



<b>Product Series :</b> GNLC	<b>Brand :</b> GOTREND
<b>File Version :</b> GNLC-SERIES-AE-V1R0	<b>Editor :</b> David Wang
<b>Established Date :</b> 2009.05.07	<b>Description :</b> Molding Wound Inductor - IDC Enhanced
<b>Latest Edit Date :</b> 2022.04.12	<b>Product Type :</b> <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Customize

## REMINDERS

- ◆ Product information in this catalog is subject to change without notice, and is for reference only. Therefore, please contact GOTREND Technology to check for the latest information before practical application or usage of the products.
- ◆ This catalog contains only typical specifications, please contact GOTREND Technology for further details if you can not find special components or information you need in this catalogue. Please also approve our product specifications or transact the approval sheet for product specifications before ordering.
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- ◆ Information and data provided in the brochure can and do vary in different applications, and actual performance may vary over time.
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- ◆ Products listed in this catalog are intended for general electronic device usage under normal operation and use condition including telecommunication equipment, home appliances, sports equipment AV equipment, industrial machine, office equipment etc. Please take note that our products are not designed, intended or authorized for use in below mentioned applications unless explicitly agreed in writing between the parties to avoid product failure that could result in situation where personal injury or death could occur.

- (1) Aerospace/Aviation equipment
- (2) Atomic energy-related equipment
- (3) Disaster prevention/crime prevention equipment
- (4) Electric heating apparatus, burning equipment
- (5) Medical equipment
- (6) Military equipment
- (7) Power-generation control equipment
- (8) Public information-processing equipment
- (9) Safety equipment
- (10) Seabed equipment
- (11) Transportation control equipment
- (12) Transportation equipment (cars, electric trains, ships, etc.)
- (13) Other applications that are not considered general-purpose applications

- ◆ Our manufacturing sites fully compliance with requirement regarding the quality management system in the automotive industry under the IATF 16949 standard. GOTREND Technology respect individual agreements with reference to customer requirements and customer specific requirements (CSR). We will like to emphasize that only requirements mutually agreed upon will in implemented in our Quality Management System taking into consideration that IATF 16949 may appear to support the acceptance of unilateral requirements. We will only legally bind to this individually agreed upon agreement under the IATF 16949 standard.

- ◆ The product itself is a powder metallurgy product, so the structure is relatively fragile, and it should not be used for products that are easy to fall. In addition, when this product is assembled, it should avoid collision with the tool or mechanism shell.



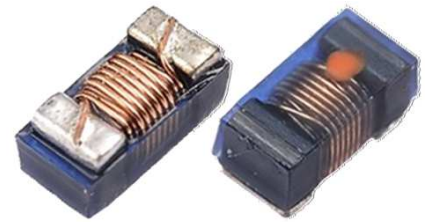
- ◆ It is not recommended to use hot air gun for disassembling of this product. When using of hot air gun to repair other parts, please also take note that long time or high temperature exposure of this product will also damage the inductance device. If you need to use the hot air gun to disassemble the product, it is recommended to adjust the hot air gun temperature to 380 deg.C±5 deg.C. The blower head of the hot air gun should be perpendicular and at least 1cm away from the product. After heating the product to the tin material melting point, use tweezers to remove the product from the PCB.



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### 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...



( Picture for reference only )

### Part No. Example :

PN	:	<b>GNLC</b>	<b>3225</b>	<b>P</b>	<input type="checkbox"/>	-	<b>6R8</b>	<b>J</b>	-	<b>AE</b>
-----		-----	-----	---	-----		----	----		----
ID	:	1	2	3	4		5	6		7
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%								
7	:	[ AE ] : Reliability comply with AEC-Q200 standard type.								

### Basic Information :

<b>Made in</b>	China
<b>Pin Foot</b>	SMD
<b>Shielding</b>	No
<b>J-STD-020</b>	MSL Level 1
<b>RoHS</b>	Compliant
<b>REACH</b>	Compliant
<b>Halogen</b>	Free
<b>Automotive</b>	AEC Q200

### Operating & Storage Condition :

- \* Operating Temp -40 ~ +125 °C ( Including self - temperature rise )
- \* Storage Temp 1. -10 ~ +45 °C , 50 ~ 60% RH ( Product with taping )  
2. -40 ~ +125 °C ( On board )
- \* Storage Life Time 6 Month ( Less than 40 °C and 60% RH )



### Attention & Caution :

- \* Keep out of Splashing water or salt water
- \* Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- Vibrations or shocks which exceed the specified condition
- Dew condense
- Layout near the edge of PCB
- Over flexure after SMT mounting & PCBA



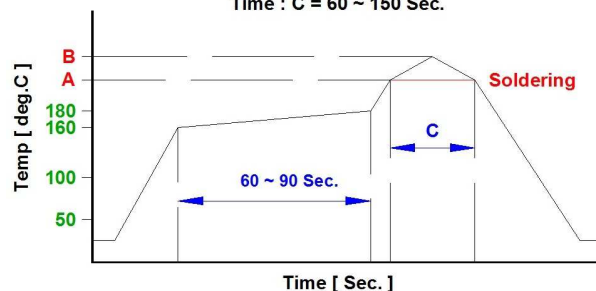
- \* Pin foot or SMD pad solderability: Pb free type is best within 6 months after delivery
- \* Humidity sensitive , IPC/JEDEC J-STD-020 MSL if over Level 1, recommend bake 30mins@150 degree before PCBA
- \* Caution for human life relative applications : PLS contact & consult with GOTREND team in design stage.

### Test Condition :

- \* Equipment HP4284A , HP42841A - L , Q , DCR , IDC  
HP8753D Network analyzer - SRF
- \* Standard Atmosphere Conditions:  
Ambient Temperature 20 ± 15 °C  
Humidity RH 65 ± 20%
- \* If there may be any doubt on the test result ,  
Measurement shall be made within the following limits:  
Ambient Temperature 25 ± 5 °C  
Humidity RH 75 ± 10%

### Recommend IR Reflow Curve : GTX-IR-FILE001

Lead Free Solder : A = 217 deg.C , B = 245+/-5 deg.C  
Time : C = 60 ~ 150 Sec.

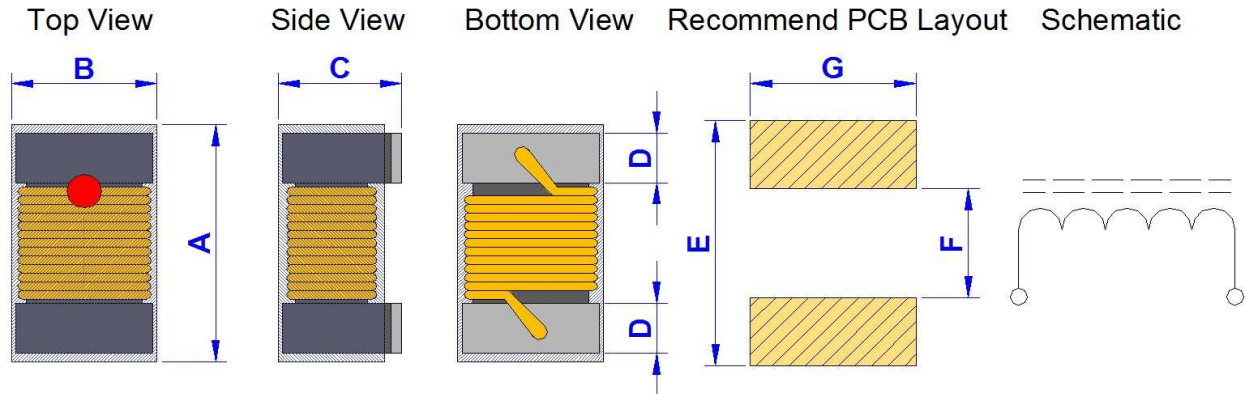


Notice : Iron Soldering , Solder < 30 Watt ,  
Direct touch the terminal x 3 Sec. Max. @ 350 deg.C

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### GNLC1610PR-SERIES-AE

Dimension [ mm ] :



Marking : The sense value represented by the color point please see the electrical specification.

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
1610PR	1.8 MAX.	1.20 MAX.	1.00 MAX.	0.33 Ref.	1.92	0.80	1.02

### Electrical Characteristics :

Part No.	Inductance (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□-AE	1.00	K,M	16	7.9	390.0	0.32	860	700	Black
GNLC1610PR-1R5□-AE	1.50	K,M	16	7.9	160.0	0.40	720	600	Brown
GNLC1610PR-1R8□-AE	1.80	K,M	16	7.9	121.0	0.43	640	580	Red
GNLC1610PR-2R2□-AE	2.20	K,M	16	7.9	103.0	0.56	600	580	Orange
GNLC1610PR-2R7□-AE	2.70	K,M	16	7.9	72.0	0.62	540	500	Yellow
GNLC1610PR-3R3□-AE	3.30	K,M	16	7.9	66.0	0.70	500	500	Green
GNLC1610PR-3R9□-AE	3.90	K,M	16	7.9	61.0	0.83	460	460	Blue
GNLC1610PR-4R7□-AE	4.70	K,M	16	7.9	51.0	0.97	400	420	Violet
GNLC1610PR-5R6□-AE	5.60	K,M	16	7.9	47.0	1.10	380	380	Gray
GNLC1610PR-6R8□-AE	6.80	K,M	16	7.9	43.0	1.50	340	340	White
GNLC1610PR-8R2□-AE	8.20	K,M	16	7.9	40.0	1.68	300	300	Black
GNLC1610PR-100□-AE	10.00	K,M	14	2.5	36.0	1.85	280	280	Brown
GNLC1610PR-120□-AE	12.00	K,M	14	2.5	32.0	2.28	260	260	Red
GNLC1610PR-150□-AE	15.00	K,M	14	2.5	29.0	2.60	240	240	Orange
GNLC1610PR-180□-AE	18.00	K,M	14	2.5	28.0	2.90	220	220	Yellow
GNLC1610PR-220□-AE	22.00	K,M	14	2.5	24.0	3.61	200	200	Green
GNLC1610PR-270□-AE	27.00	K,M	14	2.5	20.0	5.20	140	140	Blue
GNLC1610PR-330□-AE	33.00	K,M	14	2.5	15.0	6.60	120	120	Violet

\* Tolerance Code : □ K=+/-10%, M=+/-20% (all available)

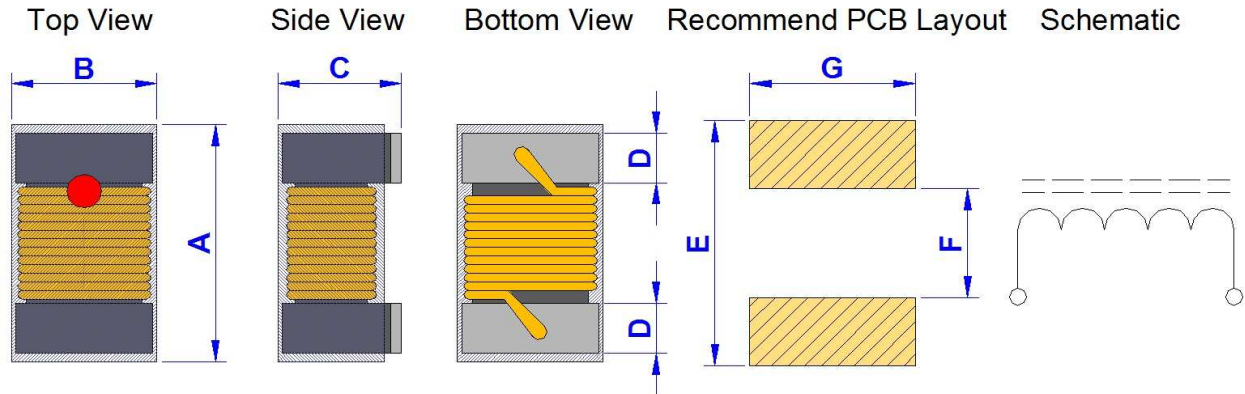
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\* I rms for a 15°C rise above 25°C ambient.

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### GNLC2012PR-SERIES-AE

Dimension [ mm ] :



Marking : The sense value represented by the color point please see the electrical specification.

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
2012PR	2.4 Max.	1.65 Max.	1.25 Max.	0.44 Ref.	2.80	0.96	1.78

Electrical Characteristics :

Part No.	Inductance (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□-AE	0.47	K,M	14	7.9	850.0	0.12	1400	1500	Blue
GNLC2012PR-R68□-AE	0.68	K,M	14	7.9	765.0	0.15	1200	1300	Gray
GNLC2012PR-1R0□-AE	1.00	J,K,M	14	7.9	208.0	0.13	1100	1300	Black
GNLC2012PR-1R2□-AE	1.20	J,K,M	14	7.9	159.0	0.16	960	1270	Red
GNLC2012PR-1R5□-AE	1.50	J,K,M	14	7.9	159.0	0.17	920	1260	Brown
GNLC2012PR-1R8□-AE	1.80	J,K,M	14	7.9	112.0	0.20	860	1080	Orange
GNLC2012PR-2R2□-AE	2.20	J,K,M	13	7.9	87.0	0.22	740	1040	Red
GNLC2012PR-2R7□-AE	2.70	J,K,M	13	7.9	72.0	0.25	680	1040	Yellow
GNLC2012PR-3R3□-AE	3.30	J,K,M	12	7.9	70.0	0.28	620	1020	Orange
GNLC2012PR-3R9□-AE	3.90	J,K,M	14	7.9	61.0	0.38	580	960	Green
GNLC2012PR-4R7□-AE	4.70	J,K,M	14	7.9	51.0	0.43	520	840	Yellow
GNLC2012PR-5R6□-AE	5.60	J,K,M	12	7.9	47.0	0.50	480	800	Blue
GNLC2012PR-6R8□-AE	6.80	J,K,M	14	7.9	46.0	0.68	420	700	Green
GNLC2012PR-8R2□-AE	8.20	J,K,M	13	7.9	33.0	0.73	400	680	Violet
GNLC2012PR-100□-AE	10.00	J,K,M	14	2.5	31.0	0.85	360	560	Blue
GNLC2012PR-120□-AE	12.00	J,K,M	14	2.5	30.0	0.90	340	460	Gray
GNLC2012PR-150□-AE	15.00	J,K,M	15	2.5	28.0	1.40	300	380	Violet
GNLC2012PR-180□-AE	18.00	J,K,M	15	2.5	27.0	1.55	280	360	White
GNLC2012PR-220□-AE	22.00	J,K,M	15	2.5	20.0	1.76	240	340	Gray
GNLC2012PR-270□-AE	27.00	J,K,M	15	2.5	17.0	2.00	220	300	Black
GNLC2012PR-330□-AE	33.00	J,K,M	15	2.5	17.0	2.35	200	300	White
GNLC2012PR-470□-AE	47.00	J,K,M	14	2.5	15.0	3.40	160	280	Black
GNLC2012PR-560□-AE	56.00	J,K,M	14	2.5	10.0	4.42	150	240	Yellow
GNLC2012PR-680□-AE	68.00	J,K,M	14	2.5	10.0	4.45	140	240	Brown
GNLC2012PR-820□-AE	82.00	J,K,M	14	2.5	10.0	7.50	100	180	Orange
GNLC2012PR-101□-AE	100.00	J,K,M	10	1.0	9.0	7.50	100	180	Red

\* Tolerance Code : □ J=+/-5%, K=+/-10%, M=+/-20% (all available)

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

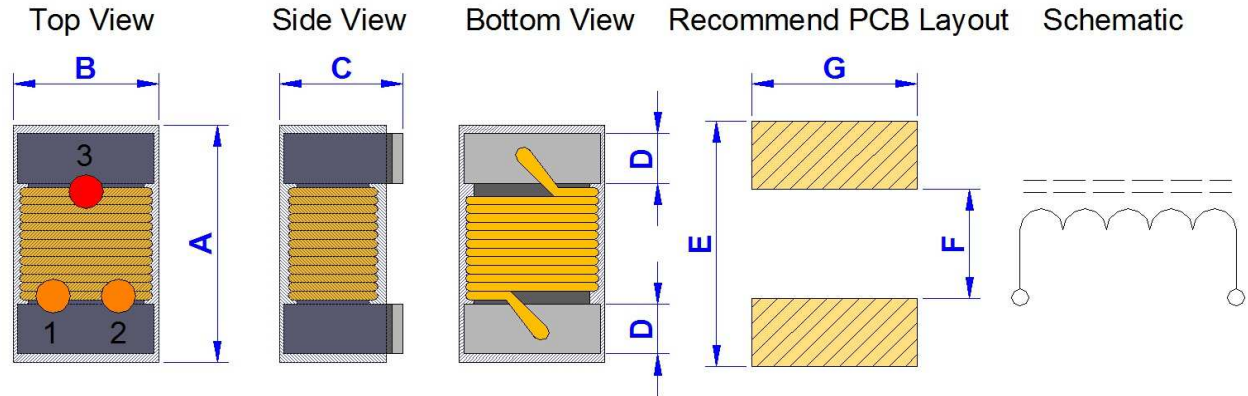
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### GNLC2520P-SERIES-AE

Dimension [ mm ] :



Marking : 1. Color point code : 0 1 2 3 4 5 6 7 8 9  
 Black Brown Red Orange Yellow Green Blue Violet Gray White

2. Color point inductance conversion method: [ ( 1st. dot x 10 ) + 2nd. dot ] x 10<sup>3rd. dot</sup> = nH

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
2520	2.9 Max.	2.54 Max.	2.00 Max.	0.50 Ref.	3.31	1.27	2.54

### Electrical Characteristics :

Part No.	Inductance (uH)	Tolerance (± %)	Q value (Min.)	Test Freq. (MHz)	S.R.F (MHz) (Min.)	DCR (Ohm) (Max.)	IDC (mA) (Max.)	Irms (mA) (Typ.)	Color-Dot Marking		
GNLC2520P-R22□-AE	0.22	J,K	35	25	800	0.15	2600	2400	Red	Red	Brown
GNLC2520P-R47□-AE	0.47	J,K	35	25	460	0.20	2400	1100	Yellow	Violet	Brown
GNLC2520P-R82□-AE	0.82	J,K	35	25	360	0.35	1800	1000	Gray	Red	Brown
GNLC2520P-1R0□-AE	1.0	J,K	32	7.9	340	0.34	2100	900	Brown	Black	Red
GNLC2520P-1R2□-AE	1.2	J,K	25	7.9	290	0.25	1900	860	Brown	Red	Red
GNLC2520P-1R5□-AE	1.5	J,K	32	7.9	230	0.42	1800	740	Brown	Green	Red
GNLC2520P-1R8□-AE	1.8	J,K	27	7.9	180	0.45	1700	720	Brown	Gray	Red
GNLC2520P-2R2□-AE	2.2	J,K	27	7.9	140	0.50	1500	700	Red	Red	Red
GNLC2520P-2R7□-AE	2.7	J,K	27	7.9	130	0.55	1300	560	Red	Violet	Red
GNLC2520P-3R3□-AE	3.3	J,K	27	7.9	125	0.60	1300	540	Orange	Orange	Red
GNLC2520P-3R9□-AE	3.9	J,K	27	7.9	100	0.80	1200	480	Orange	White	Red
GNLC2520P-4R7□-AE	4.7	J,K	27	7.9	90	0.90	1100	400	Yellow	Violet	Red
GNLC2520P-5R6□-AE	5.6	J,K	27	7.9	60	1.00	1000	400	Green	Blue	Red
GNLC2520P-6R8□-AE	6.8	J,K	27	7.9	60	1.05	950	420	Blue	Gray	Red
GNLC2520P-8R2□-AE	8.2	J,K	25	7.9	55	1.20	850	380	Gray	Red	Red
GNLC2520P-100□-AE	10.0	J,K	23	2.5	55	1.55	800	240	Brown	Black	Orange
GNLC2520P-120□-AE	12.0	J,K	23	2.5	36	2.10	630	220	Brown	Red	Orange
GNLC2520P-150□-AE	15.0	J,K	23	2.5	36	2.38	580	200	Brown	Green	Orange
GNLC2520P-180□-AE	18.0	J,K	23	2.5	32	2.50	550	180	Brown	Gray	Orange
GNLC2520P-220□-AE	22.0	J,K	23	2.5	29	2.92	550	180	Red	Red	Orange
GNLC2520P-330□-AE	33.0	J,K	23	2.5	21	4.10	450	140	Orange	Orange	Orange
GNLC2520P-390□-AE	39.0	J,K	18	2.5	15	5.50	340	270	Orange	White	Orange
GNLC2520P-470□-AE	47.0	J,K	23	2.5	17	7.80	350	100	Yellow	Violet	Orange
GNLC2520P-680□-AE	68.0	J,K	20	2.5	9	11.50	260	100	Blue	Gray	Orange

\* Tolerance Code : □ J=+/-5%, K=+/-10% (all available)

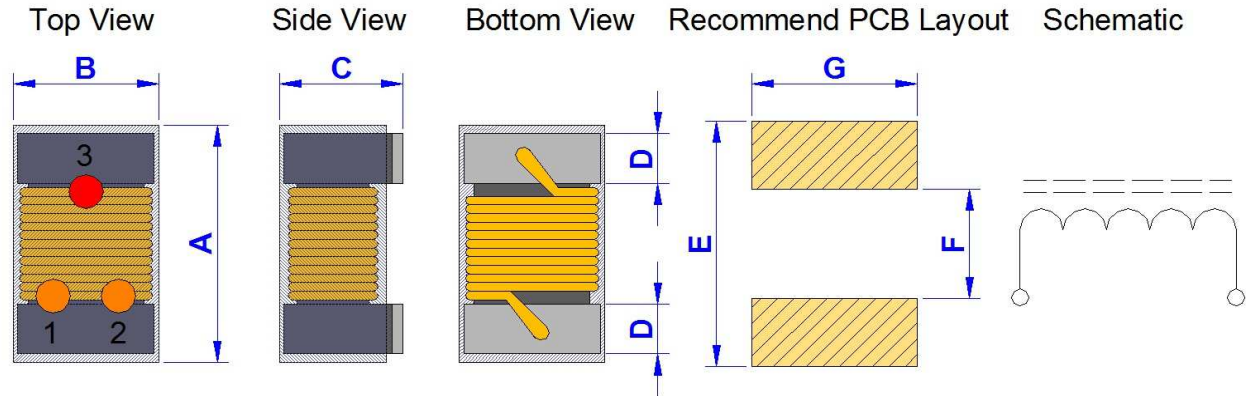
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### GNLC2520P-SERIES-AE

Dimension [ mm ] :



Marking : 1. Color point code : 0 1 2 3 4 5 6 7 8 9  
 Black Brown Red Orange Yellow Green Blue Violet Gray White

2. Color point inductance conversion method: [ ( 1st. dot x 10 ) + 2nd. dot ] x 10<sup>3rd. dot</sup> = nH

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
2520	2.9 Max.	2.54 Max.	2.00 Max.	0.50 Ref.	3.31	1.27	2.54

### Electrical Characteristics :

Part No.	Inductance (uH)	Tolerance (± %)	Q value (Min.)	Test Freq. (MHz)	S.R.F (MHz) (Min.)	DCR (Ohm) (Max.)	IDC (mA) (Max.)	Irms (mA) (Typ.)	Color-Dot Marking		
									1st	2nd	3rd
GNLC2520P-101□-AE	100.0	J,K	13	1.0	4	13.20	200	100	Brown	Black	Yellow
GNLC2520P-221□-AE	220.0	J,K	13	1.0	3	25.50	140	60	Red	Red	Yellow
GNLC2520P-331□-AE	330.0	J,K	13	1.0	2	32.50	110	50	Orange	Orange	Yellow

\* Tolerance Code : □ J=+/-5%, K=+/-10% (all available)

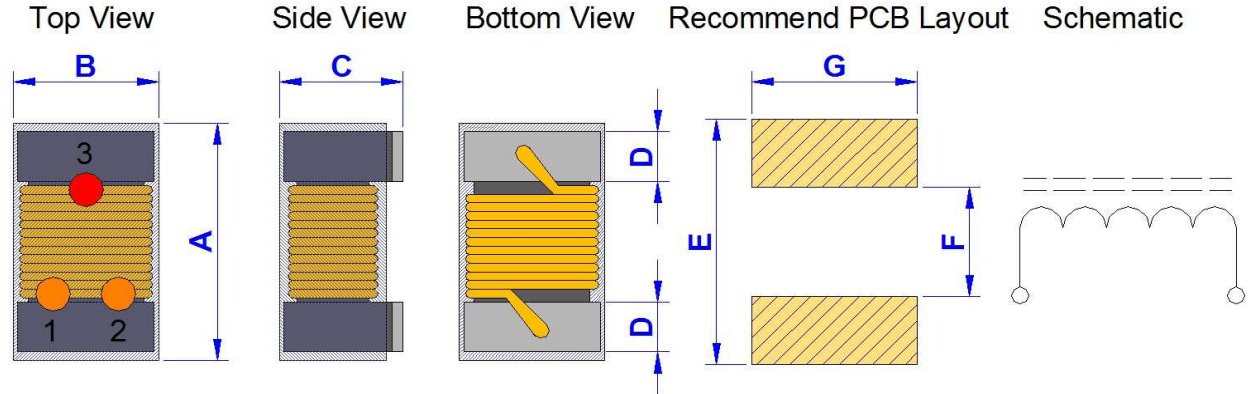
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2. Color point inductance conversion method: [ ( 1st. dot x 10 ) + 2nd. dot ] x 10<sup>3rd. dot</sup> = nH

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
3225	3.6 Max.	2.90 Max.	2.50 Max.	0.50 Ref.	4.40	2.00	2.70

### Electrical Characteristics :

Part No.	Inductance (uH)	Tolerance (± %)	Q value (Min.)	Test Freq. (MHz)	S.R.F (MHz) (Min.)	DCR (Ohm) ( Max. )	IDC (mA) ( Max. )	Color-Dot Marking		
GNLC3225P-R39□-AE	0.39	J	40	25.0	500	0.09	3000	Orange	White	Brown
GNLC3225P-R47□-AE	0.47	J,K	40	25.0	500	0.09	3000	Yellow	Violet	Brown
GNLC3225P-R56□-AE	0.56	K	40	25.0	500	0.10	3000	Green	Blue	Brown
GNLC3225P-1R0□-AE	1.0	J,K	35	7.9	340	0.13	2600	Brown	Black	Red
GNLC3225P-1R2□-AE	1.2	J,K	35	7.9	280	0.14	2400	Brown	Red	Red
GNLC3225P-1R5□-AE	1.5	J,K	30	7.9	160	.014	2200	Brown	Green	Red
GNLC3225P-1R8□-AE	1.8	J,K	30	7.9	120	.016	2000	Brown	Gray	Red
GNLC3225P-2R2□-AE	2.2	J,K	30	7.9	100	0.17	1900	Red	Red	Red
GNLC3225P-2R5□-AE	2.5	J,K	30	7.9	80	0.19	1700	Red	Green	Red
GNLC3225P-3R3□-AE	3.3	J,K	30	7.9	70	0.21	1500	Orange	Orange	Red
GNLC3225P-4R7□-AE	4.7	J,K	28	7.9	55	0.30	1300	Yellow	Violet	Red
GNLC3225P-6R8□-AE	6.8	J,K	28	7.9	45	0.37	1100	Blue	Gray	Red
GNLC3225P-8R2□-AE	8.2	J,K	28	7.9	45	0.47	940	Green	Red	Red
GNLC3225P-100 □-AE	10.0	J,K	22	2.5	47	0.50	900	Brown	Black	Orange
GNLC3225P-120 □-AE	12.0	J,K	22	2.5	42	0.68	820	Brown	Red	Orange
GNLC3225P-150 □-AE	15.0	J,K	22	2.5	34	0.72	740	Brown	Green	Orange
GNLC3225P-180 □-AE	18.0	J,K	22	2.5	28	0.95	680	Brown	Gray	Orange
GNLC3225P-220 □-AE	22.0	J,K	22	2.5	25	1.10	640	Red	Red	Orange
GNLC3225P-270 □-AE	27.0	J,K	20	2.5	18	1.25	570	Red	Violet	Orange
GNLC3225P-330 □-AE	33.0	J,K	20	2.5	13	1.37	500	Orange	Orange	Orange

\* Tolerance Code : □ J=+/-5%, K=+/-10% (all available)

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

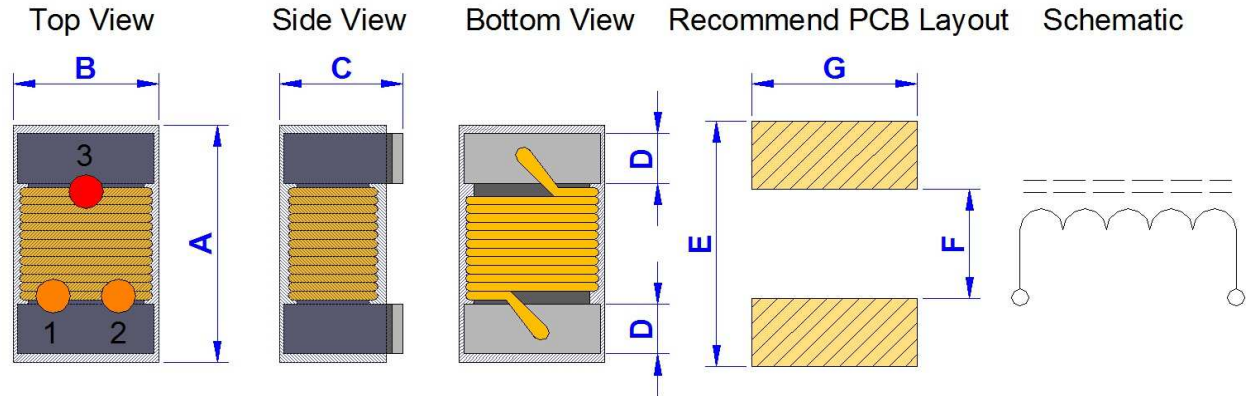
\* Irms for a 15°C rise above 25°C ambient.



<b>Product Series :</b> GNLC	<b>Brand :</b> GOTREND
<b>File Version :</b> GNLC-SERIES-AE-V1R0	<b>Editor :</b> David Wang
<b>Established Date :</b> 2009.05.07	<b>Description :</b> Molding Wound Inductor - IDC Enhanced
<b>Latest Edit Date :</b> 2022.04.12	<b>Product Type :</b> <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Customize

### GNLC3225P-SERIES-AE

Dimension [ mm ] :



Marking : 1. Color point code : 0 1 2 3 4 5 6 7 8 9  
 Black Brown Red Orange Yellow Green Blue Violet Gray White

2. Color point inductance conversion method: [ ( 1st. dot x 10 ) + 2nd. dot ] x 10<sup>3rd. dot</sup> = nH

Size	A	B	C	D	E(Ref.)	F(Ref.)	G(Ref.)
3225	3.6 Max.	2.90 Max.	2.50 Max.	0.50 Ref.	4.40	2.00	2.70

### Electrical Characteristics :

Part No.	Inductance (uH)	Tolerance (± %)	Q value (Min.)	Test Freq. (MHz)	S.R.F (MHz) (Min.)	DCR (Ohm) ( Max. )	IDC (mA) ( Max. )	Color-Dot Marking		
GNLC3225P-390 □-AE	39.0	J,K	20	2.5	13	1.85	400	Orange	White	Orange
GNLC3225P-470 □-AE	47.0	J,K	20	2.5	12	1.88	440	Yellow	Violet	Orange
GNLC3225P-560 □-AE	56.0	J,K	22	2.5	10	2.75	380	Green	Blue	Orange
GNLC3225P-680 □-AE	68.0	J,K	22	2.5	10	3.00	360	Blue	Gray	Orange
GNLC3225P-820 □-AE	82.0	J,K	22	2.5	10	4.10	320	Gray	Red	Orange
GNLC3225P-101 □-AE	100.0	J,K	15	1.0	8	4.68	280	Brown	Black	Yellow
GNLC3225P-121 □-AE	120.0	J,K	15	1.0	7	5.80	220	Brown	Red	Yellow
GNLC3225P-151 □-AE	150.0	J,K	13	1.0	7	6.10	220	Brown	Green	Yellow
GNLC3225P-181 □-AE	180.0	J,K	13	1.0	3	7.10	200	Brown	Gray	Yellow
GNLC3225P-221 □-AE	220.0	J,K	13	1.0	3	7.65	200	Red	Red	Yellow
GNLC3225P-331 □-AE	330.0	J,K	13	1.0	3	12.62	160	Orange	Orange	Yellow
GNLC3225P-471 □-AE	470.0	J,K	13	1.0	3	25.00	120	Yellow	Violet	Yellow
GNLC3225P-561 □-AE	560.0	J,K	13	1.0	2	27.00	100	Green	Blue	Yellow
GNLC3225P-681 □-AE	680.0	J,K	13	1.0	2	31.00	100	Blue	Gray	Yellow
GNLC3225P-821 □-AE	820.0	J,K	10	1.0	2	42.00	50	Gray	Red	Yellow
GNLC3225P-102 □-AE	1000.0	J,K	10	1.0	2	46.00	50	Brown	Black	Red

\* Tolerance Code : □ J=+/-5%, K=+/-10% (all available)

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

\* Irms for a 15°C rise above 25°C ambient.

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### Care note :

Care note for Use :

(1) Storage Condition :

Temperature 25 to 35 °C , Humidity 45 to 60% RH

(2) Use Temperature :

- a. Minimum Temperature : -40 °C Ambient temperature of this product.
- b. Maximum Temperature : +125 °C The value of temperature including ambient and temperature rise of this product.
- c. Reliability test temperature range from -40 ~ +125 °C
- d. However, this is not meant as temperature grade guarantee for UL.

(3) Model :

When this product was used in a similar or as new product to the original one, sometimes it might be unable to satisfy the specifications due to difference in condition of usage.

(4) Drop :

If this product suffered mechanical stress such as drop, characteristics may become poor ( due to damage on coil / bobbin / ferrite ... etc. )  
Never use such stressed product.

Care note for Safety :

(1) Provision to Abnormal Condition :

This product itself does not have any protective function in abnormal condition such as overload, short-circuit and open-circuit conditions, etc.  
Therefore, it shall be confirmed from the end product that there is no risk of smoking, fire, dielectric withstand voltage insulation resistance, etc. in abnormal conditions to provide protective devices and /or protection circuit in the end product.

(2) Temperature Rise :

Temperature rise on this product depends on the installation condition on end products.  
It shall be confirmed on the actual end product that temperature rise of this product is within the specified temperature class limit.

(3) Dielectric Strength :

Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.

(4) Water :

This product must not be used in wet condition resulted from water, coffee or any liquid contact because insulation strength becomes very low under such condition.

(5) Potting :

If this product is potted in some compound, coating material of magnet wire might be occasionally damaged. Please ask us if you intend to pot this product.

(6) Detergent :

Please consult our company immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

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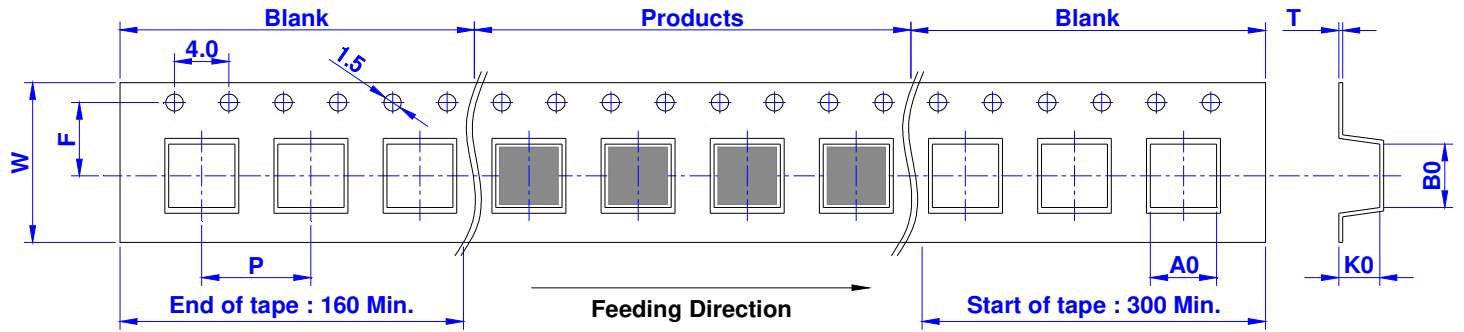
### Reliability :

No	Item	Test Conditions	Specification
1	<b>External Visual</b> MIL-STD-883 Method 2009	Inspect device construction and workmanship. Electrical test not required.	There is no change for appearance ( electrode did not fall off , loose , no breakage , ferrite core did not break , damage )
2	<b>Physical Dimension</b> JESD22 Method JB-100	Verify physical dimensions to the device specification.	For Spec.
3	<b>Thermal Shock</b> MIL-STD-202 Method 107	Temperature : $-40\pm 2\text{ }^{\circ}\text{C} \sim +125\pm 2\text{ }^{\circ}\text{C}$ Max transfer time : 20 s. Dwell time : 15 minutes. Air - Air	There is no change for appearance ( electrode did not fall off , loose , no breakage , ferrite core did not break , damage ) Inductor value / resistance change rate $\pm 10\%$ .
4	<b>Humidity Resistance</b> MIL-STD-202 Method 103	Humidity : 85% RH Temperature : 85 $^{\circ}\text{C}$ Test time : 1000 Hours	There is no change for appearance ( electrode did not fall off , loose , no breakage , ferrite core did not break , damage ) Inductor value / resistance change rate $\pm 10\%$ .
5	<b>High Temperature</b> MIL-STD-202 Method 108	Temperature : $125\pm 2\text{ }^{\circ}\text{C}$ Test time : 1000 Hours	There is no change for appearance ( electrode did not fall off , loose , no breakage , ferrite core did not break , damage ) Inductor value / resistance change rate $\pm 10\%$ .
6	<b>Temperature and Humidity Cycle</b> JESD22 Method JA-104	Temperature : $-40\text{ }^{\circ}\text{C} \sim +125\text{ }^{\circ}\text{C}$ Cycles : 1000	There is no change for appearance ( electrode did not fall off , loose , no breakage , ferrite core did not break , damage ) Inductor value / resistance change rate $\pm 10\%$ .
7	<b>Operational Life</b> MIL-PRF-27	Temperature : 125 $^{\circ}\text{C}$ Load : Allowed DC current Test time : 1000 Hours	No short circuit , open circuit.
8	<b>Vibration</b> MIL-STD-202 Method 204	5 g's for 20 minutes , 12 cycles each of 3 orientations. Test from 10Hz ~ 2000Hz	No bad phenomenon.
9	<b>Mechanical Shock</b> MIL-STD-202 Method 213	Figure 1 of Method 213 SMD : Condition C.	No bad phenomenon.
10	<b>Resistance to Soldering Head</b> MIL-STD-202 Method 210	Condition B No pre-heat of samples. Temperature 250 up / 5 s. Temperature 183 up / 90 ~ 120 s.	Tin solder have to cover over 90% area.
11	<b>Solderability</b> J-STD-002	a. Method B , 4 Hours @ 155 $^{\circ}\text{C}$ dry heat @ 235 $^{\circ}\text{C}$ b. Method B @ 215 $^{\circ}\text{C}$ category 3 c. Method D @ 260 $^{\circ}\text{C}$ category 3	No change and transform form the appearance.

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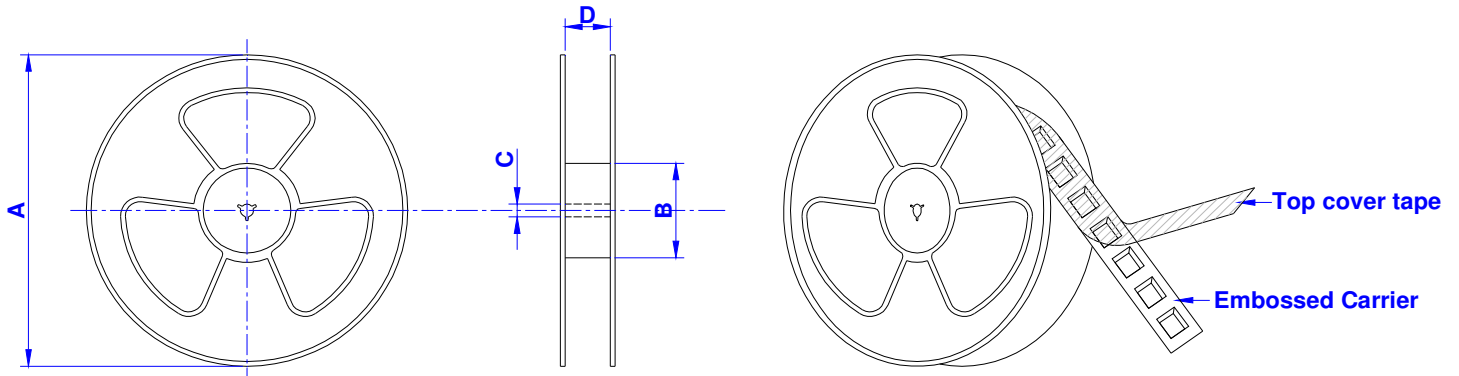
**Packaging Information :**

Tape Dimension ( mm ) :



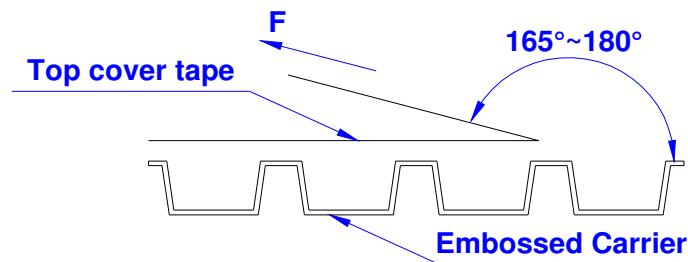
SIZE/mm	W	P	A0	B0	K0	T	F
1610	8.00	4.00	1.25	1.90	1.00	0.22	3.50
2012	8.00	4.00	1.65	2.40	1.30	0.22	3.50
2520	8.00	4.00	2.50	2.85	2.00	0.22	3.50
3225	8.00	4.00	2.88	3.72	2.50	0.22	5.50

Reel Dimension ( mm ) :



SIZE/mm	Reel Size	A	B	C	D	QTY / Reel
1610	7" x 8 mm	178	60	13	8.5	4000 PCS
2012	7" x 8 mm	178	60	13	8.5	2000 PCS
2520	7" x 8 mm	178	60	13	8.5	2000 PCS
3225	7" x 8 mm	178	60	13	8.5	2000 PCS

Tearing Off Force :



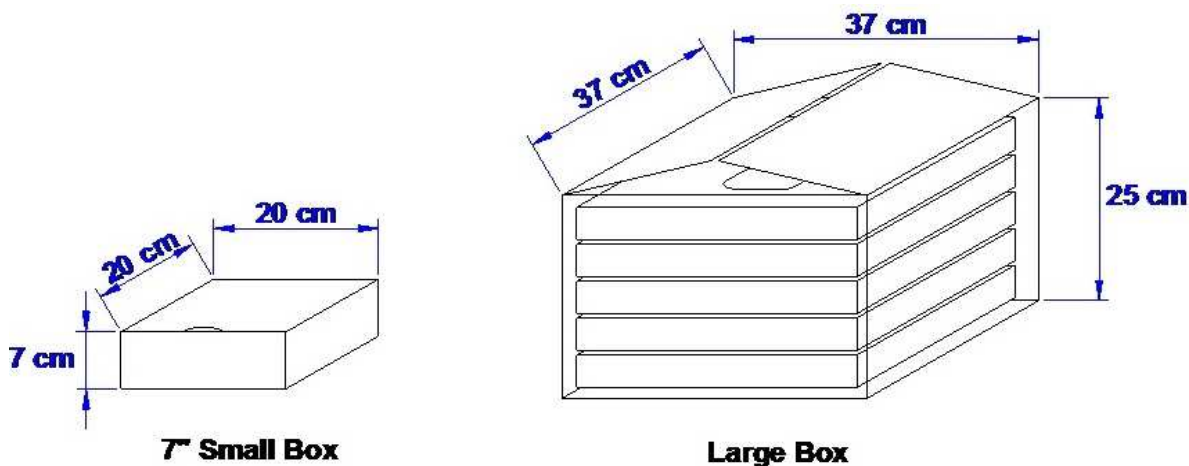
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions ( referenced ANSI / EIA - 481 - D - 2008 of 4.11 standard ).

Room Temp. ( °C )	Room Humidity ( % )	Room Atm. ( hPa )	Tearing Speed ( mm / min )
5 ~ 35	45 ~ 85	860 ~ 1060	300

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**Packaging Information :**

Box Package :



SIZE/mm	Reels in Small Box	Small Box in Large Box
1610	5	8
2012	5	8
2520	5	8
3225	5	8