•FEATURE

1. Small size Ferrite Bead generating high impedance
2. EMI Suppressor for Narrow Band (Sharp Curve)
3. Suitable for power line and signal line circuit
4. Low DC resistance structure
5. Operating Temperature -40 ~ +125℃
6. Compliant with AEC-Q200

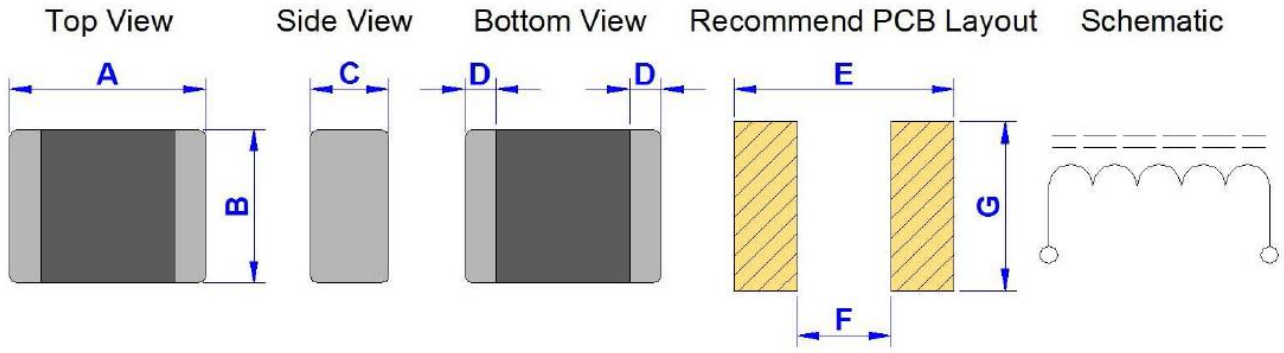
•APPLICATION

Mobil Device, Handheld Device, LowProfile Device, Panel.

•ORDERING INFORMATION

FBN	160808	U	-060	N	Q
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.
201209 (0805)	2.00±0.20	1.25±0.20	0.90±0.20	0.50±0.30	2.30 Ref.	1.30 Ref.	1.30 Ref.
321611 (1206)	3.20±0.20	1.60±0.20	1.10±0.20	0.70±0.30	4.40 Ref.	2.20 Ref.	2.06 Ref.

●ELECTRICAL CHARACTERISTICS

Part Number	Z - Value (Ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBN100505-060N	6	100	0.10	300
FBN100505-100N	10	100	0.20	200
FBN100505-400N	40	100	0.40	150
FBN100505-800N	80	100	0.60	100
FBN100505-121N	120	100	0.80	50

* N = Tolerance = ±25%

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

Part Number	Z - Value (Ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBN160808-060N	6	100	0.05	500
FBN160808-100N	10	100	0.07	400
FBN160808-300N	30	100	0.30	300
FBN160808-400N	40	100	0.30	300
FBN160808-470N	47	100	0.30	300
FBN160808-600N	60	100	0.30	300
FBN160808-750N	75	100	0.40	300
FBN160808-800N	80	100	0.40	300
FBN160808-101N	100	100	0.40	300
FBN160808-121N	120	100	0.40	300
FBN160808-131N	130	100	0.40	300
FBN160808-151N	150	100	0.40	300
FBN160808-221N	220	100	0.40	200
FBN160808-241N	240	100	0.40	200
FBN160808-301N	300	100	0.50	200
FBN160808-481N	480	100	0.60	150
FBN160808-601N	600	100	0.60	100
FBN160808-102N	1000	100	0.70	100
FBN160808-152N	1500	100	0.80	100
FBN160808-182N	1800	100	0.95	100
FBN160808-222N	2200	100	1.50	50

* N = Tolerance = ±25%

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

Part Number	Z - Value (Ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBN201209-060N	6	100	0.07	800
FBN201209-110N	11	100	0.10	700
FBN201209-260N	26	100	0.20	600
FBN201209-300N	30	100	0.20	600
FBN201209-320N	32	100	0.20	600
FBN201209-400N	40	100	0.30	500
FBN201209-600N	60	100	0.30	500
FBN201209-750N	75	100	0.30	500
FBN201209-900N	90	100	0.30	500
FBN201209-101N	100	100	0.40	400
FBN201209-121N	120	100	0.40	400
FBN201209-151N	150	100	0.40	400
FBN201209-171N	170	100	0.50	400
FBN201209-201N	200	100	0.50	300
FBN201209-221N	220	100	0.50	300
FBN201209-301N	300	100	0.50	300
FBN201209-401N	400	100	0.50	300
FBN201209-501N	500	100	0.50	200
FBN201209-601N	600	100	0.50	200
FBN201209-751N	750	100	0.60	100
FBN201209-102N	1000	100	0.60	100
FBN201209-122N	1200	100	0.70	100
FBN201209-152N	1500	100	0.70	100
FBN201209-222N	2200	100	0.75	100
FBN201209-272N	2700	100	0.85	100

* N = Tolerance = ±25%

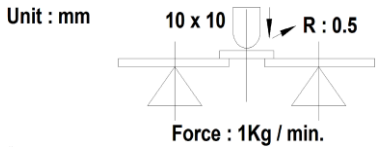
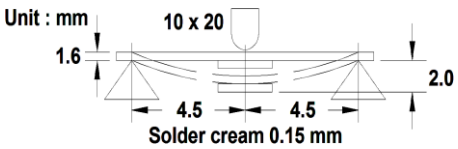
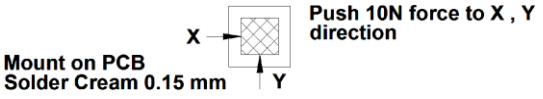
* Rated Current based on increasing product temperature: Current when temperature of the product reaches +40℃

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBN321611-190N	19	100	0.20	600
FBN321611-320N	32	100	0.20	600
FBN321611-600N	60	100	0.30	500
FBN321611-800N	80	100	0.30	500
FBN321611-900N	90	100	0.30	500
FBN321611-121N	120	100	0.40	400
FBN321611-151N	150	100	0.40	400
FBN321611-201N	200	100	0.50	300
FBN321611-221N	220	100	0.50	300
FBN321611-351N	350	100	0.60	300
FBN321611-401N	400	100	0.60	300
FBN321611-601N	600	100	0.80	300
FBN321611-122N	1200	100	1.00	200
FBN321611-152N	1500	100	1.20	150

* N = Tolerance = ±25%

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

●RELIABILITY

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

•TEST EQUIPMENT

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

•OPERATING & STORAGE CONDITION

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

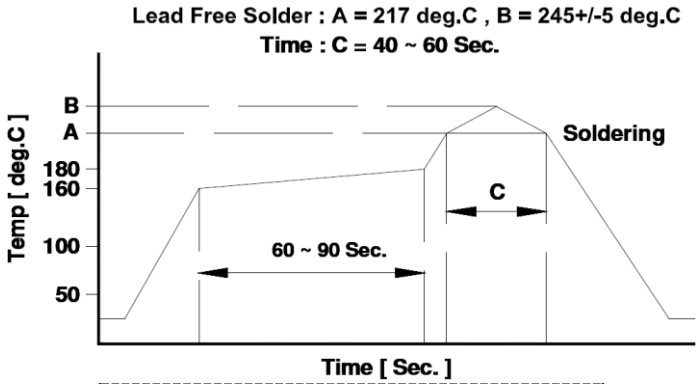
Standard Atmosphere Conditions:

Ambient Temperature 20 ± 15℃; 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℃; Humidity RH 75 ± 10%

•RECOMMEND REFLOW CURVE (TIME: Second)



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

•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℃ 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℃, Humidity 45 to 60% RH

(2) Use Temperature:
a. Minimum Temperature: -40℃ Ambient temperature of this product.
b. Maximum Temperature: +125℃ The value of temperature including ambient and temperature rise of this product.
c. Reliability test temperature range from -40 ~ +125℃
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.

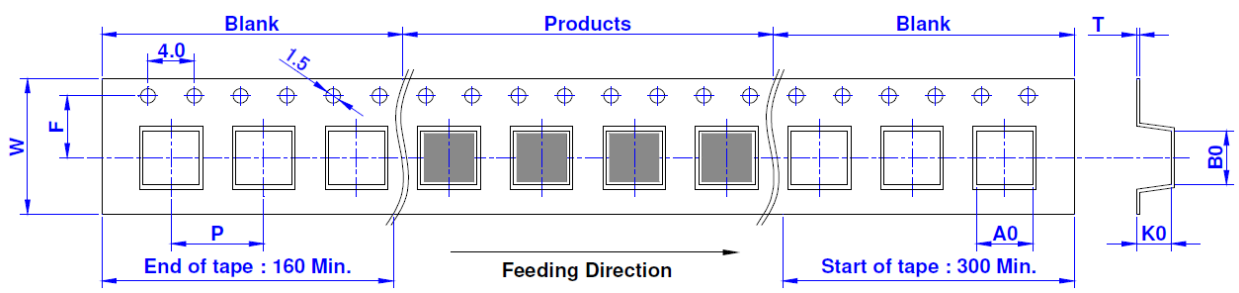
(3) Dielectric Strength:
Dielectric withstanding test with higher voltage than specific value will damage insulating material and shorten its life.

(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.

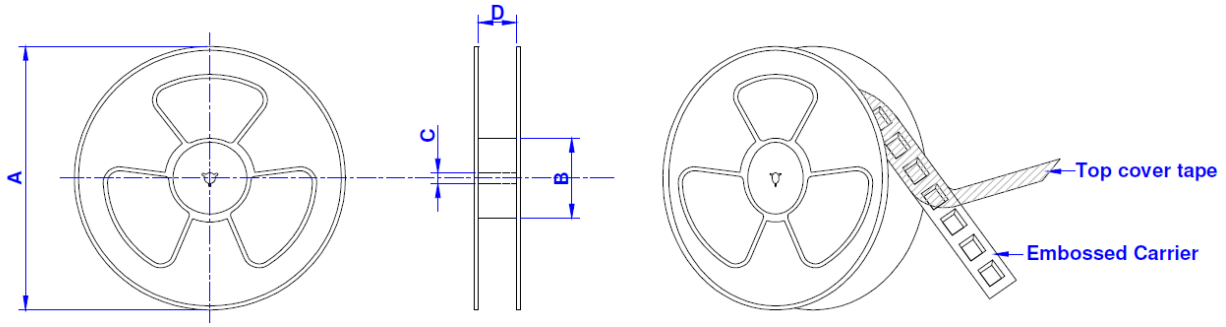
(6) Detergent:
Please consult AiT Semi immediately once under such circumstances because product reliability confirmation etc. is needed when this product come in contact with these chemicals.

•TAPE DIMENSION: mm



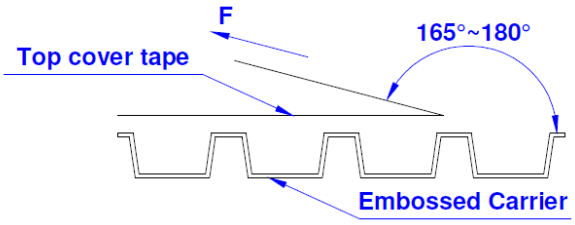
SIZE/mm	W	P	A0	B0	K0	T	F
100505	8.00±0.20	2.00 ±0.10	0.65±0.10	1.15 ±0.10	0.80 ±0.05	0.20 ±0.05	3.50 ±0.05
160808	8.00±0.20	4.00 ±0.10	1.10 ±0.10	1.90 ±0.10	1.10 ±0.05	0.20 ±0.05	3.50 ±0.05
201209	8.00±0.20	4.00 ±0.10	1.55 ±0.10	2.30 ±0.10	1.20 ±0.05	0.20 ±0.05	3.50 ±0.05
321611	8.00±0.20	4.00 ±0.10	1.90 ±0.10	3.50 ±0.10	1.40 ±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
201209	7" x 8 mm	178	60	13	8.5	4000 PCS
321611	7" x 8 mm	178	60	13	8.5	3000 PCS

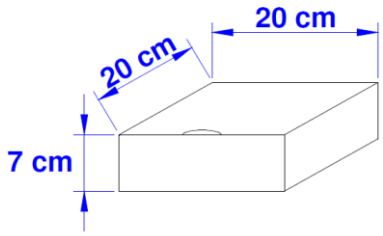
•TEARING OFF FORCE :



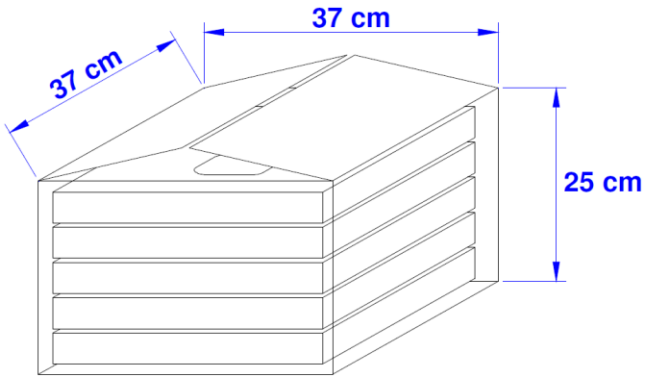
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11stadnard).

Room Temp. (℃)	Room Humidity (%)	Room Atm. (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
201209	5	8
321611	5	8

IMPORTANT NOTICE

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