

APPROVAL SHEET

WLBD1608HC **High Current Chip Bead**

*Contents in this sheet are subject to change without prior notice.

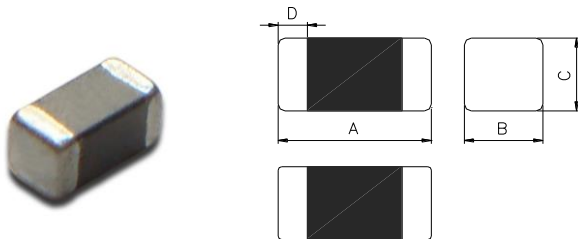
FEATURES

1. Closed magnetic circuit.
2. High current

APPLICATIONS

1. Noise reduction for general signal and DC line for General electronic circuits. Ex:PCs、Networking and Consumer electronics.

SHAPE and DIMENSION



Chip Size	
A	1.60±0.15
B	0.80±0.15
C	0.80±0.15
D	0.30±0.20

Units: mm

Ordering Information

WL	BD	1608	HC	U	300	T	B
Product Code	Series	Dimensions	Series extension	Tolerance	Value	Packing Code	
WL: Inductor	BD: Chip Bead.	1.6 * 0.8 mm 1608 :EIA 0603	HC: High Current. Refer to characteristic	U: ±25%	300 =30 OHM 301 =300 OHM	T = 7" Paper Tape	B:STD

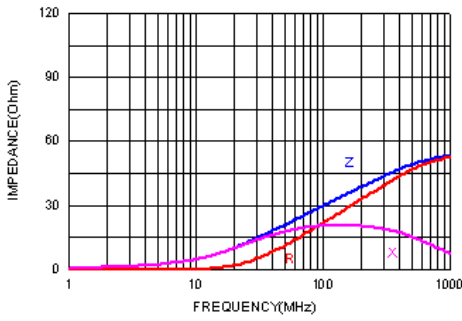
Electrical Characteristics

● WLBD1608HC series

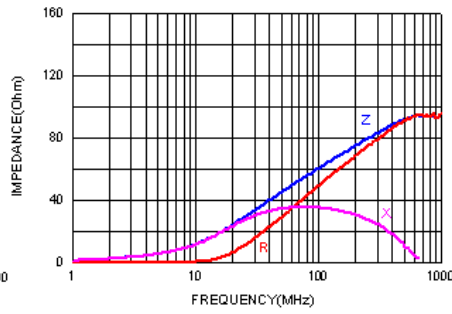
Walsin Part Number	Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD1608HCU300TB	30 \pm 25%	100	0.04	3000
WLBD1608HCU600TB	60 \pm 25%	100	0.04	3000
WLBD1608HCU800TB	80 \pm 25%	100	0.04	3000
WLBD1608HCU101TB	100 \pm 25%	100	0.04	3000
WLBD1608HCU121TB	120 \pm 25%	100	0.10	2000
WLBD1608HCU151TB	150 \pm 25%	100	0.10	2000
WLBD1608HCU221TB	220 \pm 25%	100	0.10	2000
WLBD1608HCU301TB	300 \pm 25%	100	0.20	1000
WLBD1608HCU471TB	470 \pm 25%	100	0.20	1000
WLBD1608HCU601TB	600 \pm 25%	100	0.20	1000

Characteristic Curve

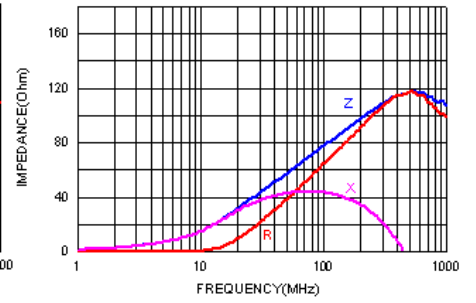
WLBD1608HCU300TB



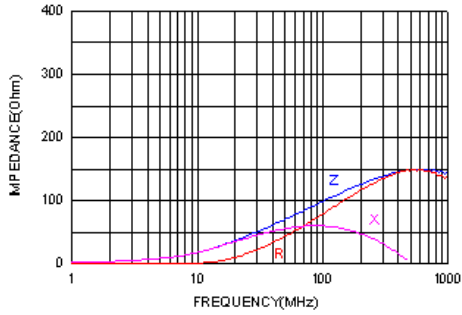
WLBD1608HCU600TB



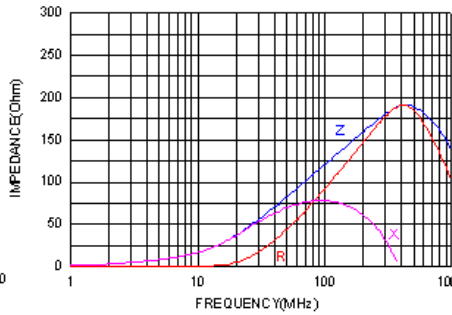
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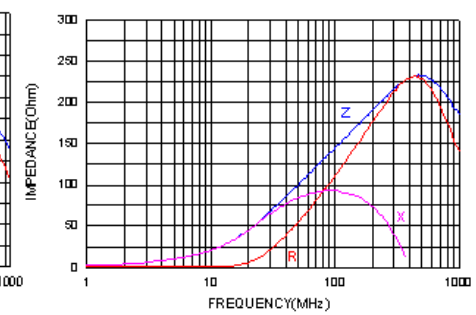
WLBD1608HCU101TB



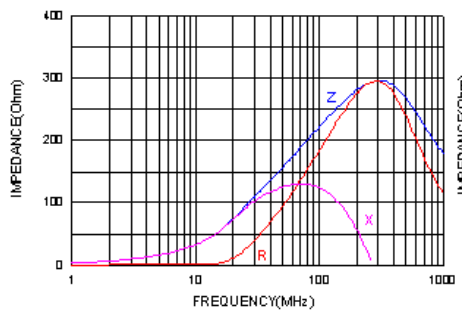
WLBD1608HCU121TB



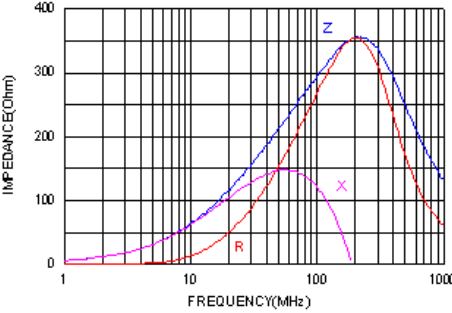
WLBD1608HCU151TB



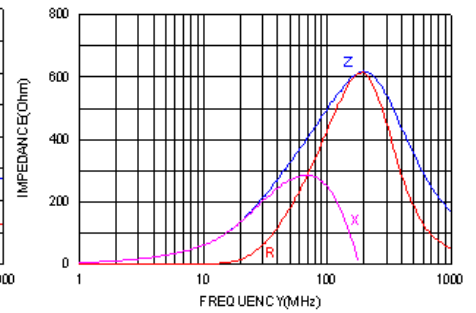
WLBD1608HCU221TB



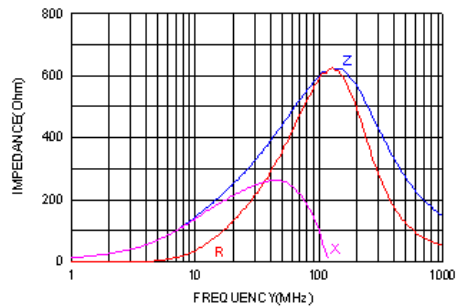
WLBD1608HCU301TB



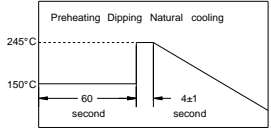
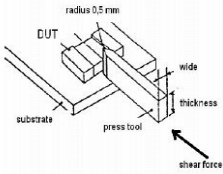
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WLBD1608HCU601TB



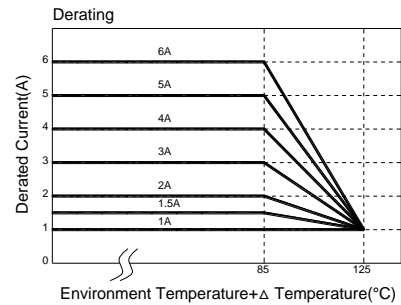
Test condition & Requirements

Item	Performance	Test Condition															
Operating Temperature	-40~+125°C (Including self-temperature rise)	--															
Transportation Storage Temperature	-40~+125°C (on board)	For long storage conditions, please see the Application Notice															
Impedance (Z)	Refer to standard electrical characteristics list	Agilent4291															
Inductance (Ls)		Agilent E4991															
Q Factor		Agilent4287															
DC Resistance		Agilent16192															
Rated Current		Agilent 4338															
Temperature Rise Test	Rated Current < 1A ΔT 20°C Max Rated Current ≥ 1A ΔT 40°C Max	1. Applied the allowed DC current. 2. Temperature measured by digital surface thermometer.															
Resistance to Soldering Heat	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Number of heat cycles: 1 <table border="1"><thead><tr><th>Temperature (°C)</th><th>Time (s)</th><th>Temperature ramp/immersion and emersion rate</th></tr></thead><tbody><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td></tr></tbody></table> Depth: completely cover the termination	Temperature (°C)	Time (s)	Temperature ramp/immersion and emersion rate	260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s									
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260 ±5 (solder temp)	10 ±1	25mm/s ±6 mm/s															
Solderability	More than 95% of the terminal electrode should be covered with solder. 	Preheat: 150°C, 60sec. Solder: Sn96.5%-Ag3%-Cu0.5% Solder temperature: 245±5°C Flux for lead free: Rosin, 9.5% Depth: completely cover the termination. Dip time: 4±1sec.															
Terminal strength	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value 	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Component mounted on a PCB apply a force (>0805:1kg <=0805:0.5kg)to the side of a device being tested. This force shall be applied for 60 +1 seconds. Also the force shall be applied gradually as not to shock the component being tested.															
Bending	Appearance : No damage. Impedance : within±10% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Shall be mounted on a FR4 substrate of the following dimensions:>=0805:40x100x1.2mm <0805:40x100x0.8mm Bending depth:>=0805:1.2mm <0805:0.8mm Duration of 10 sec for a min.															
Vibration Test	Appearance : No damage. Impedance : within±15% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Oscillation Frequency: 10~2K~10Hz for 20 minutes Equipment : Vibration checker Total Amplitude:1.52mm±10% Testing Time : 12 hours(20 minutes, 12 cycles each of 3 orientations) °															
Shock	Appearance : No damage. Impedance : within±10% of initial value Inductance : within±10% of initial value Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Test condition: <table border="1"><thead><tr><th>Type</th><th>Peak Value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vj)ft/sec</th></tr></thead><tbody><tr><td>SMD</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr><tr><td>Lead</td><td>50</td><td>11</td><td>Half-sine</td><td>11.3</td></tr></tbody></table>	Type	Peak Value (g's)	Normal duration (D) (ms)	Wave form	Velocity change (Vj)ft/sec	SMD	50	11	Half-sine	11.3	Lead	50	11	Half-sine	11.3
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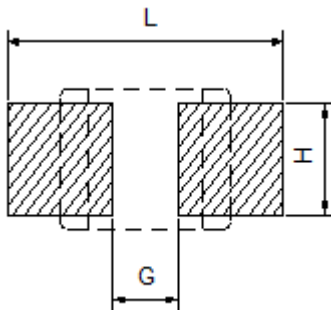
Item	Performance	Test Condition
Life test	Appearance: no damage. Impedance: within±15%of initial value.	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature: 125±2°C (bead), 105±2°C (Inductor) Applied current: rated current. Duration: 1000±12hrs. Measured at room temperature after placing for 24±2 hrs.
Load Humidity	Inductance: within±10%of initial value. Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Humidity: 85±2%R.H. Temperature: 85±2°C. Duration: 1000hrs Min. with 100% rated current. Measured at room temperature after placing for 24±2 hrs.
Thermal shock	Appearance: no damage. Impedance: within±15%of initial value. Inductance: within±10%of initial value. Q : Shall not exceed the specification value. RDC : within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Condition for 1 cycle Step1: -40±2°C 30±5 min. Step2: 25±2°C ≤0.5min Step3: +125±2°C 30±5min. (Bead) Step3: +105±2°C 30±5min. (Inductor) Number of cycles: 500 Measured at room temperature after placing for 24±2 hrs.

****Derating Curve**

For the ferrite chip bead which withstanding current over 1.5A, as the operating temperature over 85°C, the derating current information is necessary to consider with. For the detail derating of current, please refer to the Derated Current vs. Operating Temperature curve.



Soldering and Mounting



	L (mm)	G (mm)	H (mm)
WLBD1608HC	2.6	0.6	0.8

Soldering

Mildly activated rosin fluxes are preferred. The terminations are suitable for re-flow soldering systems. If hand soldering cannot be avoided, the preferred technique is the utilization of hot air soldering tools.

Note. If wave soldering is used, there will be some risk.
Re-flow soldering temperatures below 240 degrees, there will be non-wetting risk

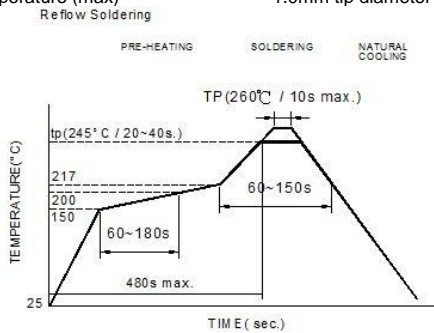
Lead Free Solder re-flow

Recommended temperature profiles for lead free re-flow soldering in Figure 1. (Referred to J-STD-020C)

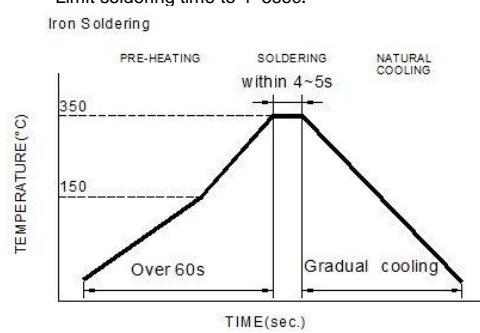
Soldering Iron:

Products attachment with a soldering iron is discouraged due to the inherent process control limitations. If a soldering iron must be employed the following precautions are recommended. for Iron Soldering in Figure 2.

- Preheat circuit and products to 150°C
- 350°C tip temperature (max)
- Never contact the ceramic with the iron tip
- 1.0mm tip diameter (max)
- Use a 20 watt soldering iron with tip diameter of 1.0mm
- Limit soldering time to 4-5sec.



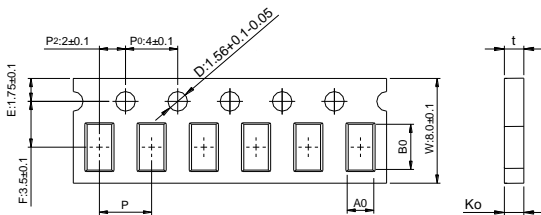
Reflow times: 3 times max.
Fig.1



Iron Soldering times : 1 times max.
Fig.2

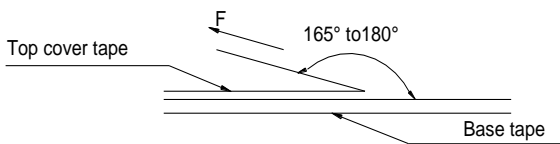
Packaging Specification

Material of taping is paper



Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
WLBD1608HC	1.80±0.05	0.96+0.05/-0.03	0.95±0.05	4.0±0.10	0.95±0.05

Tearing Off Force



The force for tearing off cover tape is 15 to 60 grams in the arrow direction under the following conditions

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

Products meet IPC/JEDEC J-STD-020D standard-MSL, level 1.

Quantity per reel : 4K pcs / reel



Макро Групп – это:

- дистрибьютор электронных компонентов с 1994 года
- контрактный производитель электроники с 2007 года с собственным производством в Санкт-Петербурге (компания Макро EMC, входит в ГК Макро Групп)
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