Product Series :	GBLH	Brand :	GOTREND
File Version :	GBLH-SERIES-AE-V2R5	Editor :	Qiuyi Wu
Established Date :	2011.04.22	Description :	High Current Multilayer Ferrite Chip Inductor
Latest Edit Date :	2022 04 11	Product Type:	□ Standard □ Customize

Version Information:

SN	Date	Version Code	Modify Description	Editior	Check
01	2020.09.17	V2R4	New version update release	1	Teddy Sun 接大パ
02	2023.04.11	V2R5	Convert the version format	Qiuyi Wu	张文 17

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Product Series: GBLH Brand: **GOTREND** GBLH-SERIES-AE-V2R5 File Version: Editor: Qiuvi Wu **Established Date:** 2011.04.22 **Description:** High Current Multilayer Ferrite Chip Inductor **Latest Edit Date:** 2023.04.11 **Product Type:** ☐ Standard ☑ Customize

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 - (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.



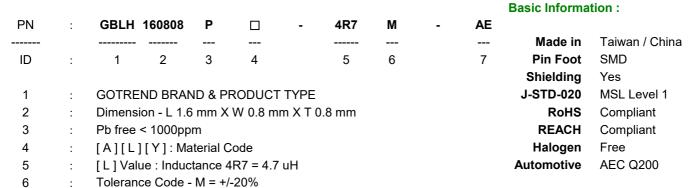
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Features & Application:

- * 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...
- * Qualified AEC-Q200
- * Automotive and other high temperature, high reliability application.

Part No. Example:



Operating & Storage Condition:

* Operating Temp $-40 \sim +125$ °C (Including self - temperature rise) * Storage Temp $1. -10 \sim +40$ °C , $50 \sim 60\%$ RH (Product with taping)

[AE]: Reliability comply with AEC-Q200 standard type.

2. $-40 \sim +125 \,^{\circ}\text{C}$ (On board)

* Storage Life Time 6 Month (Less than 40 deg.C and 60% RH)

AEC

(Picture for reference only)

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 solderablility: 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:

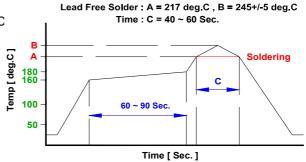
Ambient Temperature 20 ± 15 °C Humidity RH 65 ± 20%

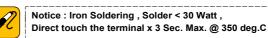
* If there may be any doubt on the test result ,

Measurement shall be made within the following limits:

Ambient Temperature 25 ± 5 °C Humidity RH 75 ± 10%

Recommend IR Reflow Curve: GTX-IR-FILE001





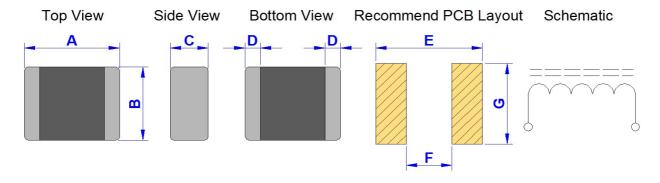


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S	MD Power Indu	ıctor - Gl	BLH Ser	ies Type				
Image	Part Name	A (mm)	B (mm)	C (mm)	Inductance (uH)	DCR (Ohm)	Rated Current (mA)	Page
	GBLH160808	1.6	0.8	0.8	0.22 10.0	0.12-2.1	50-1500	5
	GBLH201206	2.0	1.25	0.6	4.7 4.7	0.55	300	6
	GBLH201209	2.0	1.25	0.9	0.47 4.7	0.06-0.3	400-2200	7
	GBLH201609	2.0	1.6	0.9	0.68 4.7	0.077-0.299	900-1700	8
	GBLH252010	2.5	2.0	0.9	0.47 4.7	0.07-0.2	1100-1800	9

GBLH160808P□-SERIES-AE

Dimension [mm] :



Size	Α	В	С	D	E(Ref.)	F(Ref.)	G(Ref.)
160808	1.60+/-0.20	0.80+/-0.20	0.80+/-0.20	0.30+/-0.20	2.00	0.90	1.00

Electrical Characteristics:

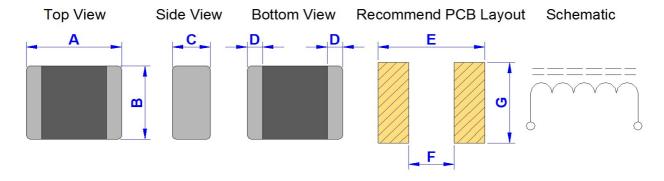
Part No.	Inductance (uH)	SRF (MHz) Min.	DCR (Ω)	Rated Current (mA) Max.
GBLH160808P-R22M-AE	0.22+/-20%	150	0.8 Max.	50
GBLH160808P-4R7M-AE	4.70+/-20%	35	2.10 Max.	110
GBLH160808P-100M-AE	10.00+/-20%	17	1.85 Max.	60
GBLH160808PA-1R0M-AE	1.00+/-20%		0.12 Max.	1500
GBLH160808PA-2R2M-AE	2.20+/-20%		0.20 Max.	1000
GBLH160808PA-4R7M-AE	4.70+/-20%		0.25 Max.	800
GBLH160808PY-2R2M-AE	2.20+/-20%		0.30 Max.	650

- Inductance test freq. : @ 1MHz / 250mV
 The maximum rated current : The DC current value having temperature increased 40 deg.C after thru DC current 2 hours at ambient temperature.
- Regarding to the inductance variability of rated current , please refer to Inductance Vs. DC superposition characteristics.

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GBLH201206P-SERIES-AE

Dimension [mm] :



Size	А	В	С	D	E(Ref.)	F(Ref.)	G(Ref.)
201206	2.00+/-0.20	1.25+/-0.20	0.60 max.	0.50+/-0.20	2.40	0.80	1.45

Electrical Characteristics:

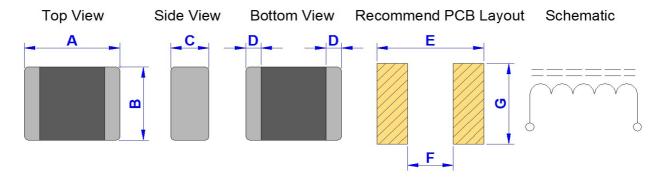
Part No.	Inductance (uH)	SRF (MHz) Min.	DCR (Ω)	Rated Current (mA) Max.
GBLH201206P-4R7M-AE	4.70+/-20%		0.55+/-30%	300

- Inductance test freq. : @ 1MHz / 250mV
- The maximum rated current: The DC current value having temperature increased 40 deg.C after thru DC current 2 hours at ambient temperature.
- Regarding to the inductance variability of rated current, please refer to Inductance Vs. DC superposition characteristics.

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GBLH201209P□-SERIES-AE

Dimension [mm] :



Size	А	В	С	D	E(Ref.)	F(Ref.)	G(Ref.)
201209	2.00+/-0.20	1.25+/-0.20	0.90+/-0.10	0.50+/-0.20	2.40	0.80	1.45

Electrical Characteristics:

Part No.	Inductance (uH)	SRF (MHz) Min.	DCR (Ω)	Rated Current (mA) Max.
GBLH201209P-R47M-AE	0.47+/-20%	100	0.10+/-25%	1100
GBLH201209P-1R0M-AE	1.00+/-20%	90	0.16+/-25%	800
GBLH201209P-1R5M-AE	1.50+/-20%	70	0.22+/-25%	700
GBLH201209P-2R2M-AE	2.20+/-20%	50	0.25+/-25%	600
GBLH201209P-3R3M-AE	3.30+/-20%	40	0.22+/-25%	500
GBLH201209P-4R7M-AE	4.70+/-20%	30	0.30+/-25%	400
GBLH201209PA-1R0M-AE	1.00+/-20%		0.06 Max.	2200
GBLH201209PA-2R2M-AE	2.20+/-20%		0.10 Max.	2000
GBLH201209PA-3R3M-AE	3.30+/-20%		0.12 Max.	1500
GBLH201209PA-4R7M-AE	4.70+/-20%		0.30 Max.	900
GBLH201209PL-1R0M-AE	1.00+/-20%	90	0.11+/-20%	1200
GBLH201209PL-2R2M-AE	2.20+/-20%	50	0.25+/-25%	800
GBLH201209PL-3R3M-AE	3.30+/-20%	40	0.19+/-25%	900
GBLH201209PL-4R7M-AE	4.70+/-20%	30	0.25+/-25%	800

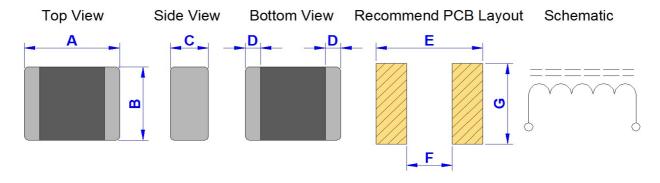
- Inductance test freq. : @ 1MHz / 250mV
- The maximum rated current: The DC current value having temperature increased 40 deg.C after thru DC current 2 hours at ambient temperature.
- Regarding to the inductance variability of rated current, please refer to Inductance Vs. DC superposition characteristics.

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Product Series: GBLH Brand: **GOTREND** File Version: **GBLH-SERIES-AE-V2R5** Editor: Qiuyi Wu **Established Date:** 2011.04.22 **Description:** High Current Multilayer Ferrite Chip Inductor **Latest Edit Date:** ☑ Customize 2023.04.11 **Product Type:** ☐ Standard

GBLH201609P-SERIES-AE

Dimension [mm] :



Size	А	В	С	D	E(Ref.)	F(Ref.)	G(Ref.)
201609	2.00+/-0.15	1.60+/-0.15	0.90+/-0.10	0.50+/-0.20	2.40	0.80	1.80

Electrical Characteristics:

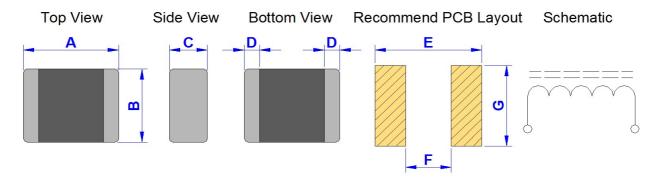
Part No.	Inductance (uH)	SRF (MHz) Min.	DCR (Ω)	Rated Current (mA) Max.
GBLH201609P-R68M-AE	0.68+/-20%	90	0.15+/-30%	1500
GBLH201609P-R82M-AE	0.82+/-20%	80	0.16+/-30%	1500
GBLH201609P-1R0M-AE	1.00+/-20%	60	0.077~0.143	1700
GBLH201609P-1R2M-AE	1.20+/-20%	60	0.077~0.143	1700
GBLH201609P-1R5M-AE	1.50+/-20%	50	0.098~0.182	1500
GBLH201609P-1R8M-AE	1.80+/-20%	50	0.098~0.182	1500
GBLH201609P-2R2M-AE	2.20+/-20%	40	0.126~0.234	1300
GBLH201609P-2R7M-AE	2.70+/-20%	40	0.126~0.234	1300
GBLH201609P-3R3M-AE	3.30+/-20%	30	0.161~0.299	1100
GBLH201609P-3R9M-AE	3.90+/-20%	30	0.161~0.299	1100
GBLH201609P-4R7M-AE	4.70+/-20%	30	0.161~0.299	900

- Inductance test freq. : @ 1MHz / 250mV
- The maximum rated current: The DC current value having temperature increased 40 deg.C after thru DC current 2 hours at ambient temperature.
- Regarding to the inductance variability of rated current , please refer to Inductance Vs. DC superposition characteristics.

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GBLH252010P-SERIES-AE

Dimension [mm] :



Size	Α	В	С	D	E(Ref.)	F(Ref.)	G(Ref.)
252010	2.50+/-0.20	2.00+/-0.20	0.90+/-0.10	0.60+/-0.20	2.90	1.10	2.20

Electrical Characteristics:

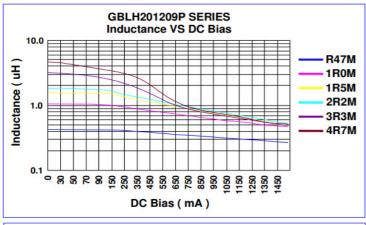
Part No.	Inductance (uH)	SRF (MHz) Min.	DCR (Ω)	Rated Current (mA) Max.
GBLH252010P-R47M-AE	0.47+/-20%	100	0.07+/-25%	1800
GBLH252010P-1R0M-AE	1.00+/-20%	60	0.11+/-25%	1600
GBLH252010P-1R5M-AE	1.50+/-20%	50	0.13+/-25%	1500
GBLH252010P-2R2M-AE	2.20+/-20%	40	0.16+/-25%	1300
GBLH252010P-3R3M-AE	3.30+/-20%	30	0.17+/-25%	1200
GBLH252010P-4R7M-AE	4.70+/-20%	25	0.20+/-25%	1100

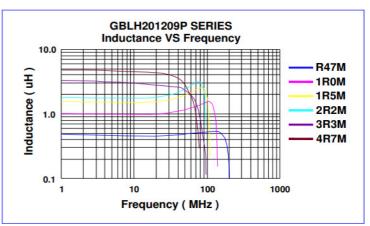
- Inductance test freq. : @ 1MHz / 250mV
- The maximum rated current: The DC current value having temperature increased 40 deg.C after thru DC current 2 hours at ambient temperature.
- Regarding to the inductance variability of rated current , please refer to Inductance Vs. DC superposition characteristics.

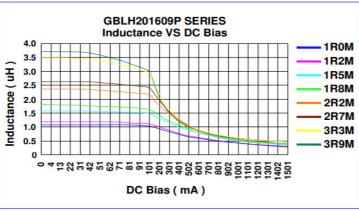
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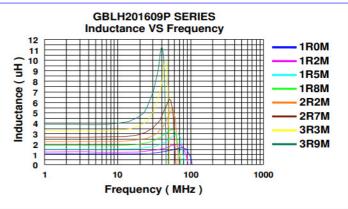
Product Series: GBLH Brand: **GOTREND** GBLH-SERIES-AE-V2R5 Editor: Qiuyi Wu File Version: **Established Date:** 2011.04.22 **Description:** High Current Multilayer Ferrite Chip Inductor **Latest Edit Date:** 2023.04.11 **Product Type:** □ Standard ☑ Customize

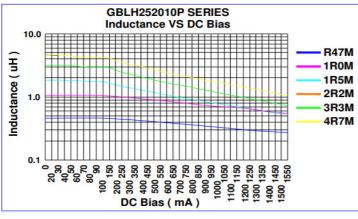
Typical Performance Curves:

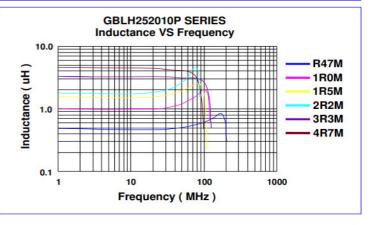












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Care note:

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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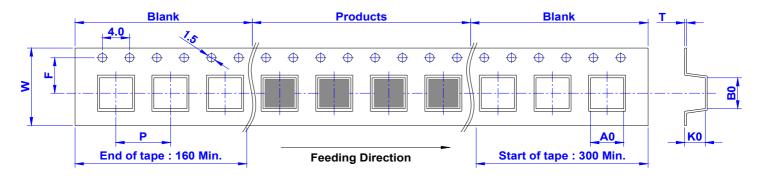
Reliability:

No	Item	Test Conditions	Specification
1	External Visual	Inspect device construction and workmanship.	There is no change for appearance (electrode
	MIL-STD-883	Electrical test not required.	did not fall off , loose , no breakage , ferrite core
	Method 2009		did not break , damage)
2	Physical Dimension	Verify physical dimensions to the device	For Spec.
	JESD22	specification.	
	Method JB-100		
3	Thermal Shock	Temperature : -40±2 °C ~ +125±2 °C	There is no change for appearance (electrode
	MIL-STD-202	Max transfer time : 20 s.	did not fall off , loose , no breakage , ferrite core
	Method 107	Dwell time: 15 minutes. Air - Air	did not break , damage)
			Inductor value / resistance change rate ±10%.
4	Humidity Resistance	Humidity: 85% RH	There is no change for appearance (electrode
	MIL-STD-202	Temperature : 85 °C	did not fall off , loose , no breakage , ferrite core
	Method 103	Test time: 1000 Hours	did not break , damage)
	Modrod 100	Took ame : Took House	Inductor value / resistance change rate ±10%.
5	High Temperature	Temperature : 125±2 °C	There is no change for appearance (electrode
J	MIL-STD-202	Test time : 1000 Hours	did not fall off , loose , no breakage , ferrite core
	Method 108	rest time . 1000 flours	did not break , damage)
	Metriod 100		,
•	T	T 40.05 .405.05	Inductor value / resistance change rate ±10%.
6	Temperature and	Temperature : -40 °C ~ +125 °C	There is no change for appearance (electrode
	Humidity Cycle	Cycles : 1000	did not fall off , loose , no breakage , ferrite core
	JESD22		did not break , damage)
	Method JA-104		Inductor value / resistance change rate ±10%.
7	Operational Life	Temperature : 125 °C	No short circuit , open circuit.
	MIL-PRF-27	Load : Allowed DC current	
		Test time : 1000 Hours	
8	Vibration	5 g's for 20 minutes , 12 cycles each of 3	No bad phenomenon.
	MIL-STD-202	orientations.	
	Method 204	Test from 10Hz ~ 2000Hz	
9	Mechanical Shock	Figure 1 of Method 213 SMD : Condition C.	No bad phenomenon.
	MIL-STD-202		
	Method 213		
10	Resistance to	Condition B No pre-heat of samples.	Tin solder have to cover over 90% area.
	Soldering Head	Temperature 250 up / 5 s.	
	MIL-STD-202	Temperature 183 up / 90 ~ 120 s.	
	Method 210		
11	Solderability	a. Method B , 4 Hours @ 155 °C dry heat	No change and transform form the appearance.
	J-STD-002	@ 235 °C	
		b. Method B @ 215 °C category 3	
		c. Method D @ 260 °C category 3	
12	Board Flex	2 mm (min.) for all.	No change and transform form the appearance.
	AETS	1.6	
		=======================================	
		$\left \stackrel{45}{\leqslant} \right \stackrel{45}{\leqslant} \left \stackrel{7}{\leqslant} \right $	
13	Terminal Streng	Force of 1.8 Kg for 60 s.	Fulfil quality requirements.
	AETS	x x	
		Y	
14	Resistance to Solvents	Note : Add Aqueous wash chemical-OKEM or	Fulfil quality requirements.
	MIL-STD-202	equivalent.	
	Method 215	No banned substances.	

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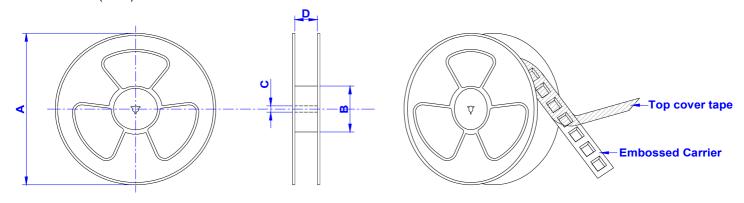
Packaging Information:

Tape Dimension (mm):



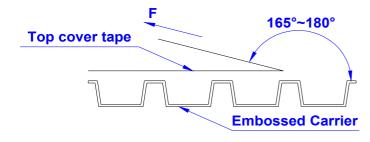
SIZE/mm	W	Р	A0	В0	K0	Т	F
1608	8.00	4.00	1.10	1.90	0.95	0.23	3.50
2012	8.00	4.00	1.53	2.40	1.23	0.23	3.50
2016	8.00	4.00	1.88	2.40	1.23	0.23	3.50
2520	8.00	4.00	2.20	2.85	1.40	0.23	3.50

Reel Dimension (mm):



SIZE/mm	Reel Size	А	В	С	D	QTY / Reel
1608	7" x 8 mm	178	60	13	8.5	4000 PCS
2012	7" x 8 mm	178	60	13	8.5	4000 PCS
2016	7" x 8 mm	178	60	13	8.5	3000 PCS
2520	7" x 8 mm	178	60	13	8.5	3000 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 4.11stadnard).

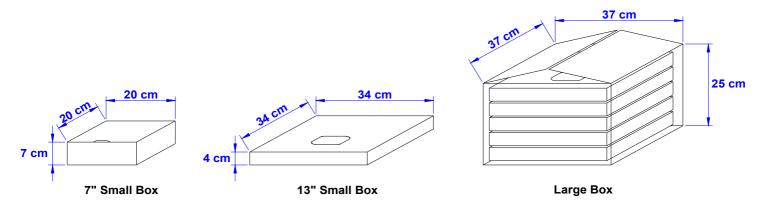
Room Temp.	Room Humidity	Room Atm.	Tearing Speed
(deg.C)	(%)	(hPa)	(mm / min)
5 ~ 35	45 ~ 85	860 ~ 1060	300

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Product Series :	GBLH	Brand :	GOTREND
File Version :	GBLH-SERIES-AE-V2R5	Editor :	Qiuyi Wu
Established Date :	2011.04.22	Description:	High Current Multilayer Ferrite Chip Inductor
Latest Edit Date	2023 04 11	Product Type :	□ Standard ☑ Customize

Packaging Information:

Box Package:



SIZE/mm	Reels in Small Box(QTY)	Small Box in Large Box(QTY)
1608	5(20000)	8(160000)
2012	5(20000)	8(160000)
2016	5(15000)	8(120000)
2520	5(15000)	8(120000)

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