

# Inductors

For General Applications  
SMD

## NL Series NL2520 Type

### FEATURES

- The NL series are available in five form factors ranging from 2016 to 5650.
- Utilizing a miniaturized winding structure, these products provide high Q characteristics.
- Inductance tolerance is  $\pm 5$  percent.

### APPLICATIONS

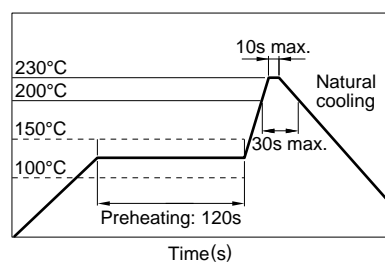
Personal computers, hard disk drives, and other electronic equipment.

### SPECIFICATIONS

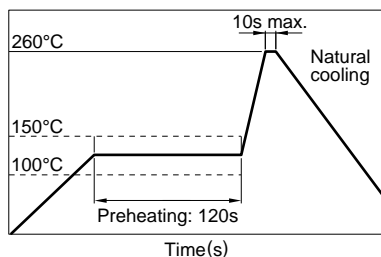
Operating temperature range	-20 to +85°C
Storage temperature range	-40 to +85°C [Unit of products]

### RECOMMENDED SOLDERING CONDITIONS

#### REFLOW SOLDERING



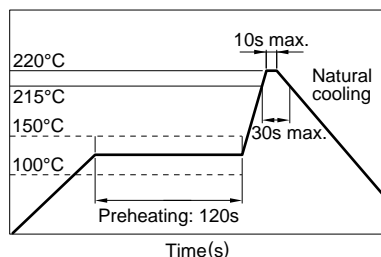
#### FLOW SOLDERING



#### IRON SOLDERING

Perform soldering at 250°C on 30W max. within 5 seconds.

#### VAPOR-PHASING



### FLUX AND CLEANING

Rosin-based flux is recommended.

#### Cleaning Conditions

Solvent	Chlorine-based solvent (Do not use acid or alkali solvents.)
Time	2min max.

### PRODUCT IDENTIFICATION

NL	201614	T	2R2	J
(1)	(2)	(3)	(4)	(5)

(1)Series name

(2)Dimensions L×W×T

201614	2.1×1.6×1.4mm
252018	2.5×2.0×1.8mm
322522	3.2×2.5×2.2mm
453232	4.5×3.2×3.2mm
565050	5.6×5.0×5.0mm

(3)Packaging style

T	Taping (reel)
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(4)Inductance value

1R0	1μH
330	33μH

(5)Inductance tolerance

J	$\pm 5\%$
K	$\pm 10\%$

### PACKAGING STYLE AND QUANTITIES

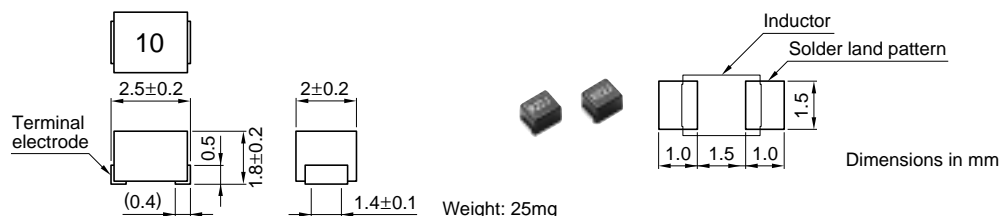
Packaging style	Type	Quantity
Taping	NL201614T	2000 pieces/reel
	NL252018T	2000 pieces/reel
	NL322522T	2000 pieces/reel
	NL453232T	500 pieces/reel
	NL565050T	400 pieces/reel

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### SHAPES AND DIMENSIONS/RECOMMENDED PC BOARD PATTERN



### 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-010X*
0.012	±10, ±5%	15	100	2050	0.27	500	NL252018T-012X
0.015	±10, ±5%	15	100	2000	0.29	480	NL252018T-015X
0.018	±10, ±5%	15	100	1850	0.31	450	NL252018T-018X
0.022	±10, ±5%	15	100	1650	0.37	420	NL252018T-022X
0.027	±10, ±5%	15	100	1550	0.4	410	NL252018T-027X
0.033	±10, ±5%	20	100	1450	0.42	400	NL252018T-033X
0.039	±10, ±5%	20	100	1350	0.45	380	NL252018T-039X
0.047	±10, ±5%	20	100	1200	0.5	360	NL252018T-047X
0.056	±10, ±5%	20	100	1100	0.6	340	NL252018T-056X
0.068	±10, ±5%	20	100	1050	0.65	320	NL252018T-068X
0.082	±10, ±5%	20	100	900	0.75	300	NL252018T-082X
0.1	±10, ±5%	20	100	800	0.8	280	NL252018T-R10X
0.12	±10, ±5%	30	25.2	700	0.3	550	NL252018T-R12X
0.15	±10, ±5%	30	25.2	550	0.35	500	NL252018T-R15X
0.18	±10, ±5%	30	25.2	500	0.4	460	NL252018T-R18X
0.22	±10, ±5%	30	25.2	450	0.5	430	NL252018T-R22X
0.27	±10, ±5%	30	25.2	425	0.55	420	NL252018T-R27X
0.33	±10, ±5%	30	25.2	400	0.6	400	NL252018T-R33X
0.39	±10, ±5%	30	25.2	375	0.65	375	NL252018T-R39X
0.47	±10, ±5%	30	25.2	350	0.68	350	NL252018T-R47X
0.56	±10, ±5%	30	25.2	325	0.75	325	NL252018T-R56X
0.68	±10, ±5%	30	25.2	300	0.85	300	NL252018T-R68X
0.82	±10, ±5%	30	25.2	260	1	260	NL252018T-R82X
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

\* X: 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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## ELECTRICAL CHARACTERISTICS

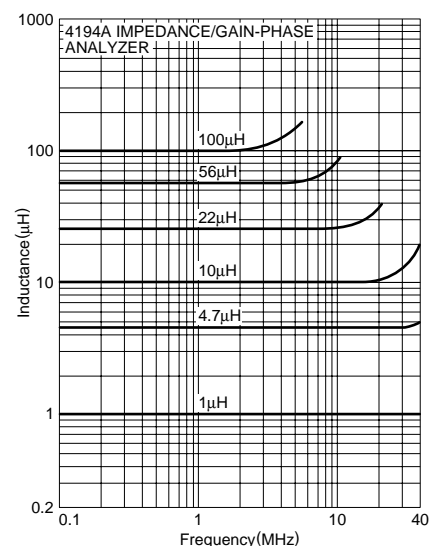
Inductance ( $\mu\text{H}$ )	Inductance tolerance	Q min.	Test frequency L, Q (MHz)	Self-resonant frequency (MHz)min.	DC resistance ( $\Omega$ )max.	Rated current (mA)max.	Part No.
18	$\pm 5\%$	25	2.52	24	4.8	130	NL252018T-180J
22	$\pm 5\%$	25	2.52	22	5.5	125	NL252018T-220J
27	$\pm 5\%$	25	2.52	21	6.3	115	NL252018T-270J
33	$\pm 5\%$	25	2.52	20	7.1	110	NL252018T-330J
39	$\pm 5\%$	20	2.52	18	9.5	90	NL252018T-390J
47	$\pm 5\%$	20	2.52	17	11.1	80	NL252018T-470J
56	$\pm 5\%$	20	2.52	16	12.1	75	NL252018T-560J
68	$\pm 5\%$	20	2.52	15	16.6	70	NL252018T-680J
82	$\pm 5\%$	20	2.52	13	19	66	NL252018T-820J
100	$\pm 5\%$	15	0.796	12	21	60	NL252018T-101J

• Inductance tolerance is only standard.

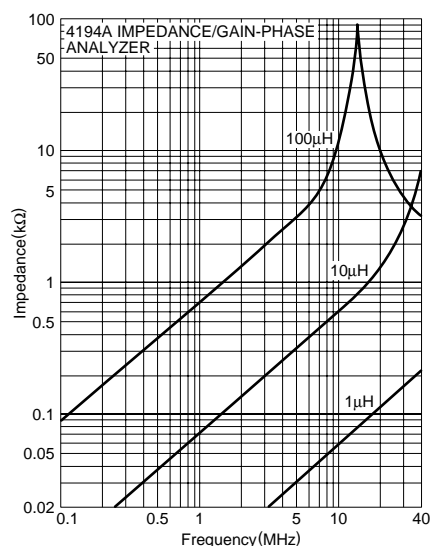
• Test equipment Inductance, Q: YHP4194A IMPEDANCE ANALYZER (16085A+16093B+TDK TF-1)  
SRF: HP8753C NETWORK ANALYZER Rdc: MATSUSHITA VP-2941A DIGITAL MILLIOHM METER

## TYPICAL ELECTRICAL CHARACTERISTICS

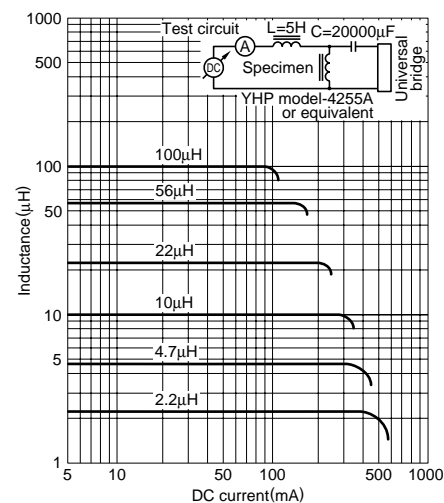
### INDUCTANCE vs. FREQUENCY CHARACTERISTICS



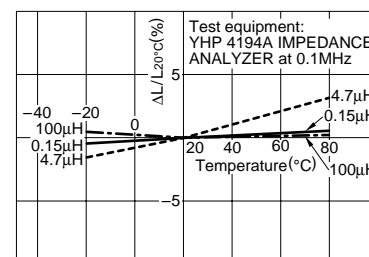
### IMPEDANCE vs. FREQUENCY CHARACTERISTICS



### INDUCTANCE CHANGE vs. DC SUPERPOSITION CHARACTERISTICS



### INDUCTANCE CHANGE vs. TEMPERATURE CHARACTERISTICS



### Q vs. FREQUENCY CHARACTERISTICS

