

SMD Wire Wound Chip Inductors / NLF TYPE (For Signal Line)

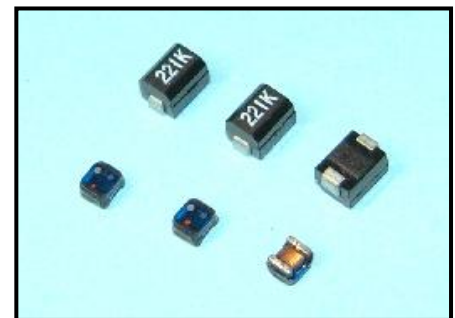
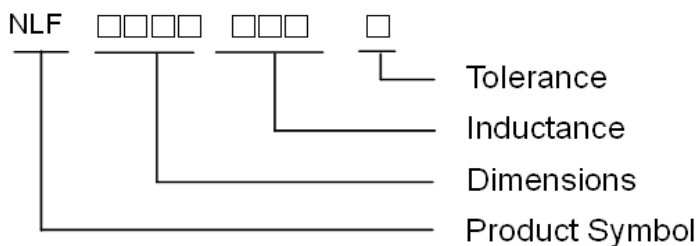
.Features:

- 1.Utilizing a miniaturized winding structure.
- 2.These products provide higher Q characteristics.
- 3.Low DC resistance design is ideal for low loss.
- 4.RoHS compliant.

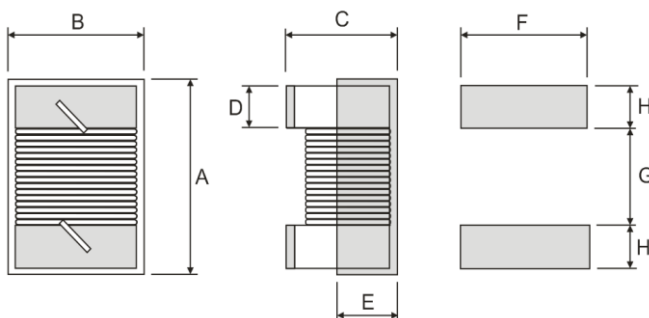
.Applications:

- 1.Personal computers,Hard disk drives.
- 2.xDSL modem and Cable modem.
- 3.Digital camera and other electronic equipment.

.Product Identification :



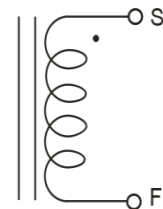
.Shape and Dimension



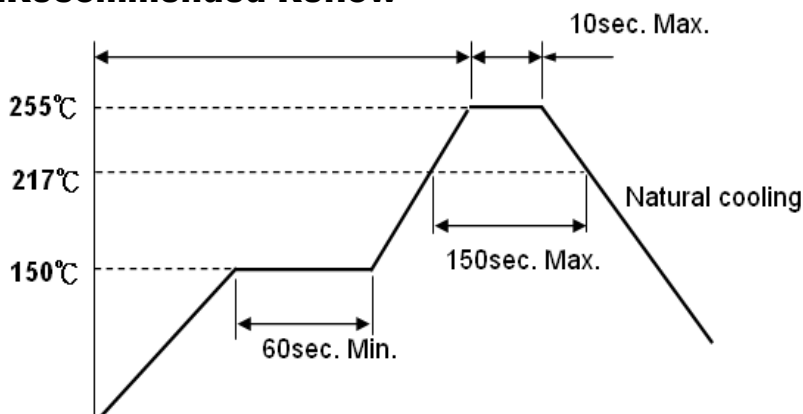
Dimensions in mm

TYPE	A(max)	B(max)	C(max)	D(ref)	E(ref)	F(mm)	G(mm)	H(mm)
NLF0805	2.40	1.65	1.30	0.44	0.65	1.78	0.76	1.02
NLF1008	2.90	2.54	2.06	0.50	1.30	2.54	1.27	1.02
NLF1210	3.60	2.90	2.40	0.50	1.10	2.70	2.00	1.20

.Schematic



.Recommended Reflow



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Electrical Characteristics (NLF0805 TYPE)

Part No.	Inductance (μ H)	L/Q Test Freq. (MHZ)	Q Min.	SRF (MHZ)Min.	DCR (Ω)Max.	IDC (mA)Max.	Tolerance ($\pm$ %)	Color Code
NLF0805-R12□	0.12	25/25	25	1000	0.18	1500	5,10	Violet
NLF0805-R15□	0.15	25/25	25	1000	0.18	1400	5,10	Gray
NLF0805-R18□	0.18	25/25	30	1000	0.20	1400	5,10	Black
NLF0805-R22□	0.22	25/25	30	830	0.25	1350	5,10	Brown
NLF0805-R27□	0.27	25/25	30	800	0.38	1300	5,10	Red
NLF0805-R33□	0.33	25/25	30	750	0.35	1200	5,10	Orange
NLF0805-R39□	0.39	25/25	30	700	0.35	1160	5,10	Yellow
NLF0805-R47□	0.47	25/25	30	690	0.40	1100	5,10	Green
NLF0805-R56□	0.56	25/25	30	640	0.40	1040	5,10	Blue
NLF0805-R62□	0.62	25/25	30	640	0.45	980	5,10	Brown
NLF0805-R68□	0.68	25/25	30	510	0.50	900	5,10	Violet
NLF0805-R82□	0.82	25/25	30	500	0.50	900	5,10	Gray
NLF0805-R91□	0.91	25/25	30	500	0.55	900	5,10	Yellow
NLF0805-1R0□	1	7.9/7.9	20	470	0.60	840	5,10	White
NLF0805-1R2□	1.2	7.9/7.9	20	400	0.75	800	5,10	Black
NLF0805-1R5□	1.5	7.9/7.9	25	400	1.00	720	5,10	Brown
NLF0805-1R8□	1.8	7.9/7.9	25	230	1.00	660	5,10	Red
NLF0805-2R2□	2.2	7.9/7.9	25	200	1.05	600	5,10	Orange
NLF0805-2R7□	2.7	7.9/7.9	25	130	1.18	500	5,10	Yellow
NLF0805-3R3□	3.3	7.9/7.9	25	160	1.26	480	5,10	Green
NLF0805-3R9□	3.9	7.9/7.9	25	130	1.75	440	5,10	Blue
NLF0805-4R7□	4.7	7.9/7.9	25	120	1.87	390	5,10	Violet
NLF0805-5R6□	5.6	7.9/7.9	25	90	2.00	340	5,10	Gray
NLF0805-6R8□	6.8	7.9/7.9	25	55	2.15	300	5,10	White
NLF0805-8R2□	8.2	7.9/7.9	25	40	2.37	280	5,10	Black
NLF0805-100□	10	2.5/2.5	16	40	2.55	260	5,10	Brown
NLF0805-120□	12	2.5/2.5	16	37	2.80	220	5,10	Red
NLF0805-150□	15	2.5/2.5	16	30	3.80	200	5,10	Orange
NLF0805-180□	18	2.5/2.5	16	23	4.48	180	5,10	Yellow
NLF0805-220□	22	2.5/2.5	16	20	6.30	160	5,10	Green
NLF0805-270□	27	2.5/2.5	16	19	6.85	140	5,10	Blue
NLF0805-330□	33	2.5/2.5	16	18	7.60	120	5,10	Violet

Electrical Characteristics (NLD1008 TYPE)

Part No.	Inductance (μ H)	L/Q Test Freq. (MHZ)	Q Min.	SRF (MHZ)Min.	DCR (Ω)Max.	IDC (mA)Max.	Tolerance ($\pm$ %)	Color Code		
								1st	2nd	3rd
NLF1008-R22□	0.22	25/25	30	930	0.40	920	5,10	Red	Red	Brown
NLF1008-R56□	0.56	25/25	30	460	0.55	900	5,10	Green	Blue	Brown
NLF1008-R62□	0.62	25/25	30	460	0.55	900	5,10	Blue	Red	Brown
NLF1008-R68□	0.68	25/25	30	420	0.55	880	5,10	Blue	Gray	Brown

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Electrical Characteristics (NLD1008 TYPE)

Part No.	Inductance (uH)	L/Q Test Freq. (MHZ)	Q Min.	SRF (MHZ)Min.	DCR (Ω)Max.	IDC (mA)Max.	Tolerance (±%)	Color Code		
								1st	2nd	3rd
NLF1008-R75□	0.72	25/25	30	420	0.65	880	5,10	Violet	Green	Brown
NLF1008-R82□	0.82	25/25	30	380	0.65	840	5,10	Gray	Red	Brown
NLF1008-R91□	0.91	25/25	30	400	0.65	840	5,10	White	Brown	Brown
NLF1008-1R0□	1	7.9/7.9	25	300	0.72	800	5,10	Brown	Black	Red
NLF1008-1R2□	1.2	7.9/7.9	25	280	0.74	800	5,10	Brown	Red	Red
NLF1008-1R5□	1.5	7.9/7.9	25	245	0.85	780	5,10	Brown	Green	Red
NLF1008-1R8□	1.8	7.9/7.9	25	240	0.92	780	5,10	Brown	Gray	Red
NLF1008-2R2□	2.2	7.9/7.9	25	205	0.99	760	5,10	Red	Red	Red
NLF1008-2R7□	2.7	7.9/7.9	25	187	1.02	760	5,10	Red	Violet	Red
NLF1008-3R3□	3.3	7.9/7.9	25	165	1.37	740	5,10	Orgnge	Orgnge	Red
NLF1008-3R9□	3.9	7.9/7.9	25	144	1.66	700	5,10	Orgnge	White	Red
NLF1008-4R7□	4.7	7.9/7.9	25	110	1.68	660	5,10	Yellow	Violet	Red
NLF1008-5R6□	5.6	7.9/7.9	25	88	1.75	640	5,10	Green	Blue	Red
NLF1008-6R8□	6.8	7.9/7.9	25	70	1.85	640	5,10	Blue	Gray	Red
NLF1008-8R2□	8.2	7.9/7.9	25	57	2.00	600	5,10	Gray	Red	Red
NLF1008-100□	10	2.5/2.5	15	55	2.32	600	5,10	Brown	Black	Orange
NLF1008-120□	12	2.5/2.5	15	52	2.99	560	5,10	Brown	Red	Orange
NLF1008-150□	15	2.5/2.5	15	49	3.42	480	5,10	Brown	Green	Orange
NLF1008-180□	18	2.5/2.5	15	48	4.65	420	5,10	Brown	Gray	Orange
NLF1008-220□	22	2.5/2.5	15	25	5.12	420	5,10	Red	Red	Orange
NLF1008-270□	27	2.5/2.5	15	23	5.76	420	5,10	Red	Violet	Orange
NLF1008-330□	33	2.5/2.5	15	17	6.44	400	5,10	Orange	Orange	Orange
NLF1008-390□	39	2.5/2.5	15	15	6.85	380	5,10	Orange	White	Orange
NLF1008-470□	47	2.5/2.5	14	13	9.94	340	5,10	Yellow	Violet	Orange
NLF1008-560□	56	2.5/2.5	14	10	10.70	280	5,10	Green	Blue	Orange
NLF1008-680□	68	2.5/2.5	14	8	12.80	260	5,10	Blue	Gray	Orange
NLF1008-820□	82	2.5/2.5	14	8	18.30	240	5,10	Gray	Red	Orange
NLF1008-101□	100	1.0/1.0	8	7	19.60	200	5,10	Brown	Black	Yellow

Electrical Characteristics (NLD1210 TYPE)

Part No.	Inductance (uH)	L/Q Test Freq. (MHZ)	Q Min.	SRF (MHZ)Min.	DCR (Ω)Max.	IDC (mA)Max.	Tolerance (±%)	Color Code		
								1st	2nd	3rd
NLF1210-1R8□	1.8	7.9/7.9	40	203	0.62	1000	5,10	Brown	Gray	Red
NLF1210-3R3□	3.3	7.9/7.9	30	146	0.83	1200	5,10	Orange	Orange	Red
NLF1210-3R9□	3.9	7.9/7.9	30	139	1.74	900	5,10	Orange	White	Red
NLF1210-4R7□	4.7	7.9/7.9	35	124	1.90	800	5,10	Yellow	Violet	Red
NLF1210-6R8□	6.8	7.9/7.9	30	109	1.37	450	5,10	Blue	Gray	Red
NLF1210-100□	10	2.5/2.5	23	90	1.70	590	5,10	Brown	Black	Orange
NLF1210-150□	15	2.5/2.5	25	67	2.22	340	5,10	Brown	Green	Orange
NLF1210-180□	18	2.5/2.5	25	57	2.42	330	5,10	Brown	Gray	Orange

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Electrical Characteristics (NLD1210 TYPE)

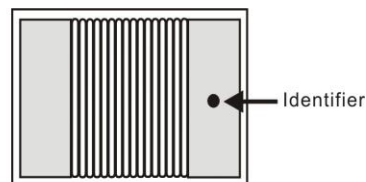
Part No.	Inductance (uH)	L/Q Test Freq. (MHZ)	Q Min.	SRF (MHZ)Min.	DCR (Ω)Max.	IDC (mA)Max.	Tolerance (±%)	Color Code		
								1st	2nd	3rd
NLF1210-220□	22	2.5/2.5	25	48	2.66	300	5,10	Red	Red	Orange
NLF1210-270□	27	2.5/2.5	25	38	2.99	250	5,10	Red	Violet	Orange
NLF1210-680□	68	2.5/2.5	23	15	4.50	340	5,10	Blue	Gray	Orange
NLF1210-820□	82	2.5/2.5	23	15	5.95	300	5,10	Gray	Red	Orange
NLF1210-101□	100	1.0/1.0	15	14	6.62	250	5,10	Brown	Black	Yellow
NLF1210-151□	150	1.0/1.0	15	11	8.29	135	5,10	Brown	Green	Yellow
NLF1210-221□	220	1.0/1.0	15	8	12.48	80	5,10	Red	Red	Yellow

NOTE:

1. Operating temperature range $-25^{\circ}\text{C} \sim 85^{\circ}\text{C}$
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.

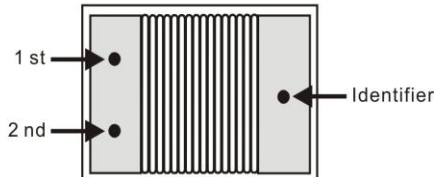
Dots 1 and 2 indicate the inductance in nanohenries.

Dot 3 indicates the number of zeroes to be added.

0 = Black	5 = Green
1 = Brown	6 = Blue
2 = Red	7 = Violet
3 = Orange	8 = Gray
4 = Yellow	9 = White

Examples:

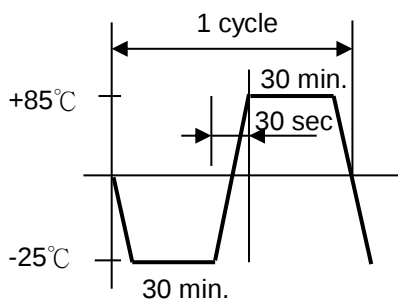
Yellow, Violet, Black = 47nH
 Yellow, Violet, Brown = 470nH
 Yellow, Violet, Red = 4700nH
 Brown, Black, Red = 1000nH



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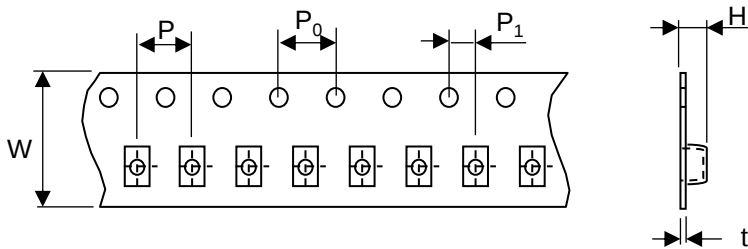
. Reliability and Test Conditions(可靠性測試條件)

Environmental Performance

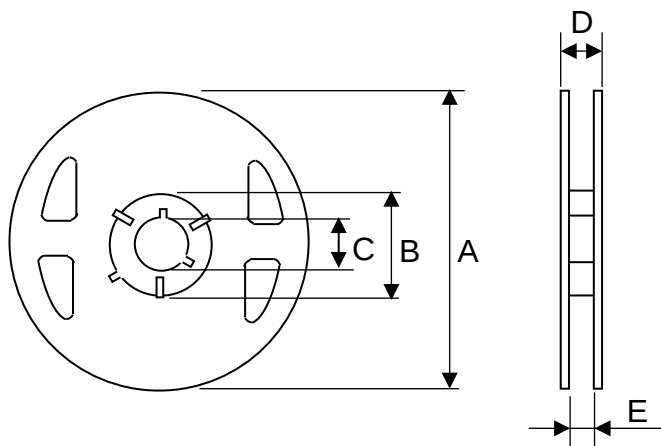
Item	Specification	Test Method
Solderability	The metalized area must have 90% minimum solder coverage.	Dip pads in flux and dip in solder pot(96.5 Sn/3.5 Ag solder) at 255° C ±5°C.
Resistance to soldering heat	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be reflowed onto a PC board using 96.5 Sn/3.5 Ag solder paste. Solder process shall be at a maximum temperature of 260°C. For 96.5 Sn/3.5 Ag solder paste:>217°C for 90 seconds
Vibration	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Solder specimen inductor on the test printed circuit board. Apply vibrations in each of the x,y and z directions for 2 hours for a total of 6 hours. Frequency : 10~50 Hz Amplitude : 1.5mm
High temperature resistance	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature 85±2°C for 500±12 hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Static Humidity	Inductors must not have a shorted or open winding.	Inductors shall be subjected to temperature 85±2°C and 90 to 95%RH. for ten 24-hours. Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.
Component adhesion(push test)	Inductors shall be subjected to 0.9Kg	Inductors shall be reflow soldered (255°C ±5°C for 10 seconds) to a tinned copper substrate. A force gauge shall be applied to the side of the component. The device must withstand the stated force without a failure of the termination.
Low temperature storage	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to temperature -25±2°C for 48±12 hours. Measure the test items after leaving the inductors at room temperature and humidity for 1 to 2 hours.
Resistance to solvent	There must be no case deformation, change in dimensions, or obliteration of marking.	Inductors must withstand 6 minutes of alcohol or water.
Thermal shock	There must be no case deformation or change in dimensions. Inductance must not change more than the stated tolerance.	Inductors shall be subjected to 10 cycles to the following temperature cycle:  Measure the test items after leaving the inductors at room temperature and humidity for 2 hours.

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.Packing Specifications



TYPE	Packaging Quantity		Tape Dimension(mm)					
	Pcs / Reel	Inner box	W	P	P ₀	P ₁	H	T
NLF0805	2000	10000	8	4	4	2	NA	0.23
NLF1008	2000	10000	8	4	4	2	NA	0.23
NLF1210	2000	10000	8	4	4	2	NA	0.23



TYPE	Reel Dimension(mm)				
	A	B	C	D	E
NLF0805	180	60	13	14.4	8.4
NLF1008	180	60	13	14.4	8.4
NLF1210	180	60	13	14.4	8.4