

## APPLICATION

**GMLB chip beads can be used in a variety of electronic applications including:**

- Computers and Computer Peripherals
- Cellular Communication Equipment
- Digital Cameras
- Digital Televisions
- Audio Equipment

## FEATURES

**The GMLB Series is Mag.Layers' line of high quality ferrite chip beads. Using the latest in multilayer technology, we have developed chip beads that are able to resolve all EMI/EMC issues. High quality, reliability, and versatility make the GMLB series chip beads suitable for all your design needs.**

- **High Reliability**  
The monolithic inorganic materials used to construct GMLB chips restrain magnetic flux leakage thereby minimizing EMI concerns. GMLB chips are also extremely effective with unstable grounding.
- **Small Chip-Shaped Design**  
The chip-shaped design makes GMLB chip beads ideal for automatic mounting.
- **High Soldering Heat Resistance**  
High quality termination allows both flow and re-flow soldering methods to be applied.
- **Sharp High Frequency Characteristics**  
The GMLB high frequency chip series has sharp impedance characteristics, which make it suitable for high-speed signal lines.

## PRODUCT IDENTIFICATION

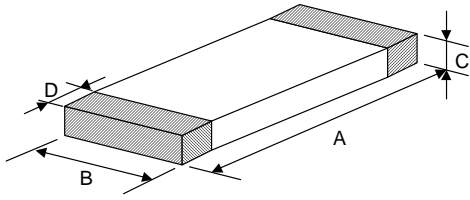
**G M L B** - **1 0 0 5 0 5** - **0 0 3 0** **A** - **N 8**

①                                      ②                                      ③                                      ④                                      ⑤                                      ⑥

- ① Product Code
- ② Dimension Code
- ③ Impedance (at 100 MHz)
- ④ Series Type
- ⑤ Design Code
- ⑥ Code for Special Specification



## PRODUCT DIMENSION

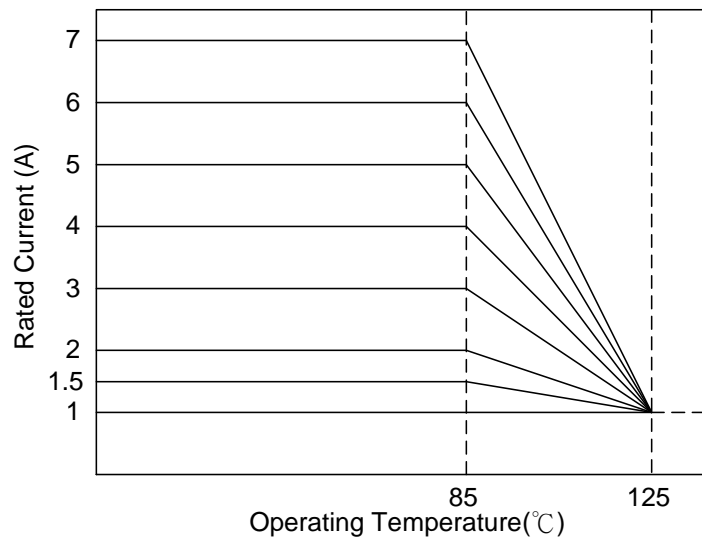


NOTE : Dimensions in mm

PRODUCT NO.	A	B	C	D
GMLB-100505 (0402)	1.0±0.10 (0.039±0.004)	0.5±0.10 (0.019±0.004)	0.5±0.10 (0.019±0.004)	0.25±0.10 (0.0095±0.004)

## CURRENT DERATING

In operating temperatures exceeding +85°C, derating of current is necessary for chip ferrite beads for which rated current is 1.5A or over. Please apply the derating curve shown below according to the operating temperature.



## ■ ELECTRICAL REQUIREMENTS

Part Number	Impedance ( $\Omega$ ) at 100 MHz	R <sub>DC</sub> ( $\Omega$ ) Max.	I <sub>DC</sub> (mA) Max.	Operating Temp. Range ( $^{\circ}$ C)
GMLB-100505-0120W-N8	120 $\pm$ 25%	0.70	300	-55 ~ +125
GMLB-100505-0220W-N8	220 $\pm$ 25%	1.00	250	
GMLB-100505-0600W-N8	600 $\pm$ 25%	0.85	300	
GMLB-100505-1000W-N8	1000 $\pm$ 25%	1.20	250	

- Temperature rise should be less than 40 $^{\circ}$ C for P-type and less than 25 $^{\circ}$ C for other types when rated current is applied.

## ■ MEASURING METHOD / CONDITION

- Test Instrument:

Z: Agilent 4291B Impedance Analyzer, Test Fixture: Agilent 16192  
Osc. Level: 500mV

R<sub>DC</sub>: Agilent 34401A

- Test Condition:

< Unless otherwise specified >

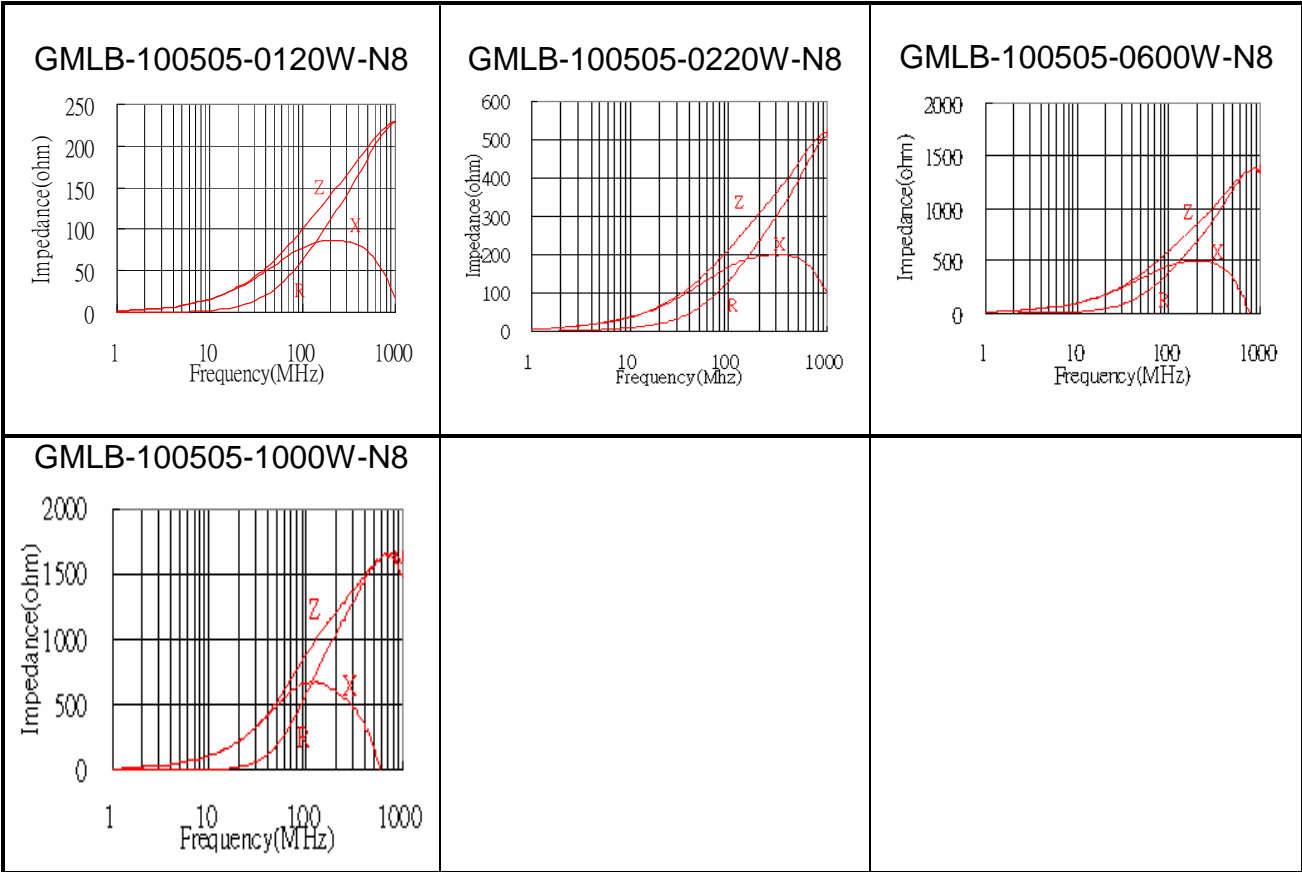
Temperature: 15 $^{\circ}$ C to 35 $^{\circ}$ C      Humidity: 25% to 85% RH

< In case of doubt >

Temperature: 25 $^{\circ}$ C  $\pm$  2 $^{\circ}$ C      Humidity: 60% to 70% RH

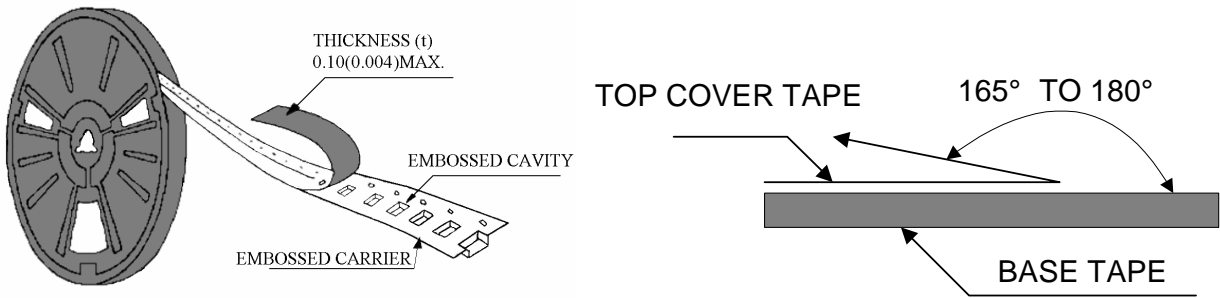


# TYPICAL ELECTRICAL CHARACTERISTICS ( T=25°C)



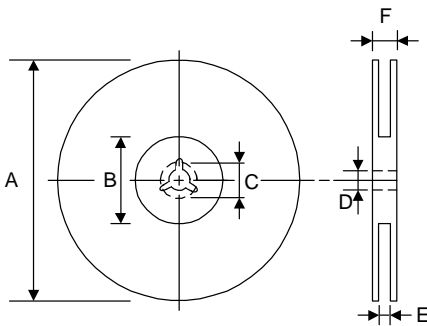
## PACKAGING

### ● Peel-off Force

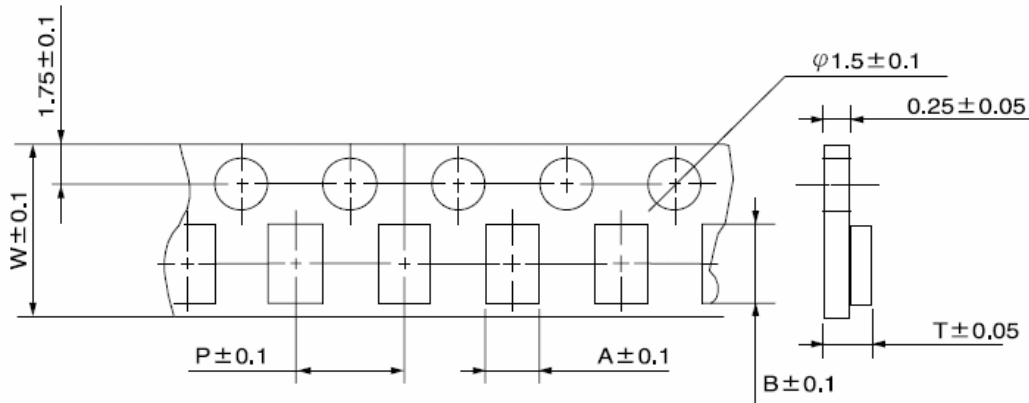


The force for peeling off cover tape is 10 grams in the arrow direction.

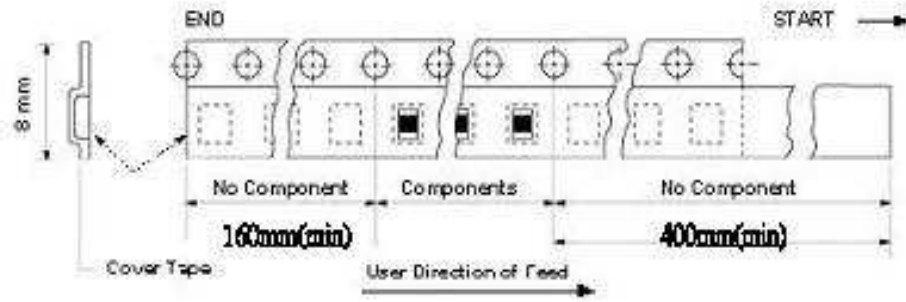
### ● Dimension (Unit: mm)



TYPE	A	B	C	D	E	F
8 mm	178±1	60 +0.5 -0	-	13 ±0.2	9 ±0.5	12 ±0.5
12 mm	178±0.3	60 ±0.2	19.3 ±0.1	13.5 ±0.1	13.6 ±0.1	-



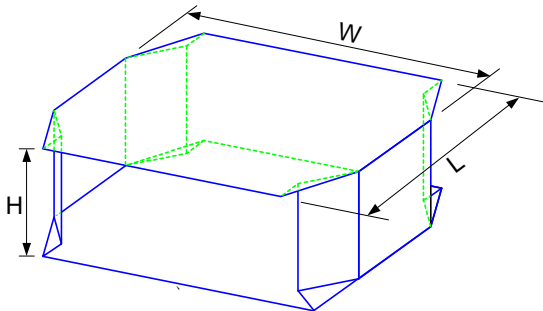
TYPE	SIZE	A	B	W	P	T	CHIPS/REEL
GMLB	100505	0.6	1.1	8	2	1.0	10000



● Taping Quantity

<b>SERIES</b>	<b>1005</b>
PCS/Reel	10000

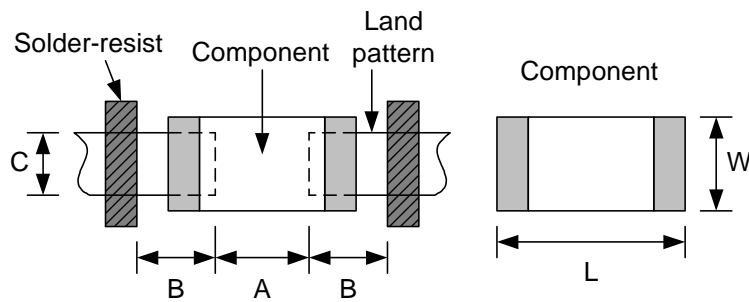
● Tape Packing Case



No. of Reels	W	L	H
2	18±0.5	18±0.5	2.4±0.2
3	18±0.5	18±0.5	3.6±0.2
4	18±0.5	18±0.5	4.8±0.2
5	18±0.5	18±0.5	6.0±0.2

Unit: cm

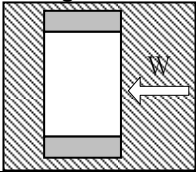
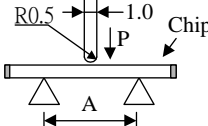
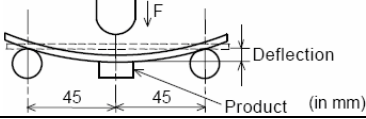
■ **RECOMMENDED PCB LAYOUT**



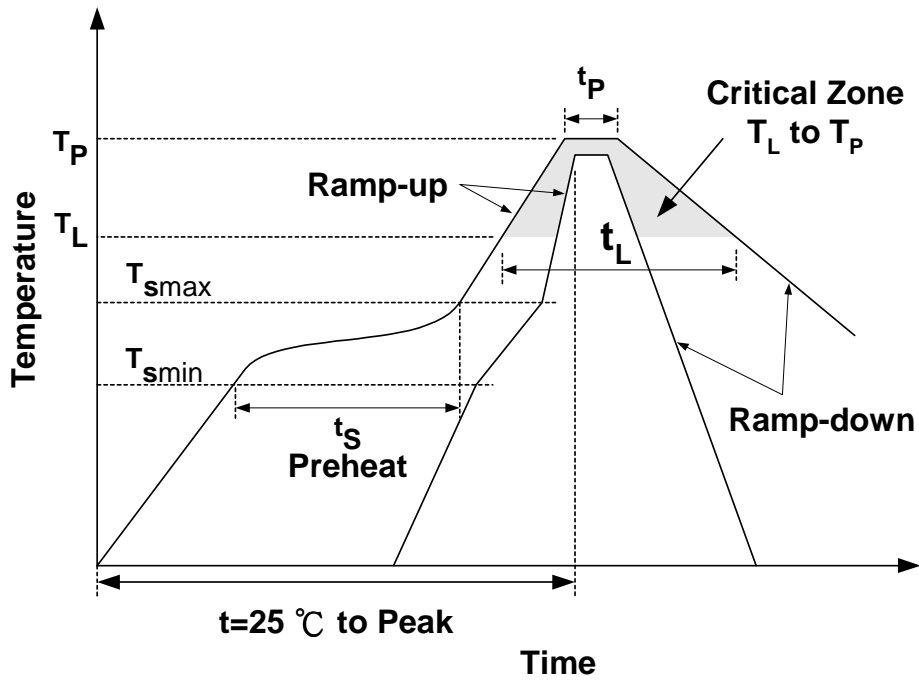
Unit: mm

Type		1005
Size	L	1.0
	W	0.5
A		0.45~0.55
B		0.40~0.50
C		0.40~0.50

## RELIABILITY TEST

● Mechanical Performance Test				
ITEM	SPECIFICATION	TEST CONDITION		
Solderability	More than 90% of the terminal electrode shall be covered with fresh solder.	Solder: 96.5Sn-3.0Ag-0.5Cu Solder Temperature: 245 ± 5°C Flux: Rosin Dip Time: 3 ± 1 Seconds		
Soldering Heat Resistance	The chip shall not crack. More than 75% of the terminal electrode shall be covered with solder.	Solder: 96.5Sn-3.0Ag-0.5Cu Solder temperature : 260 ± 5°C Flux: Rosin Dip time: 10 ± 1 seconds		
Terminal Strength	The terminal electrode shall not be broken off nor the ferrite damaged. 	TYPE	W(KGF)	TIME (SEC)
		GMLB-100505	0.2	30 ± 5
Bending Strength	No mechanical damage. The ferrite shall not be damaged. 	TYPE	A(MM)	P(KGF)
		GMLB-100505	0.4	0.2
Bending Test	Appearance: No damage Pressure jig 	Substrate: PCB(100mm×40mm×1.6mm) Solder: Reflow Speed of Applying Force: 0.5mm / s Deflection: 2mm Hold Duration: 30 s		
Vibration	Impedance shall be within ± 20% of the initial value. There shall be no mechanical damage.	The sample shall be soldered onto the printed circuit board and when a vibration having an amplitude of 1.52mm and a frequency of from 10 to 55Hz/1 minute repeated should be applied to the 3 directions (X,Y,Z) for 2 hours each.		
Drop shock	No apparent damage	Dropped onto printed circuit board from 100cm height three times in x, y, z directions. The terminals shall be protected.		
● Climatic test				
ITEM	SPECIFICATION	TEST CONDITION		
Thermal Shock (Temperature Cycle)	Impedance shall be within ± 20% of the initial value.	Temperature: -55°C~125°C for 30 minutes each, 100 cycles.		
Humidity Resistance		Temperature : 60°C Humidity: 95% RH Time: 1000 ± 12 Hours		
High Temperature Resistance		Temperature : 85°C±2°C Time: 1000 ± 12 Hours		
Low Temperature Resistance		Temperature : -40°C±2°C Time: 1000 ± 12 Hours		
1. Operating Temperature Range: -55 °C TO +125°C 2. Storage Condition: The temperature should be within -40°C~85°C and humidity should be less than 75% RH. The product should be used within 6 months from the time of delivery.				

## RECOMMENDED REFLOW SOLDERING PROFILE



Profile Feature		Sn-Pb	Pb-Free
Preheat	$t_s$	60~120 seconds	60~180 seconds
	$T_{smin}$	100°C	150°C
	$T_{smax}$	150°C	200°C
Average ramp-up rate ( $T_{smax}$ to $T_P$ )		3°C/second max.	3°C/second max.
Time main above	Temperature ( $T_L$ )	183°C	217°C
	Time ( $t_L$ )	60~150 seconds	60~150 seconds
Peak temperature ( $T_P$ )		230°C	250~260°C
Time within 5°C of actual peak temperature ( $t_p$ )		10 seconds	10 seconds
Ramp-down rate		6°C/sec max.	6°C/sec max.
Time 25°C to peak temperature		6 minutes max.	8 minutes max.

## NOTES

The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

