

Thin Film Chip Inductors

NTL Series

FEATURES

- ULTRA-SMALL LOW PROFILE 0201, 0402 & 0603 SIZES
- HIGH Q (15 ~ 40) @ 300MHz ~ 1.5GHz
- S-PARAMETER CHARACTERISTICS AVAILABLE
- HIGH CURRENT & HIGH SRF
- COMPATIBLE WITH Pb-FREE SOLDERING
- RoHS COMPLIANT

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details



CHARACTERISTICS

Case Size	0201	0402	0603*
Inductance Range	1.0nH ~ 5.6nH	1.0nH ~ 15nH	1.0nH ~ 100nH
Available Tolerance	$\pm 0.1\text{nH}$ (B), $\pm 0.2\text{nH}$ (C) & 2% (G)		$\pm 0.2\text{nH}$ (C) & 2% (G)
Temperature Range	-40°C ~ +125°C		
Resistance to Solder Heat	270°C $\pm 5^\circ\text{C}$ for 10 seconds		
Temperature Cycling	$\Delta L \pm 10\%$ after 10 cycles -40°C/+20°C/+85°C/+20°C		

*Not recommended for new designs (see NTI06 series)

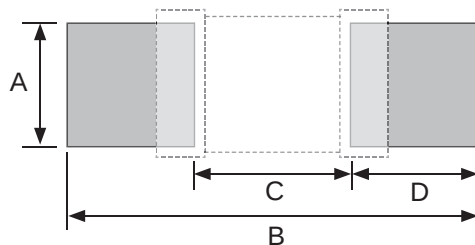
PART NUMBER SYSTEM

NTL 02 C 33N TR E

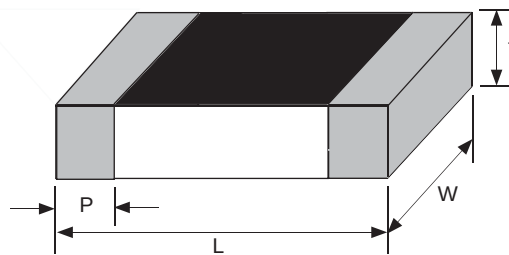
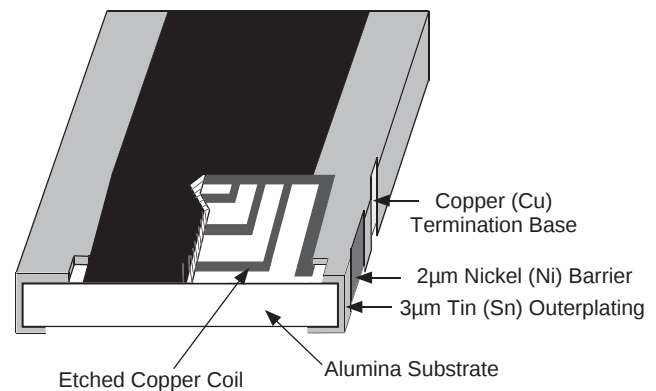
RoHS compliant
Tape & Reel Packaging
Inductance Value in nano-henries,
"N" indicates decimal point
Inductance Tolerance (see values tables)
Case Code
Series

CASE DIMENSIONS (mm)				
Case Size	L	W	T	P
0201	0.61 ± 0.05	0.31 ± 0.05	0.28 ± 0.05	0.12 ± 0.05
0402	1.0 ± 0.10	0.5 ± 0.10	0.40 ± 0.10	0.25 ± 0.10
0603	1.6 ± 0.10	0.8 ± 0.10	0.45 ± 0.10	0.30 ± 0.10

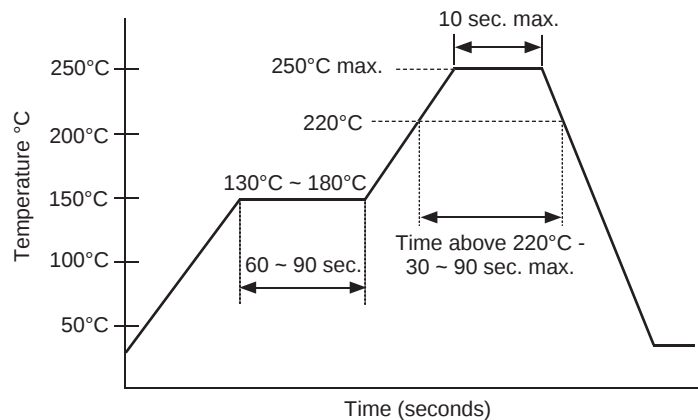
LAND PATTERN DIMENSIONS (mm)				
Case Size	A	B	C	D
0201	0.2 ~ 0.3	0.8 ~ 0.9	0.2 ~ 0.3	0.3 ~ 0.4
0402	0.5 ~ 0.6	1.5 ~ 1.8	0.5 ~ 0.6	0.5 ~ 0.6
0603	0.6 ~ 1.0	2.4 ~ 2.8	0.7 ~ 0.9	0.9 ~ 1.1



CONSTRUCTION



REFLOW SOLDERING PROFILE

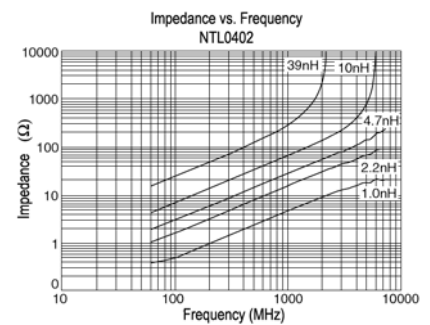
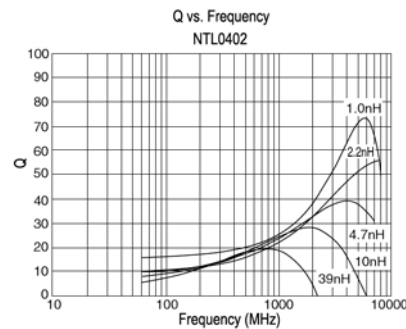
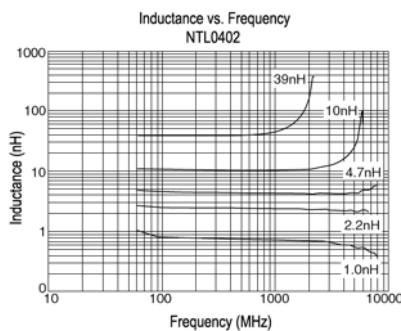


Available Values - 0201 Case Size								
Inductance Value (nH)	Part Number	Available Tolerances & Tolerance Codes	Q Factor Min. & Test Frequency	Typical Q @ 300MHz	Typical Q @ 1.5 GHz	DC Resistance Max. (Ω)	DC Current Max. (mA)	SRF Min. (GHz)
1.0	NTL02_1N0TRF	$\pm 0.1\text{nH}$ (B) $\pm 0.2\text{nH}$ (C)	10 min. @ 500MHz	12	27	0.24	510	10
1.1	NTL02_1N1TRF			11	27	0.30	460	10
1.2	NTL02_1N2TRF			11	26	0.30	460	10
1.3	NTL02_1N3TRF			11	26	0.26	490	10
1.5	NTL02_1N5TRF			11	26	0.26	490	10
1.6	NTL02_1N6TRF			11	26	0.36	420	10
1.8	NTL02_1N8TRF			11	25	0.36	420	10
2.2	NTL02_2N2TRF			11	25	0.50	350	10
2.4	NTL02_2N4TRF			11	25	0.54	340	7.0
2.7	NTL02_2N7TRF			11	24	0.54	340	7.0
3.0	NTL02_3N0TRF			11	24	0.66	310	7.0
3.3	NTL02_3N3TRF			11	22	0.66	310	7.0
3.6	NTL02_3N6TRF			11	22	0.80	280	7.0
3.9	NTL02_3N9TRF			11	21	0.80	280	7.0
4.3	NTL02_4N3TRF			11	21	1.00	250	7.0
4.7	NTL02_4N7TRF			11	21	1.00	250	7.0
5.1	NTL02_5N1TRF			11	21	1.60	200	6.0
5.6	NTL02_5N6TRF			11	20	1.00	200	6.0
6.2	NTL02C6N2TRF	$\pm 0.2\text{nH}$ (C)	10 min. @ 500MHz	10	20	1.00	220	6.0
6.8	NTL02C6N8TRF			10	20	1.00	220	6.0
7.5	NTL02C7N5TRF			10	20	1.80	170	5.0
8.2	NTL02C8N2TRF			10	19	1.80	170	5.0
9.1	NTL02C9N1TRF			10	19	2.20	150	4.5
10	NTL02C10NTRF			10	19	2.20	150	4.5

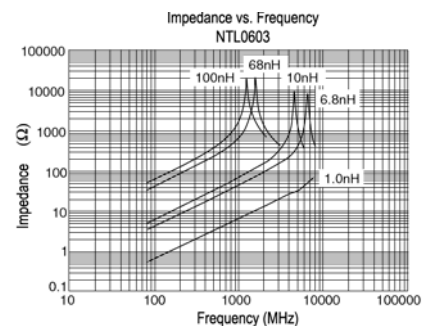
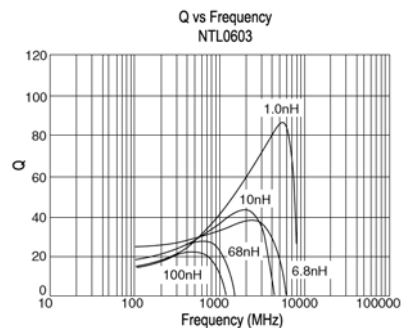
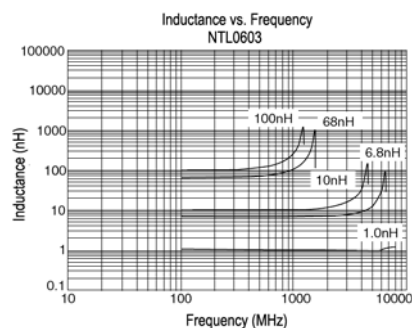
Available Values - 0402 Case Size									
Inductance Value (nH)	Part Number	Available Tolerances & Tolerance Codes	Q Factor Min. & Test Frequency	Typical Q @ 300MHz	Typical Q @ 1.5 GHz	DC Resistance Max. (Ω)	DC Current Max. (mA)	SRF Min. (GHz)	
1.0	NTL04_1N0TRF	±0.1nH (B) ±0.2nH (C)	13 min. @ 300MHz	22	52	0.03	1,800	7.0	
1.1	NTL04_1N1TRF			20	45	0.05	1,500	7.0	
1.2	NTL04_1N2TRF			20	44	0.08	1,400	7.0	
1.3	NTL04_1N3TRF			20	44	0.10	1,250	7.0	
1.5	NTL04_1N5TRF			20	44	0.10	1,200	7.0	
1.6	NTL04_1N6TRF			20	44	0.12	1,070	7.0	
1.8	NTL04_1N8TRF			20	44	0.14	1,000	7.0	
2.0	NTL04_2N0TRF			20	44	0.14	980	7.0	
2.2	NTL04_2N2TRF			17	39	0.15	900	7.0	
2.4	NTL04_2N4TRF			17	39	0.22	810	7.0	
2.7	NTL04_2N7TRF			17	39	0.23	750	7.0	
3.0	NTL04_3N0TRF			16	36	0.24	710	7.0	
3.3	NTL04_3N3TRF			16	36	0.25	700	7.0	
3.6	NTL04_3N6TRF			16	36	0.30	650	7.0	
3.9	NTL04_3N9TRF			16	36	0.30	620	7.0	
4.3	NTL04_4N3TRF			16	36	0.46	550	6.0	
4.7	NTL04_4N7TRF			16	36	0.50	500	6.0	
5.1	NTL04_5N1TRF		10 min. @ 300MHz	16	34	0.68	460	5.5	
5.6	NTL04_5N6TRF			16	34	0.70	450	5.5	
6.2	NTL04_6N2TRF			15	32	0.80	440	4.5	
6.8	NTL04_6N8TRF			15	32	0.80	430	4.5	
7.5	NTL04_7N5TRF			15	32	0.93	380	4.0	
8.2	NTL04_8N2TRF			15	32	1.10	340	4.0	
9.1	NTL04_9N1TRF			15	32	1.30	310	3.5	
10	NTL04G10NTRF			15	29	1.40	300	3.5	
11	NTL04G11NTRF	±2% (G)		15	28	1.60	280	3.5	
12	NTL04G12NTRF			15	28	1.65	270	3.5	
13	NTL04G13NTRF			14	25	2.20	260	3.5	
15	NTL04G15NTRF			14	25	2.25	240	3.5	

Available Values - 0603 Case Size								
Inductance Value (nH)	Part Number	Available Tolerances & Tolerance Codes	Q Factor Min. & Test Frequency	Typical Q @ 800MHz	Typical Q @ 1.5 GHz	DC Resistance Max. (Ω)	DC Current Max. (mA)	SRF Min. (GHz)
1	NTL06C1N0TRF	$\pm 0.2\text{nH}$ (C)	20 min. @ 300MHz	34	38	0.10	1000	6.0
1.2	NTL06C1N2TRF			34	38	0.10	1000	6.0
1.5	NTL06C1N5TRF			34	38	0.10	1000	6.0
1.8	NTL06C1N8TRF			34	38	0.15	800	6.0
2.2	NTL06C2N2TRF			30	38	0.15	800	6.0
2.7	NTL06C2N7TRF			30	38	0.15	800	6.0
3.3	NTL06C3N3TRF			30	35	0.20	700	6.0
3.9	NTL06C3N9TRF			30	35	0.20	700	6.0
4.7	NTL06C4N7TRF			30	35	0.25	600	5.0
5.6	NTL06C5N6TRF			30	35	0.5	400	5.0
6.8	NTL06C6N8TRF			30	35	0.5	400	5.0
8.2	NTL06C8N2TRF			30	35	0.5	400	4.0
10	NTL06G10NTRF	$\pm 2\%$ (G)	15 min. @ 300MHz	30	35	1.0	300	4.0
12	NTL06G12NTRF			30	35	1.0	300	3.0
15	NTL06G15NTRF			30	35	1.0	300	3.0
18	NTL06G18NTRF			25	30	1.5	250	2.0
22	NTL06G22NTRF			25	30	1.5	250	2.0
27	NTL06G27NTRF			25	30	2.0	200	2.0
33	NTL06G33NTRF		15 min. @ 200MHz	25	/	2.0	200	1.5
39	NTL06G39NTRF			25	/	3.0	180	1.5
47	NTL06G47NTRF			25	/	3.0	180	1.5
56	NTL06G56NTRF			25	/	4.0	150	1.0
68	NTL06G68NTRF			25	/	4.5	140	1.0
82	NTL06G82NTRF			15	/	6.0	120	1.0
100	NTL06GR10TRF			15	/	8.5	100	1.0

FREQUENCY CHARACTERISTICS - NTL0402



FREQUENCY CHARACTERISTICS - NTL0603



TAPE AND REEL DIMENSIONS (mm)

Type	A	B	E	F	W	P ₀	P ₁	P ₂	t ₁	t ₂
NTL02	0.38 ± 0.03	0.68 ± 0.03	1.75 ± 0.10	3.5 ± 0.05	8.0 ± 0.30	4.0 ± 0.10	2.0 ± 0.05	2.0 ± 0.1	0.33 ± 0.03	0.42 ± 0.03
NTL04	0.63 ± 0.05	1.13 ± 0.05					4.0 ± 0.10		0.47 ± 0.05	0.48 ± 0.10
NTL06	1.10 ± 0.10	1.90 ± 0.10					4.0 ± 0.10		0.60 ± 0.05	0.65 ± 0.10

