



**●FEATURE**

1. Small size Ferrite Bead generating high impedance
2. EMI Suppressor for General Purpose (Normal Curve)
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



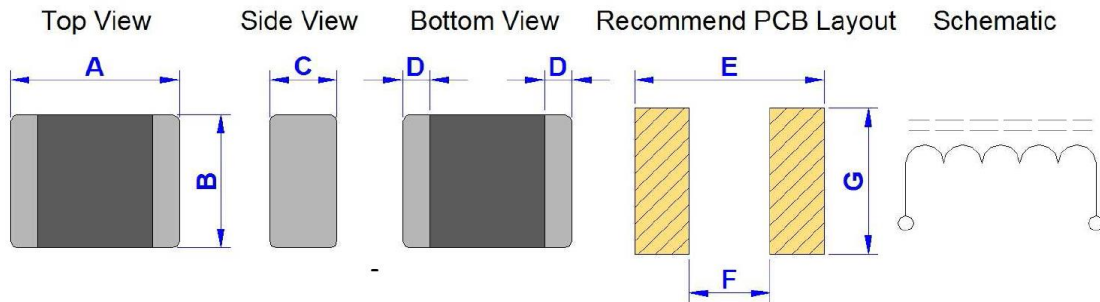
**●APPLICATION**

Smart Phones, Tablet Terminals, Note PCs, Various Modules Such as Camera Modules, DSCs, Video Games, Portable Memory Audio Devices, Navigation Systems, PNDs, WLANs, SSDs.

**●ORDERING INFORMATION**

<u>FBA</u>	<u>100505</u>	<u>U</u>	<u>-100</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
060303 (0201)	0.60±0.03	0.30±0.03	0.30±0.03	0.15±0.05	0.70 Ref.	0.30 Ref.	0.40 Ref.
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.
321616 (1206)	3.20±0.20	1.60±0.20	1.60±0.20	0.51±0.20	4.40 Ref.	2.20 Ref.	2.06 Ref.
322513 (1210)	3.20±0.20	2.50±0.20	1.30±0.20	0.80±0.20	4.06 Ref.	2.13 Ref.	2.74 Ref.
451616 (1806)	4.50±0.20	1.60±0.20	1.60±0.20	0.80±0.20	5.70 Ref.	2.70 Ref.	2.24 Ref.
453215 (1812)	4.50±0.20	3.20±0.20	1.50±0.20	0.80±0.20	5.90 Ref.	2.57 Ref.	4.22 Ref.



● **ELECTRICAL CHARACTERISTICS**

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA060303-121N	120	100	0.45	200
FBA060303-151N	150	100	0.50	200

\* N = Tolerance =  $\pm 25\%$

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

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA100505-060N	6	100	0.05	500
FBA100505-100N	10	100	0.05	500
FBA100505-300N	30	100	0.20	300
FBA100505-330N	33	100	0.20	300
FBA100505-400N	40	100	0.30	300
FBA100505-470N	47	100	0.20	500
FBA100505-600N	60	100	0.40	200
FBA100505-750N	75	100	0.40	300
FBA100505-800N	80	100	0.40	200
FBA100505-101N	100	100	0.45	200
FBA100505-121N	120	100	0.50	200
FBA100505-221N	220	100	0.50	200
FBA100505-241N	240	100	0.50	200
FBA100505-301N	300	100	0.75	100
FBA100505-481N	480	100	0.80	200
FBA100505-601N	600	100	1.00	200
FBA100505-102N	1000	100	1.50	100
FBA100505-152N	1500	100	2.00	60

\* N = Tolerance =  $\pm 25\%$

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



Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA160808-060N	6	100	0.05	500
FBA160808-100N	10	100	0.02	500
FBA160808-110N	11	100	0.05	500
FBA160808-190N	19	100	0.08	500
FBA160808-220N	22	100	0.10	400
FBA160808-250N	25	100	0.10	400
FBA160808-260N	26	100	0.10	400
FBA160808-300N	30	100	0.10	400
FBA160808-310N	31	100	0.10	400
FBA160808-400N	40	100	0.10	400
FBA160808-470N	47	100	0.10	300
FBA160808-500N	50	100	0.10	300
FBA160808-600N	60	100	0.10	300
FBA160808-700N	70	100	0.15	300
FBA160808-750N	75	100	0.15	300
FBA160808-800N	80	100	0.15	300
FBA160808-900N	90	100	0.20	300
FBA160808-101N	100	100	0.20	300
FBA160808-121N	120	100	0.25	300
FBA160808-151N	150	100	0.30	200
FBA160808-181N	180	100	0.30	200
FBA160808-201N	200	100	0.30	200
FBA160808-221N	220	100	0.30	200
FBA160808-241N	240	100	0.40	200
FBA160808-301N	300	100	0.40	200
FBA160808-331N	330	100	0.50	200
FBA160808-401N	400	100	0.30	400
FBA160808-451N	450	100	0.50	200
FBA160808-471N	470	100	0.50	200
FBA160808-501N	500	100	0.50	200
FBA160808-601N	600	100	0.50	200
FBA160808-751N	750	100	0.70	200
FBA160808-102N	1000	100	0.70	200
FBA160808-152N	1500	100	1.00	50
FBA160808-222N	2200	100	1.20	50
FBA160808-252N	2500	100	1.30	50

\* N = Tolerance =  $\pm 25\%$

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



Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA201209-070N	7	100	0.10	600
FBA201209-090N	9	100	0.10	600
FBA201209-110N	11	100	0.10	600
FBA201209-170N	17	100	0.10	600
FBA201209-190N	19	100	0.10	600
FBA201209-220N	22	100	0.10	600
FBA201209-260N	26	100	0.10	600
FBA201209-300N	30	100	0.10	600
FBA201209-310N	31	100	0.10	600
FBA201209-320N	32	100	0.10	300
FBA201209-400N	40	100	0.10	500
FBA201209-470N	47	100	0.10	500
FBA201209-500N	50	100	0.10	500
FBA201209-600N	60	100	0.15	500
FBA201209-700N	70	100	0.15	500
FBA201209-800N	80	100	0.15	500
FBA201209-900N	90	100	0.15	500
FBA201209-101N	100	100	0.25	300
FBA201209-121N	120	100	0.25	300
FBA201209-151N	150	100	0.25	300
FBA201209-201N	200	100	0.30	300
FBA201209-221N	220	100	0.30	300
FBA201209-301N	300	100	0.30	300
FBA201209-331N	330	100	0.30	300
FBA201209-401N	400	100	0.30	300
FBA201209-451N	450	100	0.40	300
FBA201209-471N	470	100	0.40	300
FBA201209-501N	500	100	0.40	300
FBA201209-601N	600	100	0.40	300
FBA201209-751N	750	100	0.50	200
FBA201209-102N	1000	100	0.50	200
FBA201209-122N	1200	100	0.60	200
FBA201209-152N	1500	100	0.60	200
FBA201209-202N	2000	100	0.60	200
FBA201209-222N	2200	100	0.60	200
FBA201209-252N	2500	100	0.70	200
FBA201209-272N	2700	100	0.70	200

\* N = Tolerance =  $\pm 25\%$

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



Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA321611-110N	11	100	0.05	600
FBA321611-190N	19	100	0.05	600
FBA321611-260N	26	100	0.05	600
FBA321611-300N	30	100	0.05	600
FBA321611-310N	31	100	0.05	600
FBA321611-320N	32	100	0.05	600
FBA321611-470N	47	100	0.10	500
FBA321611-500N	50	100	0.10	500
FBA321611-600N	60	100	0.10	500
FBA321611-700N	70	100	0.10	500
FBA321611-800N	80	100	0.15	500
FBA321611-900N	90	100	0.15	500
FBA321611-101N	100	100	0.15	500
FBA321611-121N	120	100	0.15	500
FBA321611-151N	150	100	0.15	500
FBA321611-201N	200	100	0.20	400
FBA321611-221N	220	100	0.20	400
FBA321611-301N	300	100	0.20	400
FBA321611-401N	400	100	0.20	400
FBA321611-471N	470	100	0.20	400
FBA321611-501N	500	100	0.20	400
FBA321611-601N	600	100	0.30	400
FBA321611-102N	1000	50	0.40	200
FBA321611-122N	1200	50	0.40	200
FBA321611-152N	1500	50	0.45	200
FBA321611-202N	2000	30	0.60	200
FBA321611-272N	2700	30	0.60	200

\* N = Tolerance =  $\pm 25\%$

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

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA321616-250N	25	100	0.10	500
FBA321616-600N	60	100	0.20	500
FBA321616-700N	70	100	0.20	500

\* N = Tolerance =  $\pm 25\%$

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



Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA322513-320N	32	100	0.20	500
FBA322513-600N	60	100	0.20	500
FBA322513-900N	90	100	0.20	500

\* N = Tolerance =  $\pm 25\%$

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

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA451616-500N	50	100	0.20	600
FBA451616-600N	60	100	0.20	600
FBA451616-800N	80	100	0.20	600
FBA451616-101N	100	100	0.30	500
FBA451616-151N	150	100	0.30	500
FBA451616-171N	170	100	0.30	500

\* N = Tolerance =  $\pm 25\%$

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

Part Number	Z - Value (ohm)	Test Freq. (MHz) / 0.5V	DCR (ohm) (Max.)	Rated Current (mA) (Max.)
FBA453215-700N	70	100	0.30	500
FBA453215-121N	120	100	0.30	500

\* N = Tolerance =  $\pm 25\%$

\* 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)

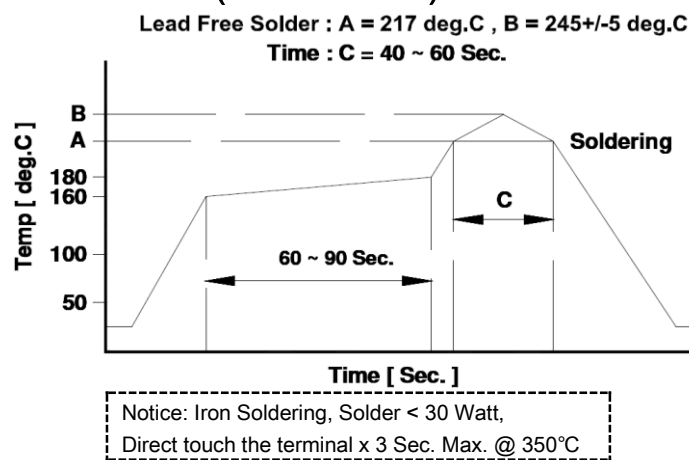
Standard Atmosphere Conditions:

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:

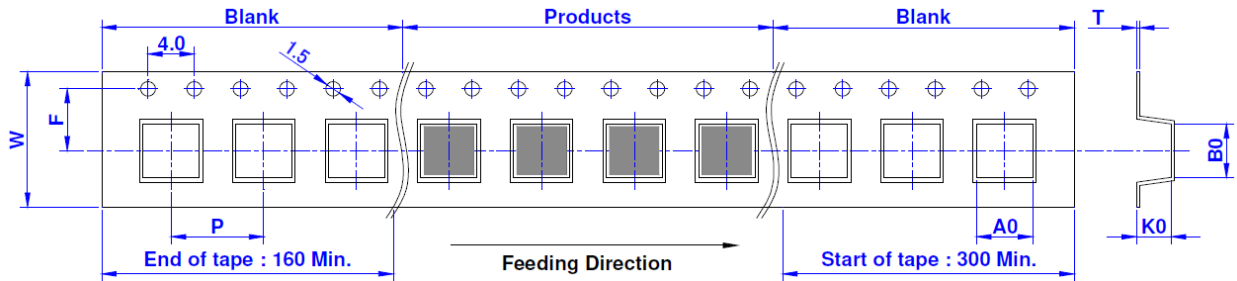
- (1) Storage Condition:  
Temperature 25 to 35°C, Humidity 45 to 60% RH
- (2) Use Temperature:
  - a. Minimum Temperature: -40°C Ambient temperature of this product.
  - b. Maximum Temperature: +125°C The value of temperature including ambient and temperature rise of this product.
  - c. Reliability 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.

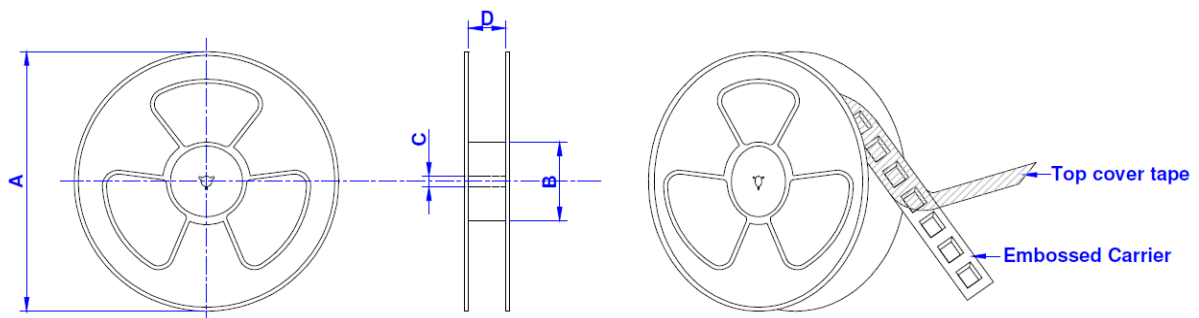


●TAPE DIMENSION: mm



SIZE/mm	W	P	A0	B0	K0	T	F
060303	8.00±0.20	4.00±0.10	0.38±0.04	0.68±0.04	N/A	1.1 max.	3.50±0.05
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
321616	8.00±0.20	4.00±0.10	1.90±0.10	3.50±0.10	2.05±0.05	0.20±0.05	3.50±0.05
322513	8.00±0.20	4.00±0.10	2.90±0.10	3.60±0.10	1.70±0.05	0.25±0.05	3.50±0.05
451616	12.0±0.20	8.00±0.10	2.90±0.10	4.90±0.10	2.05±0.05	0.30±0.05	5.50±0.05
453215	12.0±0.20	8.00±0.10	3.60±0.10	4.90±0.10	2.05±0.05	0.30±0.05	5.50±0.05

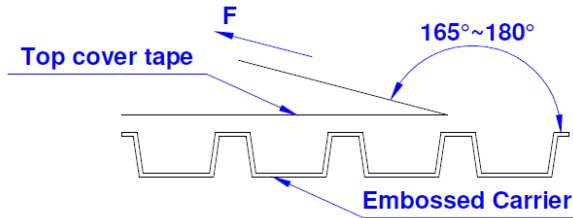
●REEL DIMENSION: mm



SIZE/mm	Reel Size	A	B	C	D	QTY / Reel
060303	7" x 8 mm	178	60	13	8.5	15000 PCS
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
321616	7" x 8 mm	178	60	13	8.5	2000 PCS
322513	7" x 8 mm	178	60	13	8.5	2000 PCS
451616	7" x 12 mm	178	60	13	12.5	2000 PCS
453215	7" x 12 mm	178	60	13	12.5	1000 PCS



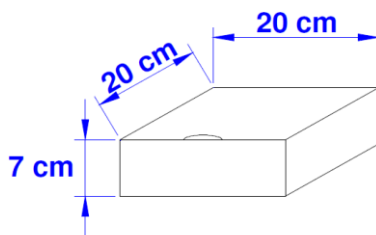
●TEARING OFF FORCE :



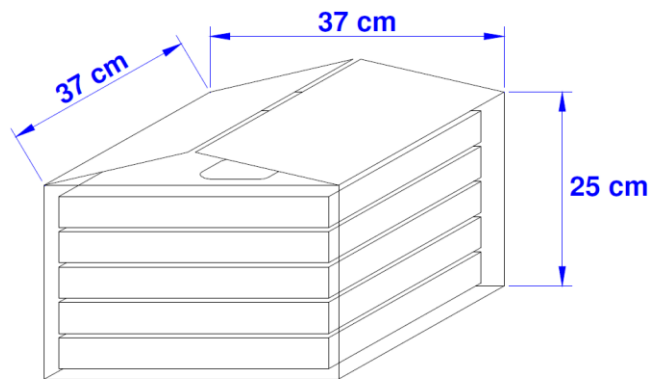
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI/EIA - 481 - D - 2008 of 4.11 standard).

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
060303	5	8
100505	5	8
160808	5	8
201209	5	8
321611	5	8
321616	5	8
322513	5	8
451616	4	8
453215	4	8



## **IMPORTANT NOTICE**

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