



Product Series :	GBDC	Brand :	GOTREND
File Version :	GBDC-SERIES-AE-V1R0	Editor :	Yinghui Guo
Established Date	2023.05.22	Description :	Multilayer Ferrite Common Mode
Latest Edit Date :	2023.05.22	Product Type :	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Customize

REMINDERS

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- ◆ 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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- ◆ Please read Attention and CAUTION note (for storage, operating, rating, soldering, mounting and handling) in this catalog to ensure product proper usage.
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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.

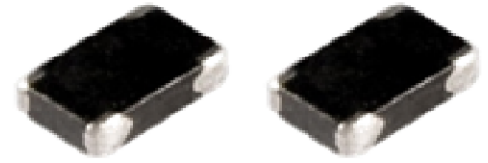
- (1) Aerospace/Aviation equipment
- (2) Atomic energy-related equipment
- (3) Disaster prevention/crime prevention equipment
- (4) Electric heating apparatus, burning equipment
- (5) Medical equipment
- (6) Military equipment
- (7) Power-generation control equipment
- (8) Public information-processing 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 :

- * The GBDC series is effective for common mode noise suppression in digital equipment which causes radiation from cables.
- * Low leakage flux due to monolithic structure enables high-density mounting.
- * The nickel barrier structure of the external electrodes provides excellent solder heat resistance.
- * Prevention of common mode noise on signal line in personal computers , computer built in equipments , facsimiles , digital telephones , etc...



(Picture for reference only)

Part No. Example :

PN	:	GBDC	2012	P	-	900	N	-	AE
-----		-----	-----	---		-----	---		---
ID	:	1	2	3		4	5		6
1	:	GBD : GOTREND Series							
2	:	2012 : Length 2.0 mm x Width 1.25 mm x Height 0.9 mm							
3	:	P : Pb < 1000ppm							
4	:	900 : Impedance (Ohm) = 900 Ohm							
5	:	N : Tolerance N = Typ.							
6	:	[AE] : Reliability comply with AEC-Q200 standard type.							

Basic Information :

Made in	China
Pin Foot	SMD
Shielding	Yes
J-STD-020	MSL Level 1
RoHS	Compliant
REACH	Compliant
Halogen	Free
Automotive	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 :

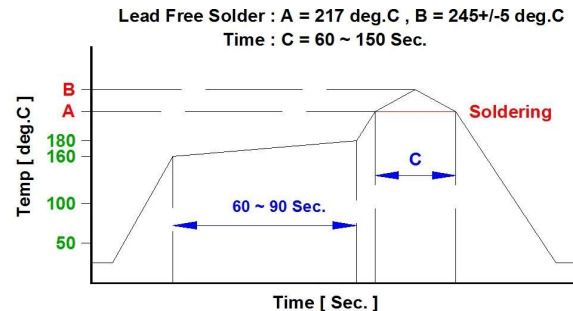
- * Keep out of Splashing water or salt water
- * Avoid Toxic Gas (Hydrogen sulfide, Sulfurous acid, Chlorine, Ammonia)
- * Avoid Vibrations or shocks which exceed the specified condition
- * Avoid Dew condense
- * Avoid Layout near the edge of PCB
- * Avoid Over flexure after SMT mounting & PCBA

- * 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 :



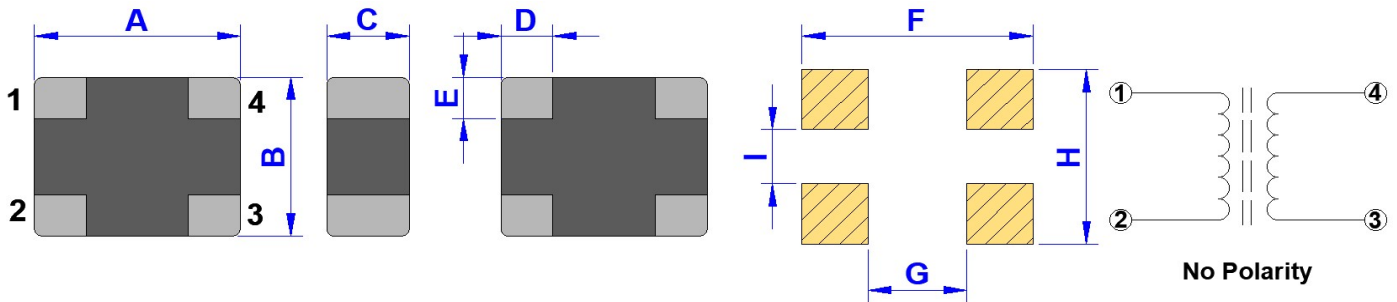
Notice : Iron Soldering , Solder < 30 Watt ,
Direct touch the terminal x 3 Sec. Max. @ 350 deg.C

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GBDC060503PM-SERIES-AE

Dimension [mm] :



Size	A(+/-0.05)	B(+/-0.05)	C(+/-0.05)	D(+/-0.1)	E(+/-0.10)	F(ref.)
060503	0.65	0.5	0.3	0.4	0.12	0.8
	G(ref.)	H(ref.)	I(ref.)			
	0.2	0.71	0.25			

Electrical Characteristics :

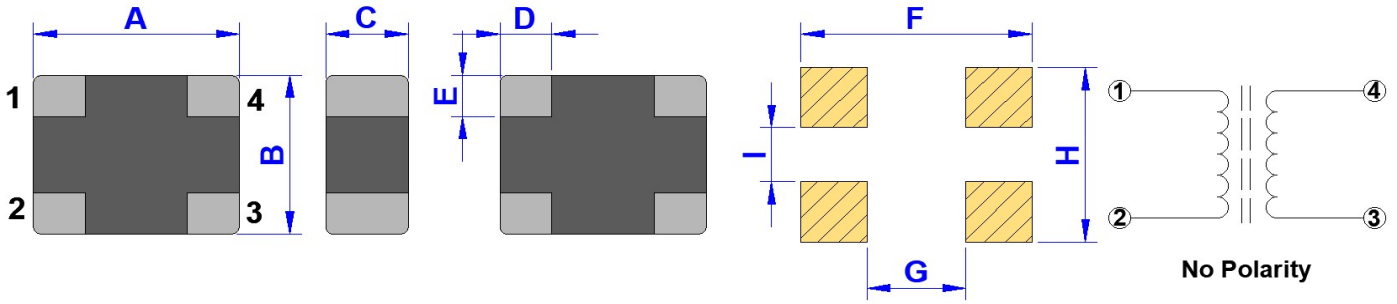
Part No.	Impedance (Ohm) @100MHz	DCR (Ohm)	Rated Current (mA)	Withstanding Voltage (DC)	Rated Voltage (DC)	Insulation Resistance (m Ohm)
GBDC060503PM-120N-AE	12.0 +/-5%	1.6 +/-25%	150 max.	12.5V	5V	10.0 Min.
GBDC060503PM-350N-AE	35.0 +/-30%	2.3 +/-25%	120 max.	12.5V	5V	10.0 Min.
GBDC060503PM-500N-AE	50.0 +/-35%	3.6 +/-25%	100 max.	12.5V	5V	10.0 Min.
GBDC060503PM-650N-AE	65.0 +/-35%	3.6 +/-25%	100 max.	12.5V	5V	10.0 Min.
GBDC060503PM-900N-AE	90.0 +/-25%	4.0 +/-25%	50 max.	12.5V	5V	10.0 Min.

■ Tolerance N = Typ.

■ Rated Current : For a 40°C temperature rise from 25°C ambient.

GBDC0806P-SERIES-AE

Dimension [mm] :



Size	A(+/-0.05)	B(+/-0.05)	C(+/-0.05)	D(+/-0.1)	E(+/-0.10)	F(+/-0.15)
0806	0.85	0.65	0.4	0.27	0.2	0.9
	G(+/-0.05)	H(+/-0.15)	I(+/-0.05)			
	0.3	0.8	0.2			

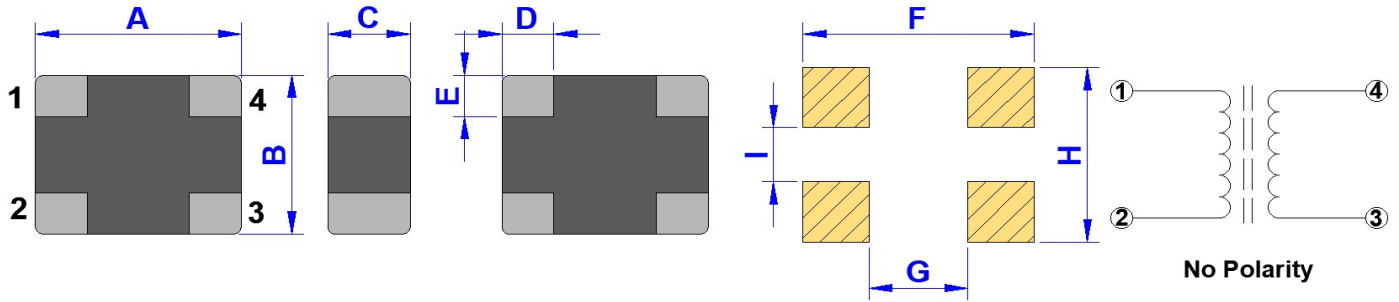
Electrical Characteristics :

Part No.	Z - Value (Ohm)	Test Freq. (MHz)	DCR (Ohm)	Rated Current (mA)	LInsulation Resistance (Ω)	Rated Voltage (VDC)
GGBDC0806P-120M-AE	12.0 +/-20%	100	2.50 max.	130 max.	100M min.	5.0 max.
GBDC0806P-470M-AE	47.0 +/-20%	100	5.00 max.	100 max.	100M min.	5.0 max.
GBDC0806P-900M-AE	90.0 +/-20%	100	6.50 max.	100 max.	100M min.	5.0 max.

■ Rated Current : For a 40°C temperature rise from 25°C ambient.

GBDC080604PM-SERIES-AE

Dimension [mm] :



Size	A(+/-0.05)	B(+/-0.05)	C(+/-0.05)	D(+/-0.1)	E(+/-0.10)	F(ref.)
080604	0.85	0.65	0.45	0.35	0.2	0.9
	G(ref.)	H(ref.)	I(ref.)			
	0.3	0.8	0.2			

Electrical Characteristics :

Part No.	Impedance (Ohm) @100MHz	DCR (Ohm)	Rated Current (mA)	Withstanding Voltage (DC)	LInsulation Resistance (mΩ)	Rated Voltage (VDC)
GBDC080604PM-900N-AE	90.0 +/-20%	4.0 +/-25%	100 max.	12.5V	10.0 min.	5V

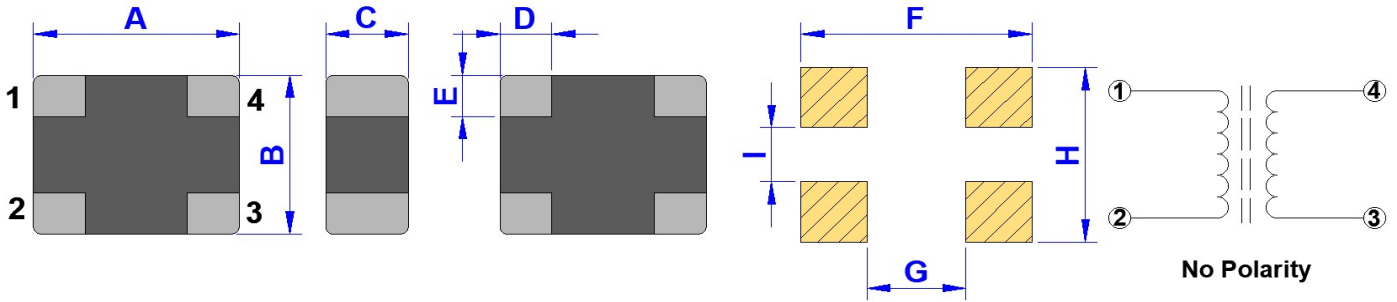
■ Rated Current : For a 40°C temperature rise from 25°C ambient.

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GBDC121005P-SERIES-AE

Dimension [mm] :



Size	A(+/-0.1)	B(+/-0.1)	C(+/-0.1)	D(+/-0.15)	E(+/-0.10)	F(ref.)
121005	1.25	1.0	0.5	0.2	0.3	1.75
	G(ref.)	H(ref.)	I(ref.)			
	0.75	0.85	0.25			

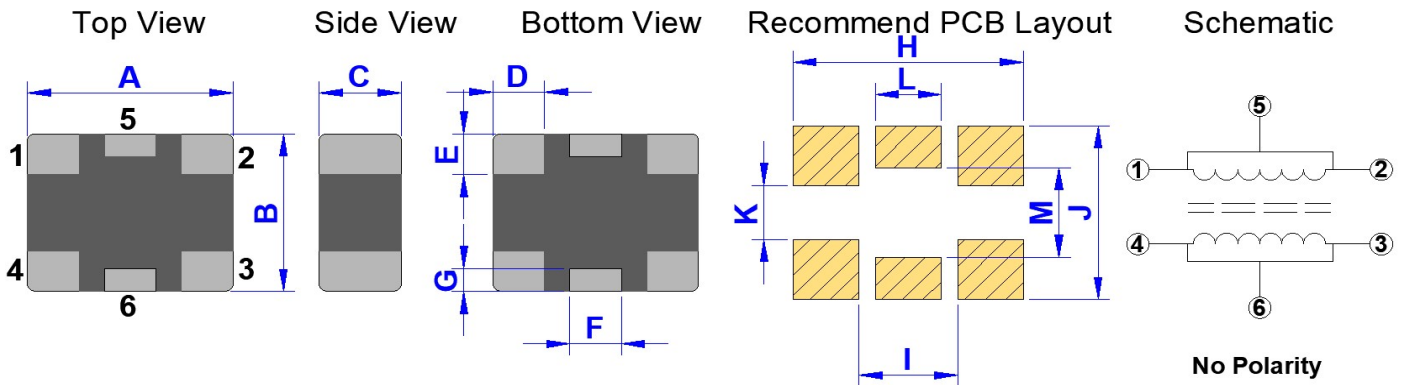
Electrical Characteristics :

Part No.	Impedance (Ohm) @100MHz	DCR (Ohm)	Rated Current (mA)	LInsulation Resistance (mΩ)	Rated Voltage (VDC)
GBDC121005PA-150N-AE	15.0 +/-25%	0.8 Max.	100 max.	100 min.	10
GBDC121005PA-360N-AE	36.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PA-500N-AE	50.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PA-670N-AE	67.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PD-670NA-AE	67.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PA-900N-AE	90.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PD-900NA-AE	90.0 +/-25%	1.5 Max.	100 max.	100 min.	10
GBDC121005PD-900ND-AE	90.0 +/-25%	3.0 Max.	100 max.	100 min.	10
GBDC121005PH-900NA-AE	90.0 +/-25%	1.0 Max.	100 max.	100 min.	10

■ Rated Current : For a 40°C temperature rise from 25°C ambient.

GBDC121006P-SERIES-AE

Dimension [mm] :



Size	A(+/-0.1)	B(+/-0.1)	C(+/-0.1)	D(+/-0.15)	E(+/-0.10)	F(+/-0.15)	G(+/-0.15)
121006	1.25	1.0	0.6	0.2	0.3	0.3	0.2
	H(ref.)	I(ref.)	J(ref.)	K(ref.)	L(ref.)	M(ref.)	
	1.75	0.75	0.8	0.2	0.3	0.48	

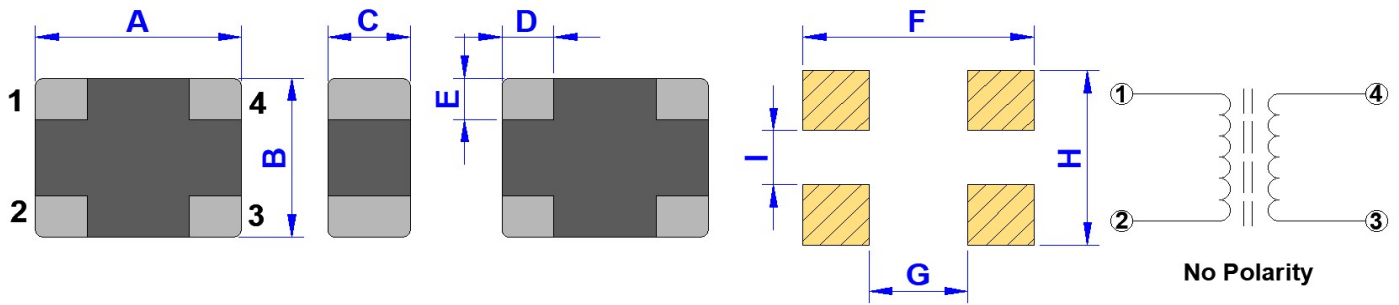
Electrical Characteristics :

Part No.	Impedance (Ohm) @100MHz	DCR (Ohm)	Rated Current (mA)	Rated Voltage (VDC)	Insulation Resistance (mΩ)	Capacitance (pF) @1MHz / 0.5V	Leakage Current (uA)
GBDC121006P-670N-AE	67.0 +/-25%	2.0 Max.	100 max.	10	100 min.	1.3 max.	1.0 max.
GBDC121006P-900N-AE	90.0 +/-25%	2.0 Max.	100 max.	10	100 min.	1.3 max.	1.0 max.

- Rated Current : For a 40°C temperature rise from 25°C ambient.
- Leakage Current : @5.0V.

GBDC121008P-SERIES-AE

Dimension [mm] :



Size	A(+/-0.1)	B(+/-0.1)	C(+/-0.1)	D(+/-0.15)	E(+/-0.10)	F(ref.)
121008	1.25	1.0	0.82	0.2	0.3	1.55
	G(ref.)	H(ref.)	I(ref.)			
	0.55	1.0	0.2			

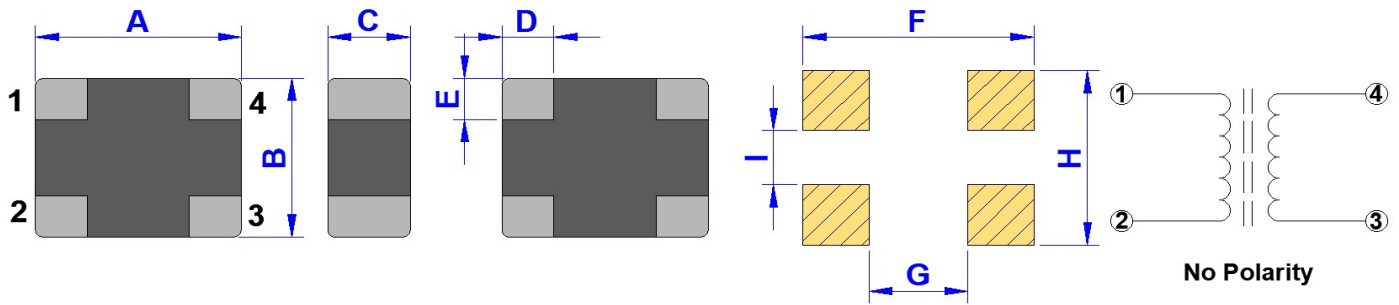
Electrical Characteristics :

Part No.	Impedance (Ohm) @100MHz	DCR (Ohm)	Rated Current (mA)	Rated Voltage (VDC)	Withstand Voltage (V)	LInsulation Resistance (mΩ)
GBDC121008P-900N-AE	90.0 +/-25%	0.6 Max.	300 max.	10	25.0	200 min.

■ Rated Current : For a 40°C temperature rise from 25°C ambient.

GBDC2012P-SERIES-AE

Dimension [mm] :



Size	A(+/-0.20)	B(+/-0.20)	C(+/-0.20)	D(+/-0.20)	E(+/-0.20)	F(ref.)
2012	2.0	1.25	0.9	0.4	0.3	2.4
	G(ref.)	H(ref.)	I(ref.)			
	1.45	0.8	0.45			

Electrical Characteristics :

Part No.	Common Mode Z (Ohm)	Test Freq. (MHz)	DC Resistance (Ohm)	Rated Current (mA)	Line To Line Resistance (Ohm)	Rated Voltage (VDC)	Withstand Voltage (V)
GBDC2012P - 900N-AE	90.0 Typ.	100 / 50 mV	0.70 max.	400 max.	100M min.	10.0 max.	25.0 max.
GBDC2012P - 101N-AE	100.0 Typ.	100 / 50 mV	0.70 max.	400 max.	100M min.	10.0 max.	25.0 max.
GBDC2012P - 121N-AE	120.0 Typ.	100 / 50 mV	0.70 max.	400 max.	100M min.	10.0 max.	25.0 max.

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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 :

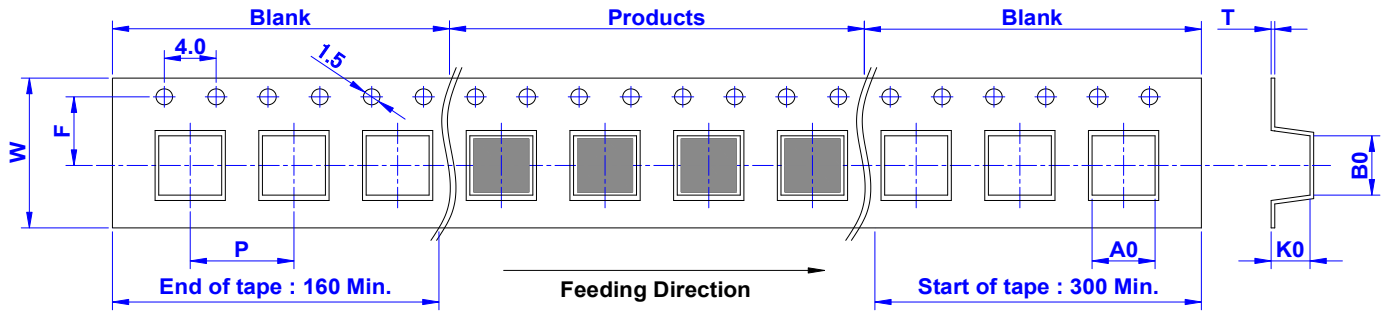
No	Item	Test Conditions	Specification
1	External Visual MIL-STD-883 Method 2009	Inspect device construction and workmanship. Electrical test not required.	There is no change for appearance (electrode did not fall off , loose , no breakage , ferrite core did not break , damage)
2	Physical Dimension JESD22 Method JB-100	Verify physical dimensions to the device specification.	For Spec.
3	Thermal Shock MIL-STD-202 Method 107	Temperature : -40±2 °C ~ +125±2 °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 ±10%.
4	Humidity Resistance MIL-STD-202 Method 103	Humidity : 85% RH Temperature : 85 °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 ±10%.
5	High Temperature MIL-STD-202 Method 108	Temperature : 125±2 °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 ±10%.
6	Temperature and Humidity Cycle JESD22 Method JA-104	Temperature : -40 °C ~ +125 °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 ±10%.
7	Operational Life MIL-PRF-27	Temperature : 125 °C Load : Allowed DC current Test time : 1000 Hours	No short circuit , open circuit.
8	Vibration 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	Mechanical Shock MIL-STD-202 Method 213	Figure 1 of Method 213 SMD : Condition C.	No bad phenomenon.
10	Resistance to Soldering Head 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	Solderability J-STD-002	a. Method B , 4 Hours @ 155 °C dry heat @ 235 °C b. Method B @ 215 °C category 3 c. Method D @ 260 °C category 3	No change and transform form the appearance.

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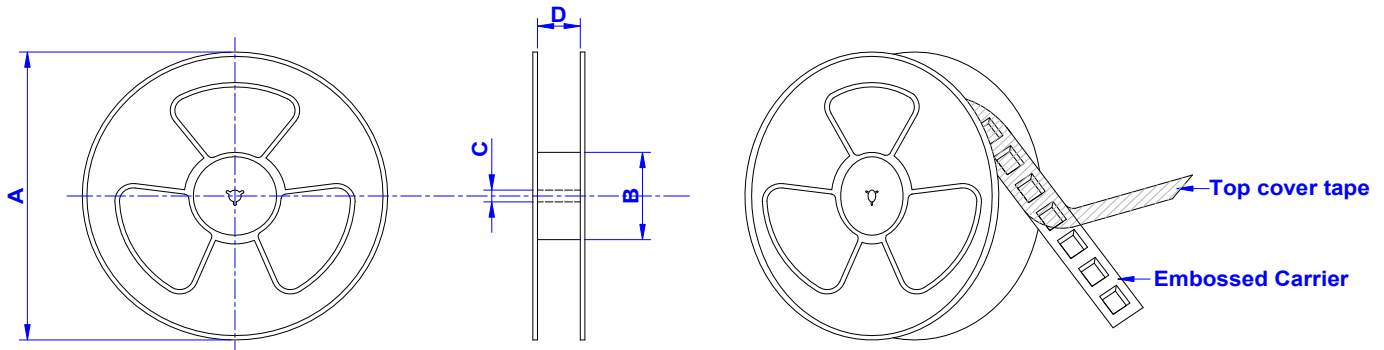
Packaging Information :

Tape Dimension (mm) :



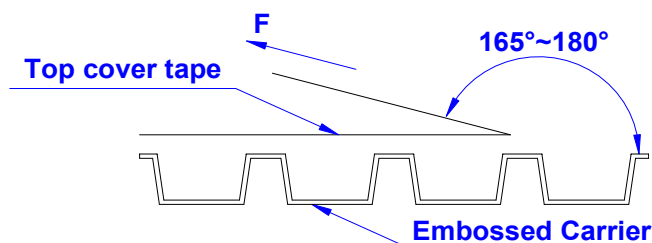
SIZE/mm	W	P	A0	B0	K0	T	F
060503	8.00 +/-0.2	2.0 +/-0.5	0.6 +/-0.03	0.73 +/-0.3	0.55 Max.	0.55 Max.	3.50 +/-0.05
0806	8.00 +/-0.2	2.0 +/-0.5	0.75 +/-0.05	0.93 +/-0.5	0.55 Max.	0.3 Max.	3.50 +/-0.05
080604	8.00 +/-0.2	2.0 +/-0.5	0.77 +/-0.05	0.97 +/-0.5	0.8 Max.	0.8 Max.	3.50 +/-0.05
121005	8.00 +/-0.2	4.00 +/-0.1	1.2 +/-0.05	1.45 +/-0.05	0.8 Max.	0.6 Max.	3.50 +/-0.05
121006	8.00 +/-0.2	4.00 +/-0.1	1.2 +/-0.05	1.45 +/-0.05	0.8 Max.	0.6 Max.	3.50 +/-0.05
121008	8.00 +/-0.2	4.00 +/-0.1	1.2 +/-0.05	1.45 +/-0.05	1.0 Max.	0.6 Max.	3.50 +/-0.05
2012	8.00 +/-0.2	4.00 +/-0.1	1.42 +/-0.1	2.25 +/-0.1	1.22 +/-0.1	0.22 +/-0.05	3.50 +/-0.05

Reel Dimension (mm) :



SIZE/mm	Reel Size	A	B	C	D	QTY / Reel
060503	7" x 8 mm	180	60	13	8.4	15000 PCS
0806	7" x 8 mm	178	60	13	8.4	10000 PCS
080604	7" x 8 mm	180	60	14.4	8.4	10000 PCS
121005	7" x 8 mm	178	60	13	8.4	4000 PCS
121006	7" x 8 mm	178	60	13	8.4	4000 PCS
121008	7" x 8 mm	178	60	13	8.4	4000 PCS
2012	7" x 8 mm	178	60	13	8.5	4000 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).

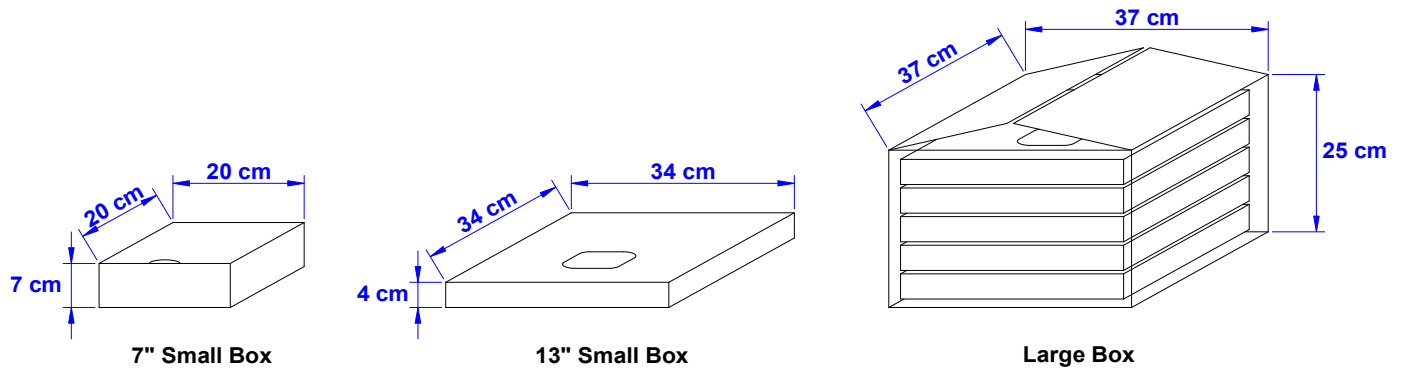
Room Temp. (deg.C)	Room Humidity (%)	Room Atm. (hPa)	Tearing Speed (mm / min)
5 ~ 35	45 ~ 85	860 ~ 1060	300

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Packaging Information :

Box Package :



SIZE/mm	Reels in Small Box	Small Box in Large Box
060503	5	8
0806	5	8
080604	5	8
121005	5	8
121006	5	8
121008	5	8
2012	5	8