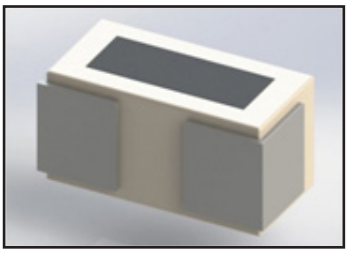
Surface Mount Chip Inductor

NML-HQ Series

FEATURES

- EIA 01005 & 0201 SIZES
- LOWER PROFILE THAN NML-SQ
- HIGH Q AND HIGH SRF CHARACTERISTICS
- FOR RF -WIRELESS & GNSS-GPS APPLICATIONS
- HIGH RELIABLE MONOLITHIC CONSTRUCTION
- REFLOW SOLDERING APPLICABLE
- PACKAGE FOR AUTOMATIC PICK-PLACE
- RoHS & REACH COMPLIANT

NMLQ (Standard) → **NML-HQ** (High Q)



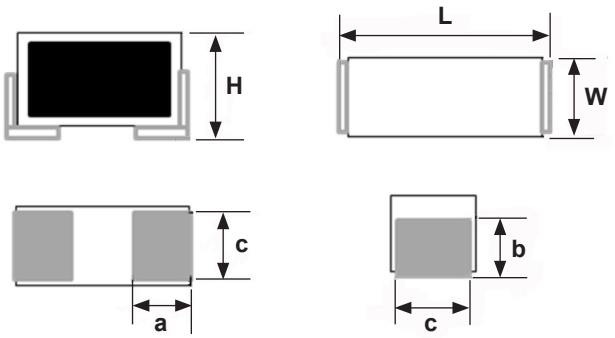
SPECIFICATIONS

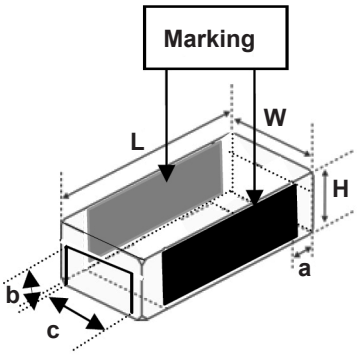
Series	Case size	Inductance Range	Tolerance	Temperature Range
NML-HQ01	01005	0.2 ~ 4.2nH	±0.1nH (B), ±0.2nH (C), ±0.3nH (D)	-55°C ~ +125°C
		4.3 ~ 33nH	±3% (H), ±5% (J)	
NML-HQ02	0201	0.6 ~ 4.2nH	±0.1nH (B), ±0.2nH (C), ±0.3nH (D)	55°C ~ +125°C
		6.8nH ~ 47nH	±3% (H), ±5% (J)	
See Specifications Tables for Q Factor, Self Resonant Frequency, DC Resistance and DC Current Ratings				

Note: Extended values, tolerances, and enhanced versions are available please contact NIC for more details.

DIMENSIONS (mm)

Case Size	L	W	H	a	b	c
01005	0.40±0.02	0.20±0.02	0.20±0.02	0.14±0.03	0.14±0.03	0.17±0.03
0201	0.60±0.03	0.30±0.03	0.30±0.02	0.15±0.03	0.20±0.03	0.22±0.03





Marking for visual orientation

PART NUMBER SYSTEM

NML-HQ 02 B 2N2 TR 550 F

- F — RoHS compliant
- 550 — Current Rating in mA
- TR — Packaging: TR = Tape & Reel
- 2N2 — Inductance Value in nH ("N" denotes decimal point)
- B — Tolerance Code: B = ±0.1nH, C = ±0.2nH, D = ±0.3nH, H = ±3%, J = ±5%
- 02 — Case Size Code: 01 = 01005, 02 = 0201
- NML-HQ — Series

NML-HQ SERIES 01005 CASE SIZE STANDARD VALUES & SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tol.	'Q' Factor (min.)	L & Q Test Frequency (MHz)	Typical Q (MHz)					SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
					500	800	1800	2000	2400			
NML-HQ01_0N2TR990F	0.2	B, C, D	-	500	-	-	-	-	-	16600	0.10	990
NML-HQ01_0N3TR990F	0.3	B, C, D	-	500	-	-	-	-	-	16600	0.10	990
NML-HQ01_0N4TR990F	0.4	B, C, D	-	500	-	-	-	-	-	16600	0.10	990
NML-HQ01_0N5TR730F	0.5	B, C, D	11	500	15	18	33	35	40	16600	0.10	730
NML-HQ01_0N6TR730F	0.6	B, C, D	11	500	15	17	32	34	40	16600	0.10	730
NML-HQ01_0N7TR730F	0.7	B, C, D	11	500	15	18	34	36	41	16600	0.10	730
NML-HQ01_0N8TR630F	0.8	B, C, D	11	500	14	18	32	35	41	16600	0.15	630
NML-HQ01_0N9TR580F	0.9	B, C, D	11	500	15	18	32	34	38	16600	0.15	580
NML-HQ01_1N0TR580F	1.0	B, C, D	11	500	14	19	32	35	42	16600	0.15	580
NML-HQ01_1N1TR580F	1.1	B, C, D	11	500	15	19	31	33	36	16600	0.15	580
NML-HQ01_1N2TR550F	1.2	B, C, D	11	500	15	20	32	34	38	16600	0.20	550
NML-HQ01_1N3TR400F	1.3	B, C, D	11	500	14	18	29	31	34	16000	0.20	400
NML-HQ01_1N4TR400F	1.4	B, C, D	11	500	15	19	30	32	38	15000	0.20	400
NML-HQ01_1N5TR400F	1.5	B, C, D	11	500	15	19	31	32	33	15000	0.20	400
NML-HQ01_1N6TR390F	1.6	B, C, D	11	500	14	18	30	31	35	15000	0.30	390
NML-HQ01_1N7TR380F	1.7	B, C, D	11	500	14	18	30	32	35	15000	0.30	380
NML-HQ01_1N8TR380F	1.8	B, C, D	11	500	14	19	30	32	34	15000	0.30	380
NML-HQ01_1N9TR380F	1.9	B, C, D	11	500	14	18	30	32	35	13000	0.30	380
NML-HQ01_2N0TR380F	2.0	B, C, D	11	500	15	19	31	33	35	13000	0.30	380
NML-HQ01_2N1TR380F	2.1	B, C, D	11	500	14	18	29	32	35	13000	0.30	380
NML-HQ01_2N2TR380F	2.2	B, C, D	11	500	15	20	32	34	34	13000	0.30	380
NML-HQ01_2N3TR370F	2.3	B, C, D	11	500	15	19	30	32	38	13000	0.40	370
NML-HQ01_2N4TR370F	2.4	B, C, D	11	500	15	20	31	33	35	13000	0.40	370
NML-HQ01_2N5TR370F	2.5	B, C, D	11	500	14	18	29	31	35	11500	0.40	370
NML-HQ01_2N6TR370F	2.6	B, C, D	11	500	14	18	30	32	35	11500	0.40	370
NML-HQ01_2N7TR370F	2.7	B, C, D	11	500	14	19	30	32	34	11500	0.40	370
NML-HQ01_2N8TR360F	2.8	B, C, D	11	500	14	18	29	31	35	10000	0.40	360
NML-HQ01_2N9TR360F	2.9	B, C, D	11	500	14	18	28	31	35	10000	0.45	360
NML-HQ01_3N0TR360F	3.0	B, C, D	11	500	14	17	28	30	34	10000	0.45	360
NML-HQ01_3N1TR290F	3.1	B, C, D	11	500	14	18	28	31	35	10000	0.90	290
NML-HQ01_3N2TR290F	3.2	B, C, D	11	500	14	18	31	32	34	10000	0.90	290
NML-HQ01_3N3TR290F	3.3	B, C, D	11	500	14	18	30	31	33	10000	0.90	290
NML-HQ01_3N4TR280F	3.4	B, C, D	11	500	14	17	27	29	33	9700	1.00	280
NML-HQ01_3N5TR280F	3.5	B, C, D	11	500	14	17	28	30	32	9700	1.00	280
NML-HQ01_3N6TR280F	3.6	B, C, D	11	500	14	17	27	29	31	9700	1.00	280
NML-HQ01_3N7TR270F	3.7	B, C, D	11	500	13	17	27	29	33	9700	1.00	270
NML-HQ01_3N8TR270F	3.8	B, C, D	11	500	14	17	27	29	32	9700	1.00	270
NML-HQ01_3N9TR270F	3.9	B, C, D	11	500	14	17	25	26	30	9700	1.00	270
NML-HQ01_4N0TR270F	4.0	B, C, D	11	500	14	16	26	28	30	9000	1.00	270
NML-HQ01_4N1TR270F	4.1	B, C, D	11	500	14	17	26	28	31	9000	1.00	270
NML-HQ01_4N2TR270F	4.2	B, C, D	11	500	14	17	27	29	31	9000	1.00	270
NML-HQ01_4N3TR270F	4.3	H, J	11	500	14	17	26	28	31	9000	1.00	270
NML-HQ01_4N7TR270F	4.7	H, J	11	500	14	17	25	27	30	8500	1.00	270
NML-HQ01_5N1TR250F	5.1	H, J	11	500	14	17	26	28	31	7800	1.20	250
NML-HQ01_5N6TR230F	5.6	H, J	11	500	15	18	30	31	33	7800	1.30	230
NML-HQ01_6N2TR220F	6.2	H, J	11	500	15	18	30	31	32	7200	1.30	220
NML-HQ01_6N8TR210F	6.8	H, J	11	500	15	19	29	31	33	6600	1.40	210
NML-HQ01_7N5TR200F	7.5	H, J	11	500	14	19	28	31	33	6600	1.50	200
NML-HQ01_8N2TR190F	8.2	H, J	11	500	15	20	29	31	33	6600	1.60	190
NML-HQ01_9N1TR170F	9.1	H, J	11	500	15	19	28	31	32	5900	1.70	170
NML-HQ01_10NTR170F	10	H, J	11	500	14	18	26	29	31	5900	1.70	170

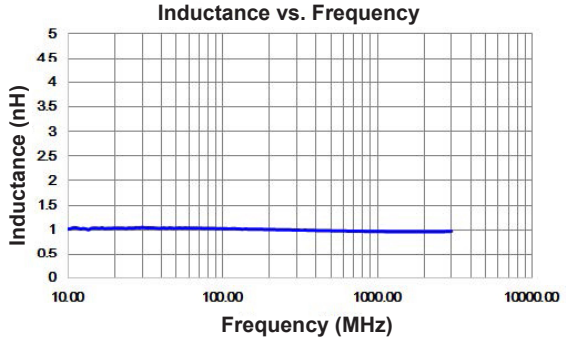
TABLE CONTINUES ON NEXT PAGE

NML-HQ SERIES 01005 CASE SIZE STANDARD VALUES & SPECIFICATIONS

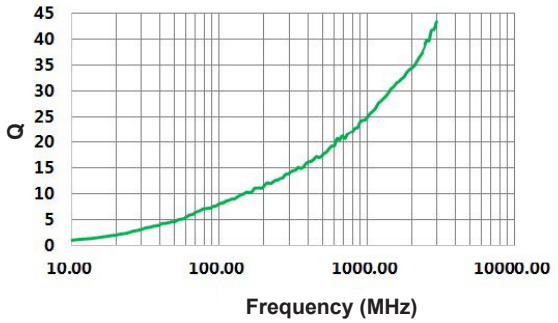
NIC P/N	'L' Inductance (nH)	Tol.	'Q' Factor (min.)	L & Q Test Frequency (MHz)	Typical Q (MHz)					SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
					500	800	1800	2000	2400			
NML-HQ01_11NTR140F	11	H, J	11	500	14	17	25	26	28	3500	1.90	140
NML-HQ01_12NTR140F	12	H, J	11	500	14	17	25	26	28	3500	2.10	140
NML-HQ01_13NTR140F	13	H, J	10	500	13	16	23	24	24	3000	2.10	140
NML-HQ01_15NTR140F	15	H, J	10	500	13	16	23	24	24	3000	2.30	140
NML-HQ01_16NTR140F	16	H, J	10	500	12	15	21	21	21	2500	2.50	140
NML-HQ01_18NTR140F	18	H, J	9	500	10	12	17	17	16	2500	2.50	140
NML-HQ01_20NTR140F	20	H, J	9	500	10	11	16	16	15	2700	2.90	140
NML-HQ01_22NTR120F	22	H, J	9	500	10	11	15	15	13	2300	3.20	120
NML-HQ01_24NTR120F	24	H, J	9	500	10	11	15	16	13	2200	3.20	120
NML-HQ01_27NTR120F	27	H, J	9	500	10	12	16	17	13	2000	3.50	120
NML-HQ01_30NTR120F	30	H, J	6	500	10	12	13	12	10	1800	3.60	120
NML-HQ01_33NTR120F	33	H, J	6	300	10	12	12	11	8	1800	3.80	120

NML-HQ01 PERFORMANCE CURVES

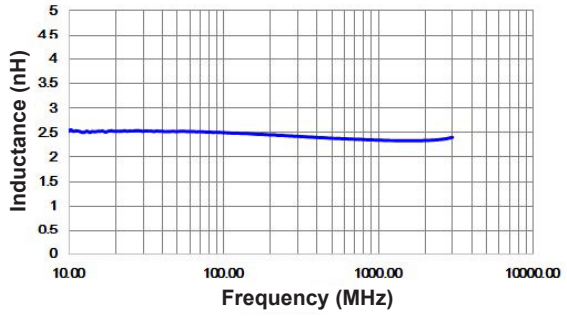
NML-HQ01_1N0TR580F
Inductance vs. Frequency



NML-HQ01_1N0TR580F
Q vs Frequency



NML-HQ01_2N0TR380F
Inductance vs. Frequency



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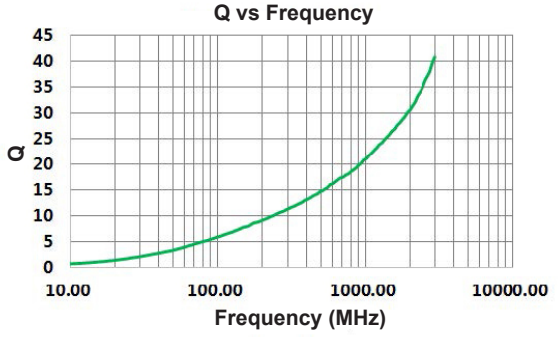
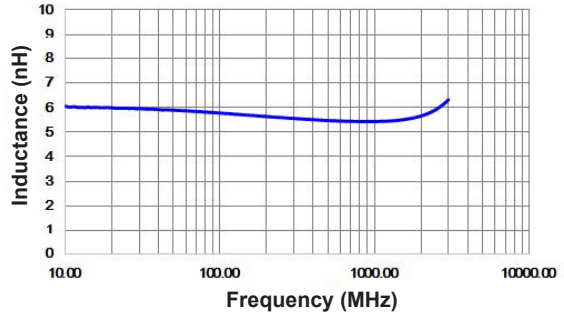
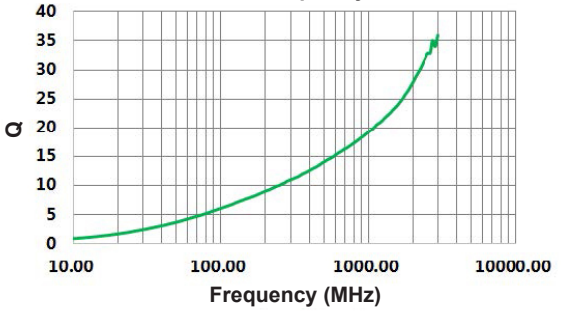
Q vs Frequency

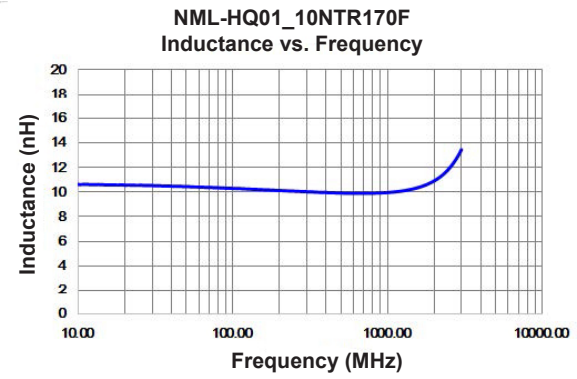


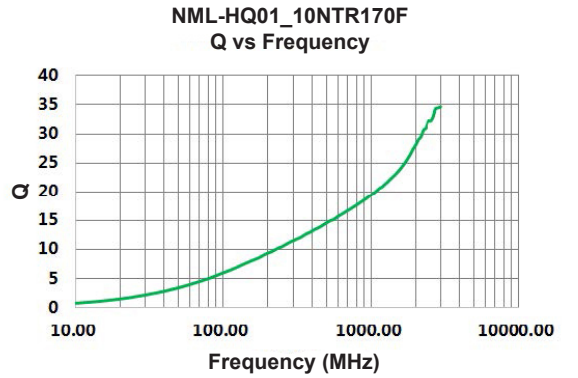
NML-HQ01_5N6TR230F
Inductance vs. Frequency

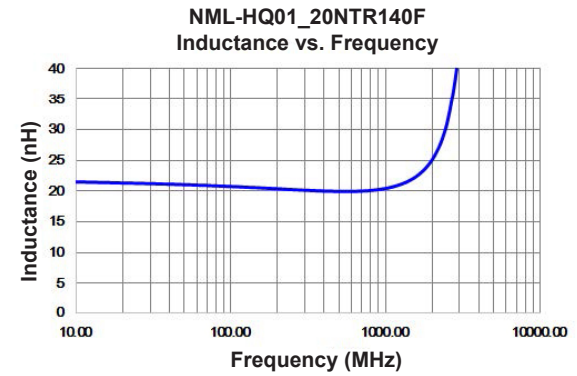


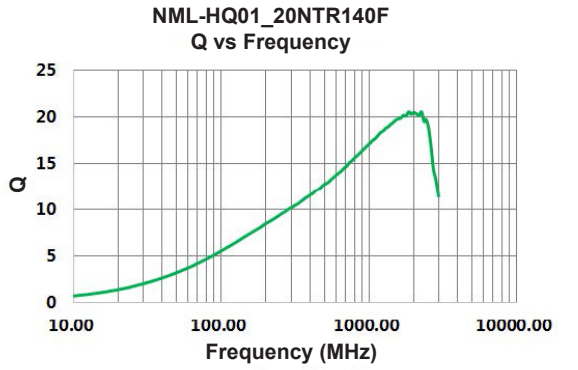
NML-HQ01_5N6TR230F
Q vs Frequency




NML-HQ01_10NTR170F
Inductance vs. Frequency
Inductance (nH)
20
18
16
14
12
10
8
6
4
2
0
10.00
100.00
1000.00
10000.00
Frequency (MHz)


NML-HQ01_10NTR170F
Q vs Frequency
Q
40
35
30
25
20
15
10
5
0
10.00
100.00
1000.00
10000.00
Frequency (MHz)


NML-HQ01_20NTR140F
Inductance vs. Frequency
Inductance (nH)
40
35
30
25
20
15
10
5
0
10.00
100.00
1000.00
10000.00
Frequency (MHz)


NML-HQ01_20NTR140F
Q vs Frequency
Q
25
20
15
10
5
0
10.00
100.00
1000.00
10000.00
Frequency (MHz)

NML-HQ SERIES 0201 CASE SIZE STANDARD VALUES & SPECIFICATIONS

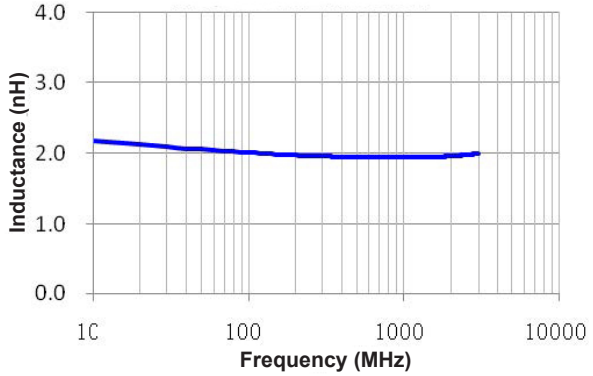
NIC P/N	'L' Inductance (nH)	Tol.	'Q' Factor (min.)	L & Q Test Frequency (MHz)	Typical Q (MHz)					SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
					500	800	1800	2000	2400			
NML-HQ02_0N6TR1000F	0.6	B, C, D	17	500	96	135	254	291	300	20000	0.05	1000
NML-HQ02_0N7TR1000F	0.7	B, C, D	17	500	85	127	259	332	304	20000	0.05	1000
NML-HQ02_0N8TR1000F	0.8	B, C, D	17	500	65	78	152	170	178	18000	0.05	1000
NML-HQ02_0N9TR800F	0.9	B, C, D	17	500	40	52	94	103	107	18000	0.08	800
NML-HQ02_1N0TR800F	1.0	B, C, D	17	500	47	63	94	107	118	17000	0.08	800
NML-HQ02_1N1TR800F	1.1	B, C, D	17	500	38	52	86	93	103	17000	0.08	800
NML-HQ02_1N2TR800F	1.2	B, C, D	17	500	36	46	78	84	93	17000	0.08	800
NML-HQ02_1N3TR700F	1.3	B, C, D	17	500	36	48	80	85	97	17000	0.10	700
NML-HQ02_1N4TR700F	1.4	B, C, D	17	500	32	42	69	73	80	16000	0.10	700
NML-HQ02_1N5TR650F	1.5	B, C, D	17	500	35	44	71	76	82	15000	0.10	650
NML-HQ02_1N6TR650F	1.6	B, C, D	17	500	34	44	69	75	80	15000	0.10	650
NML-HQ02_1N7TR650F	1.7	B, C, D	17	500	35	44	68	72	77	15000	0.10	650
NML-HQ02_1N8TR650F	1.8	B, C, D	17	500	33	41	64	68	74	15000	0.10	650
NML-HQ02_1N9TR650F	1.9	B, C, D	17	500	34	41	65	68	73	12500	0.10	650
NML-HQ02_2N0TR650F	2.0	B, C, D	17	500	32	40	59	62	68	12500	0.10	650
NML-HQ02_2N1TR650F	2.1	B, C, D	17	500	33	41	59	61	67	11000	0.12	650
NML-HQ02_2N2TR650F	2.2	B, C, D	17	500	32	39	55	57	62	11000	0.12	650
NML-HQ02_2N3TR550F	2.3	B, C, D	17	500	32	40	57	58	64	11000	0.15	550
NML-HQ02_2N4TR550F	2.4	B, C, D	17	500	30	37	53	55	60	11000	0.15	550
NML-HQ02_2N5TR550F	2.5	B, C, D	17	500	31	38	55	57	62	10000	0.15	550
NML-HQ02_2N6TR550F	2.6	B, C, D	17	500	31	38	55	57	62	10000	0.15	550
NML-HQ02_2N7TR550F	2.7	B, C, D	17	500	28	35	51	52	57	10000	0.15	550
NML-HQ02_2N8TR500F	2.8	B, C, D	17	500	29	36	51	53	58	10000	0.20	500
NML-HQ02_2N9TR500F	2.9	B, C, D	17	500	29	36	51	53	57	10000	0.20	500
NML-HQ02_3N0TR500F	3.0	B, C, D	17	500	28	35	50	52	56	9500	0.20	500
NML-HQ02_3N1TR450F	3.1	B, C, D	17	500	29	36	52	54	58	9500	0.24	450
NML-HQ02_3N2TR450F	3.2	B, C, D	17	500	27	35	51	53	57	9500	0.24	450
NML-HQ02_3N3TR450F	3.3	B, C, D	17	500	28	35	50	52	56	9500	0.24	450
NML-HQ02_3N4TR450F	3.4	B, C, D	17	500	28	35	50	52	55	8000	0.25	450
NML-HQ02_3N5TR450F	3.5	B, C, D	17	500	27	34	49	50	53	8000	0.25	450
NML-HQ02_3N6TR400F	3.6	B, C, D	17	500	28	35	49	51	55	8000	0.25	400
NML-HQ02_3N7TR400F	3.7	B, C, D	17	500	28	34	49	51	53	6500	0.25	400
NML-HQ02_3N8TR400F	3.8	B, C, D	17	500	27	33	48	50	52	6500	0.25	400
NML-HQ02_3N9TR400F	3.9	B, C, D	17	500	25	31	44	45	48	6500	0.25	400
NML-HQ02_4N0TR360F	4.0	B, C, D	17	500	24	30	44	46	50	6500	0.35	360
NML-HQ02_4N1TR360F	4.1	B, C, D	17	500	25	31	45	46	49	6500	0.35	360
NML-HQ02_4N2TR360F	4.2	B, C, D	17	500	25	31	46	47	50	6500	0.35	360
NML-HQ02_4N3TR360F	4.3	H, J	17	500	23	29	43	44	48	6500	0.35	360
NML-HQ02_4N7TR350F	4.7	H, J	17	500	23	28	41	43	45	6500	0.35	350
NML-HQ02_5N1TR350F	5.1	H, J	17	500	25	33	45	47	51	6500	0.39	350
NML-HQ02_5N6TR350F	5.6	H, J	17	500	24	31	44	47	52	6000	0.39	350
NML-HQ02_6N2TR300F	6.2	H, J	17	500	24	30	43	45	47	6000	0.55	300
NML-HQ02_6N8TR300F	6.8	H, J	17	500	23	31	42	43	44	5400	0.55	300
NML-HQ02_7N5TR300F	7.5	H, J	17	500	23	29	39	40	42	4800	0.55	300
NML-HQ02_8N2TR250F	8.2	H, J	17	500	23	28	37	39	40	4800	0.65	250
NML-HQ02_9N1TR250F	9.1	H, J	17	500	23	28	38	39	39	4500	0.65	250
NML-HQ02_10NTR250F	10	H, J	17	500	22	27	38	38	37	4500	0.69	250
NML-HQ02_11NTR250F	11	H, J	17	500	22	28	36	37	36	3700	0.69	250
NML-HQ02_12NTR250F	12	H, J	17	500	22	27	34	33	32	3700	0.69	250
NML-HQ02_13NTR250F	13	H, J	17	500	22	27	34	33	32	3700	0.69	250
NML-HQ02_15NTR250F	15	H, J	14	500	22	27	33	32	30	3500	0.80	250

TABLE CONTINUES ON NEXT PAGE

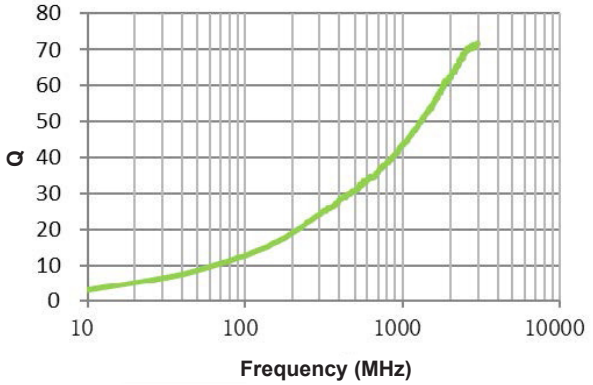
NML-HQ SERIES 0201 CASE SIZE STANDARD VALUES & SPECIFICATIONS

NIC P/N	'L' Inductance (nH)	Tol.	'Q' Factor (min.)	L & Q Test Frequency (MHz)	Typical Q (MHz)					SRF MHz (min.)	DC Resistance (ohms) Max.	Rated DC Current (mA) Max.
					500	800	1800	2000	2400			
NML-HQ02_18NTR200F	18	H, J	14	500	22	26	32	30	26	3500	1.1	200
NML-HQ02_20NTR200F	20	H, J	14	500	21	26	30	28	24	3000	1.2	200
NML-HQ02_22NTR200F	22	H, J	14	500	21	26	26	24	20	3000	1.2	200
NML-HQ02_24NTR150F	24	H, J	14	500	21	26	26	23	16	2000	1.6	150
NML-HQ02_27NTR150F	27	H, J	14	500	21	25	25	22	14	2000	1.6	150
NML-HQ02_30NTR150F	30	H, J	11	500	21	25	24	20	12	1700	2.0	150
NML-HQ02_33NTR150F	33	H, J	11	300	21	25	22	19	10	1700	2.0	150
NML-HQ02_36NTR130F	36	H, J	11	300	22	26	20	16	6	1500	2.5	130
NML-HQ02_39NTR130F	39	H, J	11	300	22	26	20	16	6	1500	2.5	130
NML-HQ02_43NTR130F	43	H, J	11	300	22	24	10	5	6	1300	3.5	130
NML-HQ02_47NTR130F	47	H, J	11	300	22	24	10	5	6	1300	3.5	130

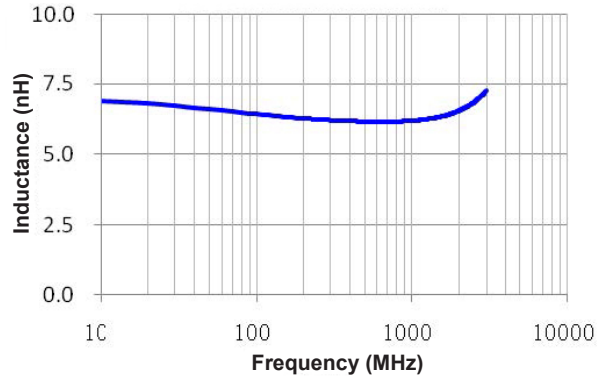
NML-HQ02_2N0TR650F
Inductance vs. Frequency



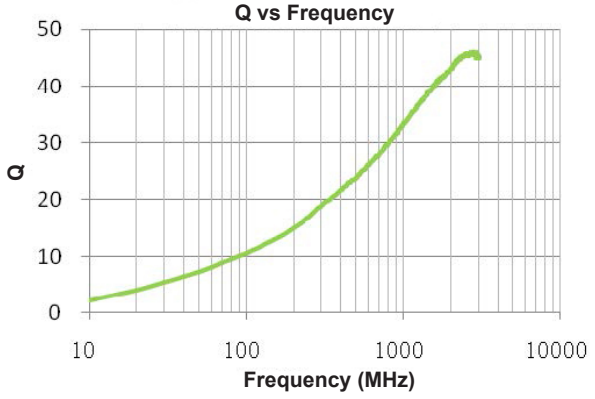
NML-HQ02_2N0TR650F
Q vs Frequency



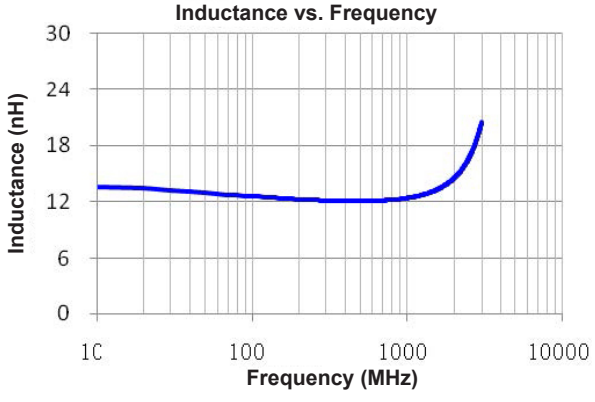
NML-HQ02_6N2TR300F
Inductance vs. Frequency



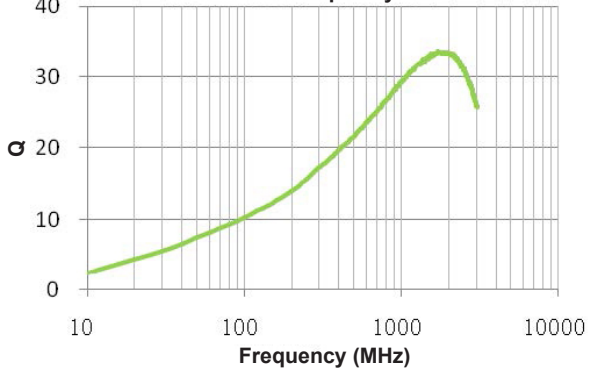
NML-HQ02_6N2TR300F
Q vs Frequency

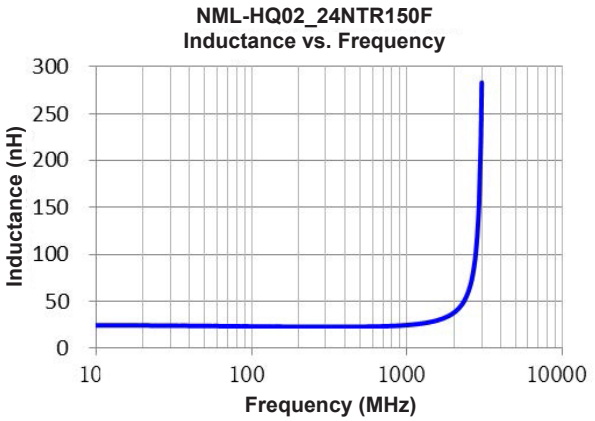


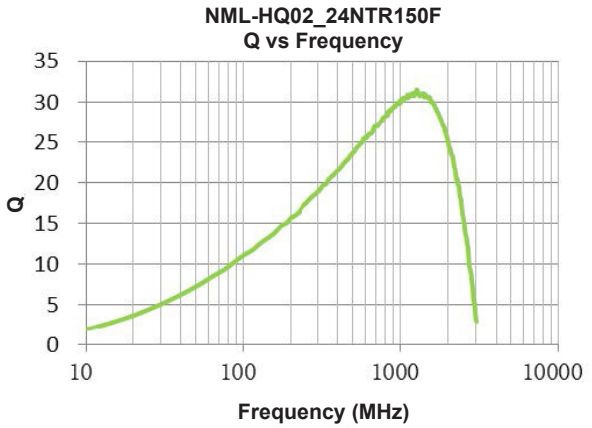
NML-HQ02_12NTR250F
Inductance vs. Frequency

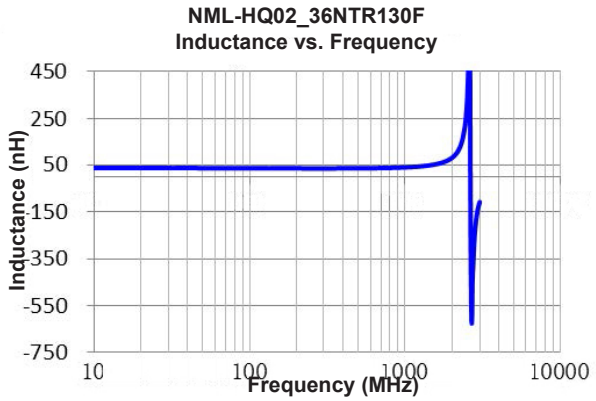


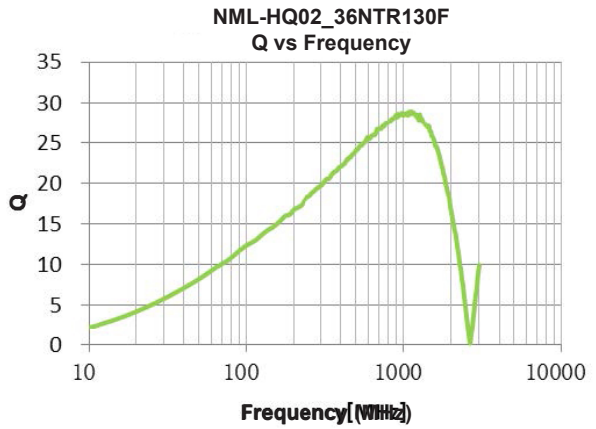
NML-HQ02_12NTR250F
Q vs Frequency

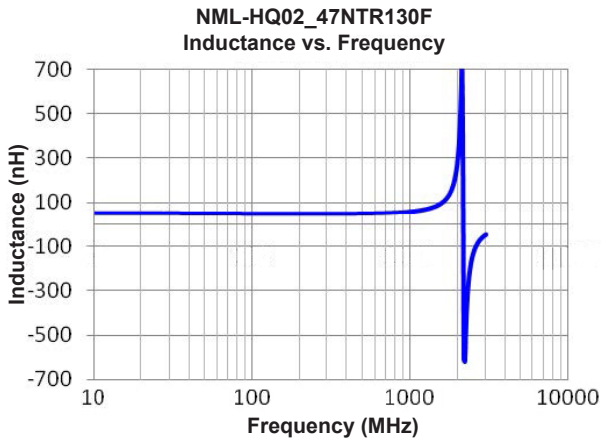


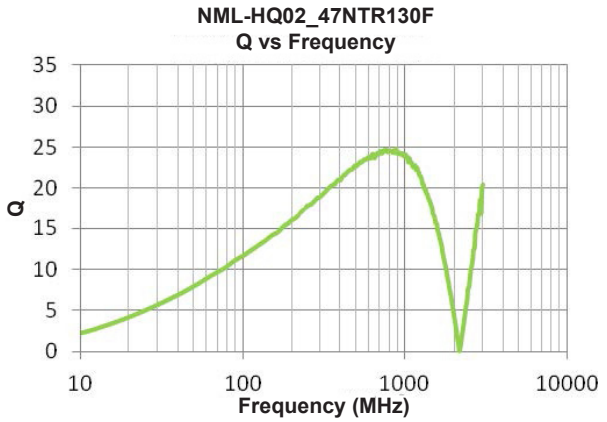

NML-HQ02_24NTR150F
Inductance vs. Frequency
Inductance (nH)
300
250
200
150
100
50
0
10
100
1000
10000
Frequency (MHz)


NML-HQ02_24NTR150F
Q vs Frequency
Q
35
30
25
20
15
10
5
0
10
100
1000
10000
Frequency (MHz)

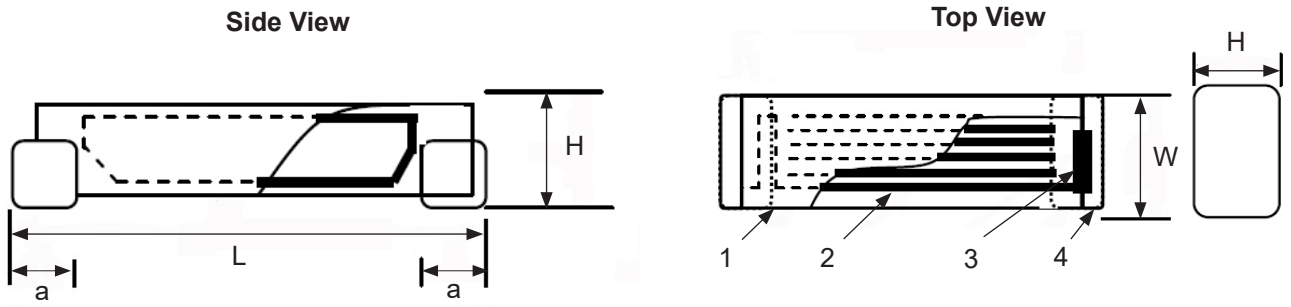

NML-HQ02_36NTR130F
Inductance vs. Frequency
Inductance (nH)
450
250
50
-150
-350
-550
-750
10
100
1000
10000
Frequency (MHz)

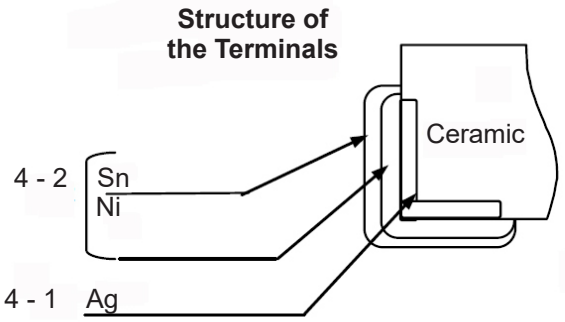

NML-HQ02_36NTR130F
Q vs Frequency
Q
35
30
25
20
15
10
5
0
10
100
1000
10000
Frequency (MHz)


NML-HQ02_47NTR130F
Inductance vs. Frequency
Inductance (nH)
700
500
300
100
-100
-300
-500
-700
10
100
1000
10000
Frequency (MHz)

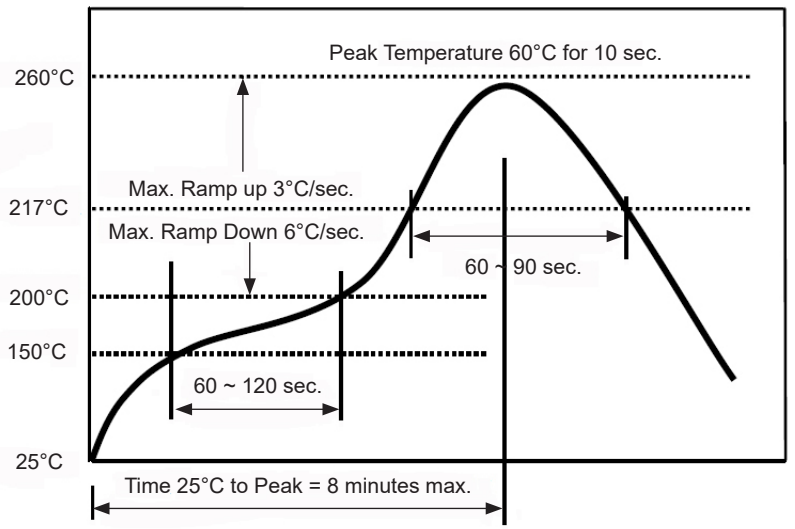

NML-HQ02_47NTR130F
Q vs Frequency
Q
35
30
25
20
15
10
5
0
10
100
1000
10000
Frequency (MHz)

COMPONENT CONSTRUCTION DETAILS



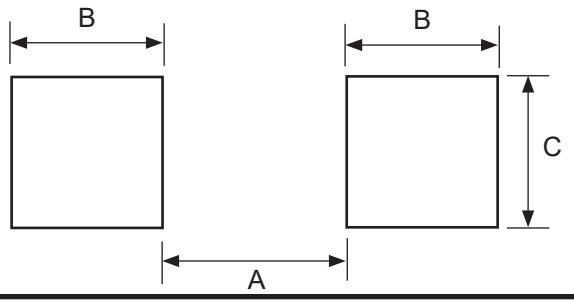


1. Ceramic for HIgh Q Series
2. Internal electrode (Ag)
3. Pull out electrode (Ag)
4 - 1 Terminal electrode: Inside (Ag)
4 - 2 Outside (Electro-plating Ni-Sn



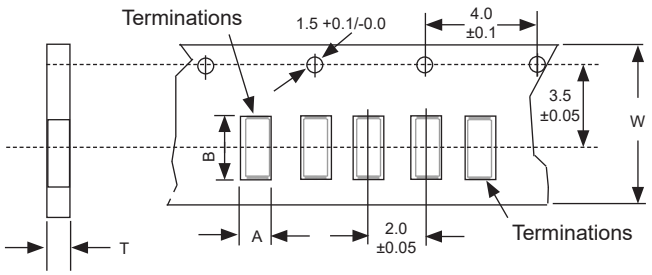
LAND PATTERN DIMENSIONS (mm)

Case Size	A	B	C
01005	0.15 ~ 0.19	0.18 ~ 0.22	0.18 ~ 0.22
0201	0.20 ~ 0.30	0.25 ~ 0.35	0.25 ~ 0.35



PUNCHED CARRIER DIMENSIONS (mm)

Case Size	A	B	T	W	QTY/REEL
01005	0.24 ± 0.20	0.44 ± 0.20	0.35 max.	8.0 ± 0.3	15,000
0201	0.24 ± 0.20	0.24 ± 0.20	0.24 ± 0.20	8.0 ± 0.3	15,000



REEL DIMENSIONS (mm):