SMD Wire Wound Chip Inductors / NL TYPE

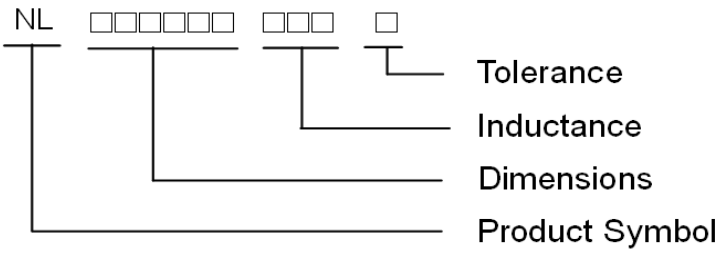
.Features:

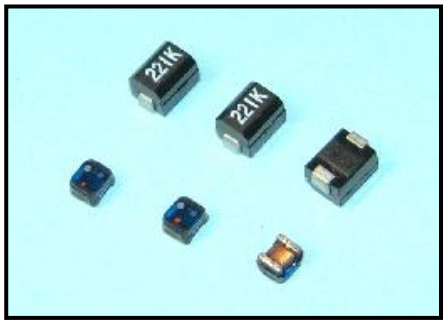
1.Very strong solderability by reflow soldering and soldering iron or wave soldering.
2.Highly accurate dimensions can be mounted automaticlly.
3.Terminals are highly resistant to pull forces.
4.High reliable in environments of sudden temperature change and humidity.
5.Highly resistant to mechanical shocks and presure.
6.Superior Q characteristics and broadest selections amount peers.

.Applications:

Micro TVs, liquid crystal TVs, video cameras, protable VCRs, car radios,car stereos, thin radios, television tuners, mobile phones, radio and other electronic devices.

.Product Identification :





.Shape and Dimension

Figure 1

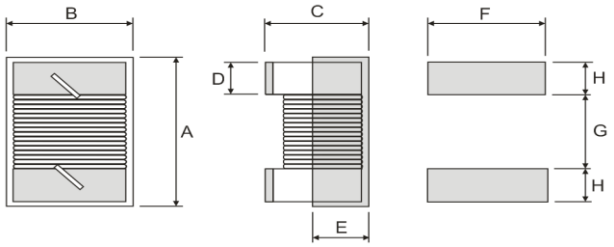
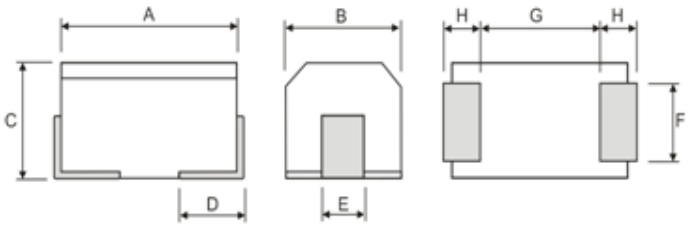
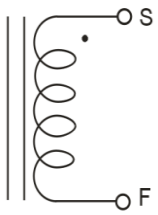


Figure 2



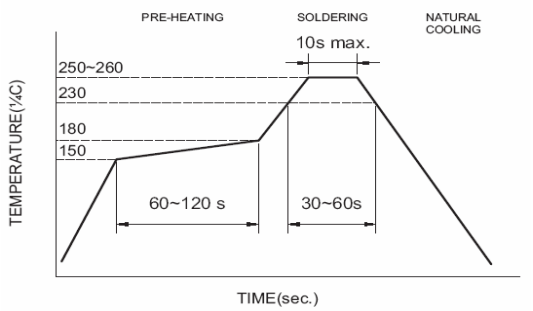
.Schematic



Dimensions in mm

TYPE	A(max)	B(max)	C(max)	D(ref)	E(ref)	F(mm)	G(mm)	H(mm)	Fig
NL252018	2.92	2.79	2.20	0.5	0.7	2.54	1.27	1.02	1
NL322522	3.2±0.4	2.5±0.2	2.2±0.2	0.6+0.3	1.0±0.2	1.4	1.8	1	2
NL453232	4.5±0.3	3.2±0.2	3.2±0.2	1.0+0.3	1.2	1.6	2.2	1.5	2
NL565050	5.8±0.3	5.2±0.3	5.2±0.3	1.3	1.8	4.5	4	2	2

.Recommended Reflow



SMD Wire Wound Chip Inductors / NL TYPE

. Electrical Characteristics（NL252018 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance	Color Code		
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)	1ST	2ND	3RD
NL252018T-5N0□	0.005	100	10	3000	0.25	2000	10	Black	Green	Black
NL252018T-10N□	0.010	100	10	2500	0.25	1800	10	Brown	Black	Black
NL252018T-12N□	0.012	100	15	2400	0.26	1700	10	Brown	Red	Black
NL252018T-15N□	0.015	100	15	2300	0.28	1600	10	Brown	Green	Black
NL252018T-18N□	0.018	100	15	2200	0.30	1550	10	Brown	Gray	Black
NL252018T-22N□	0.022	100	20	2100	0.35	1500	5,10	Red	Red	Black
NL252018T-27N□	0.027	100	20	2000	0.40	1450	5,10	Red	Violet	Black
NL252018T-33N□	0.033	100	30	1600	0.42	1400	5,10	Orange	Orange	Black
NL252018T-39N□	0.039	100	35	1500	0.45	1350	5,10	Orange	White	Black
NL252018T-47N□	0.047	100	35	1400	0.50	1300	5,10	Yellow	Violet	Black
NL252018T-56N□	0.056	100	35	1300	0.60	1250	5,10	Green	Blue	Black
NL252018T-68N□	0.068	100	35	1200	0.65	1240	5,10	Blue	Gray	Black
NL252018T-82N□	0.082	100	35	1100	0.75	1230	5,10	Gray	Red	Black
NL252018T-R10□	0.10	100	35	800	0.80	1220	5,10	Brown	Black	Brown
NL252018T-R12□	0.12	25.2	30	700	0.30	900	5,10	Brown	Red	Brown
NL252018T-R15□	0.15	25.2	30	550	0.35	900	5,10	Brown	Green	Brown
NL252018T-R18□	0.18	25.2	30	500	0.40	850	5,10	Brown	Gray	Brown
NL252018T-R22□	0.22	25.2	30	450	0.50	840	5,10	Red	Red	Brown
NL252018T-R27□	0.27	25.2	30	425	0.55	830	5,10	Red	Violet	Brown
NL252018T-R33□	0.33	25.2	30	400	0.60	820	5,10	Orange	Orange	Brown
NL252018T-R39□	0.39	25.2	30	375	0.65	810	5,10	Orange	White	Brown
NL252018T-R47□	0.47	25.2	30	350	0.68	800	5,10	Yellow	Violet	Brown
NL252018T-R56□	0.56	25.2	30	325	0.75	800	5,10	Green	Blue	Brown
NL252018T-R68□	0.68	25.2	30	300	0.85	800	5,10	Blue	Gray	Brown
NL252018T-R82□	0.82	25.2	30	260	1.0	800	5,10	Gray	Red	Brown
NL252018T-1R0□	1.0	7.96	25	245	1.1	800	5,10	Brown	Black	Red
NL252018T-1R2□	1.2	7.96	25	230	1.2	790	5,10	Brown	Red	Red
NL252018T-1R5□	1.5	7.96	25	182	1.3	750	5,10	Brown	Green	Red
NL252018T-1R8□	1.8	7.96	25	135	1.45	750	5,10	Brown	Gray	Red
NL252018T-2R2□	2.2	7.96	25	105	1.55	750	5,10	Red	Red	Red
NL252018T-2R7□	2.7	7.96	25	70	1.7	740	5,10	Red	Violet	Red
NL252018T-3R3□	3.3	7.96	25	55	1.9	730	5,10	Orange	Orange	Red
NL252018T-3R9□	3.9	7.96	25	48	2.1	700	5,10	Orange	White	Red
NL252018T-4R7□	4.7	7.96	25	43	2.3	650	5,10	Yellow	Violet	Red
NL252018T-5R6□	5.6	7.96	20	42	2.5	640	5,10	Green	Blue	Red
NL252018T-6R8□	6.8	7.96	20	39	2.7	630	5,10	Blue	Gray	Red
NL252018T-8R2□	8.2	7.96	20	36	3.05	600	5,10	Gray	Red	Red
NL252018T-100□	10	2.52	15	33	3.5	600	5,10	Brown	Black	Orange
NL252018T-120□	12	2.52	15	30	3.8	550	5,10	Brown	Red	Orange

SMD Wire Wound Chip Inductors / NL TYPE

Electrical Characteristics（NL252018 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance	Color Code		
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)	1ST	2ND	3RD
NL252018T-150□	15	2.52	15	26	4.4	430	5,10	Brown	Green	Orange
NL252018T-180□	18	2.52	15	24	4.8	400	5,10	Brown	Gray	Orange
NL252018T-220□	22	2.52	15	22	5.5	400	5,10	Red	Red	Orange
NL252018T-270□	27	2.52	15	21	6.3	360	5,10	Red	Violet	Orange
NL252018T-330□	33	2.52	15	20	7.1	350	5,10	Orange	Orange	Orange
NL252018T-390□	39	2.52	10	18	9.5	330	5,10	Orange	White	Orange
NL252018T-470□	47	2.52	10	17	11.1	300	5,10	Yellow	Violet	Orange
NL252018T-560□	56	2.52	10	16	12.1	270	5,10	Green	Blue	Orange
NL252018T-680□	68	2.52	10	15	16.6	250	5,10	Blue	Gray	Orange
NL252018T-820□	82	2.52	10	13	19	200	5,10	Gray	Red	Orange
NL252018T-101□	100	0.796	8	12	21	120	5,10	Brown	Black	Yellow

Electrical Characteristics（NL322522 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)
NL322522T-R12□	0.12	25.2	30	500	0.22	450	20
NL322522T-R15□	0.15	25.2	30	450	0.25	450	20
NL322522T-R18□	0.18	25.2	30	400	0.28	450	20
NL322522T-R22□	0.22	25.2	30	350	0.32	450	20
NL322522T-R27□	0.27	25.2	30	320	0.36	450	20
NL322522T-R33□	0.33	25.2	30	300	0.40	450	20
NL322522T-R39□	0.39	25.2	30	250	0.45	450	20
NL322522T-R47□	0.47	25.2	30	220	0.50	450	20
NL322522T-R56□	0.56	25.2	30	180	0.55	450	20
NL322522T-R68□	0.68	25.2	30	160	0.60	450	20
NL322522T-R82□	0.82	25.2	30	140	0.65	450	20
NL322522T-1R0□	1	7.96	30	120	0.70	400	10
NL322522T-1R2□	1.2	7.96	30	100	0.75	390	10
NL322522T-1R5□	1.5	7.96	30	85	0.85	370	10
NL322522T-1R8□	1.8	7.96	30	80	0.90	350	10
NL322522T-2R2□	2.2	7.96	30	75	1.00	320	10
NL322522T-2R7□	2.7	7.96	30	70	1.10	290	10
NL322522T-3R3□	3.3	7.96	30	60	1.20	260	10
NL322522T-3R9□	3.9	7.96	30	55	1.30	250	10
NL322522T-4R7□	4.7	7.96	30	50	1.50	220	10
NL322522T-5R6□	5.6	7.96	30	45	1.60	200	10
NL322522T-6R8□	6.8	7.96	30	40	1.80	180	10
NL322522T-8R2□	8.2	7.96	30	35	2.00	170	10
NL322522T-100□	10	2.52	30	30	2.10	150	10
NL322522T-120□	12	2.52	30	20	2.50	140	10

SMD Wire Wound Chip Inductors / NL TYPE

Electrical Characteristics（NL322522 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)
NL322522T-150□	15	2.52	30	20	2.80	130	10
NL322522T-180□	18	2.52	30	20	3.30	120	10
NL322522T-220□	22	2.52	30	20	3.70	110	10
NL322522T-270□	27	2.52	30	20	5.00	80	10
NL322522T-330□	33	2.52	30	17	5.60	70	10
NL322522T-390□	39	2.52	30	16	6.40	65	10
NL322522T-470□	47	2.52	30	15	7.00	60	10
NL322522T-560□	56	2.52	30	13	8.00	55	10
NL322522T-680□	68	2.52	30	12	9.00	50	10
NL322522T-820□	82	2.52	30	11	10.00	45	10
NL322522T-101□	100	0.796	20	10	11.00	40	10
NL322522T-121□	120	0.796	20	10	11.00	70	10
NL322522T-151□	150	0.796	20	8	15.00	65	10

Electrical Characteristics（NL453232 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)
NL453232T-R10□	0.1	25.2	35	300	0.18	800	20
NL453232T-R12□	0.12	25.2	35	280	0.20	770	20
NL453232T-R15□	0.15	25.2	35	250	0.22	730	20
NL453232T-R18□	0.18	25.2	35	220	0.24	700	20
NL453232T-R22□	0.22	25.2	40	200	0.25	665	20
NL453232T-R27□	0.27	25.2	40	180	0.26	635	20
NL453232T-R33□	0.33	25.2	40	165	0.28	605	20
NL453232T-R39□	0.39	25.2	40	150	0.30	575	20
NL453232T-R47□	0.47	25.2	40	145	0.32	545	20
NL453232T-R56□	0.56	25.2	40	140	0.36	520	20
NL453232T-R68□	0.68	25.2	40	135	0.40	500	20
NL453232T-R82□	0.82	25.2	40	130	0.45	475	20
NL453232T-1R0□	1	7.96	50	100	0.50	450	10
NL453232T-1R2□	1.2	7.96	50	80	0.55	430	10
NL453232T-1R5□	1.5	7.96	50	70	0.60	410	10
NL453232T-1R8□	1.8	7.96	50	60	0.65	390	10
NL453232T-2R2□	2.2	7.96	50	55	0.70	380	10
NL453232T-2R7□	2.7	7.96	50	50	0.75	370	10
NL453232T-3R3□	3.3	7.96	50	45	0.80	355	10
NL453232T-3R9□	3.9	7.96	50	40	0.90	330	10
NL453232T-4R7□	4.7	7.96	50	35	1.00	315	10

SMD Wire Wound Chip Inductors / NL TYPE

Electrical Characteristics（NL453232 TYPE）

Part No.	Inductance	Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)
NL453232T-5R6□	5.6	7.96	50	33	1.10	300	10
NL453232T-6R8□	6.8	7.96	50	27	1.20	285	10
NL453232T-8R2□	8.2	7.96	50	25	1.40	270	10
NL453232T-100□	10	2.52	50	20	1.60	250	10
NL453232T-120□	12	2.52	50	18	2.00	225	10
NL453232T-150□	15	2.52	50	17	2.50	200	10
NL453232T-180□	18	2.52	50	15	2.80	190	10
NL453232T-220□	22	2.52	50	13	3.20	180	10
NL453232T-270□	27	2.52	50	12	3.60	170	10
NL453232T-330□	33	2.52	50	11	4.00	160	10
NL453232T-390□	39	2.52	50	10	4.50	150	10
NL453232T-470□	47	2.52	50	10	5.00	140	10
NL453232T-560□	56	2.52	50	9	5.50	135	10
NL453232T-680□	68	2.52	50	9	6.00	130	10
NL453232T-820□	82	2.52	50	8	7.00	120	10
NL453232T-101□	100	0.796	40	8	8.00	110	10
NL453232T-121□	120	0.796	40	6	8.00	110	10
NL453232T-151□	150	0.796	40	5	9.00	105	10
NL453232T-181□	180	0.796	40	5	9.50	102	10
NL453232T-221□	220	0.796	40	4	10.00	100	10
NL453232T-271□	270	0.796	40	4	12.00	92	10
NL453232T-331□	330	0.796	40	3.5	14.00	85	10
NL453232T-391□	390	0.796	40	3	18.00	80	10
NL453232T-471□	470	0.796	40	3	26.00	62	10
NL453232T-561□	560	0.796	30	3	30.00	50	10
NL453232T-681□	680	0.796	30	3	30.00	50	10
NL453232T-821□	820	0.796	30	2.5	35.00	30	10
NL453232T-102□	1000	0.252	20	2.5	40.00	30	10

SMD Wire Wound Chip Inductors / NL TYPE

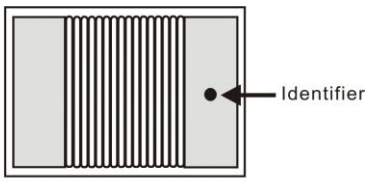
Electrical Characteristics（NL565050 TYPE）

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μH)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(±%)
NL565050T-122□	1200	0.252	30	1.5	17.00	75	5,10
NL565050T-152□	1500	0.252	30	1.4	20.00	70	5,10
NL565050T-182□	1800	0.252	30	1.3	30.00	60	5,10
NL565050T-222□	2200	0.252	30	1.2	35.00	55	5,10
NL565050T-272□	2700	0.252	30	1.1	55.00	45	5,10
NL565050T-332□	3300	0.252	30	1	60.00	40	5,10
NL565050T-392□	3900	0.252	30	1	70.00	38	5,10
NL565050T-472□	4700	0.252	30	0.9	78.00	36	5,10
NL565050T-562□	5600	0.252	30	0.8	85.00	33	5,10
NL565050T-682□	6800	0.252	30	0.7	110.00	30	5,10
NL565050T-822□	8200	0.252	30	0.6	125.00	28	5,10
NL565050T-103□	10000	0.796	20	0.5	150.00	25	5,10

NOTE:

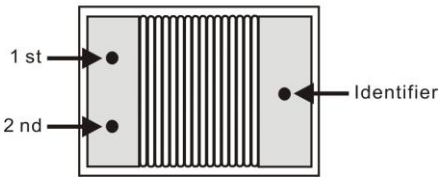
1. Operating temperature range －25℃～85℃
2. Idc for Inductance drop 10% from its value without current.
3. □Tolerance：J=±5%；K=±10%
4. Color Coding System

0603/0805/201614 Series
Because of their small size,these parts are marked with a single color dot. The inductance value represented by the dot is shown on the data page for each series.



1008/1206/252018/322522 Series
These parts are marked with 3 color dots. The table at right side shows the significance of each color.
Dots 1 and 2 indicate the inductance in nanohenries.
Dot 3 indicates the number of zeroes to be added.

0 = Black	5 = Green	Examples:
1 = Brown	6 = Blue	Yellow, Violet, Black = 47nH
2 = Red	7 = Violet	Yellow, Violet, Brown = 470nH
3 = Orange	8 = Gray	Yellow, Violet, Red = 4700nH
4 = Yellow	9 = White	Brown, Black, Red = 1000nH



SMD Wire Wound Chip Inductors / NL TYPE

. Reliability and Test Conditions(For Open Type)- NL252018 Series

1-1.Mechanical Performance

Item	Specification	Test Method
Resistance To Soldering Heat	Appearance: No Damage	1.Pre-Heating: 150℃, 1min. 2.Solder Composition: Sn/Pb = 63/37. 3.Solder Temperature: 260±5℃. 4.Immersion Time: 10±1sec.
Solder ability	The Electrodes Shall Be At Least 90% Covered With New Solder Coating	1.Pre-Heating: 150℃, 1min. 2.Solder Composition: Sn/Pb = 63/37. 3.Solder Temperature: 230±5℃. 4.Immersion Time: 4±1sec.
Component Adhesion (Push Test)	4 Lbs. For The Rest	The Device Should Be Reflow Soldered (230℃±5℃ For 10 Seconds) To A Tinned Copper Substrate. A Force Gauge Should Be Applied To The Side Of The Component. The Device Must Withstand A Minimum Force Of 1 Or 2 Or 4 Pounds Without A Failure Of The Termination Attached To Component.

1-2.Environmental Performance

Item	Specification	Test Method
Temperature Cycle	Appearance: No Damage Inductance: within±10% of initial value Q change: within±30% of initial value	One Cycle: Step / Temperature (℃) / Time (Min.) 1 / -25 ± 3 / 30 2 / 25 ± 3 / 3 3 / 85 ± 3 / 30 4 / 25 ± 2 / 3 Total: 5 cycles Measured After Exposure In The Room Condition For 1Hrs
Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 100Hrs Measured After Exposure In The Room Condition For 1Hrs
High Temperature Resistance		Temperature: 85±3℃ Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs
Low Temperature Resistance		Temperature: -25±3℃ Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs
High Temperature Load Life	There Should Be No Evidence Of Short Or Open Circle	Temperature: 85±3℃ Load: Allowed DC Current Time: 1000Hrs
Humidity Load Life		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Load: Allowed DC Current Time: 1000Hrs

SMD Wire Wound Chip Inductors / NL TYPE

Reliability and Test Conditions(For Molded Type)- NL322522/ NL453232/ NL565050 Series

1-1.Mechanical Performance

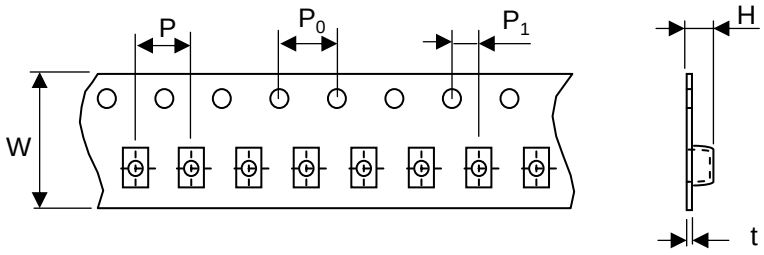
Item	Specification	Test Method
Vibration	Appearance: No damage Inductance: within±10% of initial value Q change: within±30% of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y & Z), total 6hrs
Solder ability	The electrodes shall be at least 90% covered with new solder coating	Pre-heating: 150℃, 1min Solder Composition: Sn/Ag3.0/Cu0.5 Solder Temperature: 245±5℃ Immersion Time: 4±1sec

1-2.Environmental Performance

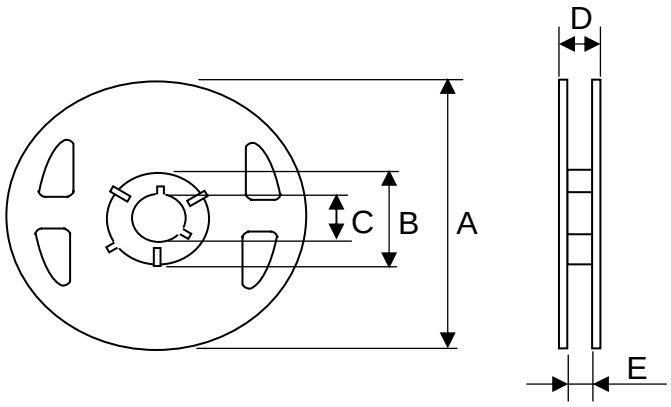
Item	Specification	Test Method
Temperature Cycle	Appearance: No Damage Inductance: within±10% of initial value Q change: within±30% of initial value	One Cycle: Step / Temperature (℃) / Time (Min.) 1 / -25 ± 3 / 30 2 / 25 ± 3 / 3 3 / 85 ± 3 / 30 4 / 25 ± 2 / 3 Total: 100 cycles Measured After Exposure In The Room Condition For 24Hrs
Humidity Resistance		Temperature: 40±2℃ Relative Humidity: 90 ~ 95% Time: 1000Hrs Measured After Exposure In The Room Condition For 24Hrs
High Temperature Resistance		Temperature: 85±3℃ Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs
Low Temperature Resistance		Temperature: -25±3℃ Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs

SMD Wire Wound Chip Inductors / NL TYPE

.Packing Specifications



TYPE	Packaging Quantity		Tape Dimension(mm)					
	Pcs / Reel	Inner box	W	P	P_0	P_1	H	t
NL252018	2000	10000	8	4	4	2	2.2	0.23
NL322522	2000	10000	8	4	4	2	2.4	0.23
NL453232	500	2000	12	8	4	2	3.5	0.30
NL565050	1000	5000	16	12	4	2	5.5	0.35



TYPE	Reel Dimension(mm)				
	A	B	C	D	E
NL252018	180	60	13.00	12.00	9
NL322522	180	60	13.00	12.00	9
NL453232	180	60	13.00	16.00	13.2
NL565050	330	100	13.00	22.00	17.4