BL 1608 Series

Multilayer Chip Baluns

Features

- ❖ Monolithic SMD with small, low-profile and light-weight type.
- ❖ HF & 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)	Balance Impedance (ohm)	Insertion Loss (dB)	VSWR @BW	Phase Difference (degree)	Amplitude Difference (dB)
BL1608-10P5388_	4900~5875	50	100	1.0 max.	2.0 max.	180 ± 15	1.5 max.
	5875~5950					180 ± 20	

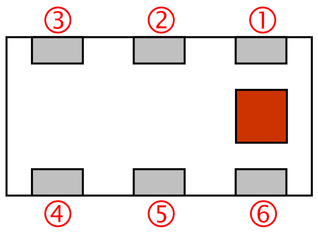
Q'ty/Reel (pcs)	: 4000
Operating Temperature Range	: -40 ~ +85 °C
Storage Temperature Range	: -40 ~ +85 °C
Storage Period	: 12 months max.
Power Capacity	: 3W max.

Part Number

BL	1608	-	10	P	5388	□	/LF
①	②		③	④	⑤	⑥	⑦

① Type	BL : Balun	② Dimensions (L × W)	1.6 × 0.8 mm
③ Balanced Impedance	10 : 100 ohm	④ Specification Code	P
⑤ Central Frequency	5388 : 5388MHz	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	/LF=lead-free		

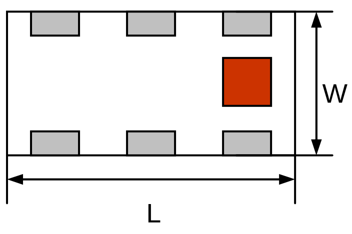
Terminal Configuration



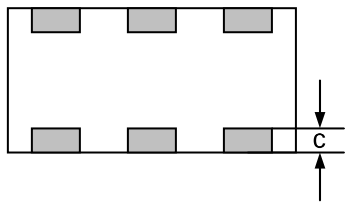
No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port (IN)	④	Balanced Port (OUT2)
②	GND or DC feed + RF GND	⑤	GND
③	Balanced Port (OUT1)	⑥	NC

Dimensions and Recommended PC Board Pattern

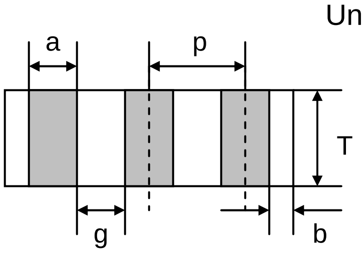
Unit : mm



< Top View>



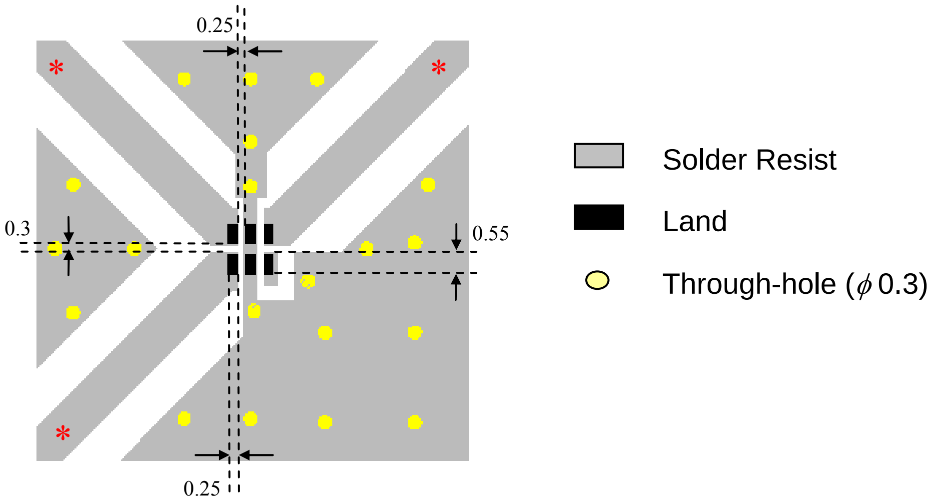
< Bottom View>



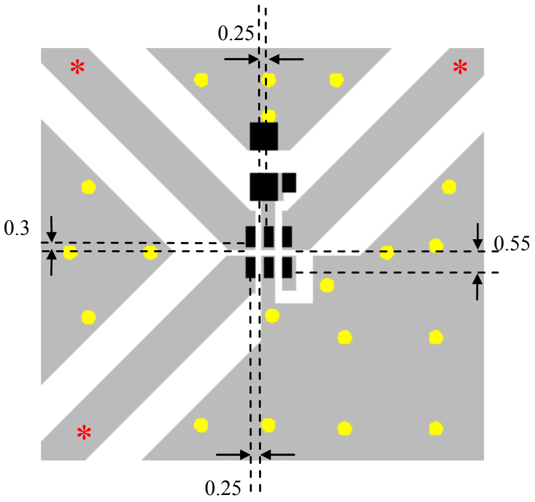
< Side View>

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



With DC feed



▨ Solder Resist

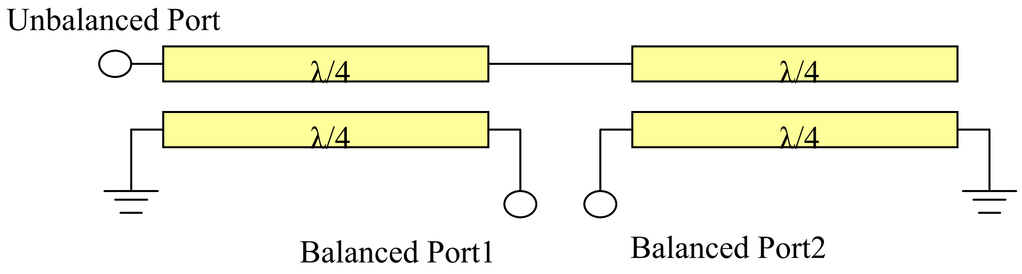
■ Land

○ Through-hole (ϕ0.3)

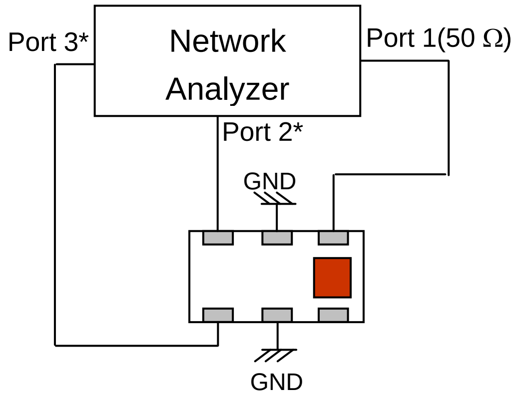
* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

** 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}

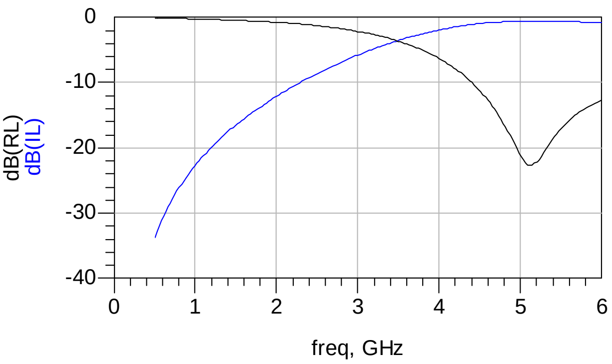
Amp_balance = dB(S(2,1)/S(3,1))

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

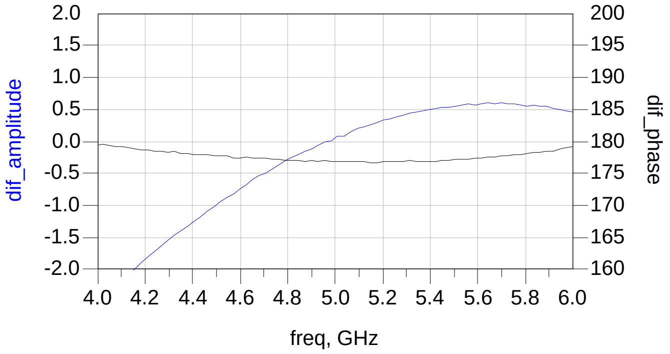
*Impedance for ports 2 and 3 = Balanced Impedance/2

Typical Electrical Characteristics (T=25^{o}C)

Insertion and Return Loss



Amplitude and Phase Balance



Notes

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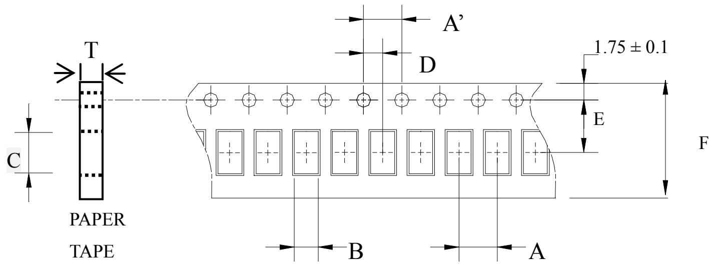
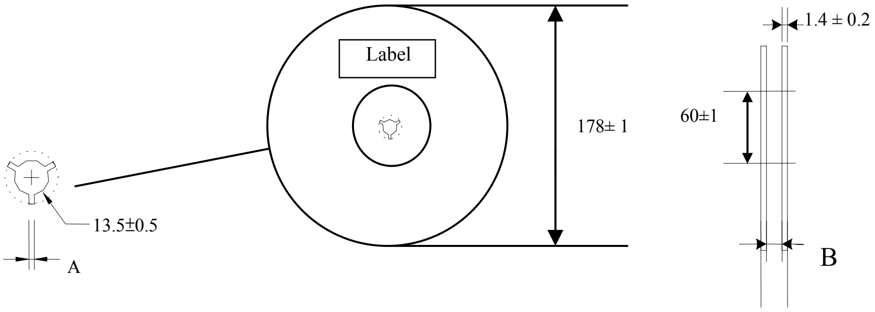
Taping Specifications

❖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	1.02± 0.05	1.84± 0.05	2.0± 0.05	3.5± 0.05	8.0± 0.1	0.75± 0.05	4,000pcs	Paper

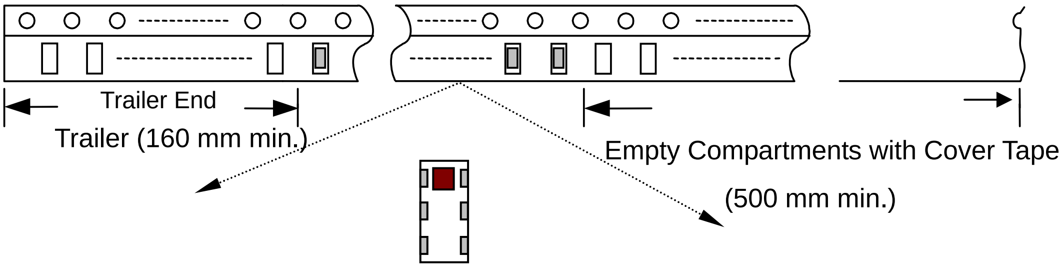
❖Reel Dimensions (Unit: mm)



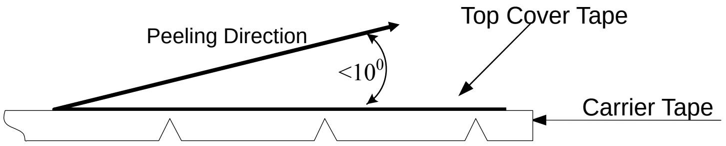
Label: Customer’s Name,
ACX P/N, Q’ty, Date,
ACX Corp.

Type	A	B
1608	2.3±0.5	9.0±0.3

❖Leader and Trailer Tape



❖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: 5 ~35℃, relative humidity (RH): 45~75%.
(2) Non-corrosive environment.

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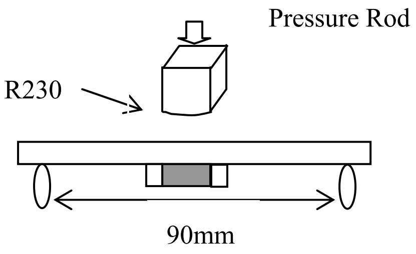
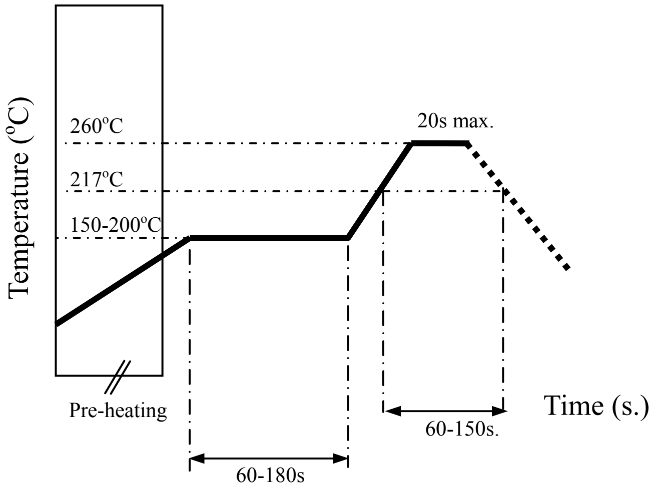
Mechanical & Environmental Characteristics

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. 10N 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, 1.6mm) 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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