ACX
Advanced Ceramic X

BL 1608 Series (Preliminary)

Multilayer Chip Baluns

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ RoHS compliant.

Applications

- ❖ 0.8 ~ 6 GHz wireless communication systems, including DECT/PACS/PHS/GSM/DCS phones, WLAN card, Bluetooth modules, Hyper-LAN, etc.

Specifications

Part Number	Frequency Range (MHz)	Unbalanced Impedance (ohm)	Balanced Impedance (ohm)	Insertion Loss (dB)	VSWR @BW	Phase Difference (degree)	Amplitude Difference (dB)
BL1608-T6E2450_	2400 ~ 2500	50	Conjugate match to TI CC2430 chipset	1.2 max.	1.5 max.	180 ± 10	1.5 max.

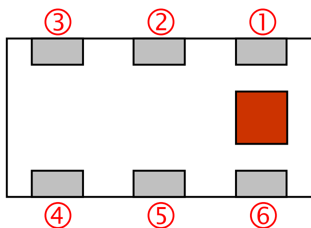
Q'ty/Reel (pcs) : 4,000
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Storage Period : 12 months max.
Power Capacity : 2W max.

Part Number

BL ① 1608 ② - T6 ③ E ④ 2450 ⑤ □ ⑥ /LF ⑦

① Type	BL : Balun	② Dimensions (L × W)	1.6 × 0.8 mm
③ Balanced Impedance	T6 : Conjugate match to TI CC2430 chipset	④ Specification Code	E
⑤ Central Frequency	2450 : 2450MHz	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

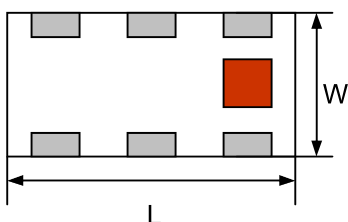
Terminal Configuration



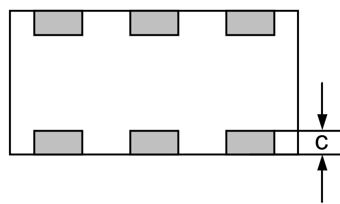
No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port	④	Balanced Port
②	NC	⑤	GND
③	GND or DC feed + RF GND	⑥	Balanced Port

Dimensions and Recommended PC Board Pattern

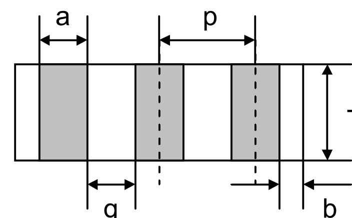
Unit : mm



< Top View>



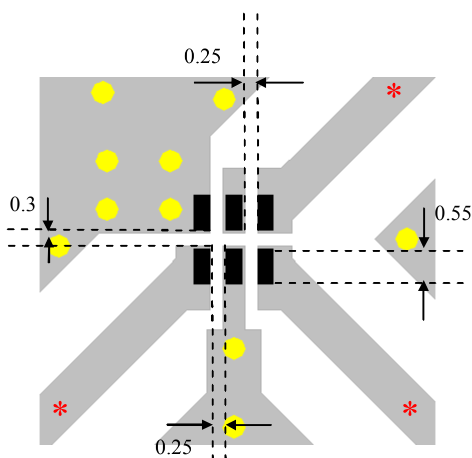
< Bottom View>



< Side View>

Mark	L	W	T	a	b	c	g	p
Dimensions	1.6 ±0.1	0.8 ±0.1	0.6 ±0.1	0.2 ±0.1	0.2+0.1 /-0.15	0.15 ±0.1	0.3 ±0.1	0.50 ±0.05

Without DC feed

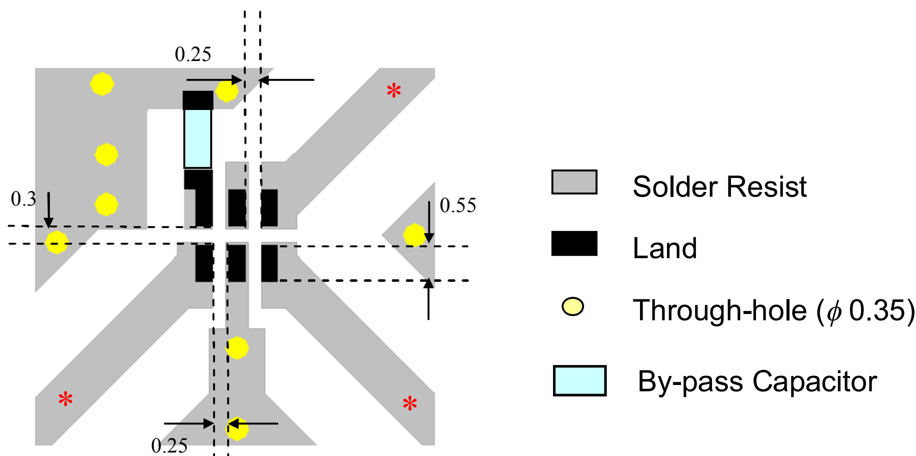


Solder Resist

Land

Through-hole (ϕ 0.35)

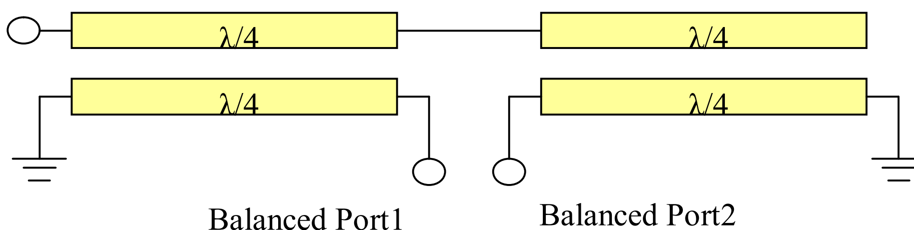
With DC feed



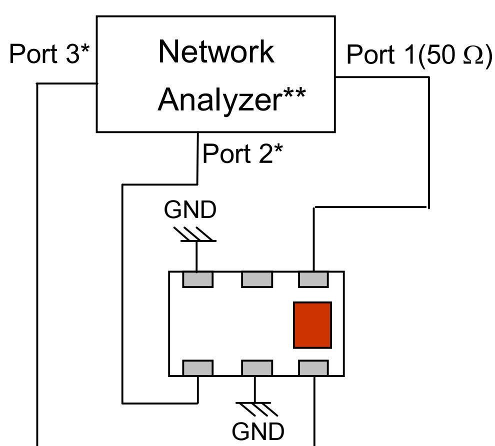
* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

** By-pass capacitor should be connected when feeding DC power.

Equivalent Circuit



Measuring Diagram



Port 1:Unbalanced Port

Ports 2 and 3: Balanced Port

IL=S_{ds21}

RL=S_{ss11}

Amp_balance = dB(S(2,1)/S(3,1))

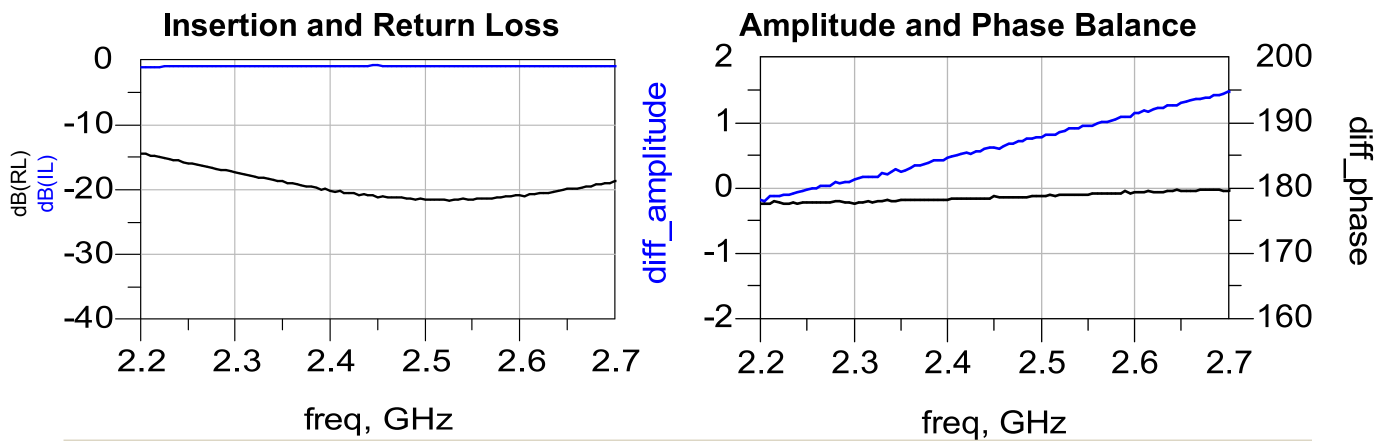
Phase_balance = Phase(S(2,1)/S(3,1))

*Impedance for ports 2 and 3

= Conjugate to Balanced Impedance/2

**E5071B from Agilent

Typical Electrical Characteristics (T=25°C)



Notes

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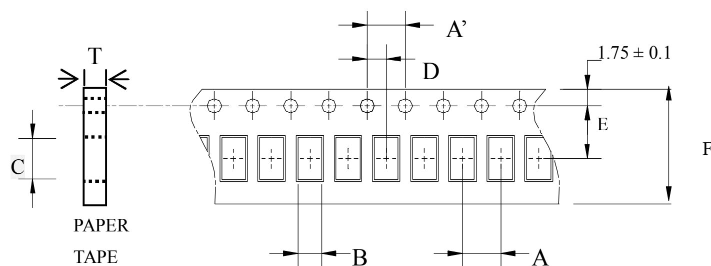
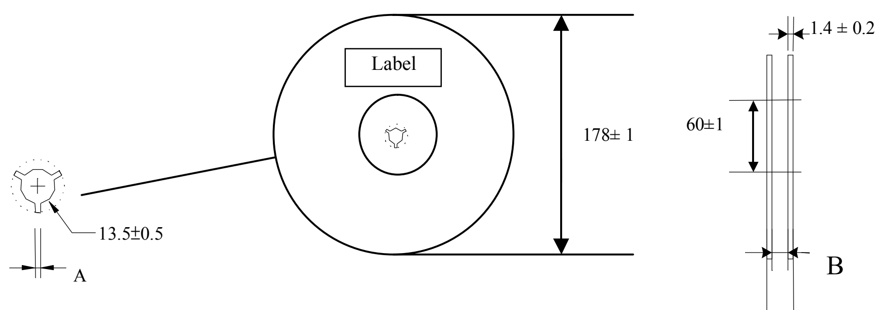
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
1608	4.0± 0.1	4.0± 0.1	1.10± 0.1	1.92± 0.1	2.0± 0.1	3.5± 0.1	8.0± 0.1	0.75± 0.05	4,000pcs	Paper

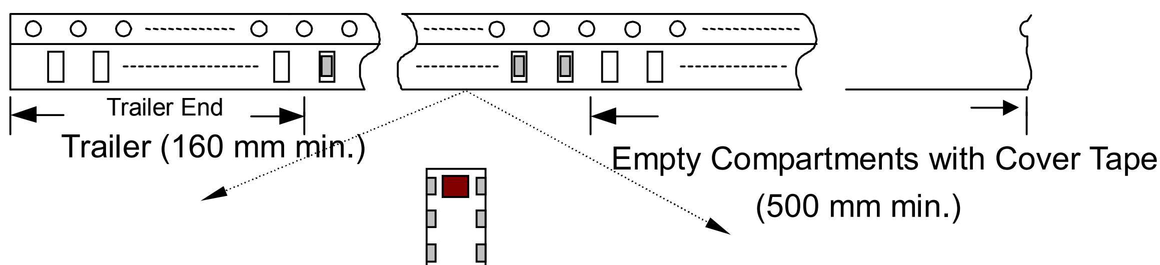
❖Reel Dimensions (Unit: mm)



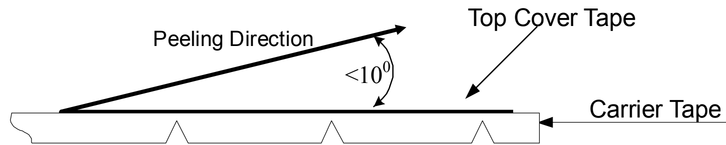
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
1608	2.3±0.5	9.0±0.3

❖Leader and Trailer Tape (Plastic material)



❖Peel-off Force



Peel-off force should be in the range of 0.1 – 0.6 N at a peel-off speed of 300±10 mm/min .

❖Storage Conditions

(1) Temperature: 15 ~35℃, relative humidity (RH): 45~75%.
(2) Non-corrosive environment.

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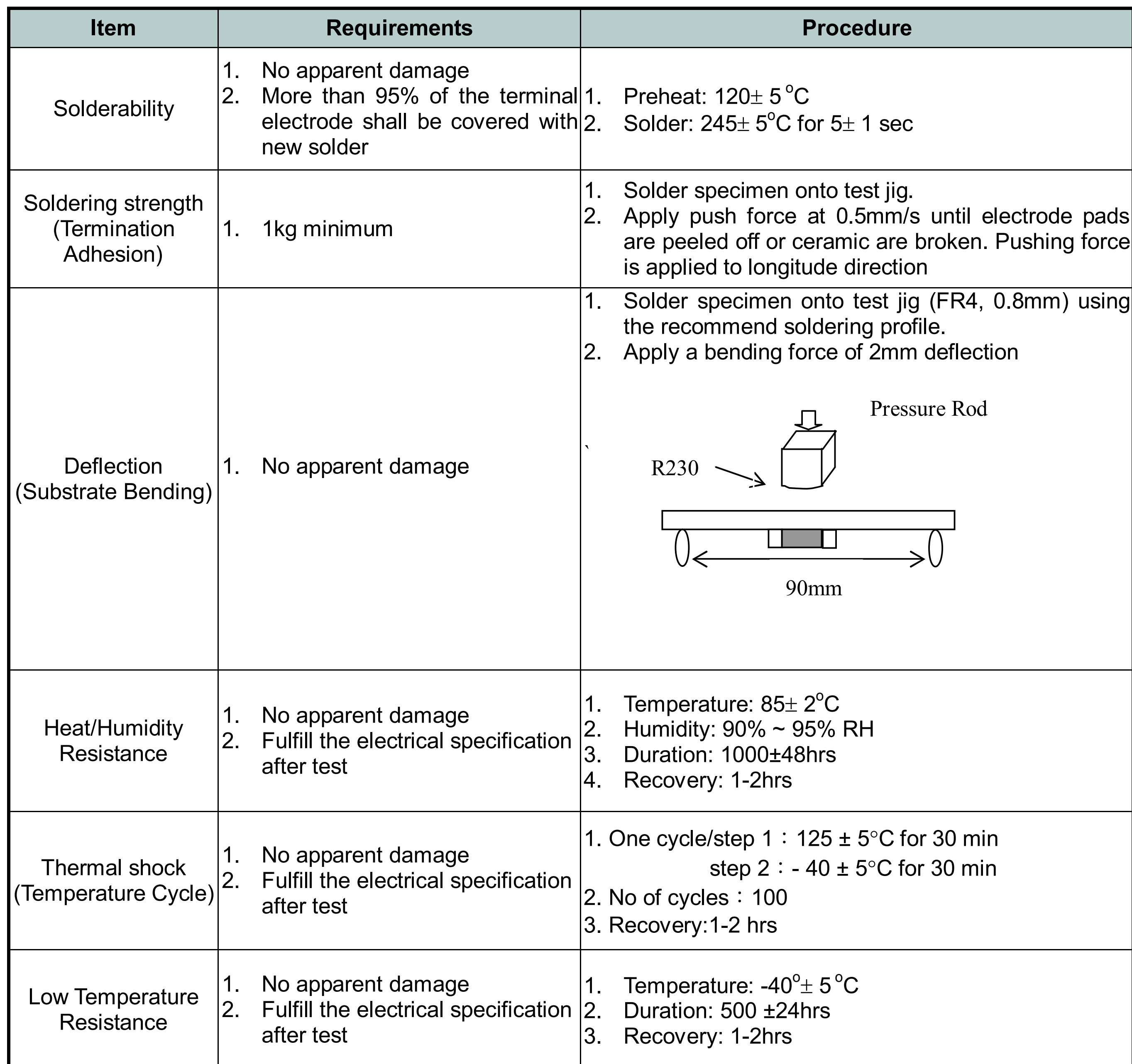
Mechanical & Environmental Characteristics

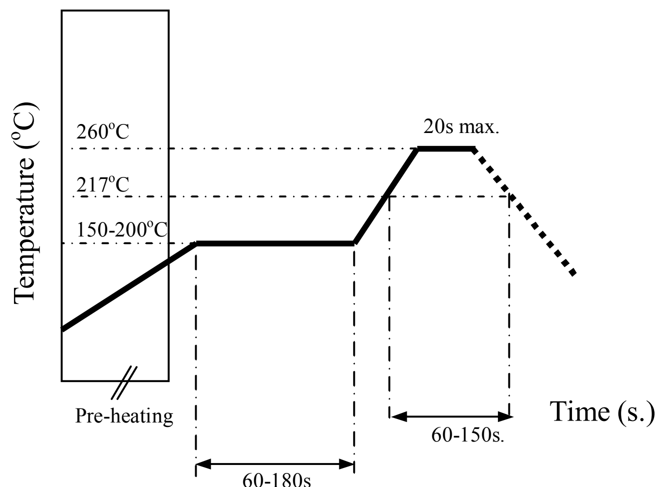


Item	Requirements	Procedure
Solderability	1. No apparent damage 2. More than 95% of the terminal electrode shall be covered with new solder	1. Preheat: 120± 5 °C 2. Solder: 245± 5°C for 5± 1 sec
Soldering strength (Termination Adhesion)	1. 1kg minimum	1. Solder specimen onto test jig. 2. Apply push force at 0.5mm/s until electrode pads are peeled off or ceramic are broken. Pushing force is applied to longitude direction
Deflection (Substrate Bending)	1. No apparent damage	1. Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. 2. Apply a bending force of 2mm deflection
Heat/Humidity Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: 85± 2°C 2. Humidity: 90% ~ 95% RH 3. Duration: 1000±48hrs 4. Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	1. No apparent damage 2. Fulfill the electrical specification after test	1. One cycle/step 1：125 ± 5°C for 30 min step 2：- 40 ± 5°C for 30 min 2. No of cycles：100 3. Recovery:1-2 hrs
Low Temperature Resistance	1. No apparent damage 2. Fulfill the electrical specification after test	1. Temperature: -40°± 5 °C 2. Duration: 500 ±24hrs 3. Recovery: 1-2hrs

Soldering Conditions

❖**Typical Soldering Profile for Lead-free Process**

Reflow Soldering :



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