



●FEATURE

1. Small size Ferrite Bead generating high impedance
2. EMI Suppressor for High Frequency
3. Suitable for power line and signal line circuit
4. Low DC resistance structure
5. Operating Temperature -40 ~ +125°C
6. Compliant with AEC-Q200



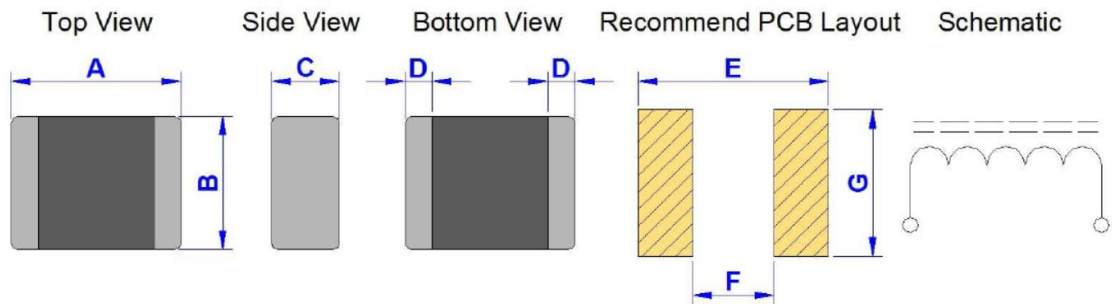
●APPLICATION

Mobil Device, Handheld Device, LowProfile Device, Panel.

●ORDERING INFORMATION

<u>FBH</u>	<u>100505</u>	<u>U</u>	<u>-102</u>	<u>N</u>	<u>Q</u>
Series	Dimension (L*W*H)	Material code	Impedance (Ω)	Tolerance N=±25%	AEC-Q

●SHAPE AND DIMENSION



●SPECIFICATION

Unit: mm (inch)

TYPE	A	B	C	D	E	F	G
100505 (0402)	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 (0603)	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.



●ELECTRICAL CHARACTERISTICS

Part Number	Impedance (Ohm) @100MHz	Impedance (Ohm ± 40%) @1GHz	DCR (Ohm) (Max.)	Rated Current (mA) (Max.)
FBH100505-201N	200	420	0.70	200
FBH100505-221N	220	420	0.70	500
FBH100505-301N	300	560	0.80	200
FBH100505-331N	330	560	0.80	200
FBH100505-470N	470	1000	1.00	100
FBH100505-601N	600	1100	1.20	100
FBH100505-102N	1000	1700	1.60	100

* N = Tolerance = ±25%

* Rated Current based on increasing product temperature: Current when temperature of the product reaches +40°C

Part Number	Impedance (Ohm) @100MHz	Impedance (Ohm ± 40%) @1GHz	DCR (Ohm) (Max.)	Rated Current (mA) (Max.)
FBH160808-121N	120	140	0.25	300
FBH160808-221N	220	300	0.50	200
FBH160808-301N	300	400	0.50	200
FBH160808-331N	330	400	0.50	200
FBH160808-471N	470	500	0.70	200
FBH160808-601N	600	600	0.90	100
FBH160808-801N	800	1000	1.50	50
FBH160808-102N	1000	1200	1.50	50
FBH160808-122N	1200	1000	1.50	50

* N = Tolerance = ±25%

* Rated Current based on increasing product temperature: Current when temperature of the product reaches +40°C



●RELIABILITY

Test Item	Test Condition	Specification												
Dimension	Actual Size ...	Meet Spec												
Thermal Shock (Temperature Cycle)	Temperature: -40 ~ +125°C kept stabilized for 30 min. each Cycle: 100 Cycles (power off)	Elec. no variation Appearance no deformation												
Humidity Resistance	Humidity: 90% ~ 95% RH Temperature: 60 ± 2°C Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
High Temperature	Temperature: 125 ± 2°C Testing Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Low Temperature	Temperature: -40 ± 2°C Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												
Temperature and Humidity Cycle	<table border="1"> <thead> <tr> <th>Temperature</th> <th>Humidity</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> <tr> <td>55°C</td> <td>95% ~ 96% RH</td> <td>5.0 Hr</td> </tr> <tr> <td>25°C</td> <td>90% ~ 95% RH</td> <td>3.0 Hr</td> </tr> </tbody> </table>	Temperature	Humidity	Time	25°C	90% ~ 95% RH	3.0 Hr	55°C	95% ~ 96% RH	5.0 Hr	25°C	90% ~ 95% RH	3.0 Hr	Elec. no variation Appearance no deformation
	Temperature	Humidity	Time											
	25°C	90% ~ 95% RH	3.0 Hr											
	55°C	95% ~ 96% RH	5.0 Hr											
25°C	90% ~ 95% RH	3.0 Hr												
Cycle: 20 Cycles														
Vibration	Frequency: 10Hz ~ 55Hz , Amplitude: 1.5 mm Direction: X, Y, Z, Time: 2 Hours each	Elec. no variation Appearance no deformation												
Solderability	Go through real SMT IR-Reflow The profile like our suggest profile. Preheat: 160 ± 10°C (90 sec) Peak: 245 ± 5°C Peak Time: 50 Sec. / up 217°C	Elec. no variation Appearance no deformation												
Soldering Heat Resistance	Preheat: 160 ± 10°C (90 sec) Solder: Sn / Ag / Cu (Pb Free) Solder Temp.: 260 ± 5°C, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Iron Solder Heat Resistance	Solder Temp.: 350 ± 5°C Flux: Rosin, Time: 3 ± 1 seconds	Elec. no variation Appearance no deformation												
Bending Strength	<p>Unit : mm</p> <p>Force : 1Kg / min.</p>	Elec. no variation Appearance no deformation												
Flexure Strength	<p>Unit : mm</p> <p>Solder cream 0.15 mm</p>	Elec. no variation Appearance no deformation												
Terminal Strength	<p>Mount on PCB Solder Cream 0.15 mm</p> <p>Push 10N force to X , Y direction</p>	Elec. no variation Appearance no deformation												
High-Voltage	100 V DC between core & winding	Elec. no variation Appearance no deformation												
Load life	Temperature: 25 ± 3°C Load: Allowed DC Current, Test Time: 96 ± 2 Hours	Elec. no variation Appearance no deformation												



● **TEST EQUIPMENT**

- 1. HP4284A, HP42841A - L, Q, DCR, IDC
- 2. HP8753D Network analyzer – SRF

● **OPERATING & STORAGE CONDITION**

- 1. Operating Temp: -40 ~ +125°C (Including self - temperature rise)
- 2. Storage Temp: a. Product with Taping: -10 ~ 45°C, 50 ~ 60% RH
b. On Board: -40 ~ +125°C
- 3. Storage Life Time: 12 Month (Less than 40°C and 60% RH)

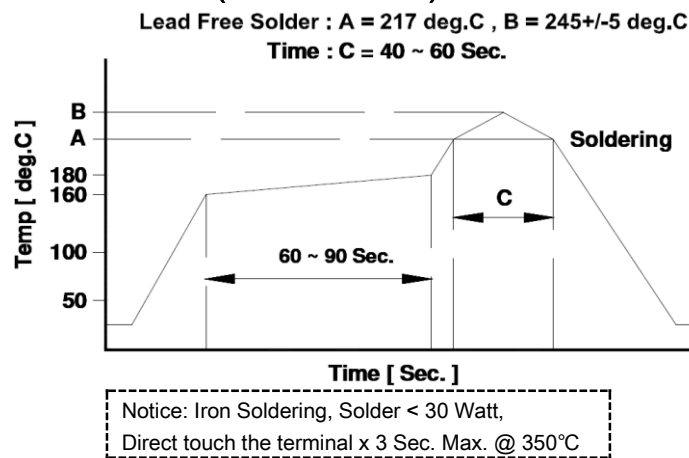
Standard Atmosphere Conditions:

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 REFLOW CURVE (TIME: Second)**



● **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 solder ability: 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°C before PCBA
- * Caution for human life relative applications: PLS contact & consult with AiT team in design stage.



Care Note for Use:

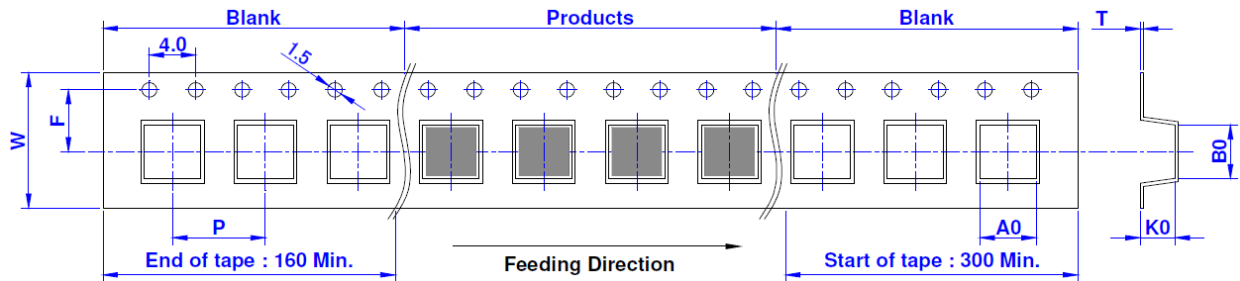
- (1) Storage Condition:
Temperature 25 to 35°C, Humidity 45 to 60% RH
- (2) Use Temperature:
 - a. Minimum Temperature: -40°C Ambient temperature of this product.
 - b. Maximum Temperature: +125°C The value of temperature including ambient and temperature rise of this product.
 - c. Reliability test 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 AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

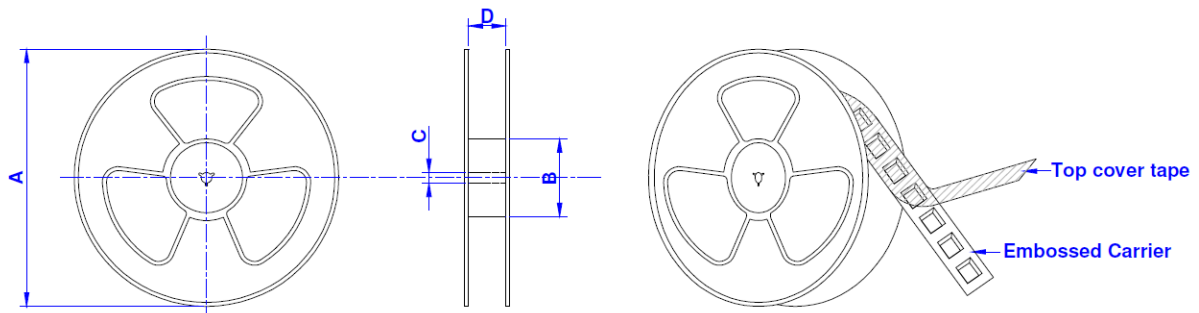


●TAPE DIMENSION: mm



SIZE/mm	W	P	A0	B0	K0	T	F
100505	8.00±0.20	2.00 ±0.10	0.65±0.10	1.15 ±0.10	0.80 ±0.05	0.20 ±0.05	3.50 ±0.05
160808	8.00±0.20	4.00 ±0.10	1.10 ±0.10	1.90 ±0.10	1.10 ±0.05	0.20 ±0.05	3.50 ±0.05

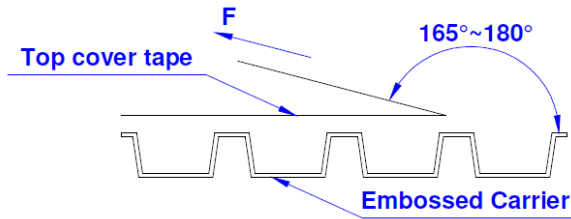
●REEL DIMENSION: mm



SIZE/mm	Reel Size	A	B	C	D	QTY / Reel
100505	7" x 8 mm	178	60	13	8.5	10000 PCS
160808	7" x 8 mm	178	60	13	8.5	4000 PCS



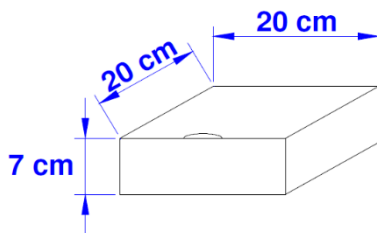
● **TEARING OFF FORCE :**



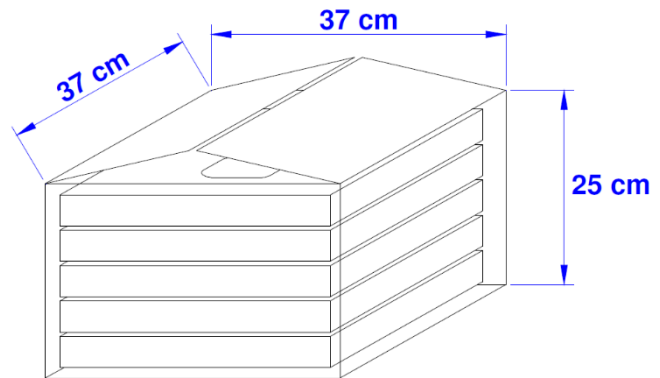
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (Referenced ANSI/EIA - 481 - D - 2008 of 4.11 standard).

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

● **BOX PACKAGE: cm**



7" Small Box



Large Box

SIZE/mm	Reels in Small Box	Small Box in Large Box
100505	5	8
160808	5	8



IMPORTANT NOTICE

AiT Semiconductor Inc. (AiT) reserves the right to make changes to any its product, specifications, to discontinue any integrated circuit product or service without notice, and advises its customers to obtain the latest version of relevant information to verify, before placing orders, that the information being relied on is current.

AiT Semiconductor Inc.'s integrated circuit products are not designed, intended, authorized, or warranted to be suitable for use in life support applications, devices or systems or other critical applications. Use of AiT products in such applications is understood to be fully at the risk of the customer. As used herein may involve potential risks of death, personal injury, or severe property, or environmental damage. In order to minimize risks associated with the customer's applications, the customer should provide adequate design and operating safeguards.

AiT Semiconductor Inc. assumes to no liability to customer product design or application support. AiT warrants the performance of its products of the specifications applicable at the time of sale.