APPROVAL SHEET

WLBD2012HC
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.

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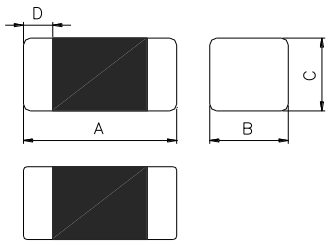
SHAPE and DIMENSION



Chip Size	
A	2.00±0.20
B	1.25±0.20
C	0.85±0.20
D	0.50±0.30

Units: mm

Ordering Information

WL	BD	2012	HC	U	300	T	B
Product Code WL: Inductor	**Series** BD :Chip Bead.	**Dimensions** 2.0 * 1.2 mm 2012 :EIA 0805	**Series extension** HC: High Current. Refer to characteristic	**Tolerance** U: ±25%	**Value** 300 =30 OHM 301 =300 OHM	**Packing Code** T = 7" Paper Tape	B:STD

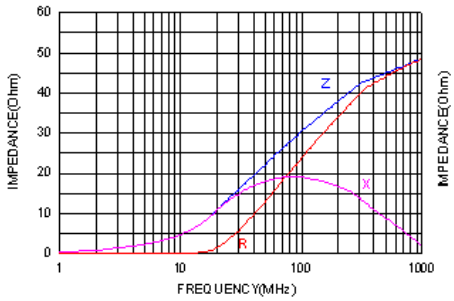
Electrical Characteristics

● WLBD2012HC series

Walsin Part Number	Impedance (Ω)	Test Frequency (MHz)	DC Resistance (Ω) max.	Rated Current (mA) max.
WLBD2012HCU300TB	30±25%	100	0.04	3000
WLBD2012HCU600TB	60±25%	100	0.04	3000
WLBD2012HCU700TB	70±25%	100	0.04	3000
WLBD2012HCU800TB	80±25%	100	0.04	3000
WLBD2012HCU121TB	120±25%	100	0.10	2000
WLBD2012HCU151TB	150±25%	100	0.10	2000
WLBD2012HCU221TB	220±25%	100	0.10	2000
WLBD2012HCU301TB	300±25%	100	0.20	1000
WLBD2012HCU471TB	470±25%	100	0.20	1000
WLBD2012HCU601TB	600±25%	100	0.20	1000

Characteristic Curve

WLBD2012HCU300TB



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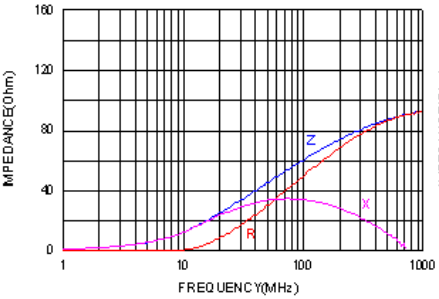

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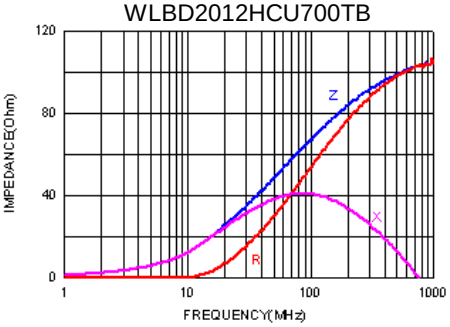

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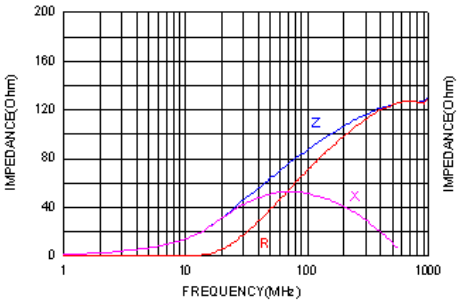

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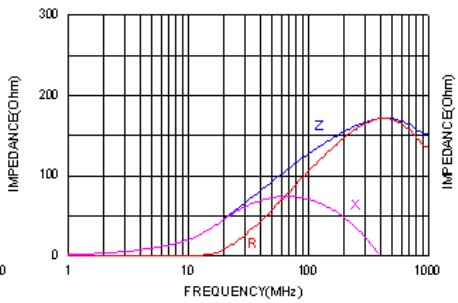

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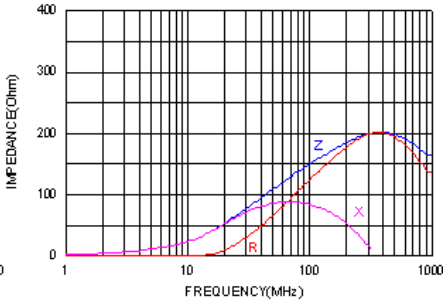

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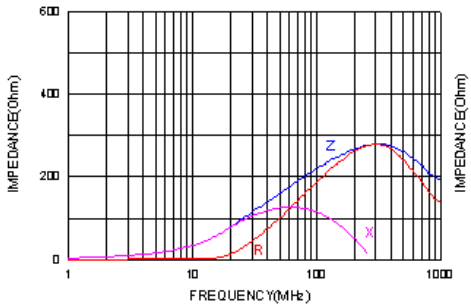

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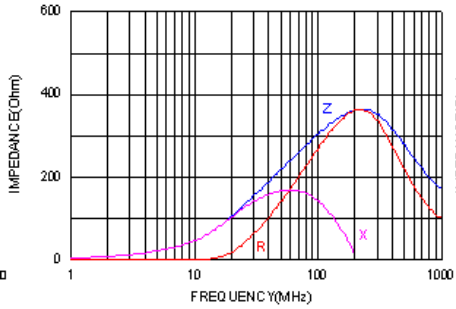

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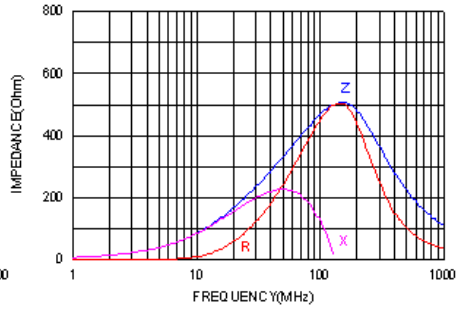

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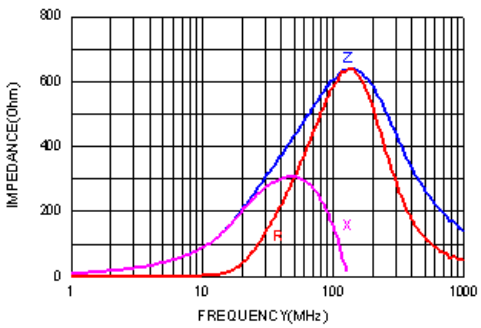
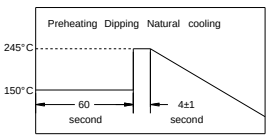
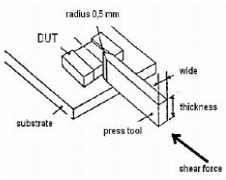


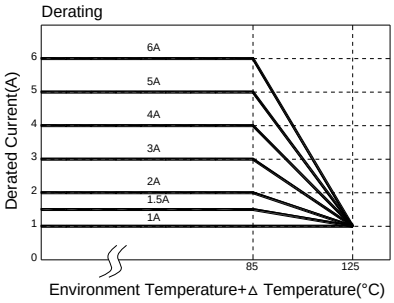
Test condition & Requirements

<table>
<tr><th>Item</th><th>Performance</th><th>Test Condition</th></tr>
<tr><td>Operating Temperature</td><td>-40~+125℃
(Including self-temperature rise)</td><td>--</td></tr>
<tr><td>Transportation
Storage Temperature</td><td>-40~+125℃
(on board)</td><td>For long storage conditions, please see the Application Notice</td></tr>
<tr><td>Impedance (Z)</td><td rowspan="5">Refer to standard electrical characteristics list</td><td>Agilent4291</td></tr>
<tr><td>Inductance (Ls)</td><td>Agilent E4991</td></tr>
<tr><td>Q Factor</td><td>Agilent4287</td></tr>
<tr><td>DC Resistance</td><td>Agilent16192
Agilent 4338</td></tr>
<tr><td>Rated Current</td><td>DC Power Supply
Over Rated Current requirements, there will be some risk</td></tr>
<tr><td>Temperature Rise Test</td><td>Rated Current < 1A ΔT 20℃Max
Rated Current ≧ 1A ΔT 40℃Max</td><td>1. Applied the allowed DC current.
2. Temperature measured by digital surface thermometer.</td></tr>
<tr><td>Resistance to Soldering Heat</td><td>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</td><td>Number of heat cycles: 1
<table><tr><th>Temperature (°C)</th><th>Time (s)</th><th>Temperature ramp/immersion and emersion rate</th></tr><tr><td>260 ±5 (solder temp)</td><td>10 ±1</td><td>25mm/s ±6 mm/s</td></tr></table>Depth: completely cover the termination</td></tr>
<tr><td>Solderability</td><td>More than 95% of the terminal electrode should be covered with solder.
  </td><td>Steam Aging: 8 hours ± 15 min
Preheat: 150℃,60sec.
Solder: Sn96.5%-Ag3%-Cu0.5%
Solder temperature : 245±5℃
Flux for lead free: Rosin. 9.5%
Dip time: 4±1sec.
Depth: completely cover the termination</td></tr>
<tr><td>Terminal strength</td><td>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
  </td><td>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.</td></tr>
<tr><td>Bending</td><td>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</td><td>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.</td></tr>
<tr><td>Vibration Test</td><td>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</td><td>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)。</td></tr>
<tr><td>Shock</td><td>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</td><td>Test condition:
<table><tr><th>Type</th><th>Peak Value (g's)</th><th>Normal duration (D) (ms)</th><th>Wave form</th><th>Velocity change (Vi)ft/sec</th></tr><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></table></td></tr>
</table>

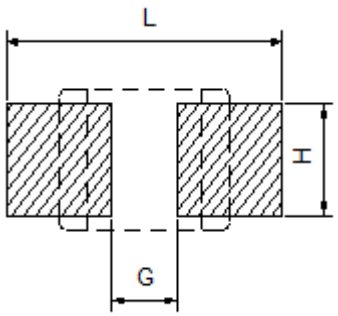
Item	Performance	Test Condition
Life test	Appearance: no damage. Impedance: within±15%of initial value. Inductance: within±10%of initial value. Q：Shall not exceed the specification value. RDC：within ±15% of initial value and shall not exceed the specification value	Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Temperature: 125±2℃(bead), 105±2℃(Inductor) Applied current: rated current. Duration: 1000±12hrs. Measured at room temperature after placing for 24±2 hrs.
Load Humidity		Preconditioning: Run through IR reflow for 2 times.(IPC/JEDEC J-STD-020D Classification Reflow Profiles) Humidity: 85±2%R.H. Temperature: 85±2℃. 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℃ 30±5 min. Step2: 25±2℃ ≦0.5min Step3: +125±2℃ 30±5min. (Bead) Step3: +105±2℃ 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℃, 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)
WLBD2012HC	**3.00**	**1.00**	**1.00**

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

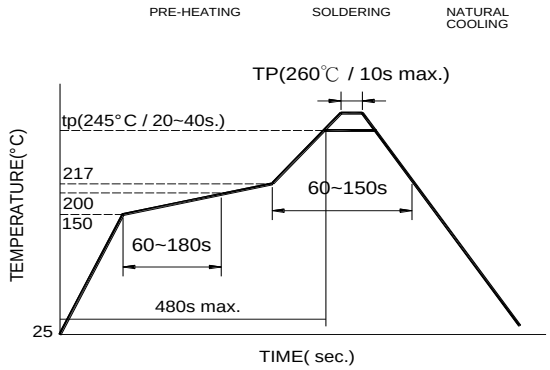
Recommended temperature profiles for lead free re-flow soldering in Figure 1. (Refered to J-STD-020C)

Soldering Iron:

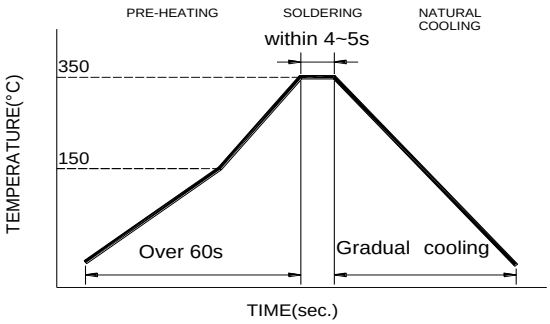
Products attachment with a soldering iron is discouraged due to the inherent process control limitations. If a soldering iron must be employed the following precautions are recommended. for Iron Soldering in Figure 2.

- Preheat circuit and products to 150℃
- 350℃ 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 Soldering

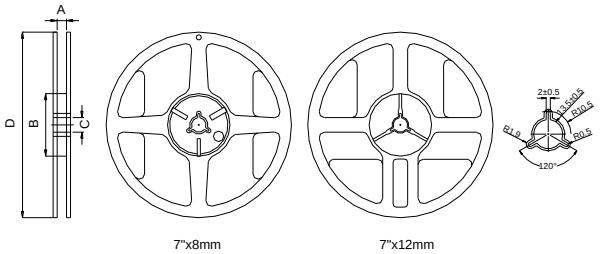


Iron Soldering



Packaging Specification

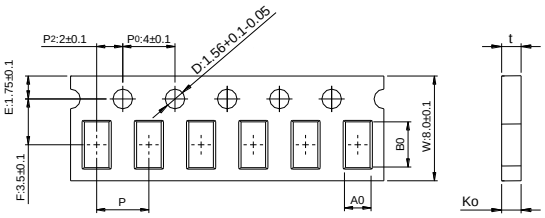
Reel Dimension



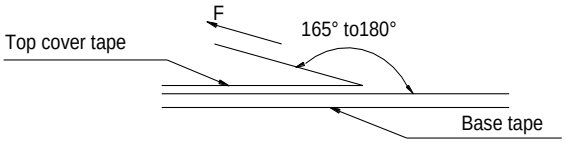
Type	A(mm)	B(mm)	C(mm)	D(mm)
7"x8mm	9.0±0.5	60±2	13.5±0.5	178±2
7"x12mm	13.5±0.5	60±2	13.5±0.5	178±2

Tape Dimension / 8mm

■Material of taping is paper



Size	Bo(mm)	Ao(mm)	Ko(mm)	P(mm)	t(mm)
WLBD2012HC	2.10±0.05	1.30±0.05	0.95±0.05	4.0±0.10	0.95±0.05



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

Room Temp. (℃)	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