



Product Series Code	<b>GTC</b>	Brand	<b>GOTREND</b>
File Version	GTC-V3R4	Editor	Teddy
Established Date	2009.05.22	Description	Multilayer Ceramic High-Frequency Inductor
Latest Edit Date	2017.07.11	Pages	Page : 2

### Features & Application:

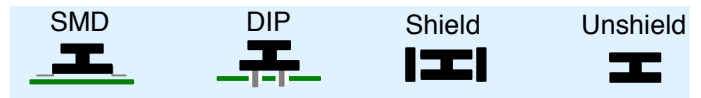
- \* High Frequency SRF up to 10GHz
- \* Fit for 2.4GHz / 5GHz...etc. RF circuit
- \* To help you go pass the CE/FCC standard.
- \* Mobile Device / Handheld Device / LowProfile Device / Panel...

### Part No Example:

GTC 1005 P - 1N2 S  
 1 2 3 4 5

1. GTC : GOTREND Series
2. 1005 : Dimension code- Length 1.0mm X Width 0.5mm
3. P : Pb free < 1000ppm
4. 1N2 : [ L ] Value - Inductance 1N2=1.2nH, 27N=27nH, R27=270nH
5. S : Tolerance Code - S = +/- 0.3 nH, J = 5%, K = 10% , M = 20%

### Product Structure



### 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 醌PBDE
<1000ppm	ND	ND	ND	ND	ND

### DIMENSION : [ mm ]



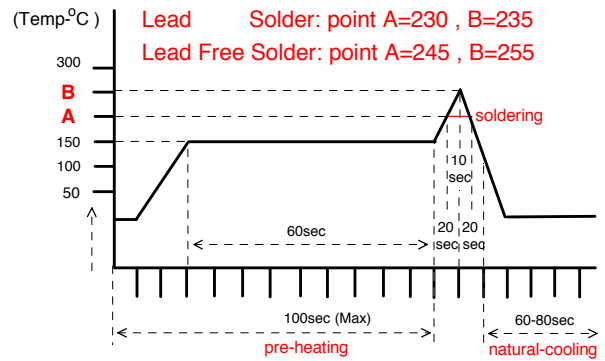
TYPE	L	W	T	C	D	E	F
1005 [ 0402 ]	1.00+/-0.15	0.50+/-0.20	0.50+/-0.15	0.15+/-0.10	1.20~1.40	0.40 ref.	0.40 ref.
1608 [ 0603 ]	1.60+/-0.15	0.80+/-0.15	0.80+/-0.15	0.25+/-0.10	2.40~3.40	0.60 ref.	0.80 ref.
2012 [ 0805 ]	2.00+/-0.20	1.20+/-0.20	0.90+/-0.20	0.30+/-0.15	3.00~4.00	1.00 ref.	1.20 ref.

### Test Equipment :

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

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

### Recommand Reflow Curve (TIME:Second)



Notice: Iron Soldering: 3 Seconds Max. @260°C

### Operating & Storage Condition :

OPERATING TEMP : -40~+125°C  
 STORAGE TEMP : -40~+85°C  
 STORAGE LIFE TIME : 12 MONTH @25°C , 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.



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Part No.	L - Value (nH) @100MHz 0.25V	Tolerance of L.value	Q @100MHz (Min.)	Q Typcial @		S.R.F (MHz) Ref.	DCR (ohm) Max.	IDC (mA) Max.
				100MHz	800MHz			
GTC1005P-1N0S	1.0	+/-0.3nH	8	9	28	10000	0.10	300
GTC1005P-1N2S	1.2	+/-0.3nH	8	9	28	10000	0.10	300
GTC1005P-1N5S	1.5	+/-0.3nH	8	10	28	9000	0.10	300
GTC1005P-1N8S	1.8	+/-0.3nH	8	10	28	8700	0.12	300
GTC1005P-2N0S	2.0	+/-0.3nH	8	10	29	8100	0.15	300
GTC1005P-2N2S	2.2	+/-0.3nH	8	10	29	8100	0.15	300
GTC1005P-2N4S	2.4	+/-0.3nH	8	10	/	6000	0.13	300
GTC1005P-2N7S	2.7	+/-0.3nH	8	11	30	7700	0.15	300
GTC1005P-3N0S	3.0	+/-0.3nH	8	11	30	6300	0.15	300
GTC1005P-3N3	3.3	S / K	8	11	30	6300	0.16	300
GTC1005P-3N9	3.9	S / K	8	11	31	6100	0.21	300
GTC1005P-4N3	4.3	S / K	8	11	31	5400	0.21	300
GTC1005P-4N7	4.7	S / K	8	11	31	5400	0.21	300
GTC1005P-5N1	5.1	S / K	8	10	30	5700	0.23	300
GTC1005P-5N6	5.6	S / K	8	11	31	5100	0.23	300
GTC1005P-6N8	6.8	J / K	8	11	31	4550	0.25	250
GTC1005P-7N5	7.5	J / K	8	11	31	4300	0.25	250
GTC1005P-8N2	8.2	J / K	8	12	31	4100	0.30	250
GTC1005P-10N	10.0	J / K	8	12	31	3900	0.35	250
GTC1005P-12N	12.0	J / K	8	12	31	3000	0.40	250
GTC1005P-15N	15.0	J / K	8	12	31	2600	0.50	250
GTC1005P-18N	18.0	J / K	8	12	31	2350	0.55	200
GTC1005P-22N	22.0	J / K	8	12	31	2000	0.70	200
GTC1005P-27N	27.0	J / K	8	12	32	1900	0.80	200
GTC1005P-33N	33.0	J / K	8	10	32	1700	1.00	200
GTC1005P-39N	39.0	J / K	8	10	32	1600	1.20	150
GTC1005P-47N	47.0	J / K	8	10	33	1300	1.30	150
GTC1005P-56N	56.0	J / K	8	10	34	1250	2.00	150
GTC1005P-68N	68.0	J / K	8	10	35	1000	2.20	100
GTC1005P-82N	82.0	J / K	8	10	35	900	2.50	100
GTC1005P-R10	100.0	J / K	8	10	35	850	2.50	100
GTC1005P-R12	120.0	J / K	8	10	35	750	2.50	100
GTC1005P-R27	270.0	J / K	8	/	/	500	4.80	100



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Part No.	L - Value (nH) @100MHz 0.25V	Tolerance of L.value	Q @100MHz (Min.)	Q Typcial @		S.R.F (MHz) Ref.	DCR (ohm) Max.	IDC (mA) Max.
				100MHz	800MHz			
GTC1608P-1N0S	1.0	+/-0.3nH	8	12	50	>17000	0.10	300
GTC1608P-1N2S	1.2	+/-0.3nH	8	13	65	>17000	0.10	300
GTC1608P-1N5S	1.5	+/-0.3nH	8	13	55	>17000	0.10	300
GTC1608P-1N7S	1.7	+/-0.3nH	8	13	/	8000	0.10	300
GTC1608P-1N8S	1.8	+/-0.3nH	8	13	51	6000	0.10	300
GTC1608P-2N2S	2.2	+/-0.3nH	8	13	/	6000	0.10	300
GTC1608P-2N7S	2.7	+/-0.3nH	8	13	45	8600	0.10	300
GTC1608P-3N3 <input type="checkbox"/>	3.3	S / K	8	13	51	6500	0.12	300
GTC1608P-3N9 <input type="checkbox"/>	3.9	S / K	8	13	52	6300	0.14	300
GTC1608P-4N7 <input type="checkbox"/>	4.7	S / K	8	13	41	5400	0.16	300
GTC1608P-5N6 <input type="checkbox"/>	5.6	S / K	8	13	41	4600	0.18	300
GTC1608P-6N8 <input type="checkbox"/>	6.8	J / K	8	13	44	4500	0.22	300
GTC1608P-8N2 <input type="checkbox"/>	8.2	J / K	8	13	44	3800	0.24	300
GTC1608P-10N <input type="checkbox"/>	10.0	J / K	8	13	45	3700	0.26	300
GTC1608P-12N <input type="checkbox"/>	12.0	J / K	8	15	46	3200	0.28	300
GTC1608P-15N <input type="checkbox"/>	15.0	J / K	8	15	48	2900	0.32	300
GTC1608P-18N <input type="checkbox"/>	18.0	J / K	10	15	48	2100	0.35	300
GTC1608P-22N <input type="checkbox"/>	22.0	J / K	10	17	45	2100	0.40	300
GTC1608P-27N <input type="checkbox"/>	27.0	J / K	10	17	43	2000	0.45	300
GTC1608P-33N <input type="checkbox"/>	33.0	J / K	10	18	39	1600	0.55	300
GTC1608P-39N <input type="checkbox"/>	39.0	J / K	10	18	37	1500	0.60	300
GTC1608P-47N <input type="checkbox"/>	47.0	J / K	12	18	35	1200	0.70	300
GTC1608P-56N <input type="checkbox"/>	56.0	J / K	12	18	32	1100	0.75	300
GTC1608P-62N <input type="checkbox"/>	62.0	J / K	12	18	/	1050	0.85	300
GTC1608P-68N <input type="checkbox"/>	68.0	J / K	12	18	32	1050	0.85	300
GTC1608P-82N <input type="checkbox"/>	82.0	J / K	12	18	32	850	1.00	300
GTC1608P-R10 <input type="checkbox"/>	100.0	J / K	12	18	20	750	1.20	300
GTC1608P-R12 <input type="checkbox"/>	120.0	J / K	8 @50MHz	16	23	700	2.30	300
GTC1608P-R15 <input type="checkbox"/>	150.0	J / K	8 @50MHz	14	23	650	2.40	300
GTC1608P-R18 <input type="checkbox"/>	180.0	J / K	8 @50MHz	14	21	550	2.70	300
GTC1608P-R22 <input type="checkbox"/>	220.0	J / K	8 @50MHz	13	20	450	3.00	250



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Part No.	L - Value (nH) @100MHz 0.25V	Tolerance of L.value	Q @100MHz (Min.)	Q Typcial @		S.R.F (MHz) Ref.	DCR (ohm) Max.	IDC (mA) Max.
				100MHz	800MHz			
GTC2012P-1N0S	1.0	+/-0.3nH	10	12	38	>6000	0.10	300
GTC2012P-1N2S	1.2	+/-0.3nH	10	12	38	>6000	0.10	300
GTC2012P-1N5S	1.5	+/-0.3nH	10	13	40	>6000	0.10	300
GTC2012P-1N8S	1.8	+/-0.3nH	10	13	45	>6000	0.10	300
GTC2012P-2N2S	2.2	+/-0.3nH	10	13	48	>6000	0.10	300
GTC2012P-2N7S	2.7	+/-0.3nH	12	13	40	>6000	0.12	300
GTC2012P-3N3	3.3	S / K	12	15	56	>6000	0.13	300
GTC2012P-3N9	3.9	S / K	12	15	54	5600	0.15	300
GTC2012P-4N7	4.7	S / K	12	15	50	5500	0.20	300
GTC2012P-5N6	5.6	S / K	12	15	53	4700	0.23	300
GTC2012P-6N8	6.8	J / K	15	15	51	3900	0.25	300
GTC2012P-8N2	8.2	J / K	15	15	53	3200	0.28	300
GTC2012P-10N	10.0	J / K	15	16	45	3100	0.30	300
GTC2012P-12N	12.0	J / K	15	16	48	2800	0.35	300
GTC2012P-15N	15.0	J / K	15	17	48	2400	0.40	300
GTC2012P-18N	18.0	J / K	15	17	43	2100	0.45	300
GTC2012P-22N	22.0	J / K	15	17	47	2000	0.50	300
GTC2012P-27N	27.0	J / K	15	18	38	1800	0.55	300
GTC2012P-33N	33.0	J / K	15	19	35	1700	0.60	300
GTC2012P-39N	39.0	J / K	18	21	40	1400	0.65	300
GTC2012P-47N	47.0	J / K	18	21	38	1200	0.70	300
GTC2012P-56N	56.0	J / K	18	21	31	1000	0.75	300
GTC2012P-68N	68.0	J / K	18	21	28	900	0.80	300
GTC2012P-82N	82.0	J / K	18	22	25	900	0.85	300
GTC2012P-R10	100.0	J / K	18	23	25	700	0.90	300
GTC2012P-R12	120.0	J / K	13 @50MHz	22	25	600	0.95	300
GTC2012P-R15	150.0	J / K	13 @50MHz	22	24	500	1.00	300
GTC2012P-R18	180.0	J / K	13 @50MHz	23	23	430	1.10	300
GTC2012P-R22	220.0	J / K	12 @50MHz	20	22	400	1.20	300
GTC2012P-R27	270.0	J / K	12 @50MHz	20	22	340	1.30	300
GTC2012P-R33	330.0	J / K	12 @50MHz	22	20	320	1.50	300
GTC2012P-R39	390.0	J / K	10 @50MHz	17	20	270	1.60	300
GTC2012P-R47	470.0	J / K	10 @50MHz	17	20	250	1.80	300
GTC2012P-R56	560.0	J / K	10 @50MHz	17	20	230	2.50	300
GTC2012P-R68	680.0	J / K	10 @50MHz	17	20	180	3.00	300



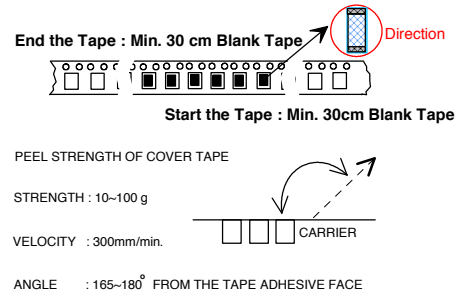
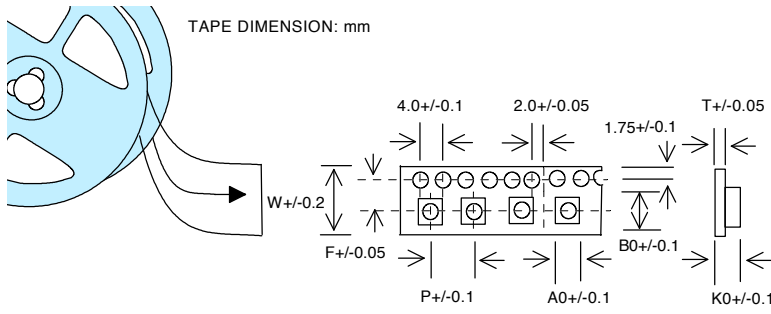
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### Reliability Test Result :

NO	ITEM	TEST CONDITIONS	REMARKS															
1	Thermal Shock (Temperature Cycle) 溫度循環試驗	Temperature: -40 ° C/ +125 ° C kept stabilized for 30 minutes each  Cycle: 100 Cycles	Inductance value shall be within $\pm 10\%$ of the initial value. Q-factor shall be within $\pm 30\%$ of the initial value. Impedance shall be within $\pm 20\%$ of the initial value. DCR value shall be within $\pm 20\%$ of the initial value.															
2	Humidity Resistance 耐濕試驗	Humidity: 90%~ 95% RH Temperature: 40 $\pm$ 2 ° C Test Time: 1000 $\pm$ 12 Hours	<p>■NO.1~4 Measurement: After placing for 24 hours (min.)</p> <p>■NO.2~3 Applied current(spec): Rated current(maximum value)</p> <p>■NO.5 Cycle: 5 cycles</p>															
3	High Temperature 耐熱試驗	Temperature: 85 $\pm$ 2 ° C Humidity: 20% Testing Time: 1000 $\pm$ 12 Hours																
4	Low Temperature 耐寒試驗	Temperature: -40 $\pm$ 2 ° C Time: 1000 $\pm$ 12 Hours																
5	Temperature and Humidity Cycle 溫/濕度循環試驗	<table border="1"> <thead> <tr> <th>Step</th> <th>Temp</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>25<math>\pm</math> 2 ° C</td> <td>95~100%RH</td> <td>3.0Hr</td> </tr> <tr> <td>2</td> <td>55<math>\pm</math> 2 ° C</td> <td>95~96%RH</td> <td>9.5Hr</td> </tr> <tr> <td>3</td> <td>25<math>\pm</math> 2 ° C</td> <td>95~100%RH</td> <td>9.5Hr</td> </tr> </tbody> </table>		Step	Temp	Humidity	Time	1	25 $\pm$ 2 ° C	95~100%RH	3.0Hr	2	55 $\pm$ 2 ° C	95~96%RH	9.5Hr	3	25 $\pm$ 2 ° C	95~100%RH
Step	Temp	Humidity	Time															
1	25 $\pm$ 2 ° C	95~100%RH	3.0Hr															
2	55 $\pm$ 2 ° C	95~96%RH	9.5Hr															
3	25 $\pm$ 2 ° C	95~100%RH	9.5Hr															
6	Vibration 振動性試驗	Frequency: 10Hz~55Hz 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 $\pm$ 5 ° C Time: 6 minutes Cycles: x 1	Impedance(inductance) shall be within $\pm 20\%$ of the initial value. DCR value shall be within $\pm 20\%$ 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 $\pm$ 5 ° C Flux: Rosin Dip time: 10 $\pm$ 1 seconds	The chip must have no cracks. More than 75% of the terminal electrode must be covered with solder.															
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.  1005: $\geq 2.5$ kg 1608: $\geq 3.0$ kg 2012: $\geq 3.5$ 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		The terminal electrode and the ferrite must not be damaged by the forces applied on the test conditions. 1005: $\geq 1.0$ kg    1608: $\geq 1.5$ kg    2012: $\geq 2.0$ kg															

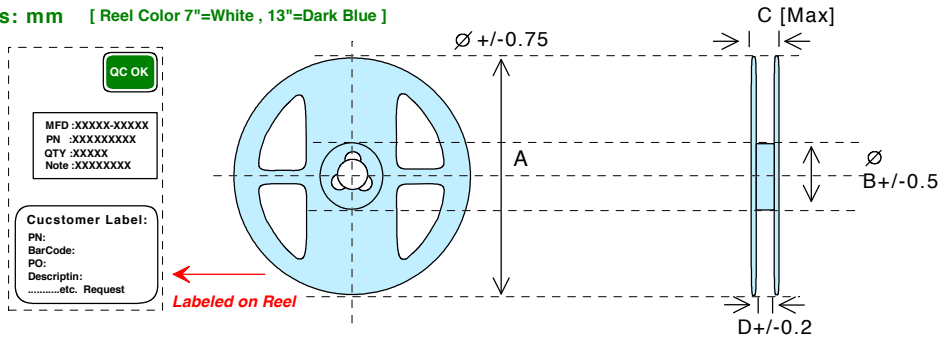


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SIZE/mm	W	P	A <sub>0</sub>	B <sub>0</sub>	K <sub>0</sub>	T	F
<b>1005</b>	8.00	2.00	0.60	1.15	0.70	0.35	3.50
<b>1608</b>	8.00	4.00	1.00	1.90	1.05	0.35	3.50
<b>2012</b>	8.00	4.00	1.60	2.25	1.15	0.35	3.50

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



SIZE / mm	A	B	C	D	REEL SIZE	QTY/REEL
<b>1005</b>	178	60	12	1.5	7"	10K
<b>1608</b>	178	60	12	1.5	7"	4K
<b>2012</b>	178	60	12	1.5	7"	4K

BOX Package:cm

