

	Product Series Code	GBL	Brand	GOTREND
	File Version	GBL-V3R0	Editor	Teddy
	Established Date	1997.09.28	Description	Multilayer Ferrite Chip Ind
	Latest Edit Date	2014.09.10	Pages	Page : 2

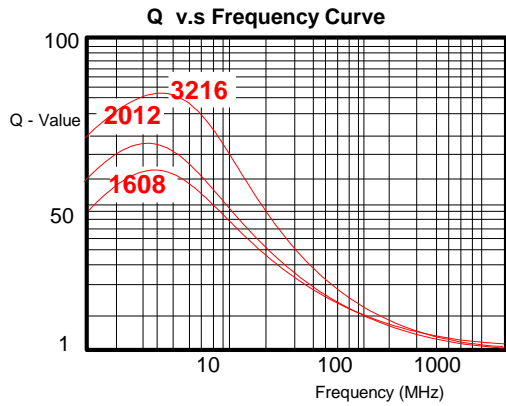
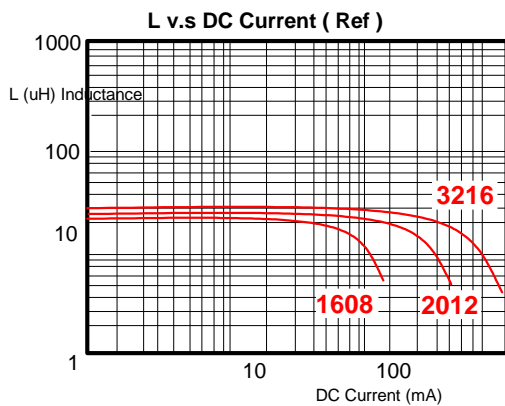
Features & Application:

- * Bead inductor for power energy storage or noise suppressor.
- * Fit for power line & signal line circuit
- * To help you go pass the CE/FCC standard.
- * Mobil Device / Handheld Device / LowProfile Device / Panel...

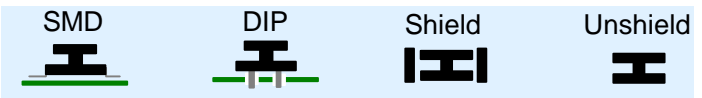
Part No Example:

GBL 321611 P - 2R7 K
 1 2 3 4 5

1. GBL : GOTREND BRAND & PRODUCT TYPE
2. 321611 : Dimension - Length 3.2mm X Width 1.6mm X T1.1mm
3. [P] : Pb free < 1000ppm
4. 2R7 : [L] Value - Inductance 2R7= 2.7uH
5. [K] : 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]

	Front View	Side View	Recommend Pad Layout				
	A	B	C	D	E	F	G
TYPE	A	B	C	D	E	F	G
100505	1.00+/-0.15	0.50+/-0.15	0.50+/-0.15	0.25+/-0.15	1.10 ref.	0.40 ref.	0.60 ref.
160808	1.60+/-0.15	0.80+/-0.15	0.80+/-0.15	0.40+/-0.20	1.80 ref.	0.60 ref.	1.00 ref.
201209	2.00+/-0.20	1.25+/-0.20	0.90+/-0.20	0.50+/-0.30	2.40 ref.	0.80 ref.	1.45 ref.
201212	2.00+/-0.20	1.25+/-0.20	1.25+/-0.20	0.50+/-0.30	2.40 ref.	0.80 ref.	1.45 ref.
321611	3.20+/-0.20	1.60+/-0.20	1.10+/-0.20	0.50+/-0.30	3.40 ref.	2.00 ref.	1.80 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%

Size Code & Package Quantity:

JIS CODE	EIA CODE	PCS / REEL	REEL / BOX
1005	0402	10000	5
1608	0603	4000	5
2012	0805	4000	5
3216	1206	3000	5

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Operating & Storage Condition:

OPERATING TEMP:-40~+85°C

STORAGE TEMP:-40~+85°C

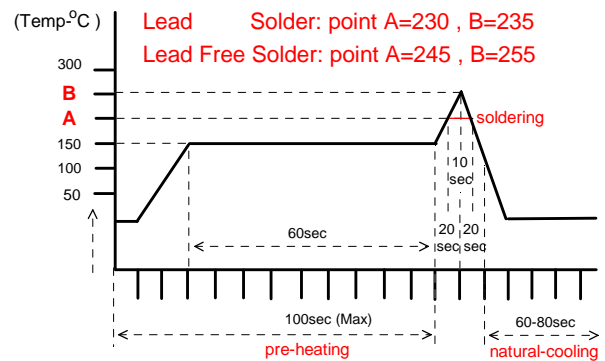
STORAGE LIFE TIME: 12 MONTH @25°C , RH 65%

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.

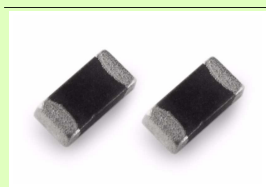
Recommand Reflow Curve (TIME:Second)



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

Part No.	Inductance (uH)	Q (min)	L&Q Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)
GBL100505P-10N <input type="checkbox"/>	0.010 ± 20%	8	100	300	0.42	50
GBL100505P-12N <input type="checkbox"/>	0.012 ± 20%	8	100	300	0.47	50
GBL100505P-47N <input type="checkbox"/>	0.047 ± 20%	10	50	220	0.45	50
GBL100505P-68N <input type="checkbox"/>	0.068 ± 20%	10	50	210	0.45	50
GBL100505P-82N <input type="checkbox"/>	0.082 ± 20%	10	50	200	0.45	50
GBL100505P-R10 <input type="checkbox"/>	0.10 ± 20%	15	25	200	0.80	50
GBL100505P-R12 <input type="checkbox"/>	0.12 ± 20%	15	25	165	0.80	25
GBL100505P-R15 <input type="checkbox"/>	0.15 ± 20%	15	25	140	0.90	25
GBL100505P-R18 <input type="checkbox"/>	0.18 ± 20%	15	25	120	0.90	25
GBL100505P-R22 <input type="checkbox"/>	0.22 ± 20%	15	25	110	1.20	25
GBL100505P-R27 <input type="checkbox"/>	0.27 ± 20%	15	25	95	1.20	25
GBL100505P-R33 <input type="checkbox"/>	0.33 ± 20%	15	25	230	1.50	25
GBL100505P-R39 <input type="checkbox"/>	0.39 ± 20%	25	10	210	0.41	20
GBL100505P-R47 <input type="checkbox"/>	0.47 ± 20%	20	10	190	0.65	10
GBL100505P-R56 <input type="checkbox"/>	0.56 ± 20%	20	10	170	0.70	10
GBL100505P-R68 <input type="checkbox"/>	0.68 ± 20%	20	10	150	0.80	10
GBL100505P-R82 <input type="checkbox"/>	0.82 ± 20%	20	10	130	0.90	10
GBL100505P-1R0 <input type="checkbox"/>	1.00 ± 20%	20	10	120	1.50	15
GBL100505P-1R2 <input type="checkbox"/>	1.20 ± 20%	20	10	110	1.60	15
GBL100505P-1R5 <input type="checkbox"/>	1.50 ± 20%	20	10	100	1.20	10
GBL100505P-1R8 <input type="checkbox"/>	1.80 ± 20%	20	10	90	1.30	10
GBL100505P-2R2 <input type="checkbox"/>	2.20 ± 20%	20	10	80	1.40	10

* Tolerance Code: J=± 5%, K=± 10%, M=± 20% , N=± 25%



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Part No.	Inductance (uH)	Q (min)	L&Q Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)
GBL160808P-47N <input type="checkbox"/>	0.047 ± 20%	20	50	260	0.30	50
GBL160808P-68N <input type="checkbox"/>	0.068 ± 20%	20	50	250	0.30	50
GBL160808P-82N <input type="checkbox"/>	0.082 ± 20%	20	50	245	0.30	50
GBL160808P-R10 <input type="checkbox"/>	0.10 ± 20% or 10%	30	25	240	0.50	50
GBL160808P-R12 <input type="checkbox"/>	0.12 ± 20% or 10%	30	25	205	0.50	50
GBL160808P-R15 <input type="checkbox"/>	0.15 ± 20% or 10%	30	25	180	0.60	50
GBL160808P-R18 <input type="checkbox"/>	0.18 ± 20% or 10%	30	25	165	0.60	50
GBL160808P-R22 <input type="checkbox"/>	0.22 ± 20% or 10%	30	25	150	0.80	50
GBL160808P-R27 <input type="checkbox"/>	0.27 ± 20% or 10%	30	25	136	0.80	50
GBL160808P-R33 <input type="checkbox"/>	0.33 ± 20% or 10%	30	25	125	0.85	35
GBL160808P-R39 <input type="checkbox"/>	0.39 ± 20% or 10%	30	25	110	1.00	35
GBL160808P-R47 <input type="checkbox"/>	0.47 ± 20% or 10%	30	25	105	1.35	35
GBL160808P-R56 <input type="checkbox"/>	0.56 ± 20% or 10%	30	25	95	1.55	35
GBL160808P-R68 <input type="checkbox"/>	0.68 ± 20% or 10%	30	25	85	1.70	35
GBL160808P-R82 <input type="checkbox"/>	0.82 ± 20% or 10%	30	25	75	2.10	35
GBL160808P-1R0 <input type="checkbox"/>	1.00 ± 20% or 10%	35	10	65	0.60	25
GBL160808P-1R2 <input type="checkbox"/>	1.20 ± 20% or 10%	35	10	60	0.80	25
GBL160808P-1R5 <input type="checkbox"/>	1.50 ± 20% or 10%	35	10	55	0.80	25
GBL160808P-1R8 <input type="checkbox"/>	1.80 ± 20% or 10%	35	10	50	0.95	25
GBL160808P-2R2 <input type="checkbox"/>	2.20 ± 20% or 10%	35	10	45	1.15	15
GBL160808P-2R7 <input type="checkbox"/>	2.70 ± 20% or 10%	35	10	40	1.35	15
GBL160808P-3R0 <input type="checkbox"/>	3.00 ± 20% or 10%	35	10	40	1.55	15
GBL160808P-3R3 <input type="checkbox"/>	3.30 ± 20% or 10%	35	10	38	1.55	15
GBL160808P-3R9 <input type="checkbox"/>	3.90 ± 20% or 10%	35	10	36	1.70	15
GBL160808P-4R7 <input type="checkbox"/>	4.70 ± 20% or 10%	35	10	33	2.10	15
GBL160808P-5R6 <input type="checkbox"/>	5.60 ± 20% or 10%	35	4	22	1.55	5
GBL160808P-6R8 <input type="checkbox"/>	6.80 ± 20% or 10%	35	4	20	1.70	5
GBL160808P-8R2 <input type="checkbox"/>	8.20 ± 20% or 10%	30	4	18	2.10	5
GBL160808P-100 <input type="checkbox"/>	10.00 ± 20% or 10%	30	2	17	2.55	3
GBL160808P-120 <input type="checkbox"/>	12.00 ± 20% or 10%	30	1	15	2.75	3
GBL160808P-150 <input type="checkbox"/>	15.00 ± 20% or 10%	20	1	14	2.85	1
GBL160808P-180 <input type="checkbox"/>	18.00 ± 20% or 10%	20	1	13	1.80	1

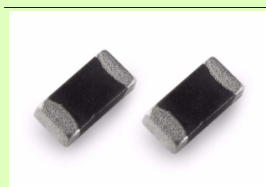
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Part No.	Inductance (uH)	Q (min)	L&Q Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)
GBL201209P-47N <input type="checkbox"/>	0.047 ± 20%	25	50	320	0.20	300
GBL201209P-68N <input type="checkbox"/>	0.068 ± 20%	25	50	280	0.20	300
GBL201209P-82N <input type="checkbox"/>	0.082 ± 20%	25	50	255	0.20	300
GBL201209P-R10 <input type="checkbox"/>	0.10 ± 20% or 10%	30	25	235	0.30	250
GBL201209P-R12 <input type="checkbox"/>	0.12 ± 20% or 10%	30	25	220	0.30	250
GBL201209P-R15 <input type="checkbox"/>	0.15 ± 20% or 10%	30	25	200	0.40	250
GBL201209P-R18 <input type="checkbox"/>	0.18 ± 20% or 10%	30	25	185	0.40	250
GBL201209P-R22 <input type="checkbox"/>	0.22 ± 20% or 10%	30	25	170	0.50	250
GBL201209P-R27 <input type="checkbox"/>	0.27 ± 20% or 10%	30	25	150	0.50	250
GBL201209P-R33 <input type="checkbox"/>	0.33 ± 20% or 10%	30	25	145	0.55	250
GBL201209P-R39 <input type="checkbox"/>	0.39 ± 20% or 10%	30	25	135	0.65	250
GBL201209P-R47 <input type="checkbox"/>	0.47 ± 20% or 10%	30	25	125	0.65	250
GBL201209P-R56 <input type="checkbox"/>	0.56 ± 20% or 10%	30	25	115	0.75	150
GBL201209P-R68 <input type="checkbox"/>	0.68 ± 20% or 10%	30	25	105	0.80	150
GBL201209P-R82 <input type="checkbox"/>	0.82 ± 20% or 10%	30	25	100	1.00	150
GBL201209P-1R0 <input type="checkbox"/>	1.00 ± 20% or 10%	45	10	75	0.45	50
GBL201209P-1R2 <input type="checkbox"/>	1.20 ± 20% or 10%	45	10	65	0.50	50
GBL201209P-1R5 <input type="checkbox"/>	1.50 ± 20% or 10%	45	10	60	0.50	50
GBL201209P-1R8 <input type="checkbox"/>	1.80 ± 20% or 10%	45	10	55	0.60	50
GBL201209P-2R2 <input type="checkbox"/>	2.20 ± 20% or 10%	45	10	50	0.65	30
GBL201209P-3R3 <input type="checkbox"/>	3.30 ± 20% or 10%	45	10	41	0.80	30
GBL201209P-4R7 <input type="checkbox"/>	4.70 ± 20% or 10%	45	10	35	1.00	30
GBL201209P-100 <input type="checkbox"/>	10.00 ± 20% or 10%	50	2	24	1.10	25
GBL201212P-2R7 <input type="checkbox"/>	2.70 ± 20% or 10%	45	10	45	0.75	30
GBL201212P-3R3 <input type="checkbox"/>	3.30 ± 20% or 10%	45	10	41	0.80	30
GBL201212P-3R9 <input type="checkbox"/>	3.90 ± 20% or 10%	45	10	38	0.90	30
GBL201212P-4R7 <input type="checkbox"/>	4.70 ± 20% or 10%	45	10	35	1.00	30
GBL201212P-5R6 <input type="checkbox"/>	5.60 ± 20% or 10%	45	4	32	1.00	15
GBL201212P-6R8 <input type="checkbox"/>	6.80 ± 20% or 10%	45	4	29	1.00	15
GBL201212P-8R2 <input type="checkbox"/>	8.20 ± 20% or 10%	45	4	26	1.10	15
GBL201212P-100 <input type="checkbox"/>	10.00 ± 20% or 10%	45	2	24	1.15	15
GBL201212P-120 <input type="checkbox"/>	12.00 ± 20% or 10%	45	2	22	1.25	15
GBL201212P-150 <input type="checkbox"/>	15.00 ± 20% or 10%	30	1	19	0.80	5
GBL201212P-180 <input type="checkbox"/>	18.00 ± 20% or 10%	30	1	18	0.90	5
GBL201212P-220 <input type="checkbox"/>	22.00 ± 20% or 10%	30	1	16	1.10	5
GBL201212P-270 <input type="checkbox"/>	27.00 ± 20% or 10%	30	1	14	1.15	5
GBL201212P-330 <input type="checkbox"/>	33.00 ± 20% or 10%	30	0.4	13	1.25	5

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Part No.	Inductance (uH)	Q (min)	L&Q Test Freq. (MHz)	S.R.F (MHz) (min)	DCR (ohm) (max)	IDC (mA) (max)
GBL321611P-47N <input type="checkbox"/>	0.047 ± 20%	25	50	320	0.15	300
GBL321611P-68N <input type="checkbox"/>	0.068 ± 20%	25	50	280	0.25	300
GBL321611P-82N <input type="checkbox"/>	0.082 ± 20%	25	50	250	0.25	300
GBL321611P-R10 <input type="checkbox"/>	0.10 ± 20% or 10%	30	25	235	0.25	250
GBL321611P-R12 <input type="checkbox"/>	0.12 ± 20% or 10%	30	25	220	0.30	250
GBL321611P-R15 <input type="checkbox"/>	0.15 ± 20% or 10%	30	25	200	0.30	250
GBL321611P-R18 <input type="checkbox"/>	0.18 ± 20% or 10%	30	25	185	0.40	250
GBL321611P-R22 <input type="checkbox"/>	0.22 ± 20% or 10%	30	25	170	0.40	250
GBL321611P-R27 <input type="checkbox"/>	0.27 ± 20% or 10%	30	25	150	0.50	250
GBL321611P-R33 <input type="checkbox"/>	0.33 ± 20% or 10%	30	25	145	0.60	250
GBL321611P-R39 <input type="checkbox"/>	0.39 ± 20% or 10%	30	25	135	0.60	200
GBL321611P-R47 <input type="checkbox"/>	0.47 ± 20% or 10%	30	25	125	0.60	200
GBL321611P-R56 <input type="checkbox"/>	0.56 ± 20% or 10%	30	25	115	0.70	150
GBL321611P-R68 <input type="checkbox"/>	0.68 ± 20% or 10%	30	25	105	0.80	150
GBL321611P-R82 <input type="checkbox"/>	0.82 ± 20% or 10%	30	25	100	0.90	150
GBL321611P-1R0 <input type="checkbox"/>	1.00 ± 20% or 10%	45	10	75	0.40	100
GBL321611P-1R2 <input type="checkbox"/>	1.20 ± 20% or 10%	45	10	65	0.50	100
GBL321611P-1R5 <input type="checkbox"/>	1.50 ± 20% or 10%	45	10	60	0.50	80
GBL321611P-1R8 <input type="checkbox"/>	1.80 ± 20% or 10%	45	10	55	0.50	70
GBL321611P-2R2 <input type="checkbox"/>	2.20 ± 20% or 10%	45	10	50	0.60	60
GBL321611P-2R7 <input type="checkbox"/>	2.70 ± 20% or 10%	45	10	45	0.60	60
GBL321611P-3R3 <input type="checkbox"/>	3.30 ± 20% or 10%	45	10	41	0.70	60
GBL321611P-3R9 <input type="checkbox"/>	3.90 ± 20% or 10%	45	10	38	0.80	50
GBL321611P-4R7 <input type="checkbox"/>	4.70 ± 20% or 10%	45	10	35	0.90	50
GBL321611P-5R6 <input type="checkbox"/>	5.60 ± 20% or 10%	45	4	32	0.70	25
GBL321611P-6R8 <input type="checkbox"/>	6.80 ± 20% or 10%	45	4	29	0.80	25
GBL321611P-8R2 <input type="checkbox"/>	8.20 ± 20% or 10%	45	4	26	0.90	25
GBL321611P-100 <input type="checkbox"/>	10.00 ± 20% or 10%	45	2	24	1.00	25
GBL321611P-120 <input type="checkbox"/>	12.00 ± 20% or 10%	45	2	22	1.05	15
GBL321611P-150 <input type="checkbox"/>	15.00 ± 20% or 10%	35	1	19	0.70	5
GBL321611P-180 <input type="checkbox"/>	18.00 ± 20% or 10%	35	1	18	0.75	5
GBL321611P-220 <input type="checkbox"/>	22.00 ± 20% or 10%	35	1	16	0.90	5
GBL321611P-270 <input type="checkbox"/>	27.00 ± 20% or 10%	35	1	14	0.95	5
GBL321611P-330 <input type="checkbox"/>	33.00 ± 20% or 10%	35	0.4	13	1.05	5
GBL321611P-390 <input type="checkbox"/>	39.00 ± 20% or 10%	40	2	11	3.00	5
GBL321611P-470 <input type="checkbox"/>	47.00 ± 20% or 10%	40	2	10	3.40	5

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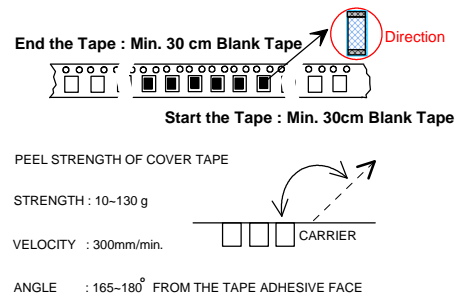
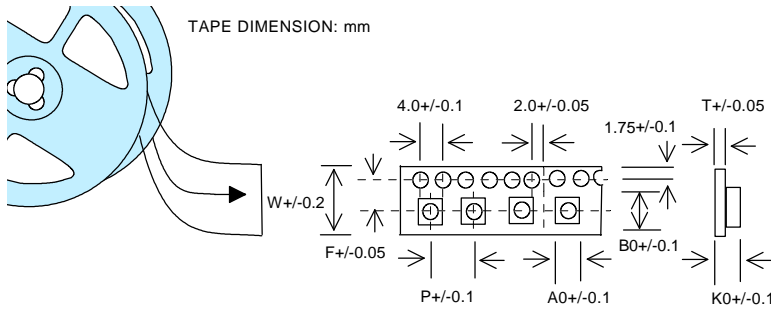


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Reliability Test Result :																			
NO	ITEM	TEST CONDITIONS	REMARKS																
1	Thermal Shock (Temperature Cycle)	Temperature:-40 ° C/ +85 ° C kept stabilized for 30 minutes each Cycle: 100 Cycles	Inductance value shall be within $\pm 10\%$ 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	Humidity: 90%~ 95% RH Temperature: 40 \pm 2 ° C Test Time: 1000 \pm 12 Hours	■NO.1~4 Measurement:After placing for 24 hours (min.)																
3	HighTemperature	Temperature: 85 \pm 2 ° C Humidity: 20% Testing Time: 1000 \pm 12 Hours	■NO.2~3 Applied current(spec): Rated current(maximum value)																
4	Low Temperature	Temperature: -40 \pm 2 ° C Time: 1000 \pm 12 Hours																	
5	Temperature and Humidity Cycle	<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\pm 2 ° C</td> <td>95~100%RH</td> <td>3.0Hr</td> </tr> <tr> <td>2</td> <td>55\pm 2 ° C</td> <td>95~96%RH</td> <td>9.5Hr</td> </tr> <tr> <td>3</td> <td>25\pm 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	9.5Hr	■NO.5 Cycle: 5 cycles
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	Frequency: 10Hz~55Hz Amplitude: 1.5mm Direction: X,Y,Z Time: 2 Hours each																	
7	IR Reflow Soldering	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	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		The terminal electrode and the ferrite must not be damaged by the forces applied on the test conditions. 100505: ≥ 1 kg 201209, 160808: ≥ 3 kg 321616, 321611, 322513: ≥ 6 kg 453215, 453216: ≥ 8 kg																
10	Flexure Strength		No mechanical damage shall be noticed even when the board is bent 2 mm																
11	Terminal Strength		The terminal electrode and the ferrite must not be damaged by the forces applied on the test conditions. 100505: ≥ 0.2 kg 160808: ≥ 0.5 kg 201209: ≥ 1.0 kg 321611: ≥ 1.5 kg 453215: ≥ 2.0 kg																

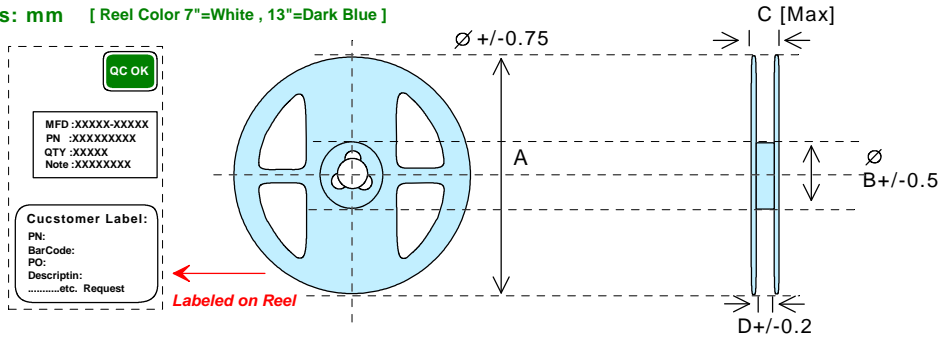


Product Series Code	GBL	Brand	GOTREND
File Version	GBL-V3R0	Editor	Teddy
Established Date	1997.09.28	Description	Multilayer Ferrite Chip Ind
Latest Edit Date	2014.09.10	Pages	Page : 8



SIZE/mm	A	B	C	D	E	F	G	H	I	J
100505	2.00	0.62	1.15	1.75	2.00	4.00	8.00	3.50	0.70	0.20
160808	4.00	0.97	1.80	1.75	2.00	4.00	8.00	3.50	1.05	0.20
201209	4.00	1.54	2.32	1.75	2.00	4.00	8.00	3.50	1.15	0.20
201212	4.00	1.54	2.32	1.75	2.00	4.00	8.00	3.50	1.35	0.20
321611	4.00	1.94	3.54	1.75	2.00	4.00	8.00	3.50	1.29	0.20

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



SIZE / mm	A	B	C	D	REEL SIZE	QTY/REEL
100505	178	60	12	10	7"	4K
160808	178	60	12	10	7"	4K
201209	178	60	12	10	7"	4K
201211	178	60	12	10	7"	4K
321611	178	60	12	10	7"	3K

BOX Package:cm

