7TRF	4.7	±0.3nH(D)	8.0	100MHz	7000	0.24	300
NML04D5N6TRF	5.6	±0.3nH(D)	8.0	100MHz	5700	0.27	300
NML04J6N8TRF	6.8	±5% (J)	8.0	100MHz	5400	0.32	250
NML04J8N2TRF	8.2	±5% (J)	8.0	100MHz	4600	0.37	250
NML04J10NTRF	10	±5% (J)	8.0	100MHz	4100	0.42	250
NML04J12NTRF	12	±5% (J)	8.0	100MHz	3800	0.50	250
NML04J15NTRF	15	±5% (J)	8.0	100MHz	3300	0.55	250
NML04J18NTRF	18	±5% (J)	8.0	100MHz	2900	0.65	200
NML04J22NTRF	22	±5% (J)	8.0	100MHz	2600	0.80	200
NML04J27NTRF	27	±5% (J)	8.0	100MHz	2300	0.90	200
NML04J33NTRF	33	±5% (J)	8.0	100MHz	2000	1.00	200
NML04J39NTRF	39	±5% (J)	8.0	100MHz	1800	1.20	150
NML04J47NTRF	47	±5% (J)	8.0	100MHz	1600	1.30	150
NML04J56NTRF	56	±5% (J)	8.0	100MHz	1500	1.40	150
NML04J68NTRF	68	±5% (J)	8.0	100MHz	1300	1.40	150
NML04J82NTRF	82	±5% (J)	8.0	100MHz	1100	1.60	100
NML04JR10TRF	100	±5% (J)	8.0	100MHz	1000	1.60	100
NML04JR12TRF	120	±5% (J)	8.0	100MHz	800	1.60	100
NML04JR15TRF	150	±5% (J)	8.0	100MHz	550	2.40	100

TAPE AND REEL DIMENSIONS (mm)

TYPE	A	B	Reel Qty
NML02	0.38 ± 0.04	0.68 ± 0.04	15,000
NML04	0.7 ± 0.05	1.2 ± 0.05	10,000
NML06	1.0 ± 0.20	1.8 ± 0.20	4,000

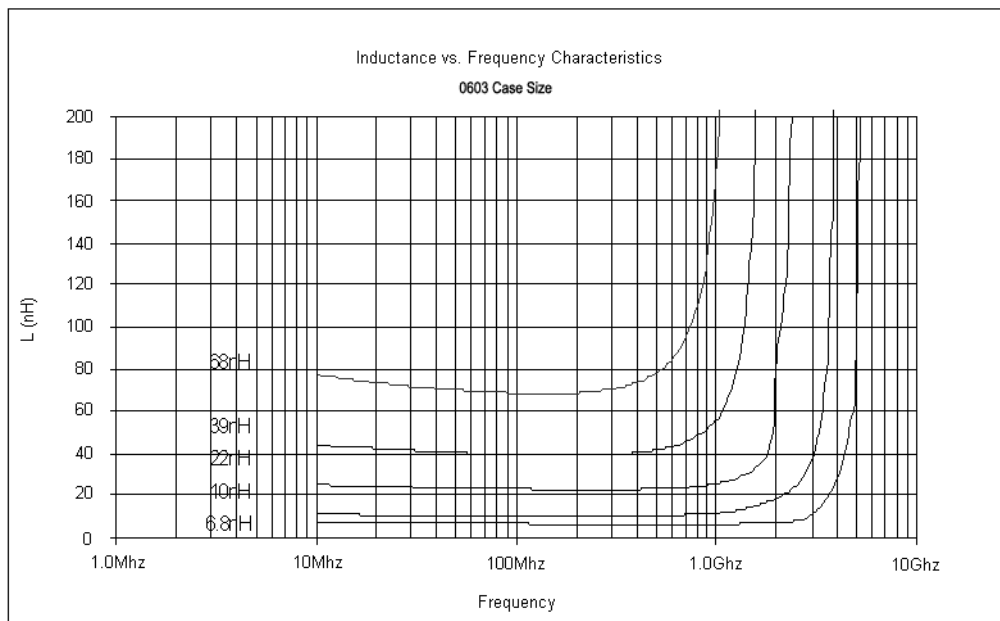
TAPE AND REEL PACKAGING (mm)



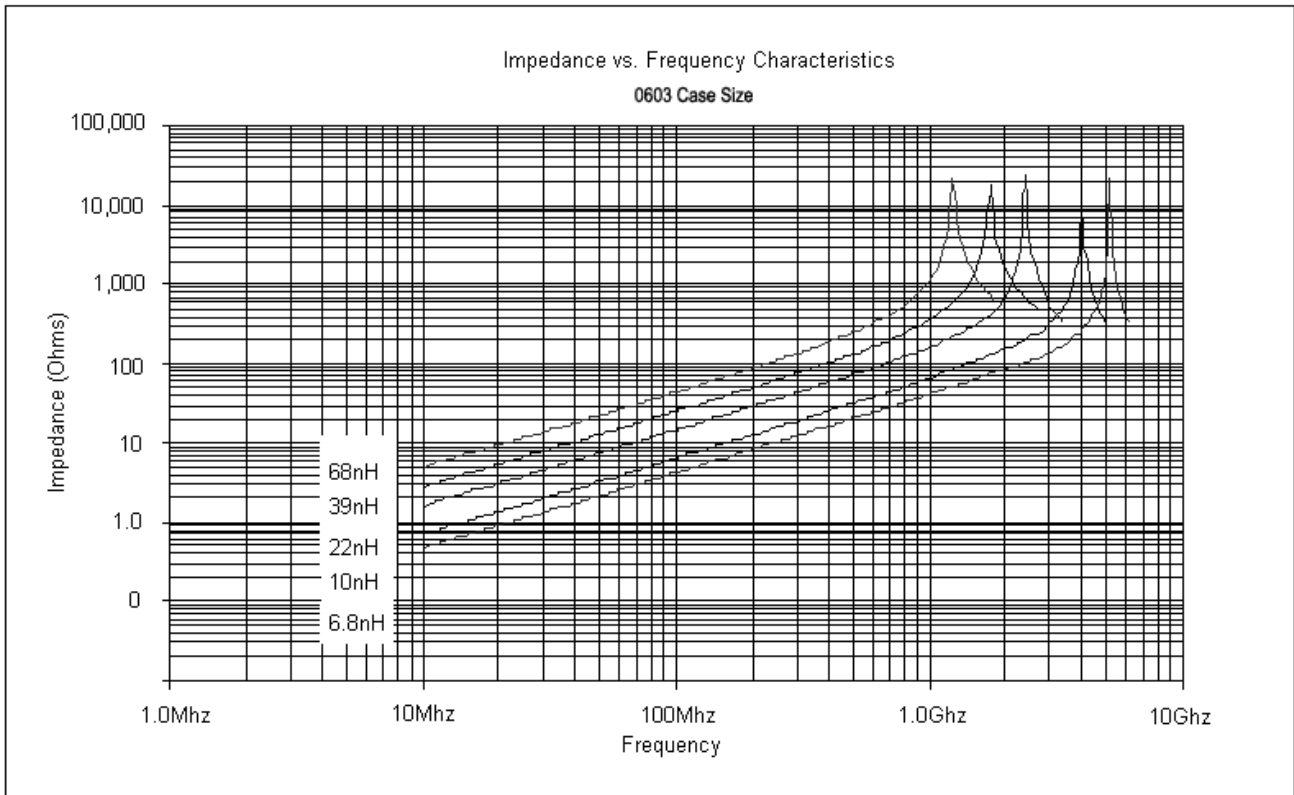
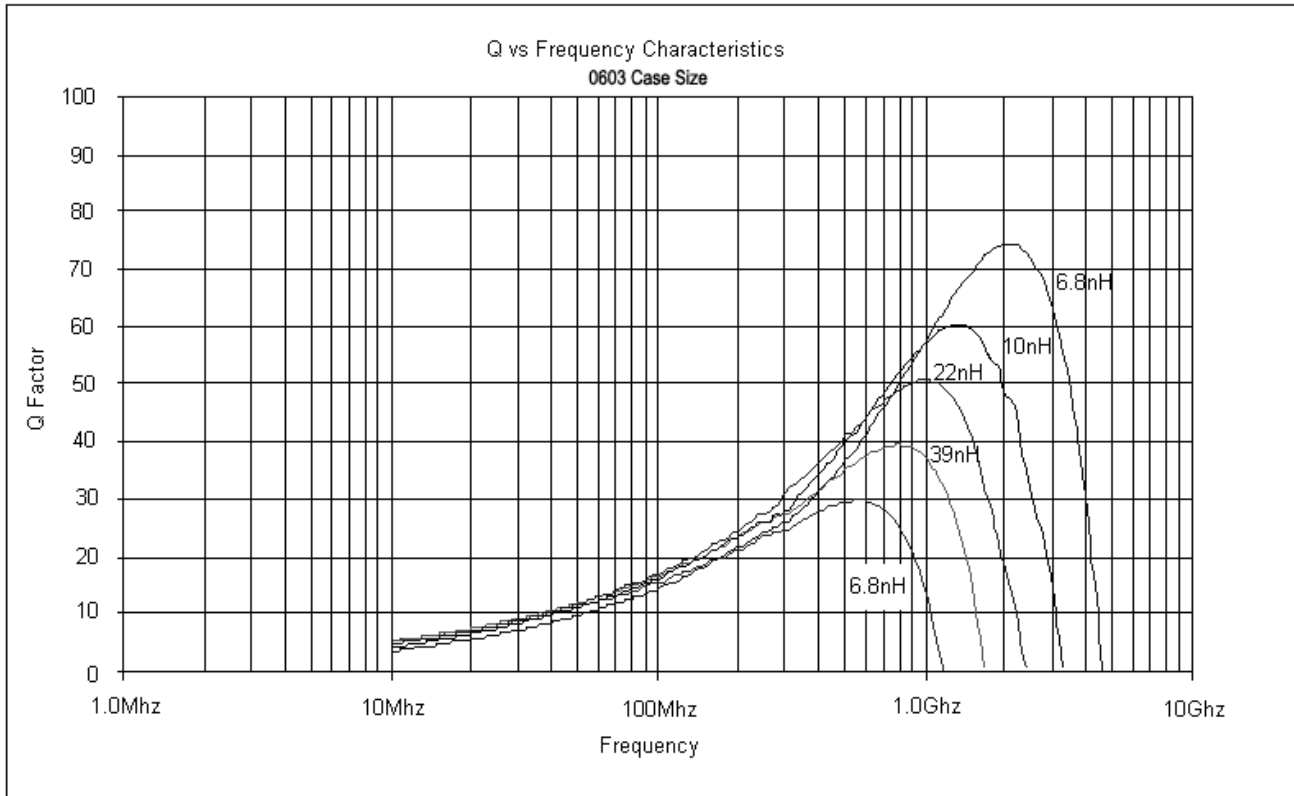
NML06 SERIES VALUES AND SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tolerance (std)	'Q' Factor (min.)	L & Q Test Freq.	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
NML06D1N5TRF	1.5	±0.3nH(D)	8.0	100MHz	13500	0.10	300
NML06D1N8TRF	1.8	±0.3nH(D)	8.0	100MHz	13500	0.10	300
NML06D2N2TRF	2.2	±0.3nH(D)	8.0	100MHz	11600	0.10	300
NML06D2N7TRF	2.7	±0.3nH(D)	8.0	100MHz	8900	0.10	300
NML06D3N3TRF	3.3	±0.3nH(D)	8.0	100MHz	6400	0.13	300
NML06D3N9TRF	3.9	±0.3nH(D)	8.0	100MHz	6400	0.15	300
NML06D4N7TRF	4.7	±0.3nH(D)	8.0	100MHz	6400	0.20	300
NML06D5N6TRF	5.6	±0.3nH(D)	8.0	100MHz	5200	0.23	300
NML06J6N8TRF	6.8	±5% (J)	8.0	100MHz	5200	0.25	300
NML06J8N2TRF	8.2	±5% (J)	8.0	100MHz	4400	0.28	300
NML06J10NTRF	10	±5% (J)	8.0	100MHz	4300	0.30	300
NML06J12NTRF	12	±5% (J)	8.0	100MHz	3400	0.35	300
NML06J15NTRF	15	±5% (J)	8.0	100MHz	3300	0.40	300
NML06J18NTRF	18	±5% (J)	8.0	100MHz	3000	0.45	300
NML06J22NTRF	22	±5% (J)	8.0	100MHz	2600	0.50	300
NML06J27NTRF	27	±5% (J)	8.0	100MHz	2200	0.55	300
NML06J33NTRF	33	±5% (J)	8.0	100MHz	1900	0.60	300
NML06J39NTRF	39	±5% (J)	8.0	100MHz	1800	0.65	300
NML06J47NTRF	47	±5% (J)	8.0	100MHz	1600	0.70	300
NML06J56NTRF	56	±5% (J)	8.0	100MHz	1500	0.75	300
NML06J68NTRF	68	±5% (J)	8.0	100MHz	1300	0.80	300
NML06J82NTRF	82	±5% (J)	8.0	100MHz	1200	0.85	300
NML06JR10TRF	100	±5% (J)	8.0	100MHz	1000	0.90	300
NML06JR12TRF	120	±5% (J)	8.0	100MHz	1000	1.00	300
NML06JR15TRF	150	±5% (J)	8.0	100MHz	800	1.20	300
NML06JR18TRF	180	±5% (J)	8.0	100MHz	600	1.30	300
NML06JR22TRF	220	±5% (J)	8.0	100MHz	600	1.50	300
NML06JR27TRF	270	±5% (J)	8.0	50MHz	600	1.90	150
NML06JR33TRF	330	±5% (J)	8.0	50MHz	600	2.10	150

Performance Curves



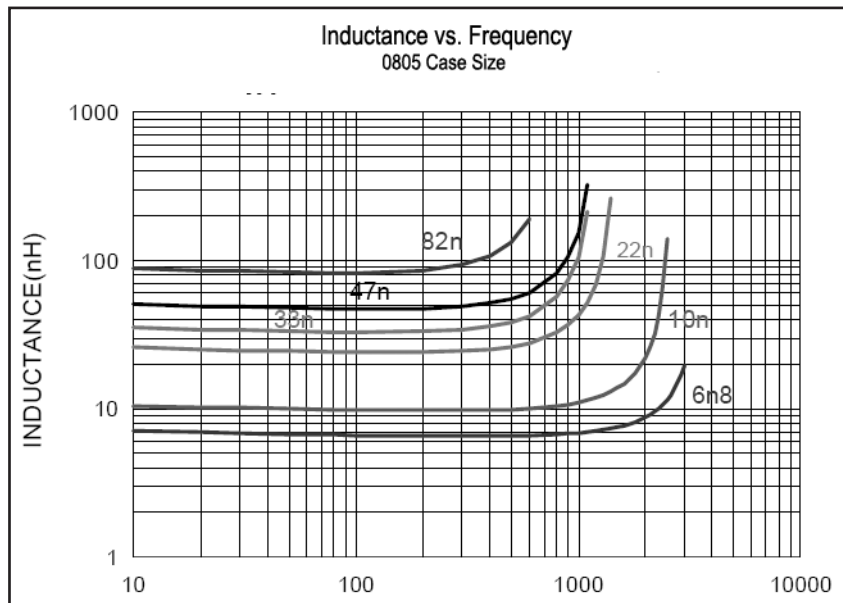
Performance Curves



NML08 SERIES VALUES AND SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tolerance (std)	'Q' Factor (min.)	L & Q Test Freq.	SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
NML08D1N5TRF	1.5	±0.3nH (D)	10	100MHz	4,000	0.10	300
NML08D1N8TRF	1.8	±0.3nH (D)	10		4,000	0.10	300
NML08D2N2TRF	2.2	±0.3nH (D)	10		4,000	0.10	300
NML08D2N7TRF	2.7	±0.3nH (D)	12		4,000	0.10	300
NML08J3N3TRF	3.3	±5% (J)	12		4,000	0.13	300
NML08J3N9TRF	3.9	±5% (J)	12		4,000	0.15	300
NML08J4N7TRF	4.7	±5% (J)	12		3,500	0.20	300
NML08J5N6TRF	5.6	±5% (J)	15		3,200	0.23	300
NML08J6N8TRF	6.8	±5% (J)	15		2,800	0.25	300
NML08J8N2TRF	8.2	±5% (J)	15		2,400	0.28	300
NML08J10NTRF	10	±5% (J)	15		2,100	0.30	300
NML08J12NTRF	12	±5% (J)	15		1,900	0.35	300
NML08J15NTRF	15	±5% (J)	15		1,600	0.40	300
NML08J18NTRF	18	±5% (J)	15		1,500	0.45	300
NML08J22NTRF	22	±5% (J)	18		1,400	0.50	300
NML08J27NTRF	27	±5% (J)	18		1,300	0.55	300
NML08J33NTRF	33	±5% (J)	18		1,200	0.60	300
NML08J39NTRF	39	±5% (J)	18		1,000	0.65	300
NML08J47NTRF	47	±5% (J)	18		900	0.70	300
NML08J56NTRF	56	±5% (J)	18		800	0.75	300
NML08J68NTRF	68	±5% (J)	18	700	0.80	300	
NML08J82NTRF	82	±5% (J)	18	600	0.90	300	

Performance Curves



Performance Curves

