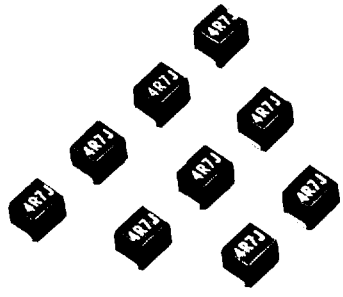
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

These revolutionary, highly reliable wire wound chip inductors for automatic mounting have been developed in response to the trend toward high density in electronic equipment. With metal terminals and a body of heat resistant resin, these inductors offer many superior features.

FEATURES

- Very strong solderability by flow, reflow soldering or soldering iron.
- Highly accurate dimensions.
- Terminals are highly resistant to pull forces.
- Resistant to mechanical shocks and pressures.
- Highly reliable in environments of sudden temperature change and humidity.
- Superior Q characteristics.



PRODUCT IDENTIFICATIONS

NL	252018	T	010	M
(1)	(2)	(3)	(4)	(5)

NLF	453232	T	1R0	M
(1)	(2)	(3)	(4)	(5)

(1) Series name

NL Series	Non-magnetic shield type
NLF Series	Magnetic shielded type

(2) Dimensions L × W × T (mm) [inches]

252018	2.5 × 2.0 × 1.8 [.098 × .079 × .071]
322522	3.2 × 2.5 × 2.2 [.126 × .098 × .087]
453232	4.5 × 3.2 × 3.2 [.177 × .126 × .126]
565050	5.6 × 5.0 × 5.0 [.220 × .197 × .197]

(3) Packaging style

T	Taping (reel)

(4) Inductance value

010	0.01μH
R10	0.1μH
1R0	1.0μH
100	10μH

(5) Inductance tolerance

J	±5%
K	±10%
M	±20%

CHARACTERISTICS

Type	NL252018 NL322522	NL453232 NL565050	NLF453232
Storage temperature range	−40 to +100°C	−40 to +100°C	−40 to +80°C
Operating temperature range* [including self-temperature rise]	−20 to +100°C	−20 to +100°C	−20 to +80°C
Temperature rise [against ambient temperature]	20°C max.	20°C max.	20°C max.
Ambient temperature	80°C max.	80°C max.	80°C max.
Terminal tensile strength	0.5kg min.	1kg min.	1kg min.
Current rating	Value obtained when current flows and the temperature has risen to 20°C or when DC current flows and the initial value of inductance has fallen by 10%, whichever is smaller.		
Resistance to soldering heat	260°C, 10 seconds		
Resistance to solvent	Conforms to MIL-STD-202E		

Should be used at a stabilized operating temperature.
• Storage temperature range for taping product is 0 to 60°C.

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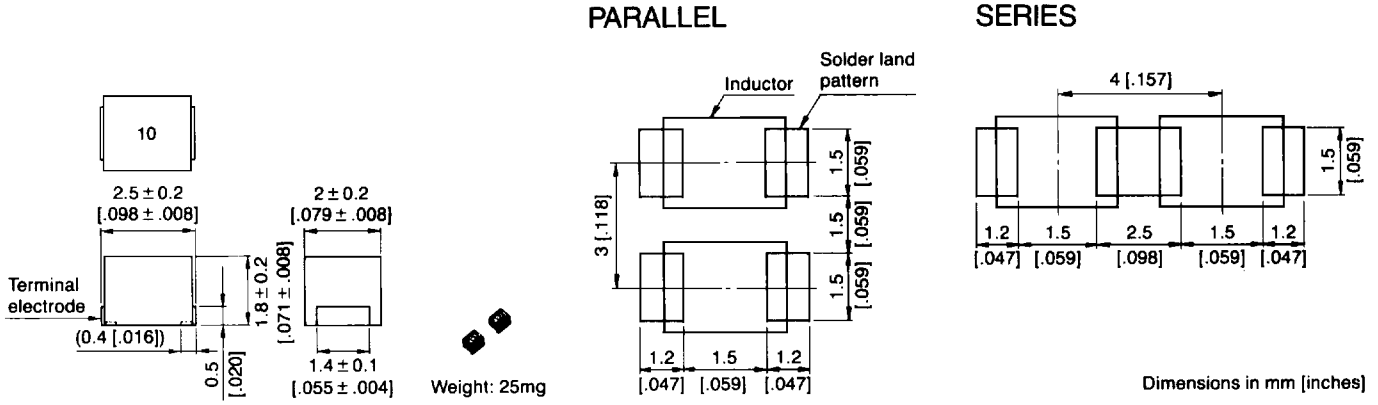
SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERNS



ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
0.01	±10%, ±5%	15	100	2150	0.26	530	NL252018T-010□*
0.012	±10%, ±5%	15	100	2050	0.27	500	NL252018T-012□
0.015	±10%, ±5%	15	100	2000	0.29	480	NL252018T-015□
0.018	±10%, ±5%	15	100	1850	0.31	450	NL252018T-018□
0.022	±10%, ±5%	15	100	1650	0.37	420	NL252018T-022□
0.027	±10%, ±5%	15	100	1550	0.4	410	NL252018T-027□
0.033	±10%, ±5%	20	100	1450	0.42	400	NL252018T-033□
0.039	±10%, ±5%	20	100	1350	0.45	380	NL252018T-039□
0.047	±10%, ±5%	20	100	1200	0.5	360	NL252018T-047□
0.056	±10%, ±5%	20	100	1100	0.6	340	NL252018T-056□
0.068	±10%, ±5%	20	100	1050	0.65	320	NL252018T-068□
0.082	±10%, ±5%	20	100	900	0.75	300	NL252018T-082□
0.1	±10%, ±5%	20	100	800	0.8	280	NL252018T-R10□
0.12	±10%, ±5%	30	25.2	700	0.3	550	NL252018T-R12□
0.15	±10%, ±5%	30	25.2	550	0.35	500	NL252018T-R15□
0.18	±10%, ±5%	30	25.2	500	0.4	460	NL252018T-R18□
0.22	±10%, ±5%	30	25.2	450	0.5	430	NL252018T-R22□
0.27	±10%, ±5%	30	25.2	425	0.55	420	NL252018T-R27□
0.33	±10%, ±5%	30	25.2	400	0.6	400	NL252018T-R33□
0.39	±10%, ±5%	30	25.2	375	0.65	375	NL252018T-R39□
0.47	±10%, ±5%	30	25.2	350	0.68	350	NL252018T-R47□
0.56	±10%, ±5%	30	25.2	325	0.75	325	NL252018T-R56□
0.68	±10%, ±5%	30	25.2	300	0.85	300	NL252018T-R68□
0.82	±10%, ±5%	30	25.2	260	1	260	NL252018T-R82□

*□: *Please specify inductance tolerance, K (± 10%) or J (± 5%)*

- *Inductance tolerance is only standard.*
- *Test equipment*

L, Q: YHP4191A IMPEDANCE ANALYZER (16092A) [L ≦ 0.1μH]
YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1) [L ≧ 0.12μH]
SRF: HP8753C NETWORK ANALYZER
Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

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NL252018 TYPE

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
1	±5%	30	7.96	245	1.1	245	NL252018T-1R0J
1.2	±5%	30	7.96	230	1.2	230	NL252018T-1R2J
1.5	±5%	30	7.96	182	1.3	220	NL252018T-1R5J
1.8	±5%	30	7.96	135	1.45	210	NL252018T-1R8J
2.2	±5%	30	7.96	105	1.55	200	NL252018T-2R2J
2.7	±5%	30	7.96	70	1.7	195	NL252018T-2R7J
3.3	±5%	30	7.96	55	1.9	185	NL252018T-3R3J
3.9	±5%	30	7.96	48	2.1	180	NL252018T-3R9J
4.7	±5%	30	7.96	43	2.3	175	NL252018T-4R7J
5.6	±5%	25	7.96	42	2.5	170	NL252018T-5R6J
6.8	±5%	25	7.96	39	2.7	165	NL252018T-6R8J
8.2	±5%	25	7.96	36	3.05	160	NL252018T-8R2J
10	±5%	25	2.52	33	3.5	155	NL252018T-100J
12	±5%	25	2.52	30	3.8	150	NL252018T-120J
15	±5%	25	2.52	26	4.4	140	NL252018T-150J
18	±5%	25	2.52	24	4.8	130	NL252018T-180J
22	±5%	25	2.52	22	5.5	125	NL252018T-220J
27	±5%	25	2.52	21	6.3	115	NL252018T-270J
33	±5%	25	2.52	20	7.1	110	NL252018T-330J
39	±5%	20	2.52	18	9.5	90	NL252018T-390J
47	±5%	20	2.52	17	11.1	80	NL252018T-470J
56	±5%	20	2.52	16	12.1	75	NL252018T-560J
68	±5%	20	2.52	15	16.6	70	NL252018T-680J
82	±5%	20	2.52	13	19	66	NL252018T-820J
100	±5%	15	0.796	12	21	60	NL252018T-101J

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4191A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

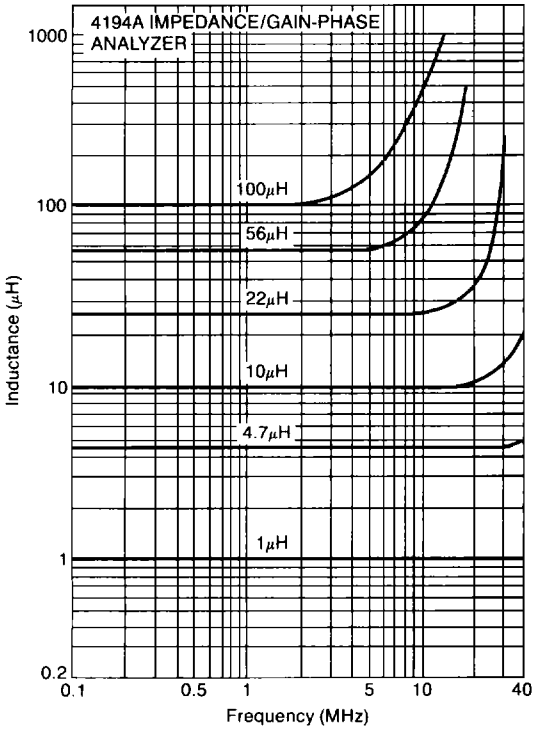
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

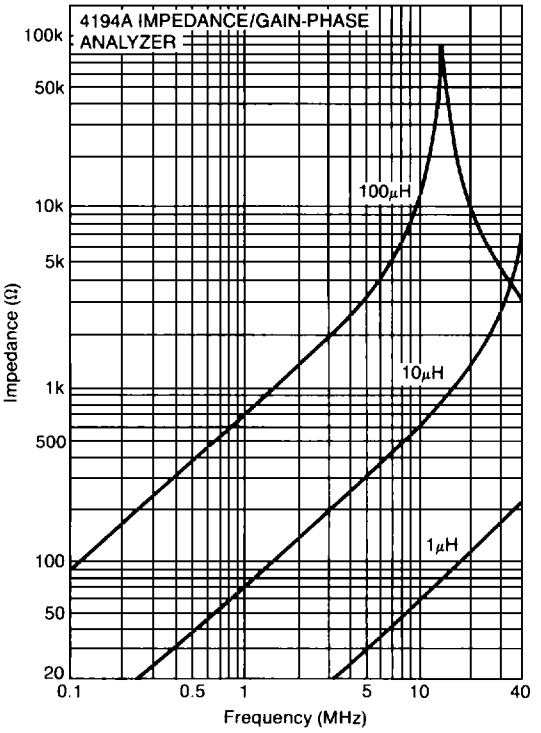
NL252018 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

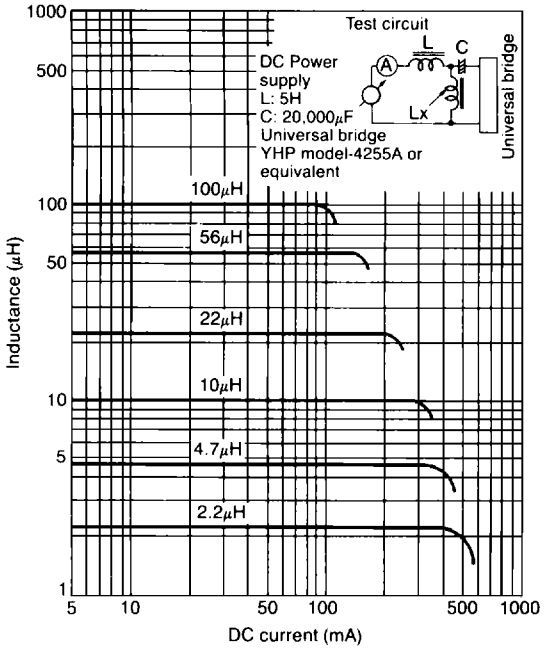
INDUCTANCE CHANGE vs. FREQUENCY CHARACTERISTICS



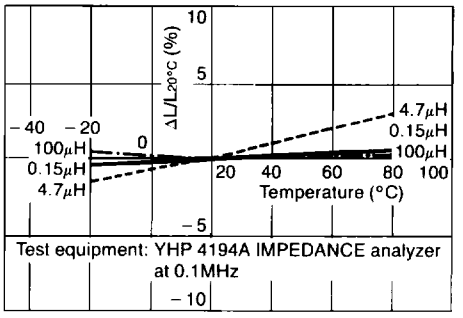
IMPEDANCE CHANGE vs. FREQUENCY CHARACTERISTICS



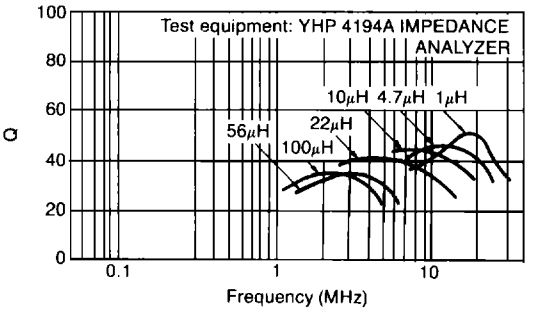
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS

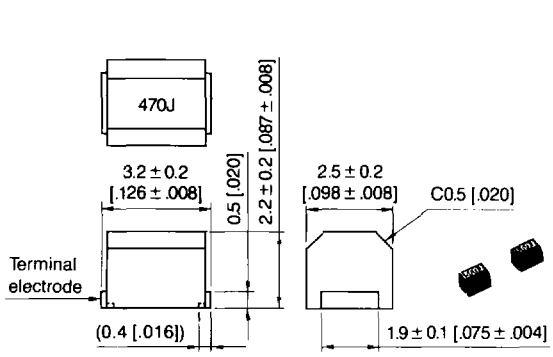


Leadless Inductors

NL and NLF (Magnetic Shielded) Series

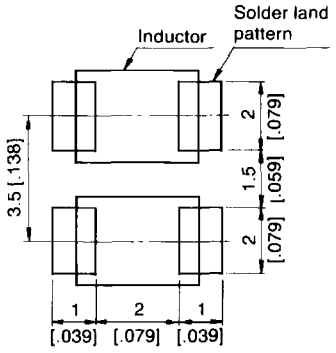
NL322522 TYPE

SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERNS

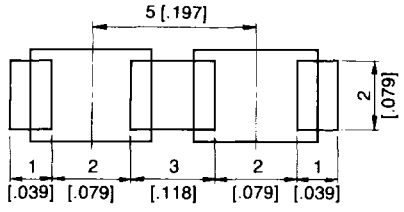


Weight: 60mg

PARALLEL



SERIES



Dimensions in mm [inches]

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
0.01	±10%, ±5%	15	100	2500	0.13	450	NL322522T-010[ ]*
0.012	±10%, ±5%	17	100	2300	0.14	450	NL322522T-012[ ]
0.015	±10%, ±5%	19	100	2100	0.16	450	NL322522T-015[ ]
0.018	±10%, ±5%	21	100	1900	0.18	450	NL322522T-018[ ]
0.022	±10%, ±5%	23	100	1700	0.2	450	NL322522T-022[ ]
0.027	±10%, ±5%	23	100	1500	0.22	450	NL322522T-027[ ]
0.033	±10%, ±5%	25	100	1400	0.24	450	NL322522T-033[ ]
0.039	±10%, ±5%	25	100	1300	0.27	450	NL322522T-039[ ]
0.047	±10%, ±5%	26	100	1200	0.3	450	NL322522T-047[ ]
0.056	±10%, ±5%	26	100	1100	0.33	450	NL322522T-056[ ]
0.068	±10%, ±5%	27	100	1000	0.36	450	NL322522T-068[ ]
0.082	±10%, ±5%	27	100	900	0.4	450	NL322522T-082[ ]
0.1	±10%, ±5%	28	100	700	0.44	450	NL322522T-R10[ ]
0.12	±10%, ±5%	30	25.2	500	0.22	450	NL322522T-R12[ ]
0.15	±10%, ±5%	30	25.2	450	0.25	450	NL322522T-R15[ ]
0.18	±10%, ±5%	30	25.2	400	0.28	450	NL322522T-R18[ ]
0.22	±10%, ±5%	30	25.2	350	0.32	450	NL322522T-R22[ ]
0.27	±10%, ±5%	30	25.2	320	0.36	450	NL322522T-R27[ ]
0.33	±10%, ±5%	30	25.2	300	0.4	450	NL322522T-R33[ ]
0.39	±10%, ±5%	30	25.2	250	0.45	450	NL322522T-R39[ ]
0.47	±10%, ±5%	30	25.2	220	0.5	450	NL322522T-R47[ ]
0.56	±10%, ±5%	30	25.2	180	0.55	450	NL322522T-R56[ ]
0.68	±10%, ±5%	30	25.2	160	0.6	450	NL322522T-R68[ ]
0.82	±10%, ±5%	30	25.2	140	0.65	450	NL322522T-R82[ ]

*[ ]: *Please specify the inductance tolerance, K (± 10%) or J (± 5%).*

- *Inductance tolerance is only standard.*
- *Test equipment*

L, Q: YHP4191A IMPEDANCE ANALYZER (16092A) [L ≦ 0.1μH]
YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1) [L ≧ 0.12μH]
SRF: HP8753C NETWORK ANALYZER
Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NL322522 TYPE

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
1	±5%	30	7.96	120	0.7	400	NL322522T-1R0J
1.2	±5%	30	7.96	100	0.75	390	NL322522T-1R2J
1.5	±5%	30	7.96	85	0.85	370	NL322522T-1R5J
1.8	±5%	30	7.96	80	0.9	350	NL322522T-1R8J
2.2	±5%	30	7.96	75	1	320	NL322522T-2R2J
2.7	±5%	30	7.96	70	1.1	290	NL322522T-2R7J
3.3	±5%	30	7.96	60	1.2	260	NL322522T-3R3J
3.9	±5%	30	7.96	55	1.3	250	NL322522T-3R9J
4.7	±5%	30	7.96	50	1.5	220	NL322522T-4R7J
5.6	±5%	30	7.96	45	1.6	200	NL322522T-5R6J
6.8	±5%	30	7.96	40	1.8	180	NL322522T-6R8J
8.2	±5%	30	7.96	35	2	170	NL322522T-8R2J
10	±5%	30	2.52	30	2.1	150	NL322522T-100J
12	±5%	30	2.52	20	2.5	140	NL322522T-120J
15	±5%	30	2.52	20	2.8	130	NL322522T-150J
18	±5%	30	2.52	20	3.3	120	NL322522T-180J
22	±5%	30	2.52	20	3.7	110	NL322522T-220J
27	±5%	30	2.52	20	5	80	NL322522T-270J
33	±5%	30	2.52	17	5.6	70	NL322522T-330J
39	±5%	30	2.52	16	6.4	65	NL322522T-390J
47	±5%	30	2.52	15	7	60	NL322522T-470J
56	±5%	30	2.52	13	8	55	NL322522T-560J
68	±5%	30	2.52	12	9	50	NL322522T-680J
82	±5%	30	2.52	11	10	45	NL322522T-820J
100	±5%	20	0.796	10	10	40	NL322522T-101J
120	±5%	20	0.796	10	11	70	NL322522T-121J
150	±5%	20	0.796	8	15	65	NL322522T-151J
180	±5%	20	0.796	7	17	60	NL322522T-181J
220	±5%	20	0.796	7	21	50	NL322522T-221J
270	±5%	20	0.796	6	28	45	NL322522T-271J
330	±5%	20	0.796	5	34	40	NL322522T-331J
390	±5%	20	0.796	5	42	35	NL322522T-391J
470	±5%	20	0.796	4	40	25	NL322522T-471J

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

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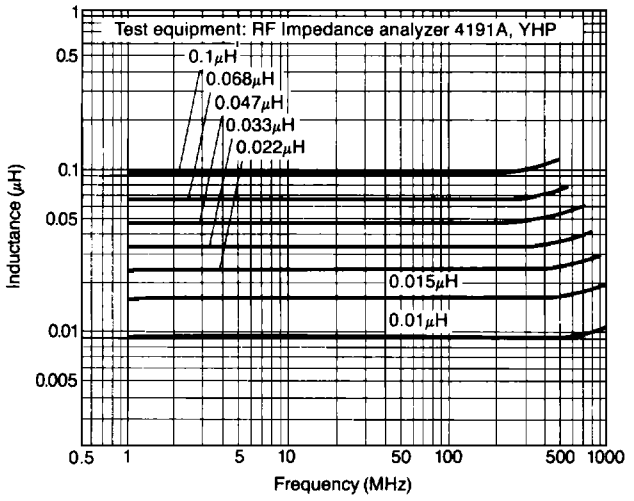
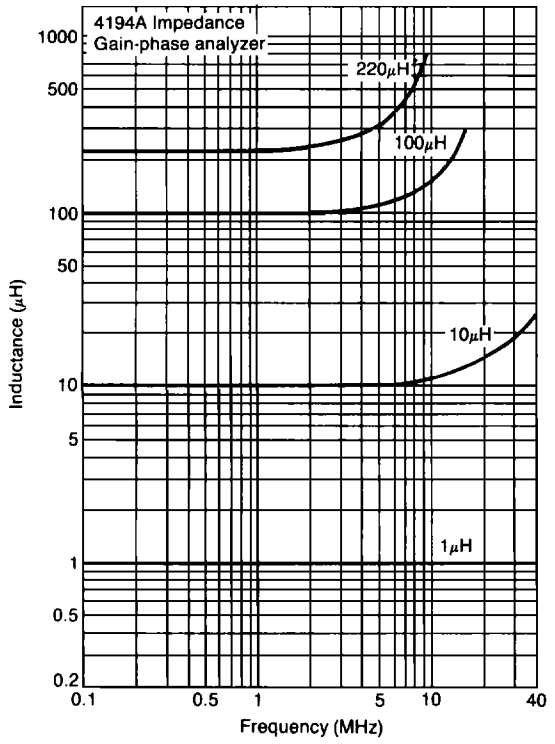
NL322522 TYPE

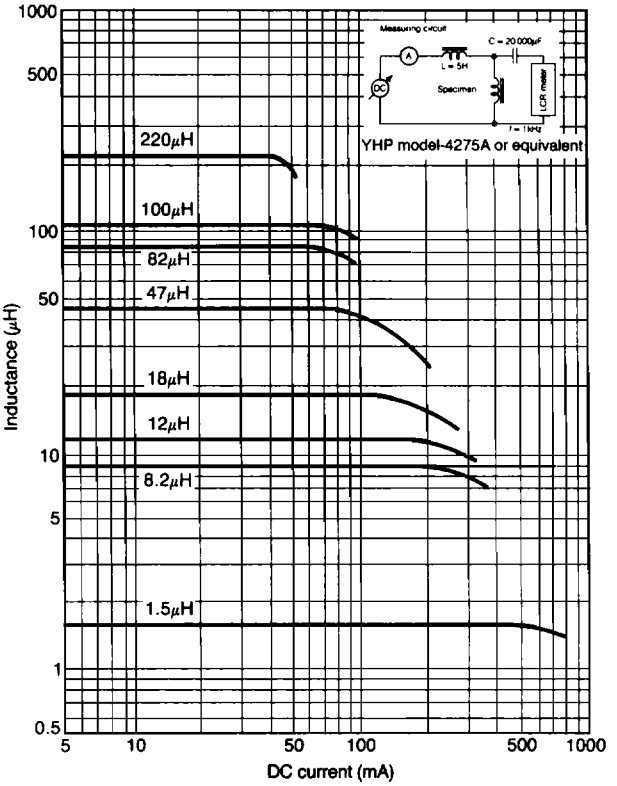
TYPICAL ELECTRICAL CHARACTERISTICS

INDUCTANCE CHANGE vs. FREQUENCY CHARACTERISTICS





INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



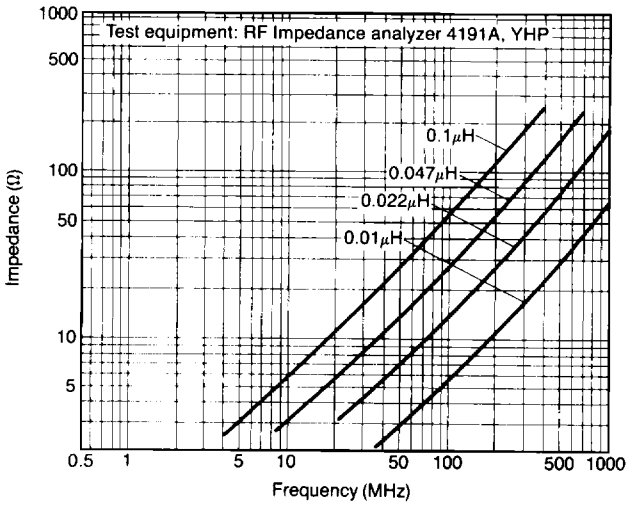
Leadless Inductors

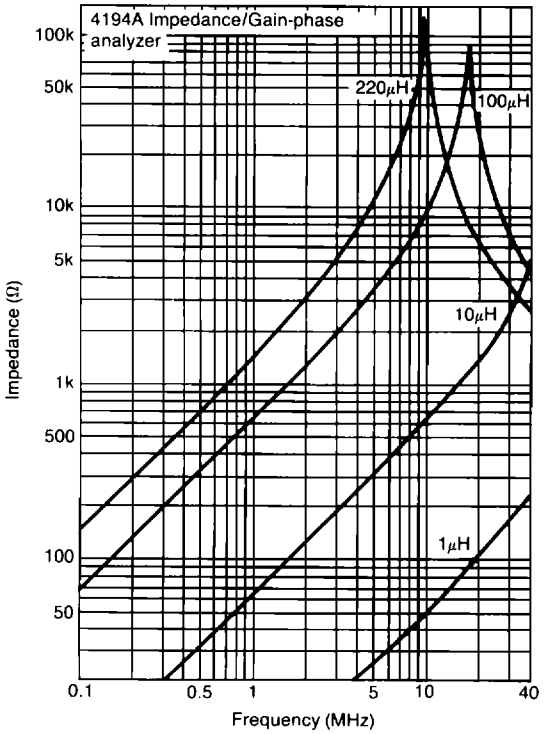
NL and NLF (Magnetic Shielded) Series

NL322522 TYPE

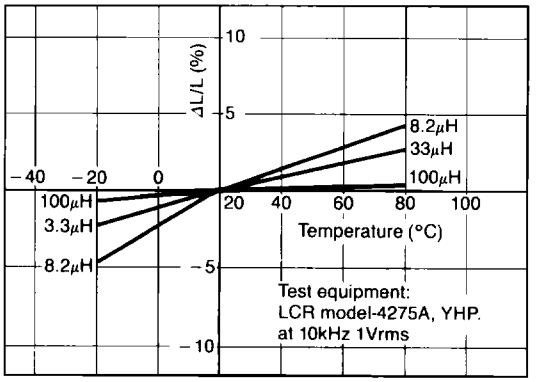
TYPICAL ELECTRICAL CHARACTERISTICS

IMPEDANCE CHANGE vs. FREQUENCY CHARACTERISTICS

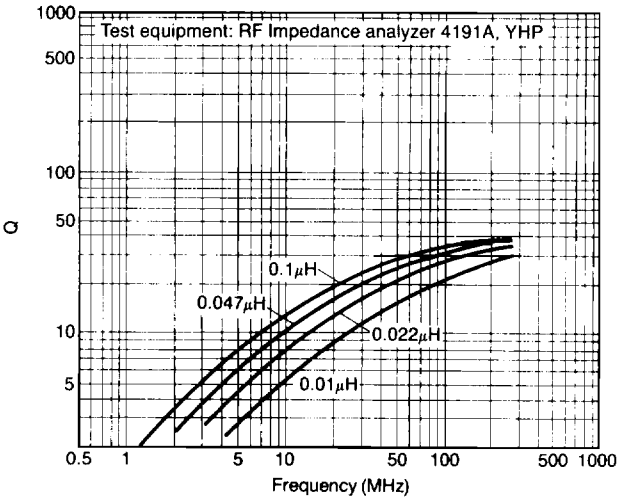


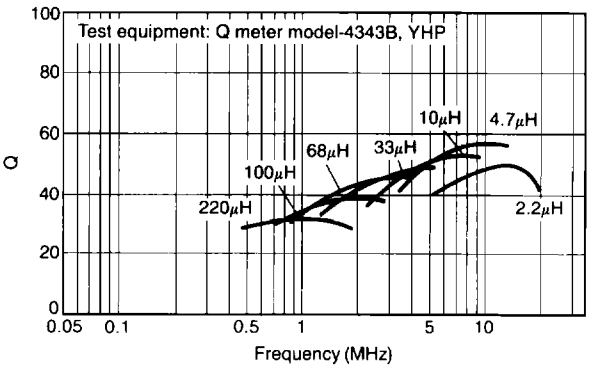


INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS



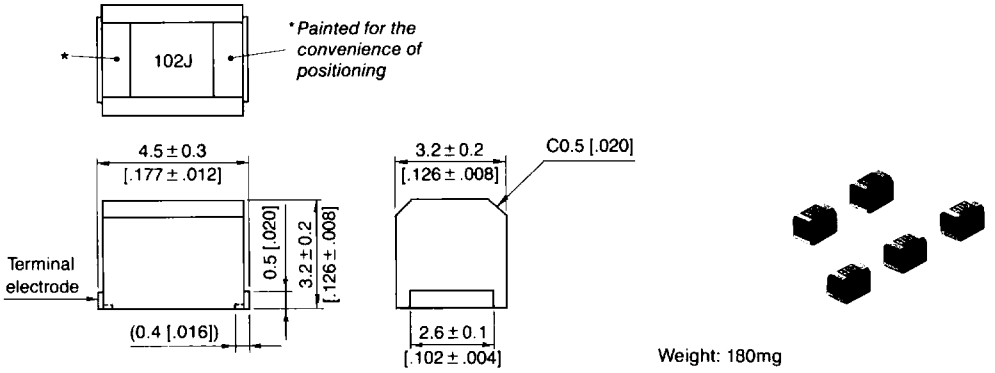


Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NL453232 TYPE

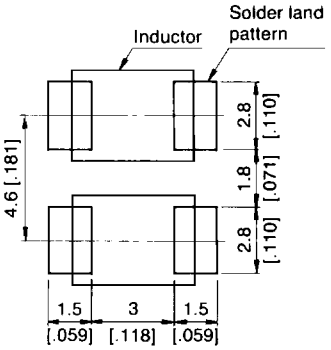
SHAPES AND DIMENSIONS



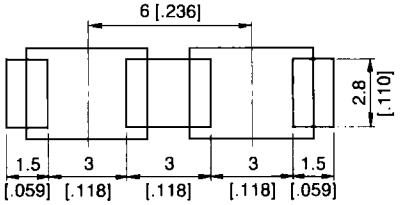
Weight: 180mg

RECOMMENDED PC BOARD PATTERNS

PARALLEL



SERIES



Dimensions in mm [inches]

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
270	±5%	40	0.796	4	12	92	NL453232T-271J
330	±5%	40	0.796	3.5	14	85	NL453232T-331J
390	±5%	40	0.796	3	16	80	NL453232T-391J
470	±5%	40	0.796	3	26	62	NL453232T-471J
560	±5%	30	0.796	3	30	50	NL453232T-561J
680	±5%	30	0.796	3	30	50	NL453232T-681J
820	±5%	30	0.796	2.5	35	30	NL453232T-821J
1000	±5%	30	0.252	2.5	40	30	NL453232T-102J

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER (Zin = Zout = 50Ω)
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

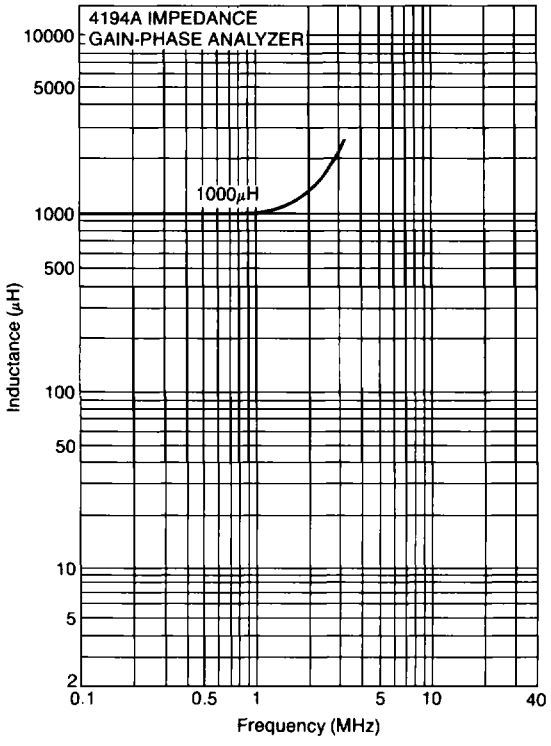
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

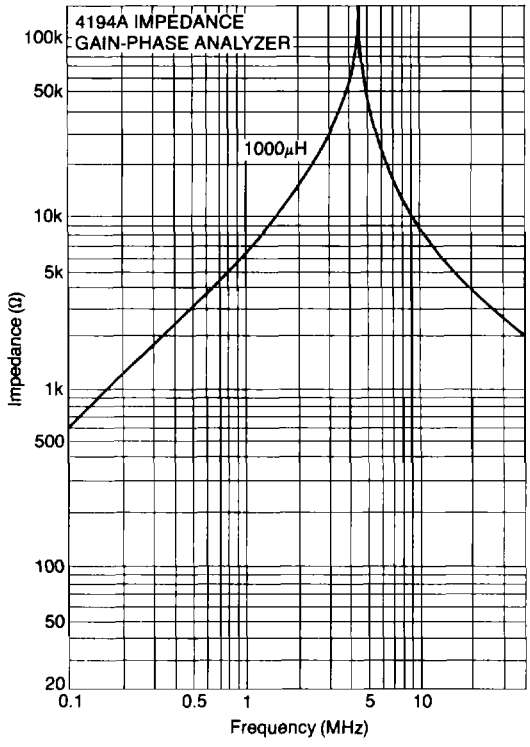
NL453232 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

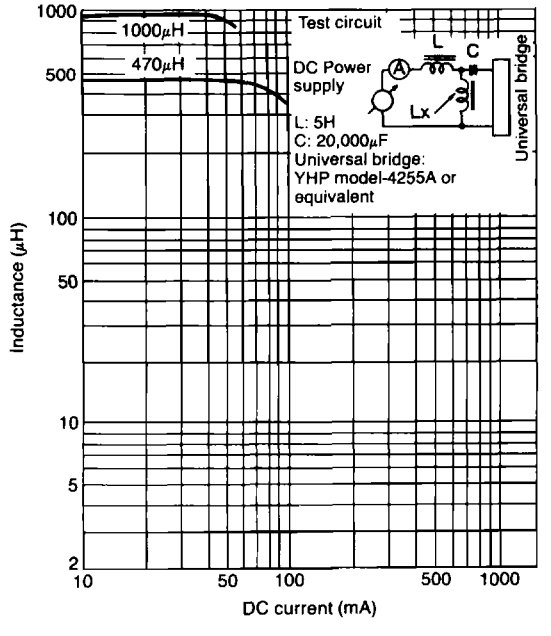
INDUCTANCE CHANGE vs. FREQUENCY CHARACTERISTIC



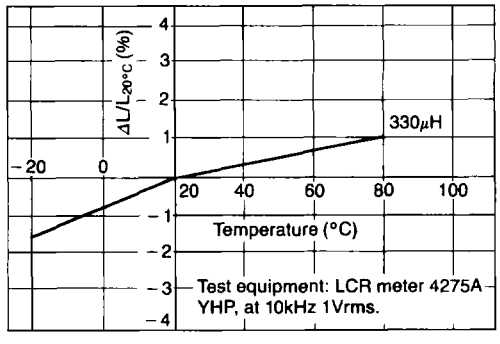
IMPEDANCE CHANGE vs. FREQUENCY CHARACTERISTIC



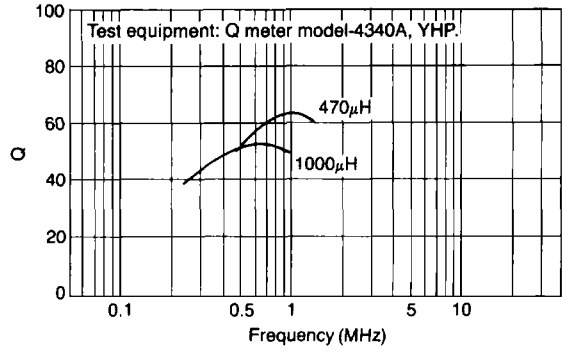
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTIC



Q vs. FREQUENCY CHARACTERISTICS

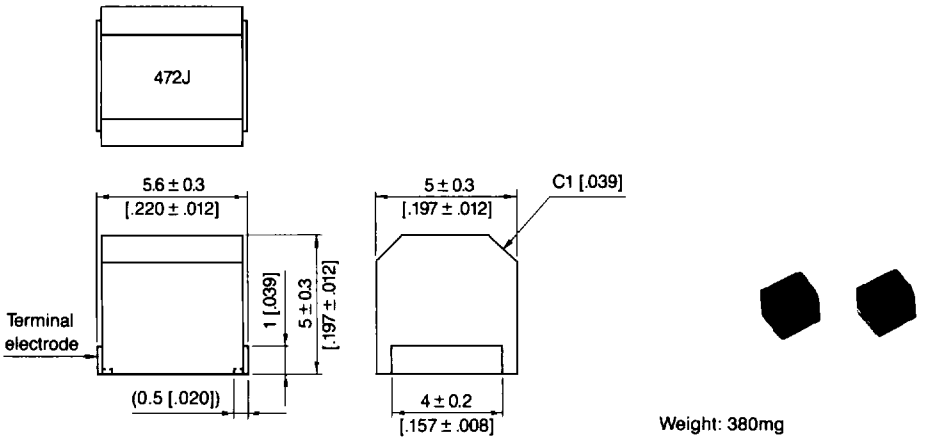


Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NL565050 TYPE

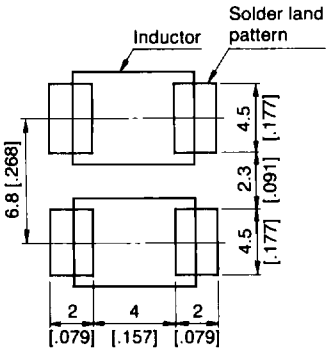
SHAPES AND DIMENSIONS



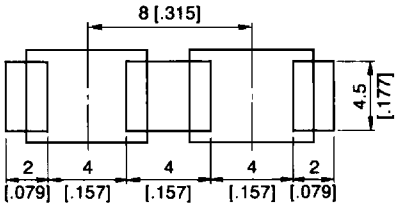
Weight: 380mg

RECOMMENDED PC BOARD PATTERNS

PARALLEL



SERIES



Dimensions in mm [inches]

ELECTRICAL CHARACTERISTICS

Inductance (mH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
1.2	±5%	30	0.252	1.5	17	75	NL565050T-122J
1.5	±5%	30	0.252	1.4	20	70	NL565050T-152J
1.8	±5%	30	0.252	1.3	30	60	NL565050T-182J
2.2	±5%	30	0.252	1.2	35	55	NL565050T-222J
2.7	±5%	30	0.252	1.1	55	45	NL565050T-272J
3.3	±5%	30	0.252	1	60	40	NL565050T-332J
3.9	±5%	30	0.252	1	70	38	NL565050T-392J
4.7	±5%	30	0.252	0.9	78	36	NL565050T-472J
5.6	±5%	30	0.252	0.8	85	33	NL565050T-562J
6.8	±5%	30	0.252	0.7	110	30	NL565050T-682J
8.2	±5%	30	0.252	0.6	125	28	NL565050T-822J
10	±5%	20	0.0796	0.5	150	25	NL565050T-103J

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER (Zin = Zout = 50Ω)
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

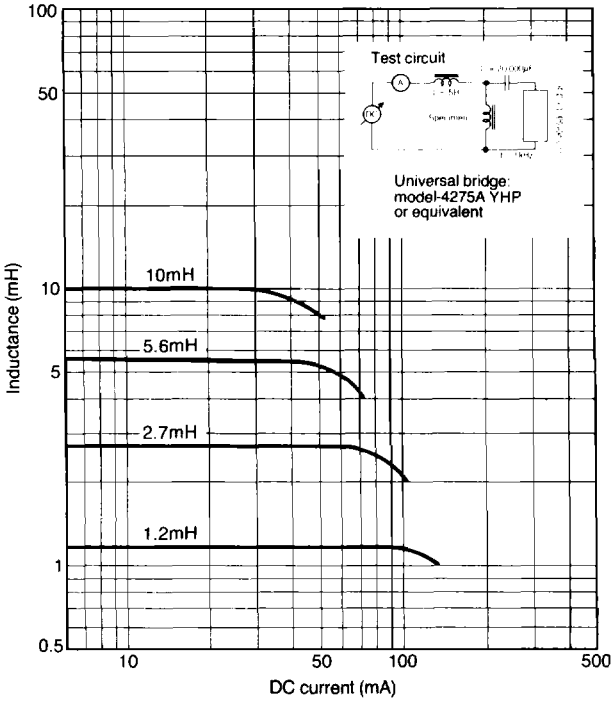
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

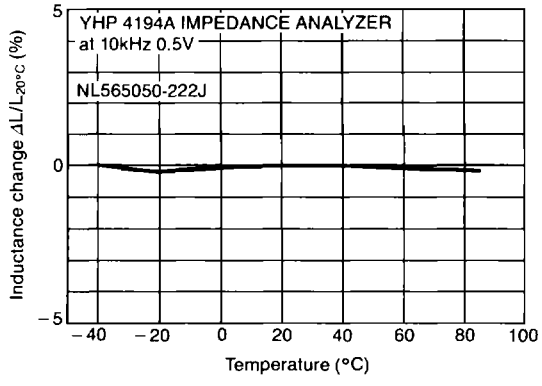
NL565050 TYPE

TYPICAL ELECTRICAL CHARACTERISTICS

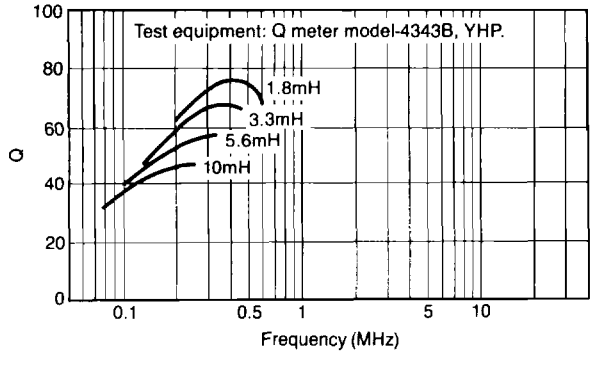
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTIC



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTIC



Q vs. FREQUENCY CHARACTERISTIC

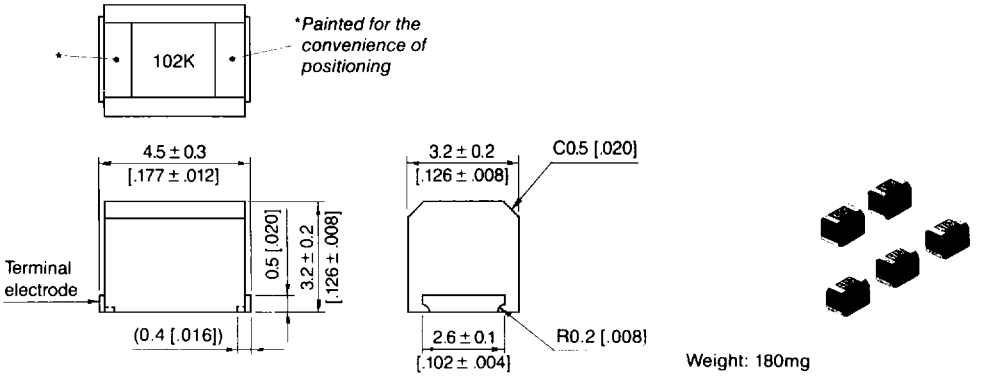


Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NLF453232 TYPE (Magnetic shielded)

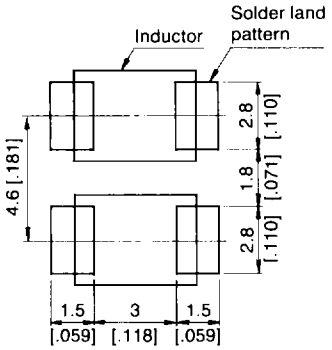
SHAPES AND DIMENSIONS



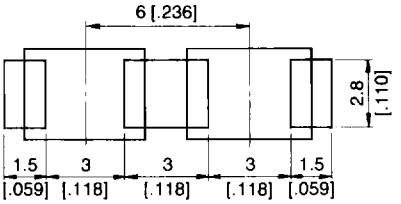
Weight: 180mg

RECOMMENDED PC BOARD PATTERNS

PARALLEL



SERIES



Dimensions in mm [inches]

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
1	±20%	30	7.96	140	0.35	150	NLF453232T-1R0M
1.2	±20%	30	7.96	120	0.38	145	NLF453232T-1R2M
1.5	±20%	30	7.96	100	0.42	140	NLF453232T-1R5M
1.8	±20%	30	7.96	90	0.48	120	NLF453232T-1R8M
2.2	±20%	30	7.96	80	0.5	110	NLF453232T-2R2M
2.7	±20%	30	7.96	70	0.55	105	NLF453232T-2R7M
3.3	±20%	30	7.96	65	0.6	100	NLF453232T-3R3M
3.9	±20%	30	7.96	60	0.66	90	NLF453232T-3R9M
4.7	±20%	30	7.96	55	0.71	85	NLF453232T-4R7M
5.6	±20%	30	7.96	45	0.75	80	NLF453232T-5R6M
6.8	±20%	30	7.96	40	0.9	70	NLF453232T-6R8M
8.2	±20%	30	7.96	35	1	65	NLF453232T-8R2M
10	±10%	50	2.52	30	1.1	60	NLF453232T-100K

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER (Zin = Zout = 50Ω)
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NLF453232 TYPE (Magnetic shielded)

ELECTRICAL CHARACTERISTICS

Inductance (μH)	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz) min.	DC resistance (Ω) max.	Rated current (mA) max.	Part No.
12	±10%	50	2.52	27	1.2	58	NLF453232T-120K
15	±10%	50	2.52	24	1.3	55	NLF453232T-150K
18	±10%	50	2.52	22	1.45	52	NLF453232T-180K
22	±10%	50	2.52	20	1.6	48	NLF453232T-220K
27	±10%	50	2.52	17	1.9	44	NLF453232T-270K
33	±10%	50	2.52	15	2	42	NLF453232T-330K
39	±10%	50	2.52	13	2.2	40	NLF453232T-390K
47	±10%	50	2.52	12	2.4	38	NLF453232T-470K
56	±10%	50	2.52	11	2.65	36	NLF453232T-560K
68	±10%	50	2.52	10	3	33	NLF453232T-680K
82	±10%	50	2.52	10	3.3	31	NLF453232T-820K
100	±10%	50	0.796	9	3.8	29	NLF453232T-101K
120	±10%	50	0.796	8	4.5	27	NLF453232T-121K
150	±10%	50	0.796	7	5.7	26	NLF453232T-151K
180	±10%	40	0.796	6	6.3	24	NLF453232T-181K
220	±10%	40	0.796	5.5	6.9	23	NLF453232T-221K
270	±10%	40	0.796	5	7.6	23	NLF453232T-271K
330	±10%	40	0.796	4.5	9	20	NLF453232T-331K
390	±10%	40	0.796	4	9.5	19	NLF453232T-391K
470	±10%	40	0.796	3.8	10.5	18	NLF453232T-471K
560	±10%	40	0.796	3.6	12	17	NLF453232T-561K
680	±10%	40	0.796	3.4	13.5	16	NLF453232T-681K
820	±10%	40	0.796	3	16	15	NLF453232T-821K
1000	±10%	40	0.252	2.5	18	14	NLF453232T-102K

- *Inductance tolerance is only standard.*
- *Test equipment*
  L, Q: YHP4194A IMPEDANCE ANALYZER (16085A + 16093B + TDK TF-1)
  SRF: HP8753C NETWORK ANALYZER (Zin = Zout = 50Ω)
  Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

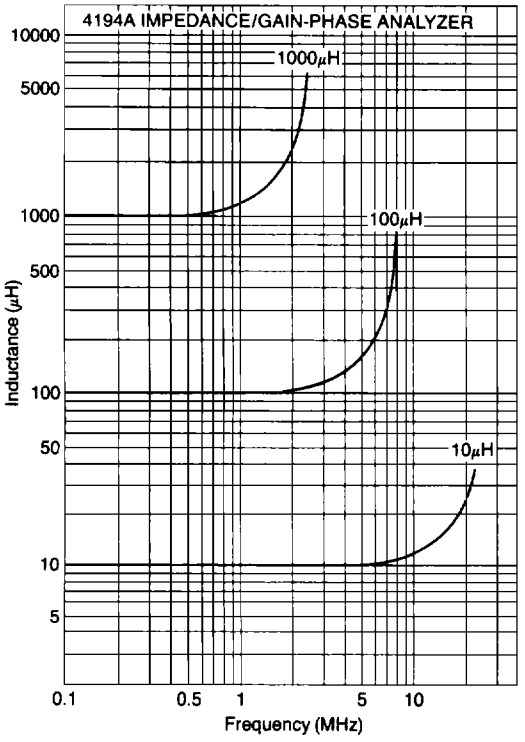
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

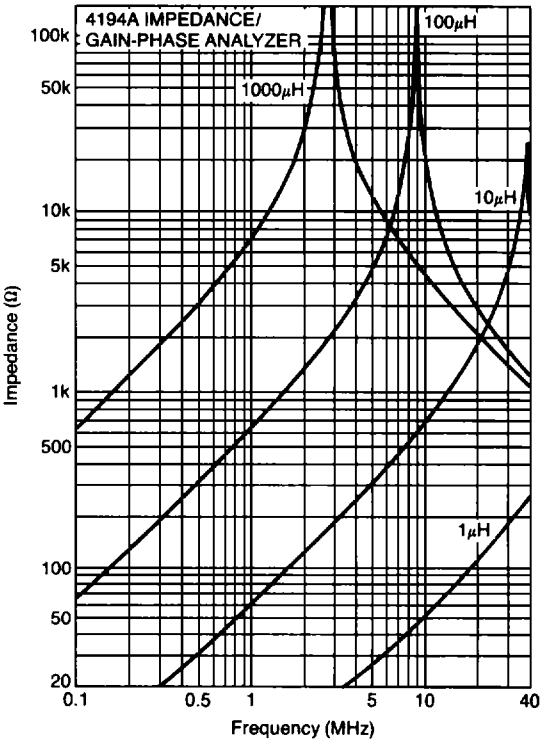
NLF453232 TYPE (Magnetic shielded)

TYPICAL ELECTRICAL CHARACTERISTICS

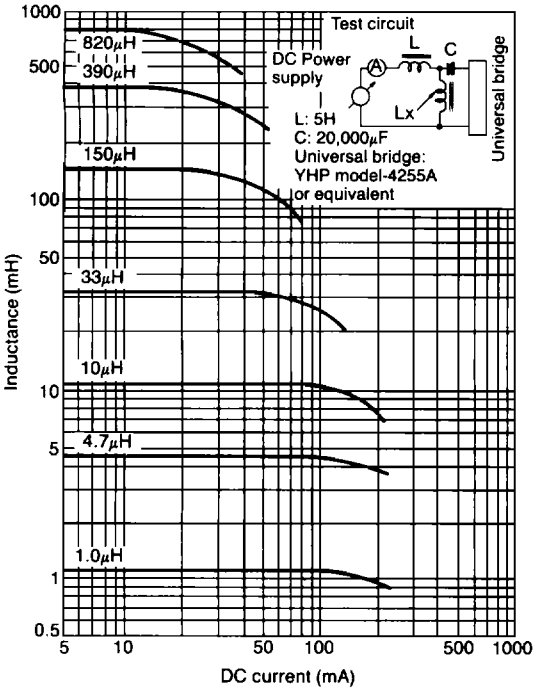
INDUCTANCE CHANGE vs. FREQUENCY CHARACTERISTICS



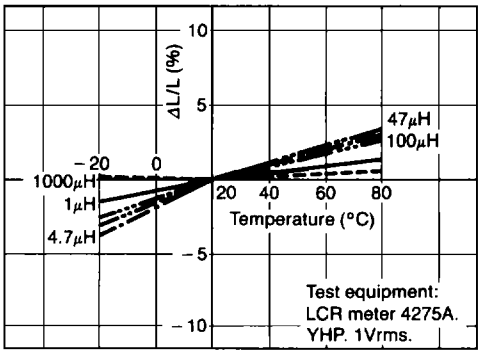
IMPEDANCE CHANGE vs. FREQUENCY CHARACTERISTICS



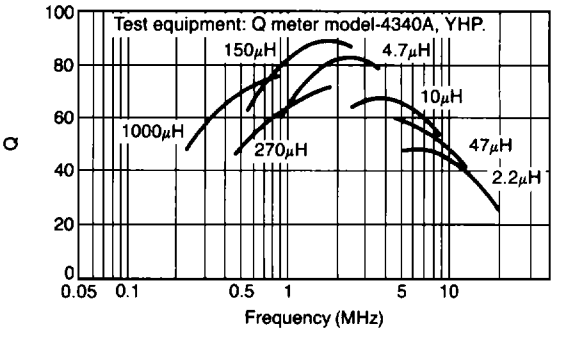
INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



Q vs. FREQUENCY CHARACTERISTICS



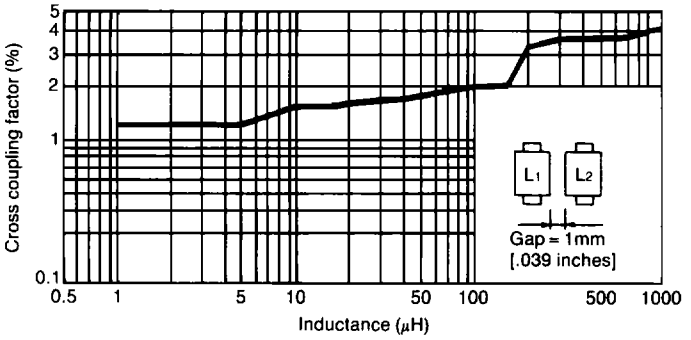
Leadless Inductors

NL and NLF (Magnetic Shielded) Series

NLF453232 TYPE (Magnetic shielded)

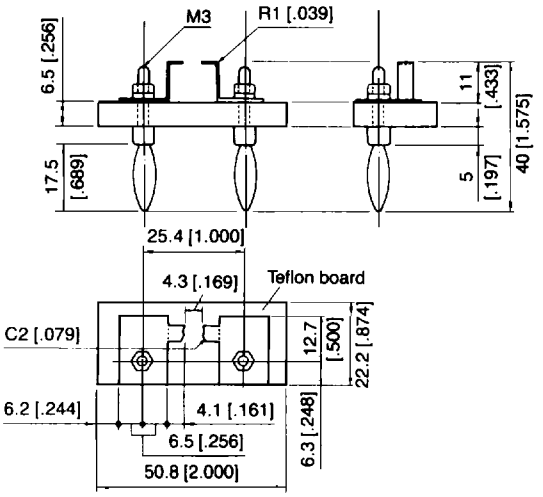
TYPICAL ELECTRICAL CHARACTERISTICS

COUPLING FACTOR

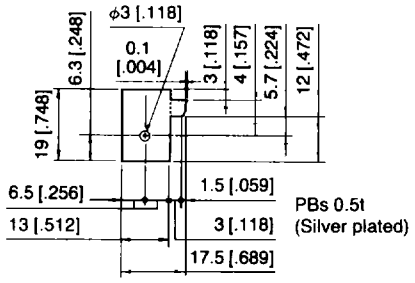


Measurement conditions:	MIL-C-15305E #4, 8, 8, 4
Cross coupling factor	(%) = M ÷ (√L1·L2) × 100 M = (L1 − L2) ÷ 4 L1 = L1 + L2 + 2M L2 = L2 + L2 − 2M
Test equipment	LCR METER 4275A, YHP LCZ METER 4276A, YHP
Test frequency	L ≦ 1μH at 100kHz 1μH < L ≦ 100μH at 10kHz 100μH < L at 1kHz

MEASURING JIG FOR Q-METER



Depending upon the measuring jig is 0.8pF



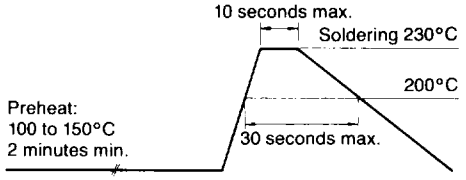
Dimensions in mm [inches]

Leadless Inductors

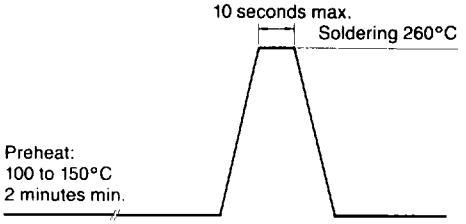
NL and NLF (Magnetic Shielded) Series

RECOMMENDED SOLDERING CONDITIONS

REFLOW SOLDERING



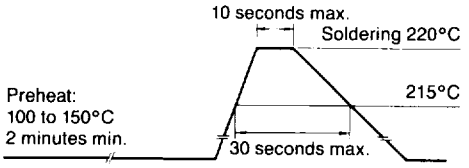
FLOW SOLDERING



IRON SOLDERING

Perform soldering at 250°C on 30W max. within 5 seconds.
Take care not to apply the tip of soldering iron to the terminal electrode.

VAPOR-PHASING



FLUX AND CLEANING

Rosin-based flux is recommended.

Cleaning Conditions

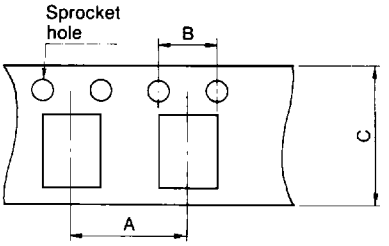
Solvent	Chlorine-based solvent (Do not use acid or alkali solvents.)
Time	2 minutes min. for ultrasonic cleaning

PACKAGINGS

PACKAGING QUANTITIES

Type	Quantity (pcs./reel)
NL252018	2000
NL322522	2000
NL453232	500
NL565050	400
NLF453232	500

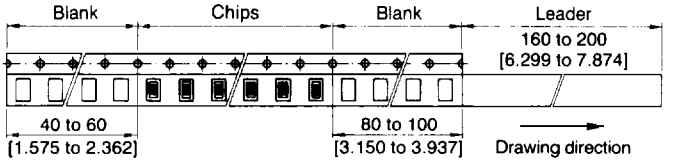
TAPE DIMENSIONS (EIAJ RC-1009)



Dimensions in mm [inches]

Type	A	B	C
NL252018	4 [.157]	4 [.157]	8 [.315]
NL322522	4 [.157]	4 [.157]	8 [.315]
NL453232	8 [.315]	4 [.157]	12 [.472]
NL565050	8 [.315]	4 [.157]	12 [.472]
NLF453232	8 [.315]	4 [.157]	12 [.472]

• *The storage temperature range for packaging is 0 to 60°C.*

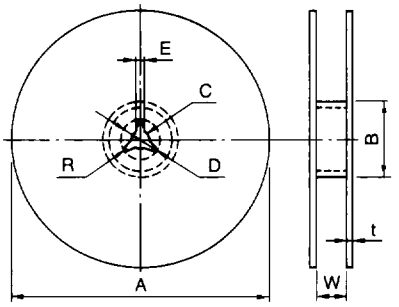


Leadless Inductors

NL and NLF (Magnetic Shielded) Series

PACKAGINGS

REEL DIMENSIONS



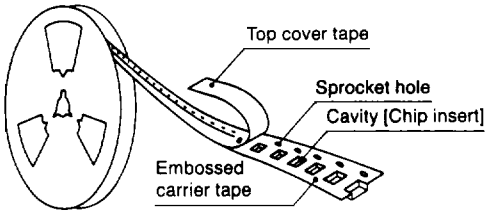
Dimensions in mm [inches]

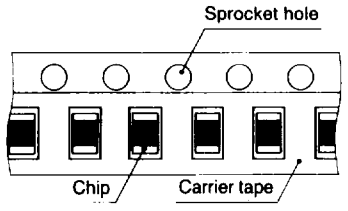
A	ϕ178 ± 2 [7.008 ± .079]
B	ϕ50 [1.969] min.
C	ϕ13 ± 0.5 [.512 ± .020]
D	ϕ21 ± 0.8 [.827 ± .031]
E	2 ± 0.5 [.079 ± .020]
W	14* ± 0.5 [.551 ± .020]
t	2 ± 0.5 [.079 ± .020]
R	1 [.039]

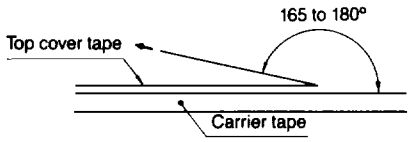
**NL252018 and NL322522 types: 10mm [.394 inches]*
• NL453232, NL565050 and NLF453232 types are available for ϕ330mm [12.992 inches] reel packaging.

TAPING FIGURE

Embossed carrier tape







• The force for tearing off cover tape is 10 to 60 grams in the arrow direction.