Product Series Code	**GNLC**	Brand	GOTREND
File Version	GNLC-V4R4	Editor	Teddy
Established Date	2009.05.07	Description	Molding Wound Inductor - IDC Enhanced
Latest Edit Date	2011.01.26	Pages	Page : 2

Features & Application:

* High-Current : DC Current Enhanced
* Fit for power line & signal line circuit
* To help you go pass the CE/FCC standard.
* Mobile Device / Handheld Device / LowProfile Device / Panel...

Product Structure

SMD DIP Shield Unshield

2005 RoHS Compliant - SGS Certified Result

鉛 Pb	鎘 Cd	汞 Hg	六價鉻 Cr+6	溴化聯苯 PBB	溴化聯苯醚 PBDE
<1000ppm	ND	ND	ND	ND	ND

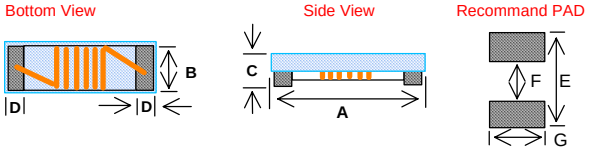
Part No Example:

GNLC 3225 P □ - 6R8 J

1 2 3 4 5 6

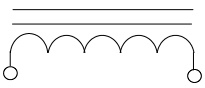
1. GOTREND SERIES : GNLC
2. Dimension Code: 3225 [L-3.6 x W-2.9 mm]
3. Pb Free Code:Sony GP rule-PAD Pb<1000ppm
4. [R] : Low DCR Type
5. [L] Value : Inductance 68N=0.068uH , 6R8 = 6.8uH
6. Tolerance : J=5% , K=10%

Dimensions: [mm] 1610/2012/2520/3225 TYPE

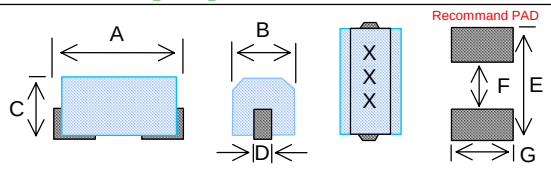


Type	A	B	C	D	E	F	G
GNLC-1610PR	1.8 MAX	1.20 MAX	1.00 MAX	0.33 REF	1.92	0.64	1.20
GNLC-2012PR	2.4 MAX	1.65 MAX	1.25 MAX	0.44 REF	2.80	0.76	1.78
GNLC-2520	2.9 MAX	2.54 MAX	2.03 MAX	0.50 REF	3.31	1.27	2.54
GNLC-3225	3.6 MAX	2.90 MAX	2.50 MAX	0.50 REF	4.40	2.00	2.70

SCHEMATIC:

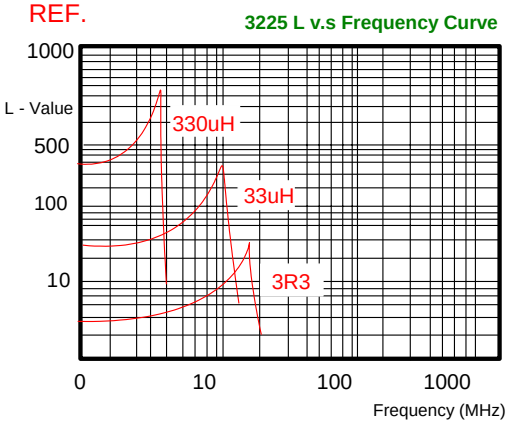


Dimensions: [mm] 4532 TYPE



Type	A	B	C	D	E	F	G
GNLC-4532	4.5+/-0.3	3.2+/-0.3	3.2+/-0.3	1.4+/-0.3	5.5	2.0	4.0

REF.



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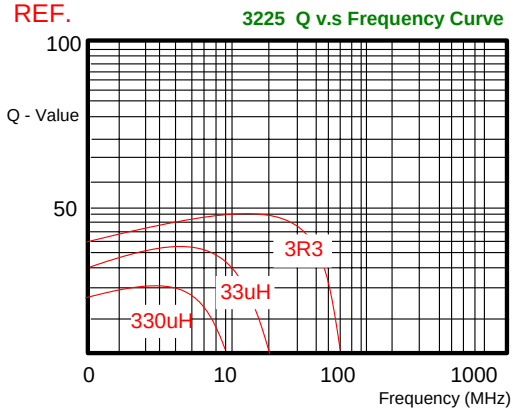


Test Equipment :

* HP4284A,HP42841A- L,IDC,Q.RDC
* HP8753D NETWORK ANALYZER- SRF

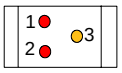
Standard Atmospheric Conditions:
Ambient Temp:20+/-15ºC
Relative Humidity:65+/-20%
If there may be any doubt on the result,
measurement shall be made within the following limits:
Ambient Temp:25+/-5ºC
Relative Humidity:75+/-10%

★ Marking Code Description:

1610 / 2012 SIZE - Color Dot Marking :

One Dot Marking - see series specification define

2520 / 3225 SIZE - Color Dot Marking :



0 1 2 3 4 5 6 7 8 9
黑 棕 紅 橙 黃 綠 藍 紫 灰 白

料號色碼依下列算法計之.....
Counting the inductance as below :
[(1st dot x10)+2 nd dot]x10 3 rd dot=nH
For Example:
GNLC-2520-220J Color Dot=紅1st 紅2nd 橙3rd
Inductance= [(紅 2) x 10 + (紅2)] x (橙)10x10x10)
=22x1000=22000nH
22000 ÷ 1000 = 22uH

4532 / 5650 - Word Marking

Operating & Storage Condition:

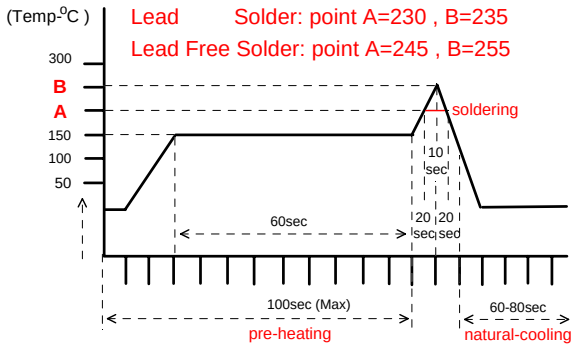
OPERATING TEMP:-25~+85ºC

STORAGE TEMP:-25~+85ºC
STORAGE LIFE TIME: 6 MONTH @25ºC , RH 65%

Attention & Caution:

Please avoid following matters:
* Splashing water or salt water
* Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
* Vibrations or shocks which exceed the specified condition
* Dew condenses
* Please be careful for the stress to this product by board flexure or something after the mounting.

Recommand Reflow Curve (TIME:Second)



Part NO.	L - Value (uH)	Tolerance (± %)	Q value (Typ.)	Test Freq. (MHz)	S.R.F (MHz) (Typ.)	DCR (ohm) (+/-30%)	IDC (mA) (Typ.)	Irms (mA) (Typ.)	Color-Dot Marking
GNLC1610PR-1R0☐	1.00	10%,20%	16	7.9	390.0	0.32	860	700	Black
GNLC1610PR-1R5☐	1.50	10%,20%	16	7.9	160.0	0.40	720	600	Brown
GNLC1610PR-1R8☐	1.80	10%,20%	16	7.9	121.0	0.43	640	580	Red
GNLC1610PR-2R2☐	2.20	10%,20%	16	7.9	103.0	0.56	600	580	Orange
GNLC1610PR-2R7☐	2.70	10%,20%	16	7.9	72.0	0.62	540	500	Yellow
GNLC1610PR-3R3☐	3.30	10%,20%	16	7.9	66.0	0.70	500	500	Green
GNLC1610PR-3R9☐	3.90	10%,20%	16	7.9	61.0	0.83	460	460	Blue
GNLC1610PR-4R7☐	4.70	10%,20%	16	7.9	51.0	0.97	400	420	Violet
GNLC1610PR-5R6☐	5.60	10%,20%	16	7.9	47.0	1.10	380	380	Gray
GNLC1610PR-6R8☐	6.80	10%,20%	16	7.9	43.0	1.50	340	340	White
GNLC1610PR-8R2☐	8.20	10%,20%	16	7.9	40.0	1.68	300	300	Black
GNLC1610PR-100☐	10.00	10%,20%	14	2.5	36.0	1.85	280	280	Brown
GNLC1610PR-120☐	12.00	10%,20%	14	2.5	32.0	2.28	260	260	Red
GNLC1610PR-150☐	15.00	10%,20%	14	2.5	29.0	2.60	240	240	Orange
GNLC1610PR-180☐	18.00	10%,20%	14	2.5	28.0	2.90	220	220	Yellow
GNLC1610PR-220☐	22.00	10%,20%	14	2.5	24.0	3.61	200	200	Green
GNLC1610PR-270☐	27.00	10%,20%	14	2.5	20.0	5.20	140	140	Blue
GNLC1610PR-330☐	33.00	10%,20%	14	2.5	15.0	6.60	120	120	Violet

* Part No. Example : GNLC1610PR-4R7J (GNLC Series 1610 Size, 4.7 uH, +/- 5%)
* Tolerance Code : ☐ K=+/-10%, M=+/-20% (all available)
* Test Instruments : L,Q：Agilent/HP E4991A+Agilent/HP 16197A
  SRF：Agilent/E5071B / Agilent/HP E4991A
  RDC：Digital Milliohm Meter Chroma 16502, or equivalent.

*IDC for Inductance drop 10% from its value without current.
*Irms for a 15ºC rise above 25ºC ambient.

Part NO.	L - Value (uH)	Tolerance (± %)	Q value (Typ.)	Test Freq. (MHz)	S.R.F (MHz) (Typ.)	DCR (ohm) (+/-30%)	IDC (mA) (Typ.)	Irms (mA) (Typ.)	Color-Dot Marking
GNLC2012PR-R47☐	0.47	10%,20%	14	7.9	850.0	0.12	1400	1500	Blue
GNLC2012PR-R68☐	0.68	10%,20%	14	7.9	765.0	0.15	1200	1300	Gray
GNLC2012PR-1R0☐	1.00	5%,10%,20%	14	7.9	208.0	0.13	1100	1300	Black
GNLC2012PR-1R5☐	1.50	5%,10%,20%	14	7.9	159.0	0.17	920	1260	Brown
GNLC2012PR-1R8☐	1.80	5%,10%,20%	14	7.9	112.0	0.20	860	1080	Orange
GNLC2012PR-2R2☐	2.20	5%,10%,20%	13	7.9	87.0	0.22	740	1040	Red
GNLC2012PR-2R7☐	2.70	5%,10%,20%	13	7.9	72.0	0.25	680	1040	Yellow
GNLC2012PR-3R3☐	3.30	5%,10%,20%	12	7.9	70.0	0.28	620	1020	Orange
GNLC2012PR-3R9☐	3.90	5%,10%,20%	14	7.9	61.0	0.38	580	960	Green
GNLC2012PR-4R7☐	4.70	5%,10%,20%	14	7.9	51.0	0.43	520	840	Yellow
GNLC2012PR-5R6☐	5.60	5%,10%,20%	12	7.9	47.0	0.50	480	800	Blue
GNLC2012PR-6R8☐	6.80	5%,10%,20%	14	7.9	46.0	0.68	420	700	Green
GNLC2012PR-8R2☐	8.20	5%,10%,20%	13	7.9	33.0	0.73	400	680	Violet
GNLC2012PR-100☐	10.00	5%,10%,20%	14	2.5	31.0	0.85	360	560	Blue
GNLC2012PR-120☐	12.00	5%,10%,20%	14	2.5	30.0	0.90	340	460	Gray
GNLC2012PR-150☐	15.00	5%,10%,20%	15	2.5	28.0	1.40	300	380	Violet
GNLC2012PR-180☐	18.00	5%,10%,20%	15	2.5	27.0	1.55	280	360	White
GNLC2012PR-220☐	22.00	5%,10%,20%	15	2.5	20.0	1.76	240	340	Gray
GNLC2012PR-270☐	27.00	5%,10%,20%	15	2.5	17.0	2.00	220	300	Black
GNLC2012PR-330☐	33.00	5%,10%,20%	15	2.5	17.0	2.35	200	300	White
GNLC2012PR-470☐	47.00	5%,10%,20%	14	2.5	15.0	3.40	160	280	Black
GNLC2012PR-680☐	68.00	5%,10%,20%	14	2.5	10.0	4.45	140	240	Brown
GNLC2012PR-101☐	100.00	5%,10%,20%	10	1.0	9.0	7.50	100	180	Red

* Part No. Example : GNLC2012PR-4R7J (GNLC Series 2012 Size, 4.7 uH, +/- 5%)
* Tolerance Code : ☐ J=+/-5%, K=+/-10%, M=+/-20% (all available)
* Test Instruments : L,Q：Agilent/HP E4991A+Agilent/HP 16197A
SRF：Agilent/E5071B / Agilent/HP E4991A
RDC：Digital Milliohm Meter Chroma 16502, or equivalent.

*IDC for Inductance drop 10% from its value without current.
*Irms for a 25°C rise above 25°C ambient.

Part NO.	L - Value (uH)	Tolerance (± %)	Q value (min)	Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)	Color-Dot Marking		
GNLC2520P-R47☐	0.47	5%,10%	35	25	460	0.20	2400	Yellow	Violet	Brown
GNLC2520P-1R0☐	1.0	5%,10%	32	7.9	340	0.34	2100	Brown	Black	Red
GNLC2520P-1R2☐	1.2	5%,10%	25	7.9	290	0.25	1900	Brown	Red	Red
GNLC2520P-1R5☐	1.5	5%,10%	32	7.9	280	0.42	1800	Brown	Green	Red
GNLC2520P-2R2☐	2.2	5%,10%	27	7.9	140	0.50	1500	Red	Red	Red
GNLC2520P-3R3☐	3.3	5%,10%	27	7.9	125	0.60	1300	Orange	Orange	Red
GNLC2520P-4R7☐	4.7	5%,10%	27	7.9	90	0.90	1100	Yellow	Violet	Red
GNLC2520P-5R6☐	5.6	5%,10%	27	7.9	60	1.00	1000	Green	Blue	Red
GNLC2520P-6R8☐	6.8	5%,10%	27	7.9	60	1.05	950	Blue	Gray	Red
GNLC2520P-8R2☐	8.2	5%,10%	25	7.9	55	1.20	850	Gray	Red	Red
GNLC2520P-100☐	10.0	5%,10%	23	2.5	55	1.55	800	Brown	Black	Orange
GNLC2520P-150☐	15.0	5%,10%	23	2.5	36	2.38	650	Brown	Green	Orange
GNLC2520P-220☐	22.0	5%,10%	23	2.5	29	2.92	550	Red	Red	Orange
GNLC2520P-330☐	33.0	5%,10%	23	2.5	21	4.10	450	Orange	Orange	Orange
GNLC2520P-470☐	47.0	5%,10%	23	2.5	17	7.80	350	Yellow	Violet	Orange
GNLC2520P-680☐	68.0	5%,10%	18	2.5	9	11.50	260	Blue	Gray	Orange

* Part No. Example : GNLC2520P-4R7J (GNLC Series 2520 Size, 4.7 uH, +/- 5%)
* Tolerance Code : ☐ J=+/-5%, K=+/-10%, M=+/-20% (all available)
* Test Instruments : L,Q：Agilent/HP E4991A+Agilent/HP 16197A
SRF：Agilent/E5071B / Agilent/HP E4991A
RDC：Digital Milliohm Meter Chroma 16502, or equivalent.

*IDC for Inductance drop 10% from its value without current.

Part NO.	L - Value (uH)	Tolerance (± %)	Q value (min)	Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)	Color-Dot Marking		
GNLC3225P-1R0☐	1.0	5%,10%	35	7.9	340	0.125	2600	Brown	Black	Red
GNLC3225P-1R2☐	1.2	5%,10%	35	7.9	280	0.135	2400	Brown	Red	Red
GNLC3225P-1R5☐	1.5	5%,10%	30	7.9	160	0.145	2200	Brown	Green	Red
GNLC3225P-1R8☐	1.8	5%,10%	30	7.9	120	0.160	2000	Brown	Gray	Red
GNLC3225P-2R2☐	2.2	5%,10%	30	7.9	100	0.175	1900	Red	Red	Red
GNLC3225P-3R3☐	3.3	5%,10%	30	7.9	70	0.210	1500	Orange	Orange	Red
GNLC3225P-4R7☐	4.7	5%,10%	28	7.9	55	0.300	1300	Yellow	Violet	Red
GNLC3225P-6R8☐	6.8	5%,10%	28	7.9	45	0.370	1100	Blue	Gray	Red
GNLC3225P-100☐	10.0	5%,10%	22	2.5	47	0.500	900	Brown	Black	Orange
GNLC3225P-120☐	12.0	5%,10%	22	2.5	42	0.680	820	Brown	Red	Orange
GNLC3225P-150☐	15.0	5%,10%	22	2.5	34	0.720	740	Brown	Green	Orange
GNLC3225P-220☐	22.0	5%,10%	22	2.5	25	1.030	640	Red	Red	Orange
GNLC3225P-330☐	33.0	5%,10%	20	2.5	13	1.370	500	Orange	Orange	Orange
GNLC3225P-470☐	47.0	5%,10%	20	2.5	12	1.880	440	Yellow	Violet	Orange
GNLC3225P-680☐	68.0	5%,10%	22	2.5	10	3.000	360	Blue	Gray	Orange
GNLC3225P-101☐	100.0	5%,10%	15	1.0	8	4.682	280	Brown	Black	Yellow
GNLC3225P-151☐	150.0	5%,10%	13	1.0	7	6.102	220	Brown	Green	Yellow
GNLC3225P-181☐	180.0	5%,10%	13	1.0	3	7.100	200	Brown	Gray	Yellow
GNLC3225P-221☐	220.0	5%,10%	13	1.0	3	7.650	200	Red	Red	Yellow
GNLC3225P-331☐	330.0	5%,10%	13	1.0	3	12.620	160	Orange	Orange	Yellow
GNLC3225P-471☐	470.0	5%,10%	13	1.0	3	25.000	120	Yellow	Violet	Yellow
GNLC3225P-681☐	680.0	5%,10%	13	1.0	2	31.000	100	Blue	Gray	Yellow

* Part No. Example : GNLC3225P-4R7J (GNLC Series 3225 Size, 4.7 uH, +/- 5%)
* Tolerance Code : ☐ J=+/-5%, K=+/-10%, M=+/-20% (all available)
* Test Instruments : L,Q：Agilent/HP E4991A+Agilent/HP 16197A
SRF：Agilent/E5071B / Agilent/HP E4991A
RDC：Digital Milliohm Meter Chroma 16502, or equivalent.

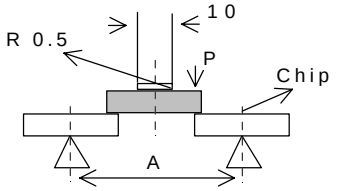
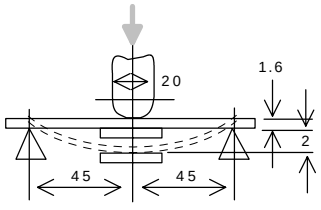
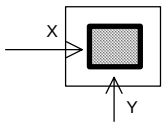
*IDC for Inductance drop 10% from its value without current.

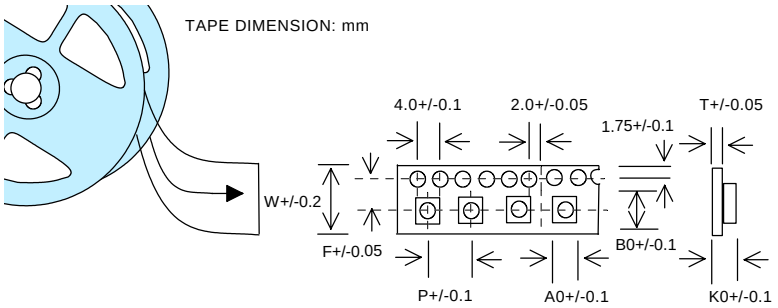
Part NO.	L - Value (uH)	Tolerance (± %)	Q value (min)	Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)
GNLC4532P-1R0K	1.00	10	10	7.960	200.00	0.11	1050
GNLC4532P-1R2K	1.20	10	10	7.960	155.00	0.12	1000
GNLC4532P-1R5K	1.50	10	10	7.960	130.00	0.15	950
GNLC4532P-1R8K	1.80	10	10	7.960	100.00	0.16	900
GNLC4532P-2R2K	2.20	10	10	7.960	80.00	0.18	850
GNLC4532P-2R7K	2.70	10	10	7.960	55.00	0.20	800
GNLC4532P-3R3K	3.30	10	10	7.960	45.00	0.22	750
GNLC4532P-3R9K	3.90	10	10	7.960	40.00	0.24	700
GNLC4532P-4R7K	4.70	10	10	7.960	35.00	0.27	650
GNLC4532P-5R6K	5.60	10	10	7.960	30.00	0.30	650
GNLC4532P-6R8K	6.80	10	10	7.960	28.00	0.35	600
GNLC4532P-8R2K	8.20	10	10	7.960	25.00	0.40	600
GNLC4532P-100K	10.00	10	10	2.520	22.00	0.50	550
GNLC4532P-120K	12.00	10	10	2.520	21.00	0.60	500
GNLC4532P-150K	15.00	10	10	2.520	20.00	0.70	450
GNLC4532P-180K	18.00	10	10	2.520	18.00	0.80	400
GNLC4532P-220K	22.00	10	10	2.520	17.00	0.90	370
GNLC4532P-270K	27.00	10	10	2.520	15.00	1.20	330
GNLC4532P-330K	33.00	10	10	2.520	14.00	1.40	300
GNLC4532P-390K	39.00	10	10	2.520	12.00	1.60	280
GNLC4532P-470K	47.00	10	10	2.520	11.50	1.90	260
GNLC4532P-560K	56.00	10	10	2.520	10.50	2.20	240
GNLC4532P-680K	68.00	10	10	2.520	9.00	2.60	220
GNLC4532P-820K	82.00	10	10	2.520	8.50	3.50	200
GNLC4532P-101K	100.00	10	20	0.796	7.00	4.00	180
GNLC4532P-121K	120.00	10	20	0.796	6.50	4.50	160
GNLC4532P-151K	150.00	10	20	0.796	6.00	6.50	140
GNLC4532P-181K	180.00	10	20	0.796	5.50	7.50	120
GNLC4532P-221K	220.00	10	20	0.796	5.00	9.00	120
GNLC4532P-271K	270.00	10	20	0.796	4.50	11.00	100
GNLC4532P-331K	330.00	10	20	0.252	4.00	13.00	90
GNLC4532P-471K	470.00	10	20	0.796	3.50	19.00	70
GNLC4532P-561K	560.00	10	20	0.796	2.50	21.00	60
GNLC4532P-681K	680.00	10	20	0.796	2.00	30.00	60

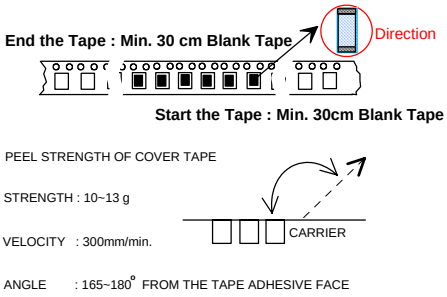
* Part No. Example : GNLC4532P-4R7J (GNLC Series 4532 Size, 4.7 uH, +/- 5%)
* Tolerance Code : □ J=+/-5%, K=+/-10%, M=+/-20% (all available)
* Test Instruments : HP 4191A RF Impedance Analyzer for L,Q,SRF Digital Multimeter SC-7401 for DCR
  HP 4261A LCR Digital Meter for IDC

MARKING COLOR REFERENCE CHART

Reliability Test Result :

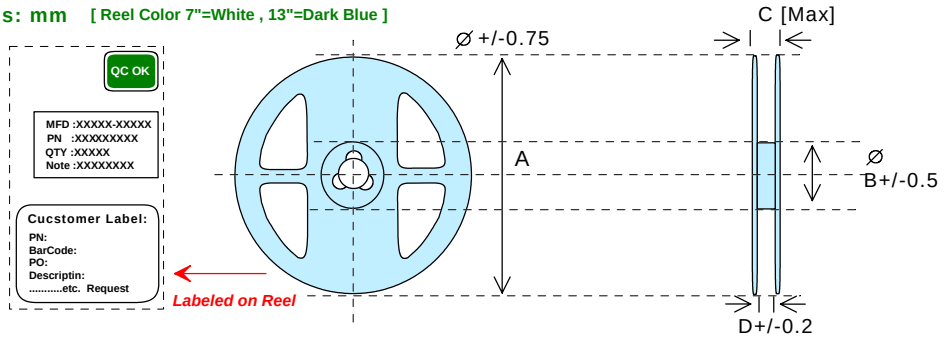
NO	ITEM	TEST CONDITIONS	REMARKS
1	Thermal Shock (Temperature Cycle) 溫度循環試驗	Temperature:-25 ° C/ +85 ° C kept stabilized for 30 minutes each Cycle: 10 Cycles	Inductance value shall be within ± 10% of the initial value. Q-factor shall be within ± 30% of the initial value. Impedance shall be within ± 20% of the initial value. DCR value shall be within ± 20% of the initial value. ■NO.1~4 Measurement:After placing for 24 hours (min.) ■NO.2~3 Applied current(spec): Rated current(maximum value) ■NO.5 Cycle: 5 cycles
2	Humidity Resistance 耐濕試驗	Humidity: 90%~ 95% RH Temperature: 85± 2 ° C Test Time: 1000± 12 Hours	
3	HighTemperature 耐熱試驗	Temperature: 85± 2 ° C Humidity: 20% Testing Time: 500± 12 Hours	
4	Low Temperature 耐寒試驗	Temperature: -25 ± 2 ° C Time: 48± 12 Hours	
5	Temperature and Humidity Cycle 溫/濕度循環試驗	Step / Temp / Humidity / Time 1 / 25± 2 ° C / 95~100%RH / 3.0Hr 2 / 55± 2 ° C / 95~96%RH / 9.5Hr 3 / 25± 2 ° C / 95~100%RH / 9.5Hr	
6	Vibration 振動性試驗	Frequency: 10Hz~50Hz Amplitude: 1.5mm Direction: X,Y,Z Time: 2 Hours each	
7	IR Reflow Soldering 焊錫性試驗	Solder: H63A(eutectic solder) Solder Temp.: 230± 5 ° C Time: 6 minutes Cycles: x 1	Impedance(inductance) shall be within ± 20% of the initial value. DCR value shall be within ± 20% of the initial value.
7.1	IR Reflow Soldering 焊錫性試驗	Go through real SMT IR-Reflow.... Solder Temp.: 220~245~220 ° C , Time: 50 Sec. 245 ° C , Time: 10 Sec. Cycles: x 2	Impedance(inductance) shall be within ± 20% of the initial value. DCR value shall be within ± 20% of the initial value.
8	Soldering Heat Resistance 耐熱 焊性試驗	Preheat:120 ~ 150 ° C (60 sec) Solder:H63A(eutectic solder) Solder Temp.: 260 ± 5 ° C Flux: Rosin Dip time: 10± 1 seconds	DCR value shall be within ± 20% of the initial value.
9	Bending Strength 折斷力試驗		The terminal electrode and the ferrite must not be damaged by the forces applied on the test conditions. 2012: ≧ 1.0 kg 2520: ≧ 3.0 kg 3225: ≧ 4.0 kg 4532: ≧ 5.0 kg
10	Flexure Strength 彎曲試驗		No mechanical damage shall be noticed even when the board is bent 2 mm
11	Terminal Strength 拉力試驗		After solder between copper plate and terminals of coil, push in two directions of X,Y with 0.9kg must no crack !





SIZE/mm	W	P	A_o	B_o	K_o	T	F
1610	8.00	4.00	1.25	1.90	1.00	0.22	3.50
2012	8.00	4.00	1.60	2.45	NA	0.23	3.50
2520	8.00	4.00	2.70	2.95	NA	0.23	3.50
3225	8.00	4.00	2.95	3.85	NA	0.23	5.50
4532	12.00	8.00	3.30	5.00	3.50	0.30	5.50

Reel Dimensions: mm [Reel Color 7"=White , 13"=Dark Blue]



SIZE / mm	A	B	C	D	REEL SIZE	QTY/REEL
1610	180	60	14.4	8.4	7”	4.0K
2012	180	60	14.4	8.4	7”	2.0K
2520	180	60	14.4	8.4	7”	2.0K
3225	180	60	14.4	8.4	7”	2.0K
4532	178	60	16	1.4	7”	500

BOX Package: cm