



Product Series Code	GBD	Brand	GOTREND
File Version	GBD-V5R3	Editor	Teddy
Established Date	2009.07.24	Description	Multilayer Ferrite Chip Bead
Latest Edit Date	2016.12.13	Pages	Page : 2

Features & Application:

- * EMI Suppressor for Wide Band / Narrow Band / High Current
- * Fit for power line & signal line circuit
- * To help you go pass the CE/FCC standard.
- * Mobile Device / Handheld Device / LowProfile Device / Panel...

Part No Example:

GBD 201209 P GA 601 N
 1 2 3 4 5 6

1. GBD : GOTREND Series
2. 201209 : Length 2.0mm X Width 1.2mm x Height 0.9mm
3. P : Pb < 1000ppm
4. GA : Normal Curve (General purpose use)
 GB : Sharp Curve (Narrow band)
 GH : High-Current
5. 601 : Impedance (ohm) = 600 ohm
6. N : Tolerance M=20%, N=25%

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%

Operating & Storage Condition:

OPERATING TEMP: -40~+125°C

STORAGE TEMP: -40~+85°C

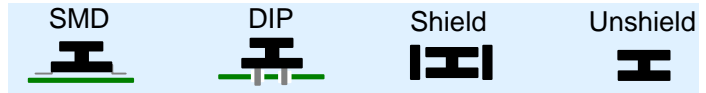
STORAGE LIFE TIME: 12 MONTH @25°C, RH 65%

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.

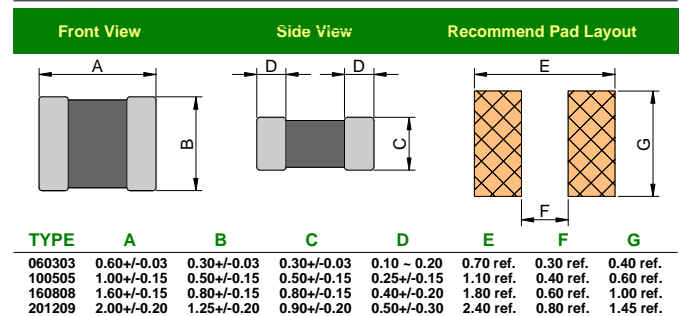
Product Structure



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

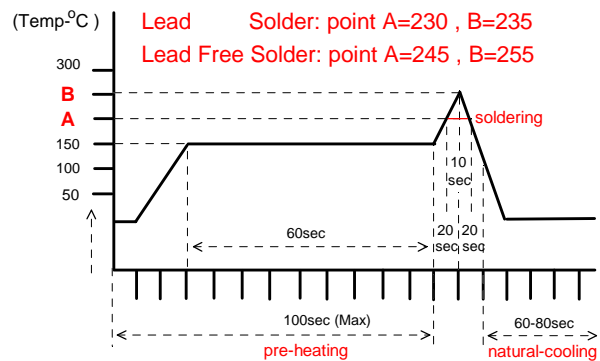
DIMENSION : [mm]



Size Code & Package Quantity :

JIS CODE	EIA CODE	PCS / REEL	REEL / BOX
0603	0201	15000	5
1005	0402	10000	5
1608	0603	4000	5
201209	0805	4000	5

Recommend Reflow Curve (TIME:Second)



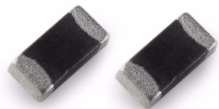
Notice: Iron Soldering: 3 Seconds Max. @260°C



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Latest Edit Date	2016.12.13	Pages	Page : 3

GBDXXXXXGAXXX GA Series for Normal Usage

Part No.	Z - Value (ohm) (+/- 25%)	Test Freq. (MHz)	DCR (ohm) (max)	Rated Current (mA) (max)
GBD060303PGA121N	120	100	0.45	200
GBD060303PGA151N	150	100	0.50	200
GBD100505PGA060N	6	100	0.05	500
GBD100505PGA100N	10	100	0.05	500
GBD100505PGA300N	30	100	0.20	300
GBD100505PGA330N	33	100	0.20	300
GBD100505PGA400N	40	100	0.30	300
GBD100505PGA470N	47	100	0.20	500
GBD100505PGA600N	60	100	0.40	200
GBD100505PGA750N	75	100	0.40	300
GBD100505PGA800N	80	100	0.40	200
GBD100505PGA101N	100	100	0.45	200
GBD100505PGA121N	120	100	0.50	200
GBD100505PGA221N	220	100	0.50	200
GBD100505PGA241N	240	100	0.50	200
GBD100505PGA301N	300	100	0.75	100
GBD100505PGA481N	480	100	0.80	200
GBD100505PGA601N	600	100	1.00	200
GBD100505PGA102N	1000	100	1.50	100
GBD100505PGA152N	1500	100	2.00	60
GBD160808PGA060N	6	100	0.05	500
GBD160808PGA100N	10	100	0.02	500
GBD160808PGA110N	11	100	0.05	500
GBD160808PGA190N	19	100	0.08	500
GBD160808PGA220N	22	100	0.10	400
GBD160808PGA250N	25	100	0.10	400
GBD160808PGA260N	26	100	0.10	400
GBD160808PGA300N	30	100	0.10	400
GBD160808PGA310N	31	100	0.10	400
GBD160808PGA400N	40	100	0.10	400
GBD160808PGA470N	47	100	0.10	300
GBD160808PGA500N	50	100	0.10	300
GBD160808PGA600N	60	100	0.10	300
GBD160808PGA700N	70	100	0.15	300
GBD160808PGA750N	75	100	0.15	300
GBD160808PGA800N	80	100	0.15	300
GBD160808PGA900N	90	100	0.20	300
GBD160808PGA101N	100	100	0.20	300
GBD160808PGA121N	120	100	0.25	300
GBD160808PGA151N	150	100	0.30	200
GBD160808PGA181N	180	100	0.30	200
GBD160808PGA201N	200	100	0.30	200
GBD160808PGA221N	220	100	0.30	200
GBD160808PGA241N	240	100	0.40	200
GBD160808PGA301N	300	100	0.40	200
GBD160808PGA331N	330	100	0.50	200
GBD160808PGA401N	400	100	0.30	400
GBD160808PGA451N	450	100	0.50	200
GBD160808PGA471N	470	100	0.50	200
GBD160808PGA501N	500	100	0.50	200
GBD160808PGA601N	600	100	0.50	200
GBD160808PGA751N	750	100	0.70	200
GBD160808PGA102N	1000	100	0.70	200
GBD160808PGA152N	1500	100	1.00	50
GBD160808PGA222N	2200	100	1.20	50
GBD160808PGA252N	2500	100	1.30	50

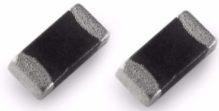


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Established Date	2009.07.24	Description	Multilayer Ferrite Chip Bead
Latest Edit Date	2016.12.13	Pages	Page : 4

GBDXXXXXGAXXX

GA Series for Normal Usage

Part No.	Z - Value (ohm) (+/- 25%)	Test Freq. (MHz)	DCR (ohm) (max)	Rated Current (mA) (max)
GBD201209PGA070N	7	100	0.10	600
GBD201209PGA090N	9	100	0.10	600
GBD201209PGA110N	11	100	0.10	600
GBD201209PGA170N	17	100	0.10	600
GBD201209PGA190N	19	100	0.10	600
GBD201209PGA220N	22	100	0.10	600
GBD201209PGA260N	26	100	0.10	600
GBD201209PGA300N	30	100	0.10	600
GBD201209PGA310N	31	100	0.10	600
GBD201209PGA320N	32	100	0.10	300
GBD201209PGA400N	40	100	0.10	500
GBD201209PGA470N	47	100	0.10	500
GBD201209PGA500N	50	100	0.10	500
GBD201209PGA600N	60	100	0.15	500
GBD201209PGA700N	70	100	0.15	500
GBD201209PGA800N	80	100	0.15	500
GBD201209PGA900N	90	100	0.15	500
GBD201209PGA101N	100	100	0.25	300
GBD201209PGA121N	120	100	0.25	300
GBD201209PGA151N	150	100	0.25	300
GBD201209PGA201N	200	100	0.30	300
GBD201209PGA221N	220	100	0.30	300
GBD201209PGA301N	300	100	0.30	300
GBD201209PGA331N	330	100	0.30	300
GBD201209PGA401N	400	100	0.30	300
GBD201209PGA451N	450	100	0.40	300
GBD201209PGA471N	470	100	0.40	300
GBD201209PGA501N	500	100	0.40	300
GBD201209PGA601N	600	100	0.40	300
GBD201209PGA751N	750	100	0.50	200
GBD201209PGA102N	1000	100	0.50	200
GBD201209PGA122N	1200	100	0.60	200
GBD201209PGA152N	1500	100	0.60	200
GBD201209PGA202N	2000	100	0.60	200
GBD201209PGA222N	2200	100	0.60	200
GBD201209PGA252N	2500	100	0.70	200
GBD201209PGA272N	2700	100	0.70	200



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File Version	GBD-V5R3	Editor	Teddy
Established Date	2009.07.24	Description	Multilayer Ferrite Chip Bead
Latest Edit Date	2016.12.13	Pages	Page : 5

GBDXXXXXGBXXXX GB Series for **Narrow-Band** Signal Line use

Part No.	Z - Value (ohm)	Test Freq. (MHz)	DCR (ohm) (max)	Rated Current (mA) (max)
GBD100505PGB060N	6	100	0.10	300
GBD100505PGB100N	10	100	0.20	200
GBD100505PGB400N	40	100	0.40	150
GBD100505PGB800N	80	100	0.60	100
GBD100505PGB121N	120	100	0.80	50
GBD160808PGB060N	6	100	0.05	500
GBD160808PGB100N	10	100	0.07	400
GBD160808PGB300N	30	100	0.30	300
GBD160808PGB400N	40	100	0.30	300
GBD160808PGB470N	47	100	0.30	300
GBD160808PGB600N	60	100	0.30	300
GBD160808PGB750N	75	100	0.40	300
GBD160808PGB800N	80	100	0.40	300
GBD160808PGB101N	100	100	0.40	300
GBD160808PGB121N	120	100	0.40	300
GBD160808PGB131N	130	100	0.40	300
GBD160808PGB151N	150	100	0.40	300
GBD160808PGB221N	220	100	0.40	200
GBD160808PGB241N	240	100	0.40	200
GBD160808PGB301N	300	100	0.50	200
GBD160808PGB481N	480	100	0.60	150
GBD160808PGB601N	600	100	0.60	100
GBD160808PGB102N	1000	100	0.70	100
GBD160808PGB152N	1500	100	0.80	100
GBD160808PGB182N	1800	100	0.95	100
GBD160808PGB222N	2200	100	1.50	50
GBD201209PGB060N	6	100	0.07	800
GBD201209PGB110N	11	100	0.10	700
GBD201209PGB260N	26	100	0.20	600
GBD201209PGB300N	30	100	0.20	600
GBD201209PGB320N	32	100	0.20	600
GBD201209PGB400N	40	100	0.30	500
GBD201209PGB600N	60	100	0.30	500
GBD201209PGB750N	75	100	0.30	500
GBD201209PGB900N	90	100	0.30	500
GBD201209PGB101N	100	100	0.40	400
GBD201209PGB121N	120	100	0.40	400
GBD201209PGB151N	150	100	0.40	400
GBD201209PGB171N	170	100	0.50	400
GBD201209PGB201N	200	100	0.50	300
GBD201209PGB221N	220	100	0.50	300
GBD201209PGB301N	300	100	0.50	300
GBD201209PGB401N	400	100	0.50	300
GBD201209PGB501N	500	100	0.50	200
GBD201209PGB601N	600	100	0.50	200
GBD201209PGB751N	750	100	0.60	100
GBD201209PGB102N	1000	100	0.60	100
GBD201209PGB122N	1200	100	0.70	100
GBD201209PGB152N	1500	100	0.70	100
GBD201209PGB222N	2200	100	0.75	100
GBD201209PGB272N	2700	100	0.85	100

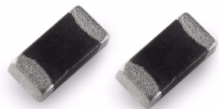


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Established Date	2009.07.24	Description	Multilayer Ferrite Chip Bead
Latest Edit Date	2016.12.13	Pages	Page : 6

GBDXXXXXGHXXXX

GH Series for High-Current use

Part No.	Z - Value (ohm)	Test Freq. (MHz)	DCR (ohm) (max)	Rated Current (mA) (max)
GBD100505PGH100N	10 ± 25%	100	0.030	2000
GBD100505PGH300N	30 ± 25%	100	0.050	1700
GBD100505PGH600N	60 ± 25%	100	0.080	1500
GBD100505PGH800N	80 ± 25%	100	0.090	1200
GBD100505PGH121N	120 ± 25%	100	0.090	1200
GBD100505PGH601N	600 ± 25%	100	0.340	420
GBD160808PGH100N	10 ± 25%	100	0.020	4000
GBD160808PGH110N	11 ± 25%	100	0.020	4000
GBD160808PGH220N	22 ± 25%	100	0.040	3000
GBD160808PGH250N	25 ± 25%	100	0.030	3000
GBD160808PGH300N	30 ± 25%	100	0.030	3000
GBD160808PGH400N	40 ± 25%	100	0.035	3000
GBD160808PGH600N	60 ± 25%	100	0.040	3000
GBD160808PGH700N	70 ± 25%	100	0.050	2500
GBD160808PGH750N	75 ± 25%	100	0.050	2500
GBD160808PGH800N	80 ± 25%	100	0.050	2500
GBD160808PGH900N	90 ± 25%	100	0.050	2500
GBD160808PGH101N	100 ± 25%	100	0.050	2500
GBD160808PGH121N	120 ± 25%	100	0.050	2500
GBD160808PGH151N	150 ± 25%	100	0.080	2000
GBD160808PGH181N	180 ± 25%	100	0.080	2000
GBD160808PGH201N	200 ± 25%	100	0.100	2000
GBD160808PGH221N	220 ± 25%	100	0.100	2000
GBD160808PGH301N	300 ± 25%	100	0.100	2000
GBD160808PGH331N	330 ± 25%	100	0.150	1500
GBD160808PGH391N	390 ± 25%	100	0.140	1000
GBD160808PGH471N	470 ± 25%	100	0.150	1500
GBD160808PGH501N	500 ± 25%	100	0.150	1500
GBD160808PGH601N	600 ± 25%	100	0.200	1000
GBD160808PGH102N	1000 ± 25%	100	0.250	800
GBD160808PGH152N	1500 ± 25%	100	0.400	500
GBD160808PGH202N	2000 ± 25%	100	0.500	500
GBD160808PGH252N	2500 ± 25%	100	0.800	200



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Established Date	2009.07.24	Description	Multilayer Ferrite Chip Bead
Latest Edit Date	2016.12.13	Pages	Page : 7

GBDXXXXXGHXXXX

GH Series for High-Current use

Part No.	Z - Value (ohm)	Test Freq. (MHz)	DCR (ohm) (max)	Rated Current (mA) (max)
GBD201209PGH070N	7 ± 25%	100	0.01	6,000
GBD201209PGH110N	11 ± 25%	100	0.01	6,000
GBD201209PGH170N	17 ± 25%	100	0.02	5,000
GBD201209PGH220N	22 ± 25%	100	0.02	4,000
GBD201209PGH270N	27 ± 25%	100	0.02	4,000
GBD201209PGH300N	30 ± 25%	100	0.02	4,000
GBD201209PGH310N	31 ± 25%	100	0.02	4,000
GBD201209PGH400N	40 ± 25%	100	0.02	3,000
GBD201209PGH500N	50 ± 25%	100	0.02	3,000
GBD201209PGH600N	60 ± 25%	100	0.03	3,000
GBD201209PGH700N	70 ± 25%	100	0.04	3,000
GBD201209PGH750N	75 ± 25%	100	0.04	3,000
GBD201209PGH800N	80 ± 25%	100	0.04	3,000
GBD201209PGH900N	90 ± 25%	100	0.04	3,000
GBD201209PGH101N	100 ± 25%	100	0.04	3,000
GBD201209PGH121N	120 ± 25%	100	0.04	3,000
GBD201209PGH151N	150 ± 25%	100	0.05	2,500
GBD201209PGH181N	180 ± 25%	100	0.05	2,500
GBD201209PGH201N	200 ± 25%	100	0.05	2,500
GBD201209PGH221N	220 ± 25%	100	0.08	2,000
GBD201209PGH301N	300 ± 25%	100	0.08	2,000
GBD201209PGH331N	330 ± 25%	100	0.08	2,000
GBD201209PGH401N	400 ± 25%	100	0.10	2,000
GBD201209PGH501N	500 ± 25%	100	0.10	2,000
GBD201209PGH601N	600 ± 25%	100	0.10	2,000
GBD201209PGH102N	1000 ± 25%	100	0.12	1,500
GBD201209PGH152N	1500 ± 25%	100	0.30	1,000

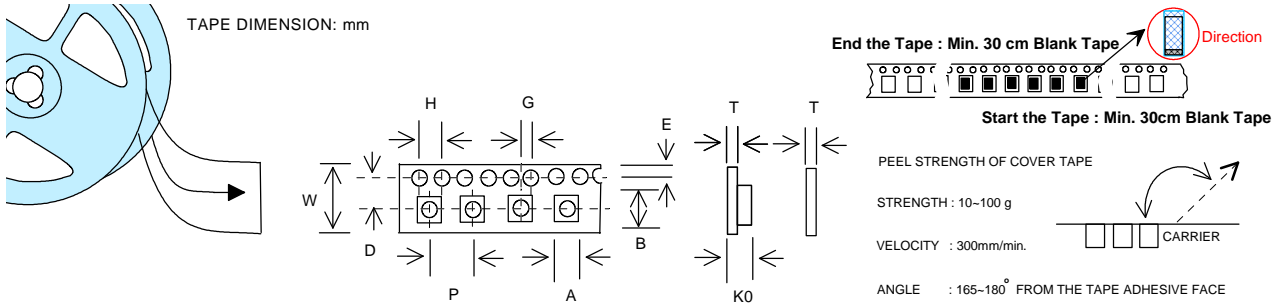


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Latest Edit Date	2016.12.13	Pages	Page : 8

Reliability Test Result :																			
NO	ITEM	TEST CONDITIONS	REMARKS																
1	Thermal Shock (Temperature Cycle)	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	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	High Temperature	Temperature: 125 \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																
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																

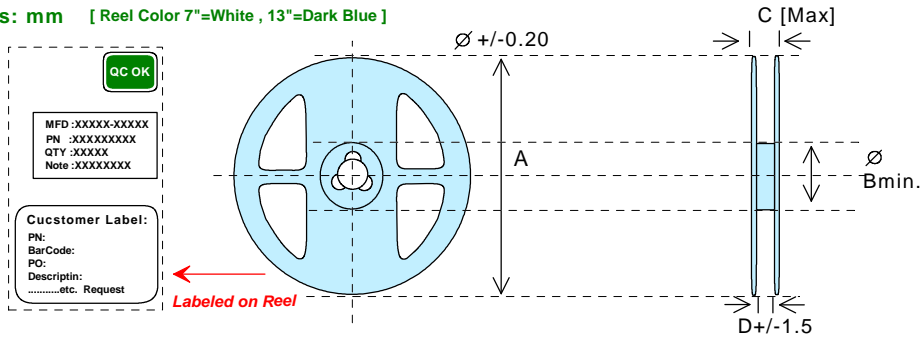


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Latest Edit Date	2016.12.13	Pages	Page : 9



SIZE/mm	A	B	W	D	E	P	G	H	K0	T
060303	0.38+/-0.04	0.68 +/-0.04	8.00+/-0.20	3.50 +/-0.05	1.75 +/-0.10	4.00 +/-0.10	2.00 +/-0.05	4.00 +/-0.10	N/A	1.1 max.
100505	0.62+/-0.05	1.12 +/-0.05	8.00+/-0.10	3.50 +/-0.05	1.75 +/-0.10	4.00 +/-0.10	2.00 +/-0.05	4.00 +/-0.10	N/A	0.60 +/-0.05
160808	1.03 +/-0.05	1.85 +/-0.05	8.00 +/-0.10	3.50 +/-0.05	1.75 +/-0.10	4.00 +/-0.10	2.00 +/-0.05	4.00 +/-0.10	N/A	0.95 +/-0.05
201209	1.45 +/-0.05	2.25 +/-0.05	8.00 +/-0.10	3.50 +/-0.05	1.75 +/-0.10	4.00 +/-0.10	2.00 +/-0.05	4.00 +/-0.10	N/A	0.95 +/-0.05

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



SIZE / mm	A	B	C	D	REEL SIZE	QTY/REEL
060303	178	50	20	10	7"	15K
100505	178	50	20	10	7"	10K
160808	178	50	20	10	7"	4K
201209	178	50	20	10	7"	4K

BOX Package:cm

