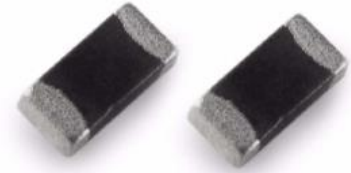




●FEATURE

1. Monolithic Structure for High Reliability
2. Unified Dimensions are perfect for automatic mounting
3. Bead inductor for power energy storage or noise suppressor.
4. Closed Magnetic Circuit avoids cross talk and suitable for high density PCB boards.
5. Suitable for power line & signal line circuit
6. High Current Type
7. Operating Temperature: -40 ~ +125 °C
8. Compliant with AEC-Q200



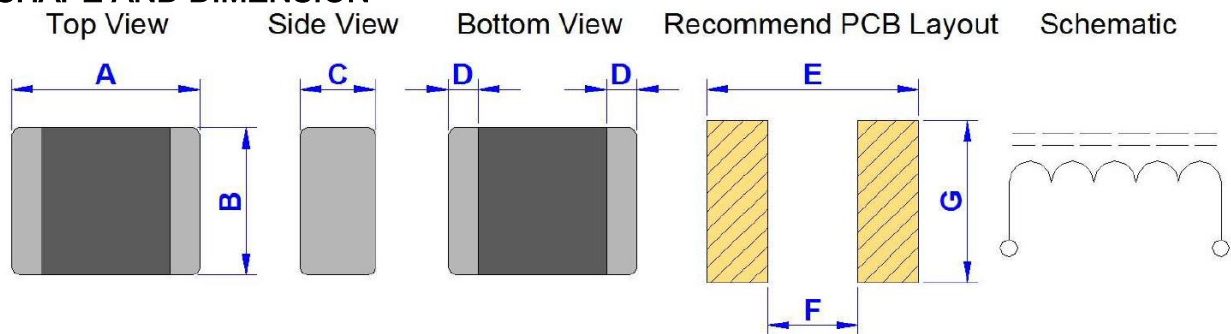
●APPLICATION

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>WCB</u>	<u>160808</u>	<u>U</u>	<u>-4R7</u>	<u>T</u>	<u>Q</u>
Series	Dimension (L*W*H)	Material code (A, L, Y)	Impedance (Ω)	Tolerance M=±20%	AEC-Q

●SHAPE AND DIMENSION



●SPECIFICATION

Unit: mm (inch)

TYPE	A	B	C	D	E	F	G
160808(0603)	1.60±0.20	0.80±0.20	0.80±0.20	0.30±0.20	2.00 ref.	0.90 ref.	1.00 ref.
201206(0805)	2.00±0.20	1.25±0.20	0.60 max.	0.50±0.20	2.40 ref.	0.80 ref.	1.45 ref.
201209(0805)	2.00±0.20	1.25±0.20	0.90±0.10	0.50±0.20	2.40 ref.	0.80 ref.	1.45 ref.
201609(0806)	2.00±0.15	1.60±0.15	0.90±0.10	0.50±0.20	2.40 ref.	0.80 ref.	1.80 ref.
252010(1008)	2.50±0.20	2.00±0.20	0.90±0.10	0.60±0.20	2.40 ref.	1.10 ref.	2.20 ref.



●ELECTRICAL CHARACTERISTICS

Part Number	Inductance (uH)	SRF (Mhz) (Min.)	DCR (Ω)	Rated current (mA) (Max.)
WCB160808-R22M	0.22	150	0.8 Max.	50
WCB160808-4R7M	4.7	35	2.10 Max.	110
WCB160808-100M	10.00	17	1.85 Max.	60
WCB160808A-1R0M	1.00	-	0.12 Max.	1500
WCB160808A-2R2M	2.20	-	0.20 Max.	1000
WCB160808A-4R7M	4.70	-	0.25 Max.	800
WCB160808Y-2R2M	2.20	-	0.30 Max.	650

* M=Tolerance Code = ±20%

* Inductance test freq.: @ 1MHz / 250mV

* The maximum rated current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

* Regarding to the inductance variability of rated current, please refer to Inductance vs. DC superposition characteristics.

Part Number	Inductance (uH)	SRF (Mhz) (Min.)	DCR (Ω)	Rated current (mA) (Max.)
WCB201206-4R7M	4.70	-	0.55 ± 30%	300

* M=Tolerance Code = ±20%

* Inductance test freq.: @ 1MHz / 250mV

* The maximum rated current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

* Regarding to the inductance variability of rated current, please refer to Inductance vs. DC superposition characteristics.



Part Number	Inductance (uH)	SRF (Mhz) (Min.)	DCR (Ω)	Rated current (mA) (Max.)
WCB201209-R47M	0.47	100	0.10 ± 25%	1100
WCB201209-1R0M	1.00	90	0.16 ± 25%	800
WCB201209-1R5M	1.50	70	0.22 ± 25%	700
WCB201209-2R2M	2.20	50	0.25 ± 25%	600
WCB201209-3R3M	3.30	40	0.22 ± 25%	500
WCB201209-4R7M	4.70	30	0.30 ± 25%	400
WCB201209A-1R0M	1.00	-	0.06 Max.	2200
WCB201209A-2R2M	2.20	-	0.10 Max.	2000
WCB201209A-3R3M	3.30	-	0.12 Max.	1500
WCB201209A-4R7M	4.70	-	0.30 Max.	900
WCB201209L-1R0M	1.00	90	0.11 ± 20%	1200
WCB201209L-2R2M	2.20	50	0.25 ± 25%	800
WCB201209L-3R3M	3.30	40	0.19 ± 25%	900
WCB201209L-4R7M	4.70	30	0.25 ± 25%	800

* M=Tolerance Code = ±20%

* Inductance test freq.: @ 1MHz / 250mV

* The maximum rated current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

* Regarding to the inductance variability of rated current, please refer to Inductance vs. DC superposition characteristics.



Part Number	Inductance (uH)	SRF (Mhz) (Min.)	DCR (Ω)	Rated current (mA) (Max.)
WCB201609-R68M	0.68	90	0.15 ± 30%	1500
WCB201609-R82M	0.82	80	0.16 ± 30%	1500
WCB201609-1R0M	1.00	60	0.077 ~ 0.143	1700
WCB201609-1R2M	1.20	60	0.077 ~ 0.143	1700
WCB201609-1R5M	1.50	50	0.098 ~ 0.182	1500
WCB201609-1R8M	1.80	50	0.098 ~ 0.182	1500
WCB201609-2R2M	2.20	40	0.126 ~ 0.234	1300
WCB201609-2R7M	2.70	40	0.126 ~ 0.234	1300
WCB201609-3R3M	3.30	30	0.161 ~ 0.299	1100
WCB201609-3R9M	3.90	30	0.161 ~ 0.299	1100
WCB201609-4R7M	4.70	30	0.161 ~ 0.299	900

* M=Tolerance Code = ±20%

* Inductance test freq.: @ 1MHz / 250mV

* The maximum rated current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

* Regarding to the inductance variability of rated current, please refer to Inductance vs. DC superposition characteristics.

Part Number	Inductance (uH)	SRF (Mhz) (Min.)	DCR (Ω)	Rated current (mA) (Max.)
WCB252010-R47M	0.47	100	0.07 ± 25%	1800
WCB252010-1R0M	1.00	60	0.11 ± 25%	1600
WCB252010-1R5M	1.50	50	0.13 ± 25%	1500
WCB252010-2R2M	2.20	40	0.16 ± 25%	1300
WCB252010-3R3M	3.30	30	0.17 ± 25%	1200
WCB252010-4R7M	4.70	25	0.20 ± 25%	1100

* M=Tolerance Code = ±20%

* Inductance test freq.: @ 1MHz / 250mV

* The maximum rated current: The DC current value having temperature increased 40°C after thru DC current 2 hours at ambient temperature.

* Regarding to the inductance variability of rated current, please refer to Inductance vs. DC superposition characteristics.



●**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: 6 Month (Less than 40°C and 60% RH)

Standard Atmosphere Conditions:

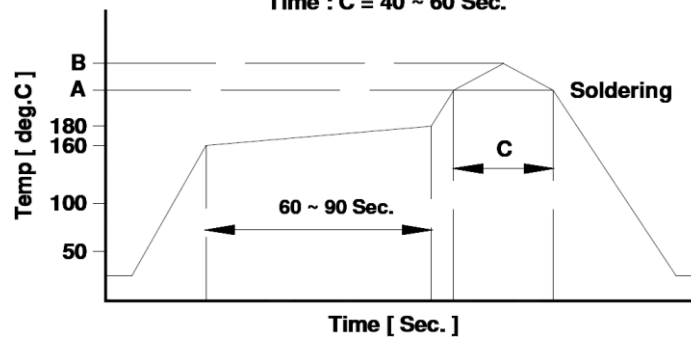
Ambient Temperature 20 ± 15°C; Humidity RH 65 ± 20%

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 IR REFLOW CURVE (TIME: Second)**

Lead Free Solder : A = 217 deg.C , B = 245+/-5 deg.C
Time : C = 40 ~ 60 Sec.



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

● **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:

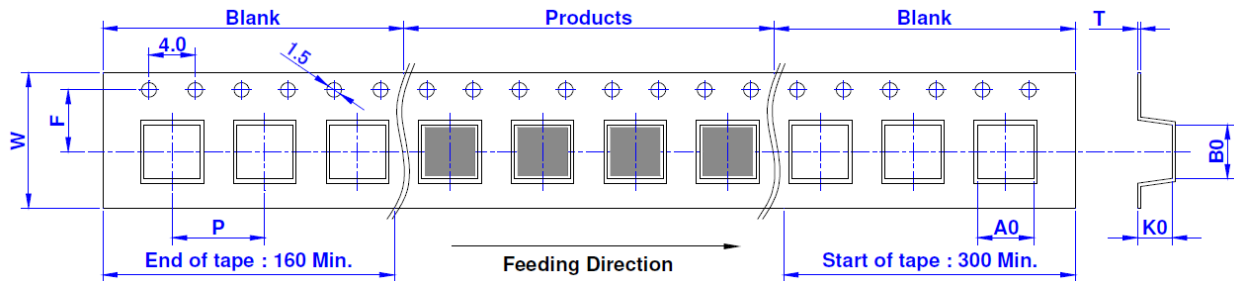
- (1) Storage Condition:
Temperature 25 to 35°C, Humidity 45 to 60% RH
- (2) Use Temperature:
 - a. Minimum Temperature: -40°C Ambient temperature of this product.
 - b. Maximum Temperature: +125°C The value of temperature including ambient and temperature rise of this product.
 - c. Reliability test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

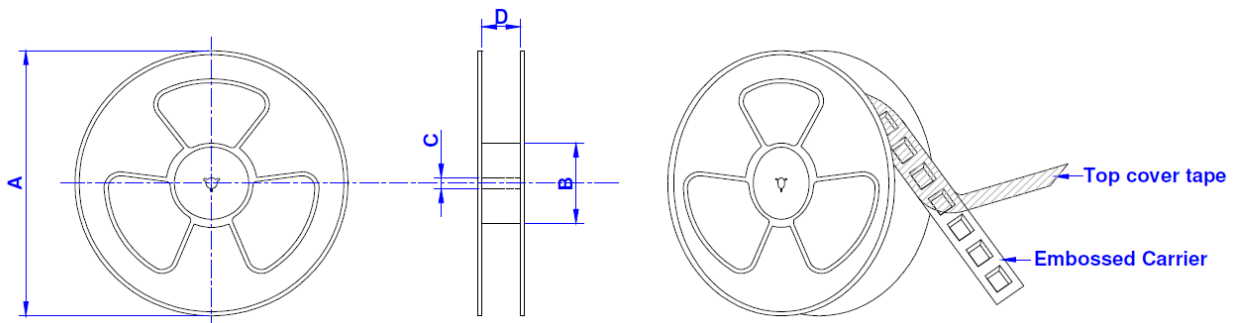


●TAPE DIMENSION: mm



SIZE/mm	W	P	A0	B0	K0	T	F
160808	8.00	4.00	1.10	1.90	0.95	0.23	3.50
201206	8.00	4.00	1.53	2.40	1.23	0.23	3.50
201209	8.00	4.00	1.53	2.40	1.23	0.23	3.50
201609	8.00	4.00	1.88	2.40	1.23	0.23	3.50
252010	8.00	4.00	2.20	2.85	1.40	0.23	3.50

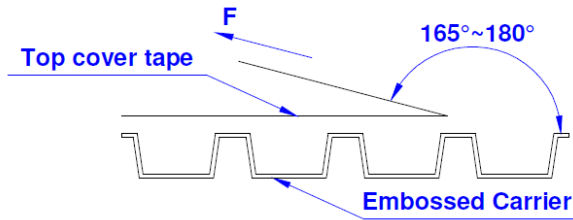
●REEL DIMENSION: mm



SIZE / mm	REEL SIZE	A	B	C	D	QTY/REEL
160808	7" x 8mm	178	60	13	8.5	4000 PCS
201206	7" x 8mm	178	60	13	8.5	4000 PCS
201209	7" x 8mm	178	60	13	8.5	4000 PCS
201609	7" x 8mm	178	60	13	8.5	3000 PCS
252010	7" x 8mm	178	60	13	8.5	3000 PCS



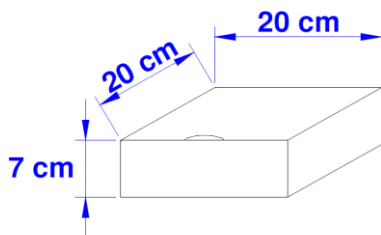
●TEARING OFF FORCE



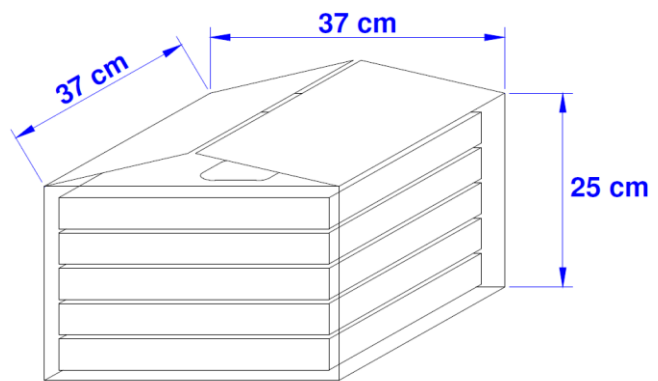
The force for tearing off cover tape is 10 to 130 grams in the arrow direction under the following conditions (referenced ANSI /EIA - 481 - D - 2008 of 4.11 standard).

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
160808	5	8
201206	5	8
201209	5	8
201609	5	8
252010	5	8



IMPORTANT NOTICE

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