

SMD Wire Wound Chip Inductors / NL TYPE

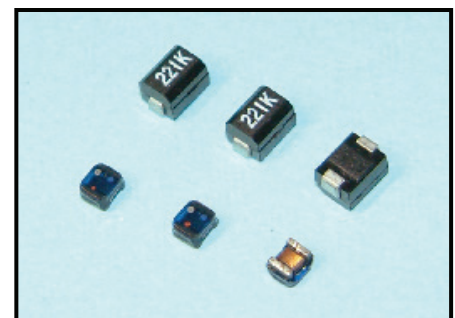
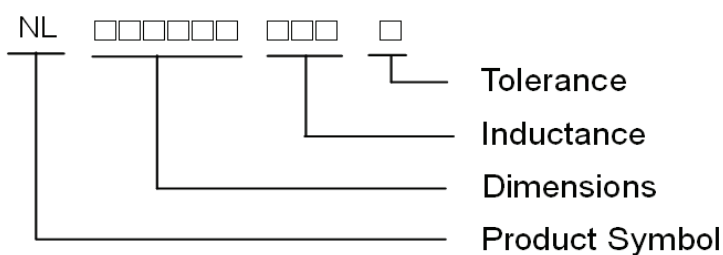
.Features:

1. Very strong solderability by reflow soldering and soldering iron or wave soldering.
2. Highly accurate dimensions can be mounted automatically.
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 pressure.
6. Superior Q characteristics and broadest selections amount peers.

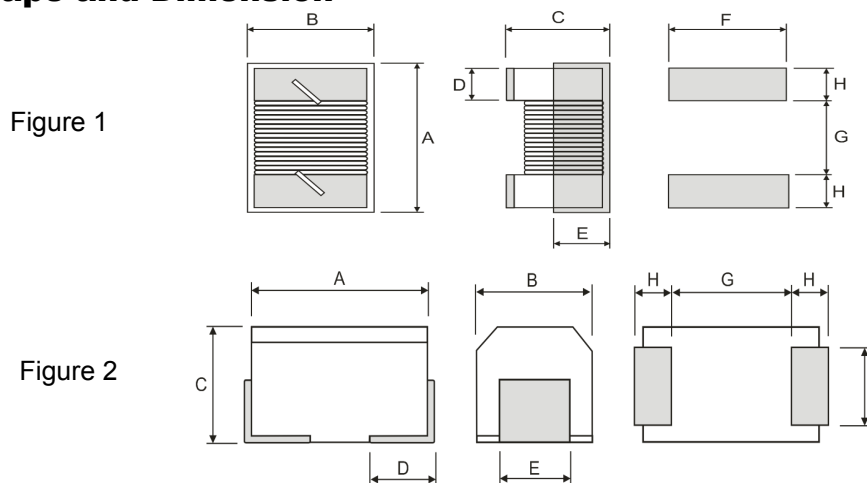
.Applications:

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

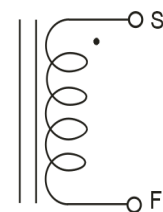
.Product Identification :



.Shape and Dimension



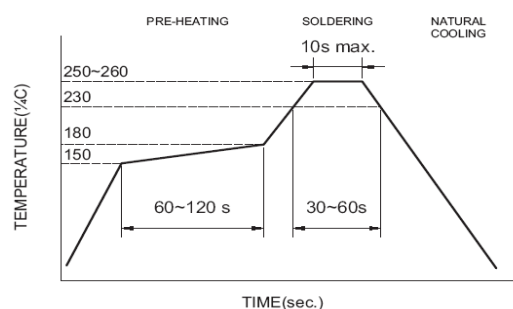
.Schematic



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±0.3	2.5±0.3	2.2±0.3	1.2	0.6	2	1.6	1.2	2
NL453232	4.5±0.3	3.2±0.3	3.2±0.3	0.9	1.4	2.8	3	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



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Electrical Characteristics (NL252018 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance	Color Code		
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)	1 ST	2 ND	3 RD
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

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Electrical Characteristics (NL252018 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance	Color Code		
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)	1 ST	2 ND	3 RD
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	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL322522T-010K	0.010	100	15	2500	0.13	450	10
NL322522T-012K	0.012	100	17	2300	0.14	450	10
NL322522T-015K	0.015	100	19	2100	0.16	450	10
NL322522T-018K	0.018	100	21	1900	0.18	450	10
NL322522T-022K	0.022	100	23	1700	0.20	450	10
NL322522T-027K	0.027	100	23	1500	0.22	450	10
NL322522T-033K	0.033	100	25	1400	0.24	450	10
NL322522T-039K	0.039	100	25	1300	0.27	450	10
NL322522T-047K	0.047	100	26	1200	0.30	450	10
NL322522T-056K	0.056	100	26	1100	0.33	450	10
NL322522T-068K	0.068	100	27	1000	0.36	450	10
NL322522T-082K	0.082	100	27	900	0.40	450	10
NL322522T-R10□	0.1	100	28	700	0.44	450	5,10
NL322522T-R12□	0.12	25.2	30	500	0.22	450	5,10
NL322522T-R15□	0.15	25.2	30	450	0.25	450	5,10
NL322522T-R18□	0.18	25.2	30	400	0.28	450	5,10
NL322522T-R22□	0.22	25.2	30	350	0.32	450	5,10
NL322522T-R27□	0.27	25.2	30	320	0.36	450	5,10
NL322522T-R33□	0.33	25.2	30	300	0.40	450	5,10
NL322522T-R39□	0.39	25.2	30	250	0.45	450	5,10
NL322522T-R47□	0.47	25.2	30	220	0.50	450	5,10
NL322522T-R56□	0.56	25.2	30	180	0.55	450	5,10
NL322522T-R68□	0.68	25.2	30	160	0.60	450	5,10
NL322522T-R82□	0.82	25.2	30	140	0.65	450	5,10
NL322522T-1R0□	1	7.96	30	90	0.70	400	5,10

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Electrical Characteristics (NL322522 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL322522T-1R2□	1.2	7.96	30	85	0.75	390	5,10
NL322522T-1R5□	1.5	7.96	30	70	0.85	370	5,10
NL322522T-1R8□	1.8	7.96	30	60	0.90	350	5,10
NL322522T-2R2□	2.2	7.96	30	50	1.00	320	5,10
NL322522T-2R7□	2.7	7.96	30	45	1.10	290	5,10
NL322522T-3R3□	3.3	7.96	30	40	1.20	260	5,10
NL322522T-3R9□	3.9	7.96	30	37	1.30	250	5,10
NL322522T-4R7□	4.7	7.96	30	32	1.50	220	5,10
NL322522T-5R6□	5.6	7.96	30	30	1.60	200	5,10
NL322522T-6R8□	6.8	7.96	30	28	1.80	180	5,10
NL322522T-8R2□	8.2	7.96	30	25	2.00	170	5,10
NL322522T-100□	10	2.52	30	23	2.10	150	5,10
NL322522T-120□	12	2.52	30	20	2.50	140	5,10
NL322522T-150□	15	2.52	30	19	2.80	130	5,10
NL322522T-180□	18	2.52	30	17	3.30	120	5,10
NL322522T-220□	22	2.52	25	16	3.70	110	5,10
NL322522T-270□	27	2.52	30	14	5.00	80	5,10
NL322522T-330□	33	2.52	30	13	5.60	70.00	5,10
NL322522T-390□	39	2.52	30	12	6.40	65.00	5,10
NL322522T-470□	47	2.52	30	10	7.00	60.00	5,10
NL322522T-560□	56	2.52	30	9	8.00	55.00	5,10
NL322522T-680□	68	2.52	30	9	9.00	50.00	5,10
NL322522T-820□	82	2.52	30	8	10.00	45.00	5,10
NL322522T-101□	100	0.796	20	7	10.00	40.00	5,10
NL322522T-121□	120	0.796	20	7	11.00	70.00	5,10
NL322522T-151□	150	0.796	20	6	15.00	65.00	5,10
NL322522T-181□	180	0.796	20	6	17.00	60.00	5,10
NL322522T-221□	220	0.796	20	5	21.00	50.00	5,10
NL322522T-271□	270	0.796	20	6	22.00	45.00	5,10
NL322522T-331□	330	0.796	20	5	34.00	40.00	5,10

Electrical Characteristics (NL453232 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL453232T-R10□	0.1	25.2	28	700	0.44	450	5,10
NL453232T-R12□	0.12	25.2	30	500	0.22	450	5,10
NL453232T-R15□	0.15	25.2	30	450	0.25	450	5,10
NL453232T-R18□	0.18	25.2	30	400	0.28	450	5,10
NL453232T-R22□	0.22	25.2	30	350	0.32	450	5,10
NL453232T-R27□	0.27	25.2	30	320	0.36	450	5,10

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Electrical Characteristics (NL453232 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL453232T-R33□	0.33	25.2	30	300	0.40	450	5,10
NL453232T-R39□	0.39	25.2	30	250	0.45	450	5,10
NL453232T-R47□	0.47	25.2	30	220	0.50	450	5,10
NL453232T-R56□	0.56	25.2	30	180	0.55	450	5,10
NL453232T-R68□	0.68	25.2	30	160	0.60	450	5,10
NL453232T-R82□	0.82	25.2	30	140	0.67	450	5,10
NL453232T-1R0□	1	7.96	50	100	0.50	450	5,10
NL453232T-1R2□	1.2	7.96	50	80	0.55	450	5,10
NL453232T-1R5□	1.5	7.96	50	70	0.60	410	5,10
NL453232T-1R8□	1.8	7.96	50	60	0.65	390	5,10
NL453232T-2R2□	2.2	7.96	50	55	0.70	380	5,10
NL453232T-2R7□	2.7	7.96	50	50	0.75	370	5,10
NL453232T-3R3□	3.3	7.96	50	45	0.80	355	5,10
NL453232T-3R9□	3.9	7.96	50	40	0.90	330	5,10
NL453232T-4R7□	4.7	7.96	50	35	1.00	315	5,10
NL453232T-5R6□	5.6	7.96	50	33	1.10	300	5,10
NL453232T-6R8□	6.8	7.96	50	27	1.20	285	5,10
NL453232T-8R2□	8.2	7.96	50	25	1.40	270	5,10
NL453232T-100□	10	2.52	50	20	1.60	250	5,10
NL453232T-120□	12	2.52	50	18	2.00	225	5,10
NL453232T-150□	15	2.52	50	17	2.50	200	5,10
NL453232T-180□	18	2.52	50	15	2.80	190	5,10
NL453232T-220□	22	2.52	50	13	3.20	180	5,10
NL453232T-270□	27	2.52	50	12	3.60	170	5,10
NL453232T-330□	33	2.52	50	11	4.00	160	5,10
NL453232T-390□	39	2.52	50	10	4.50	150	5,10
NL453232T-470□	47	2.52	50	10	5.00	140	5,10
NL453232T-560□	56	2.52	50	9	5.50	135	5,10
NL453232T-680□	68	2.52	50	9	6.00	130	5,10
NL453232T-820□	82	2.52	50	8	7.00	120	5,10
NL453232T-101□	100	0.796	40	8	8.00	110	5,10
NL453232T-121□	120	0.796	40	6	8.00	110	5,10
NL453232T-151□	150	0.796	40	5	9.00	105	5,10
NL453232T-181□	180	0.796	40	5	9.50	102	5,10
NL453232T-221□	220	0.796	40	4	12.00	100	5,10
NL453232T-271□	270	0.796	30	4	18.00	92	5,10
NL453232T-331□	330	0.796	30	3.5	20.00	85	5,10
NL453232T-391□	390	0.796	30	3	23.00	80	5,10
NL453232T-471□	470	0.796	30	3	26.00	62	5,10

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Electrical Characteristics (NL453232 TYPE)

Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL453232T-561□	560	0.796	30	3	30.00	50	5,10
NL453232T-681□	680	0.796	30	3	40.00	50	5,10
NL453232T-821□	820	0.796	30	2.5	45.00	30	5,10
NL453232T-102□	1000	0.796	30	2.5	50.00	30	5,10

Electrical Characteristics (NL565050 TYPE)

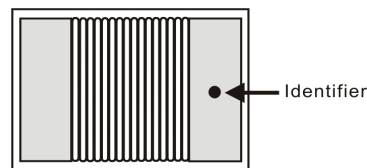
Part No.	Inductance	L/Q Test Freq.	Q	SRF	DCR	IDC	Tolerance
	(μ H)	(MHZ)	Min.	(MHZ)Min.	(Ω)Max.	(mA)Max.	(\pm %)
NL565050T-122□	1200	0.252	30	1.5	17.00	75	5,10
NL565050T-152□	1500	0.252	30	1.4	20.00	70	5,10
NL565050T-182□	1800	0.252	30	1.3	30.00	60	5,10
NL565050T-222□	2200	0.252	30	1.2	35.00	55	5,10
NL565050T-272□	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 $-25^{\circ}\text{C} \sim 85^{\circ}\text{C}$
2. Idc for Inductance drop 10% from its value without current.
3. □Tolerance : J= \pm 5% ; K= \pm 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.



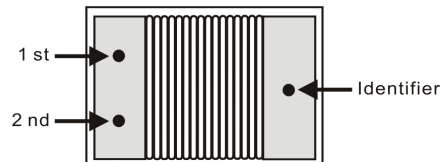
1008/1206/252018/322522 Series

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



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4. 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°C, 1min. 2.Solder Composition: Sn/Pb = 63/37. 3.Solder Temperature: 260±5°C. 4.Immersion Time: 10±1sec.
Solder ability	The Electrodes Shall Be At Least 90% Covered With New Solder Coating	1.Pre-Heating: 150°C, 1min. 2.Solder Composition: Sn/Pb = 63/37. 3.Solder Temperature: 230±5°C. 4.Immersion Time: 4±1sec.
Component Adhesion (Push Test)	4 Lbs. For The Rest	The Device Should Be Reflow Soldered (230°C±5°C 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: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (Min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 ± 3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25 ± 3</td> <td>3</td> </tr> <tr> <td>3</td> <td>85 ± 3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25 ± 2</td> <td>3</td> </tr> </tbody> </table> Total: 5 cycles Measured After Exposure In The Room Condition For 1Hrs	Step	Temperature (°C)	Time (Min.)	1	-25 ± 3	30	2	25 ± 3	3	3	85 ± 3	30	4	25 ± 2	3
Step		Temperature (°C)	Time (Min.)														
1		-25 ± 3	30														
2		25 ± 3	3														
3		85 ± 3	30														
4		25 ± 2	3														
Humidity Resistance	Temperature: 40±2°C Relative Humidity: 90 ~ 95% Time: 100Hrs Measured After Exposure In The Room Condition For 1Hrs																
High Temperature Resistance	Temperature: 85±3°C Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs																
Low Temperature Resistance	Temperature: -25±3°C Time: 50Hrs Measured After Exposure In The Room Condition For 1Hrs																
High Temperature Load Life	Temperature: 85±3°C Load: Allowed DC Current Time: 1000Hrs																
Humidity Load Life	Temperature: 40±2°C 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

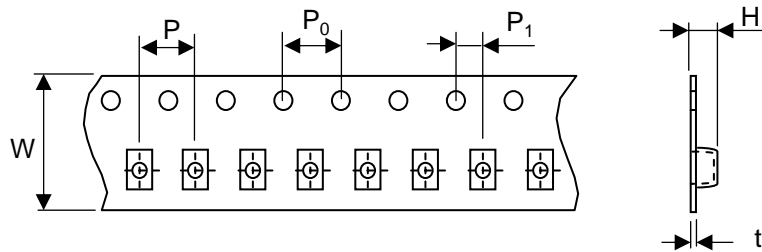
Item	Specification	Test Method
Vibration	Appearance: No damage Inductance: within $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	Test device shall be soldered on the substrate Oscillation Frequency: 10 to 55 to 10Hz for 1min Amplitude: 1.5mm Time: 2hrs for each axis (X, Y &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

1-2.Environmental Performance

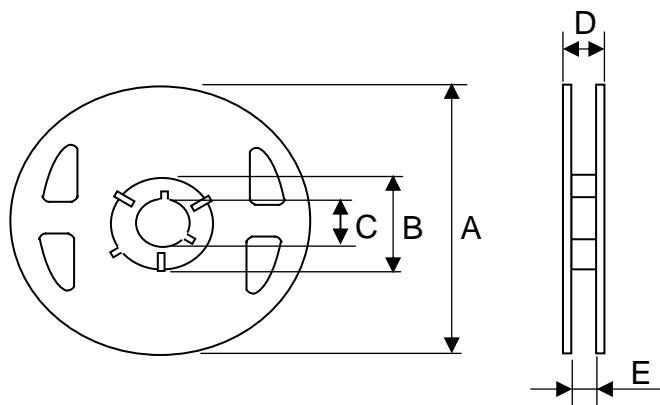
Item	Specification	Test Method															
Temperature Cycle	Appearance: No Damage Inductance: within $\pm 10\%$ of initial value Q change: within $\pm 30\%$ of initial value	One Cycle: <table border="1"> <thead> <tr> <th>Step</th> <th>Temperature (°C)</th> <th>Time (Min.)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-25 \pm 3</td> <td>30</td> </tr> <tr> <td>2</td> <td>25 \pm 3</td> <td>3</td> </tr> <tr> <td>3</td> <td>85 \pm 3</td> <td>30</td> </tr> <tr> <td>4</td> <td>25 \pm 2</td> <td>3</td> </tr> </tbody> </table>	Step	Temperature (°C)	Time (Min.)	1	-25 \pm 3	30	2	25 \pm 3	3	3	85 \pm 3	30	4	25 \pm 2	3
Step		Temperature (°C)	Time (Min.)														
1		-25 \pm 3	30														
2		25 \pm 3	3														
3	85 \pm 3	30															
4	25 \pm 2	3															
Humidity Resistance	Temperature: 40 ± 2 °C Relative Humidity: 90 ~ 95% Time: 1000Hrs Measured After Exposure In The Room Condition For 24Hrs																
High Temperature Resistance	Temperature: 85 ± 3 °C Relative Humidity: 20% Applied Current: Rated Current Time: 1000hrs Measured after exposure in the room condition for 24hrs																
Low Temperature Resistance	Temperature: -25 ± 3 °C Relative Humidity: 0% Time: 1000hrs Measured after exposure in the room condition for 24hrs																

SMD Wire Wound Chip Inductors / NL TYPE

4 .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

SMD Wire Wound Chip Inductors / NL TYPE

4. SGS



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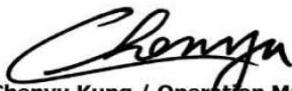
EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	SMD WIRE WOUND CHIP INDUCTORS SERIES
Style/Item No.	:	SMD WIRE WOUND CHIP INDUCTORS SERIES
Sample Receiving Date	:	2008/03/28
Testing Period	:	2008/03/28 TO 2008/04/03

=====
Test Result(s) : Please refer to next page(s).



Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

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SMD Wire Wound Chip Inductors / NL TYPE

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EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



Test Result(s)

PART NAME NO.1 : MIXED ALL PARTS

Test Item (s):	Unit	Method	MDL	Result
				No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Cadmium by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Lead by ICP-AES.	2	n.d.
Mercury (Hg)	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Mercury by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.	2	n.d.
Phosphorus (P)	mg/kg	With reference to US EPA Method 3050B for Phosphorus Content. Analysis was performed by ICP-AES.	2	250
Antimony (Sb)	mg/kg	With reference to US EPA Method 3050B for Antimony Content. Analysis was performed by ICP-AES.	2	42
Antimony trioxide (Sb ₂ O ₃)	mg/kg	With reference to US EPA Method 3050B for Antimony Content. Analysis was performed by ICP-AES. (See Note 7)	2.4	50.3
PFOS	mg/kg	With reference to US EPA 3540C : 1996 method for PFOS Content. Analysis was performed by LC/MS.	1	n.d.
Halogen	---	With reference to BS EN 14582:2007. Analysis was performed by IC method for F , Cl , Br, I content.	---	---
Halogen-Fluorine (F) (CAS No.: 007782-41-4)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Fluorine content.	50	n.d.
Halogen-Chlorine (Cl) (CAS No.: 007782-50-5)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Chlorine content.	50	n.d.
Halogen-Bromine (Br) (CAS No.: 007726-95-6)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Bromine content.	50	n.d.

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SMD Wire Wound Chip Inductors / NL TYPE



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EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



Test Item (s):	Unit	Method	MDL	Result
				No.1
Halogen-Iodine (I) (CAS No.: 007553-56-2)	mg/kg	With reference to BS EN 14582:2007. Analysis was performed by IC method for Iodine content.	50	n.d.
Sum of PBBs	mg/kg	With reference to IEC 62321/2nd CDV (111/95/CDV). Determination of PBB and PBDE by GC/MS.	-	n.d.
Monobromobiphenyl			5	n.d.
Dibromobiphenyl			5	n.d.
Tribromobiphenyl			5	n.d.
Tetrabromobiphenyl			5	n.d.
Pentabromobiphenyl			5	n.d.
Hexabromobiphenyl			5	n.d.
Heptabromobiphenyl			5	n.d.
Octabromobiphenyl			5	n.d.
Nonabromobiphenyl			5	n.d.
Decabromobiphenyl			5	n.d.
Sum of PBDEs (Mono to Nona)			-	n.d.
Monobromodiphenyl ether			5	n.d.
Dibromodiphenyl ether			5	n.d.
Tribromodiphenyl ether			5	n.d.
Tetrabromodiphenyl ether			5	n.d.
Pentabromodiphenyl ether			5	n.d.
Hexabromodiphenyl ether			5	n.d.
Heptabromodiphenyl ether			5	n.d.
Octabromodiphenyl ether			5	n.d.
Nonabromodiphenyl ether			5	n.d.
Decabromodiphenyl ether			5	n.d.
Sum of PBDEs (Mono to Deca)			-	n.d.

- Note :
1. mg/kg = ppm
 2. n.d. = Not Detected
 3. MDL = Method Detection Limit
 4. " - " = Not Regulated
 5. " --- " = Not Conducted
 6. The sample(s) was/were analyzed on behalf of the applicant as mixing sample in one testing.
The above result(s) was/were only given as the informality value.
 7. Antimony trioxide(Sb₂O₃): Calculate from antimony content multiply 1.197 factor.

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SMD Wire Wound Chip Inductors / NL TYPE

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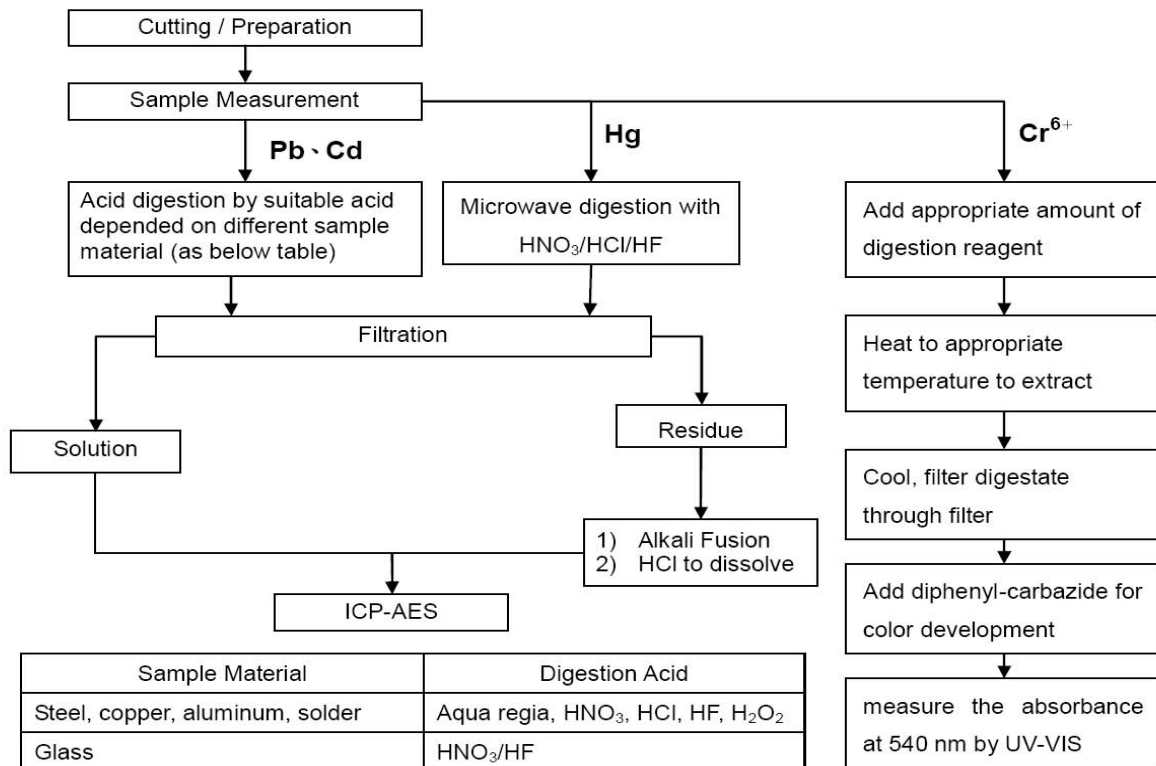
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EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
(Cr⁶⁺ test method excluded)
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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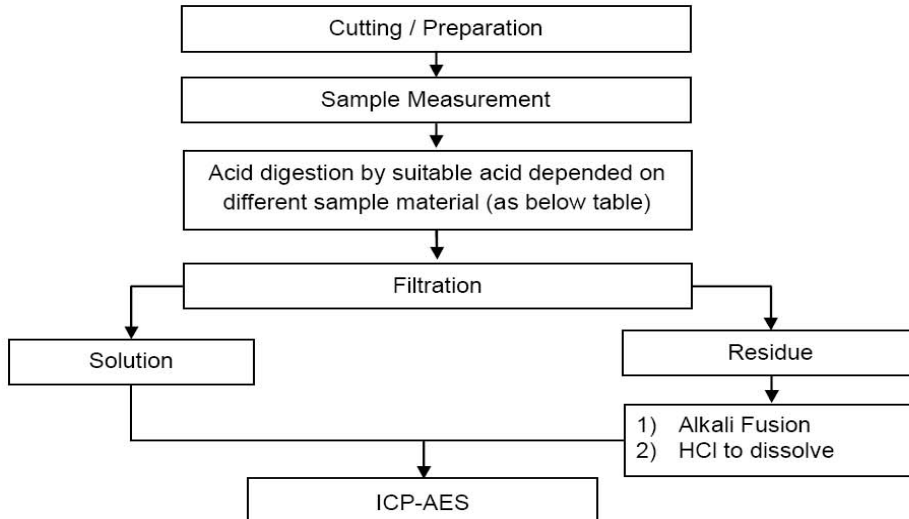
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EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Climbgreat Yang
- 3) Name of the person in charge of measurement: Troy Chang

Flow Chart of Digestion for elements analysis



Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
Glass	HNO ₃ /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO ₃
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
Others	Any acid to total digestion

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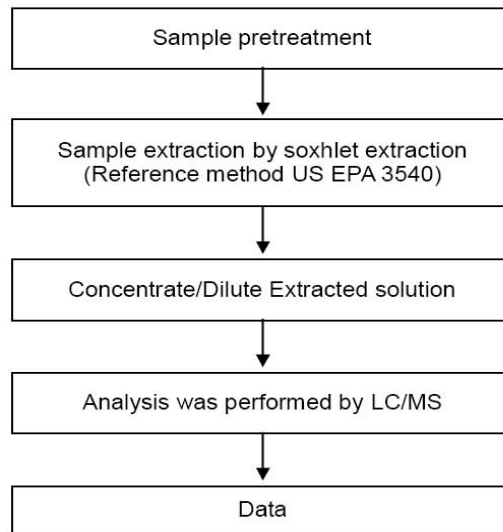
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TAIWAN (R. O. C.)



Analytical flow chart of PFOA/PFOS content

- 1) Name of the person who made measurement: Carrie Liu
- 2) Name of the person in charge of measurement: Shinjyh Chen



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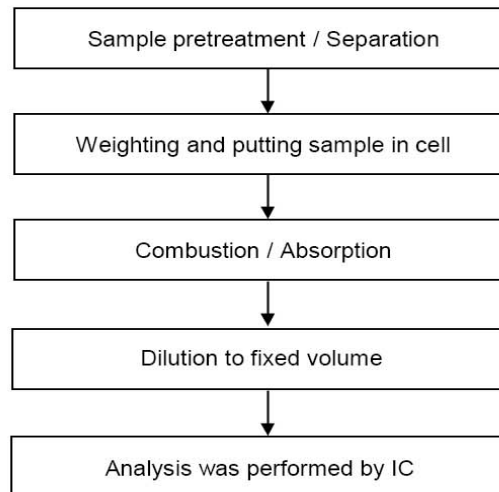
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EROCORE ENTERPRISE CO., LTD.
16F, NO. 700, JHONGJHENG RD., JHONGHE CITY, TAIPEI COUNTY 23552,
TAIWAN (R. O. C.)



Analytical flow chart of halogen content

- 1) Name of the person who made measurement: Tin Lan
- 2) Name of the person in charge of measurement: Troy Chang



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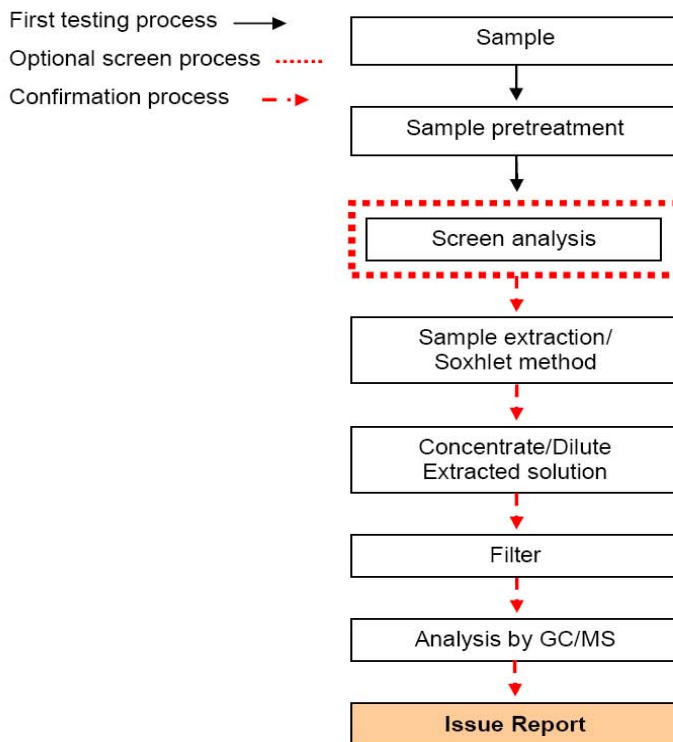
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TAIWAN (R. O. C.)



PBB/PBDE analytical FLOW CHART

- 1) Name of the person who made measurement: Roman Wong
- 2) Name of the person in charge of measurement: Shinjyh Chen



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** End of Report **

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