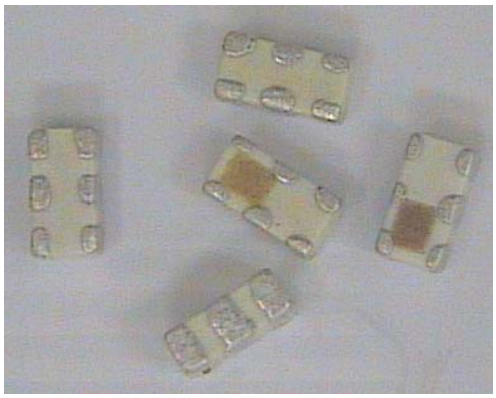
ACX
Advanced Ceramic X

BL 1005 Series
Multilayer Chip Baluns



Features

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

❖RoHS compliant

Applications

❖2.4 ~ 2.5 GHz wireless communication systems.

Specifications

Part Number	Frequency Range (MHz)	Unbalanced Impedance (ohm)	Balance Impedance (ohm)	Insertion Loss (dB)	VSWR @BW	Phase Difference (degree)	Amplitude Difference (dB)
BL1005-10E2450FB_	2400 ~ 2500	50	100	1.0 max.	1.5 max.	180 ± 10	2 max.

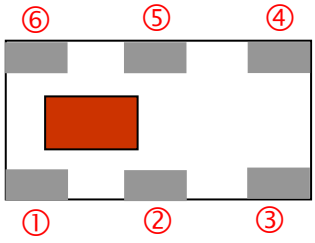
Q'ty/Reel (pcs) : 10,000
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : -40 ~ +85 °C
Storage Period : 12 months max.
Power Capacity : 2W max.

Part Number

BL	1005	-	10	E	2450	FB	□	/LF
①	②		③	④	⑤	⑥	⑦	⑧

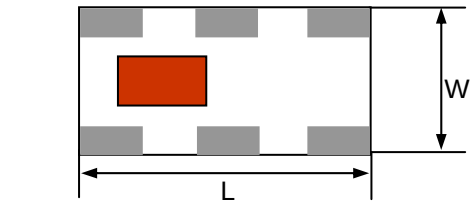
① Type	BL : Balun	② Dimensions (L × W)	1.0 × 0.5 mm
③ Balanced Impedance	10 : 100 ohm	④ Material Code	E
⑤ Central Frequency	2450 : 2450MHz	⑥ Specification Code	FB
⑦ Packaging	T: Tape & Reel B: Bulk	⑧ Soldering	/LF=lead-free

Terminal Configuration

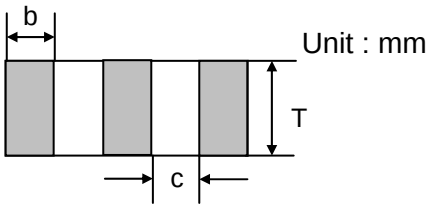


No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port	④	Balanced Port
②	GND or DC feed + RF GND	⑤	GND
③	Balanced Port	⑥	NC

Dimensions and Recommended PC Board Pattern

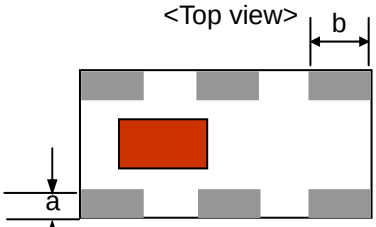


<Top view>



Unit : mm

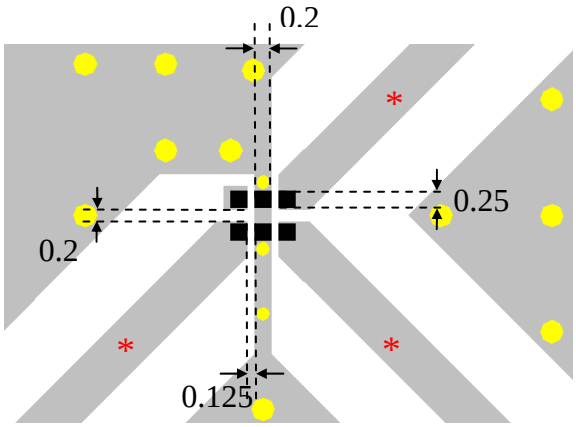
<Side view>

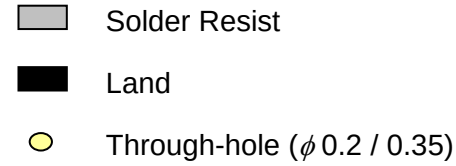


<Bottom view>

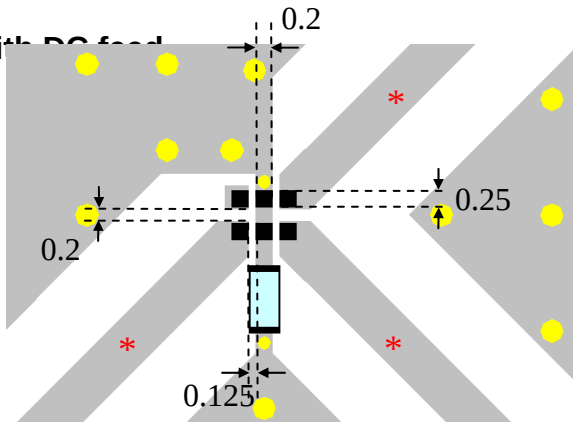
Mark	L	W	T	a	b	c
Dimensions	1.0 ± 0.1	0.5 ± 0.1	0.37 ± 0.05	0.1 +0.1/-0.05	0.2 +0.1/-0.05	0.2 +0.1/-0.05

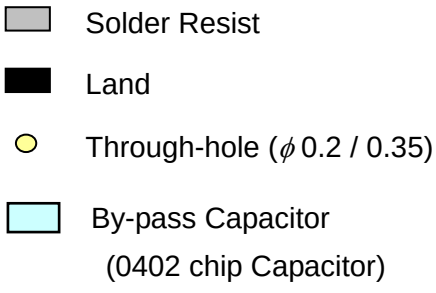
Without DC feed





With DC feed

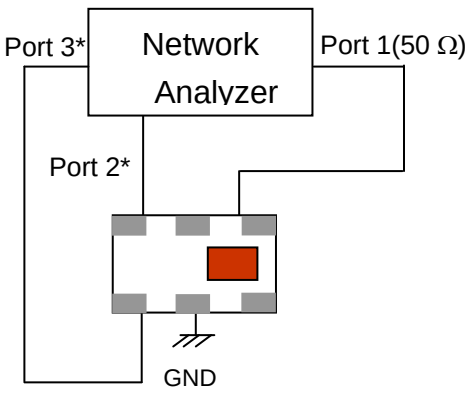




* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

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

Measuring Diagram



Port 1:Unbalanced Port

Ports 2 and 3: Balanced Port

IL=S_{ds21}

RL=S_{ss11}

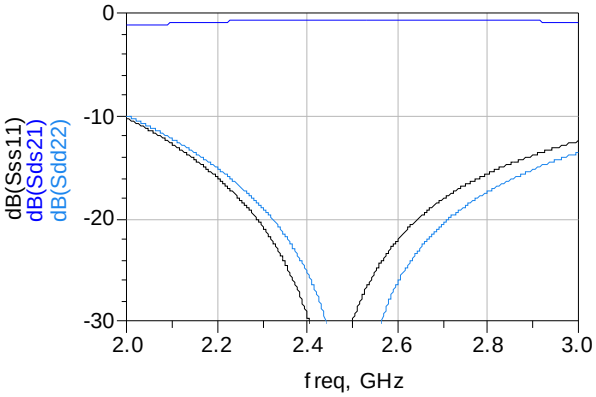
Amp_balance = dB(S(2,1)/S(3,1))

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

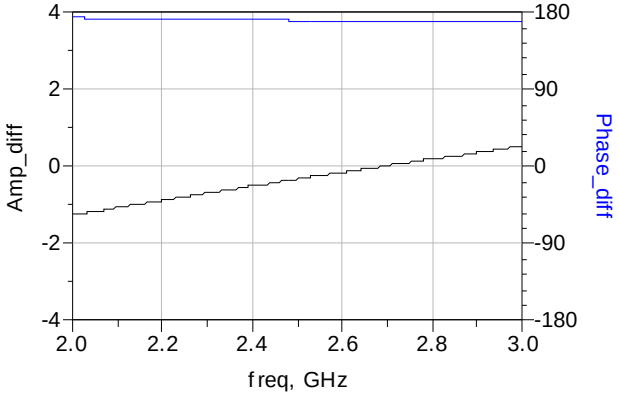
*Impedance for ports 2 and 3 = Balanced Impedance/2

Typical Electrical Characteristics (T=25°C)

Insertion and Return Loss

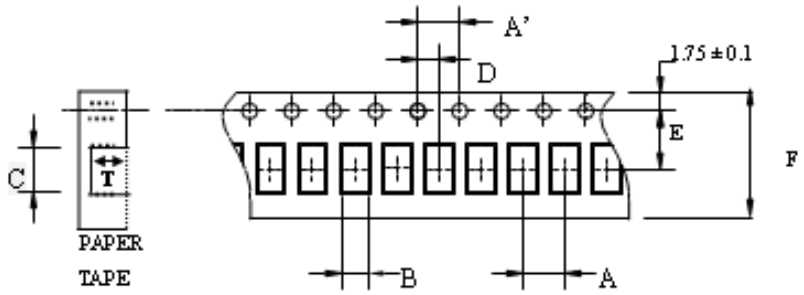


Amplitude and Phase Balance



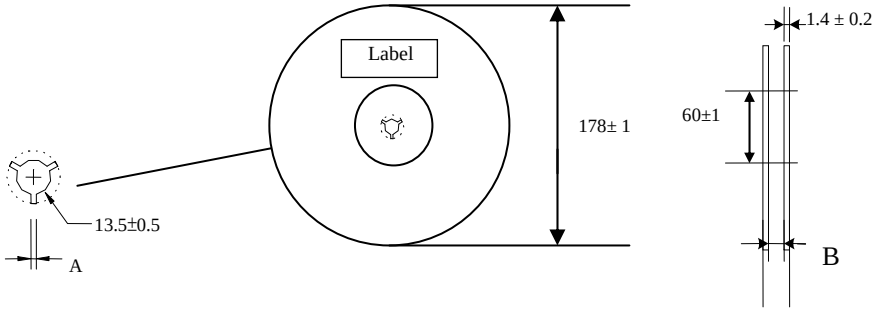
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
1005	2.0± 0.05	4.0± 0.1	0.62± 0.03	1.12± 0.03	2.0± 0.05	3.5± 0.05	8.0± 0.1	0.45± 0.03	10,000pcs	Paper

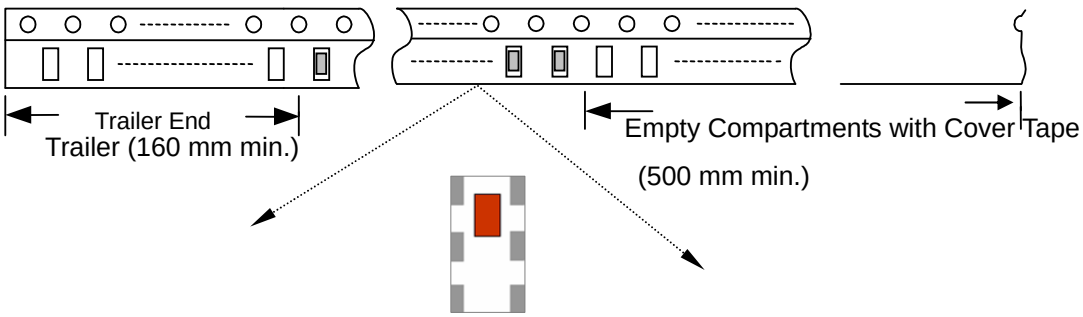
❖Reel Dimensions (Unit: mm)



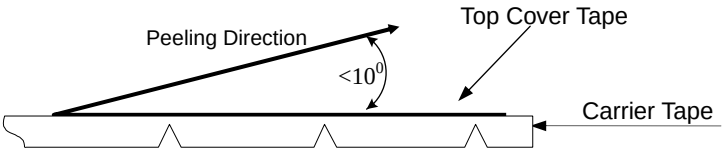
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

Type	A	B
1005	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 .

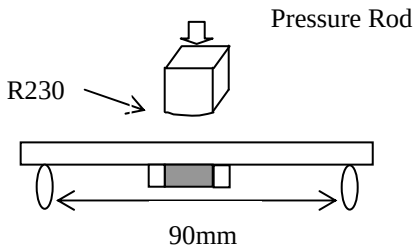
❖**Storage Conditions**

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

Notes

❖The contents of this data sheet are subject to change without notice. Please confirm the specifications and delivery conditions when placing your order.

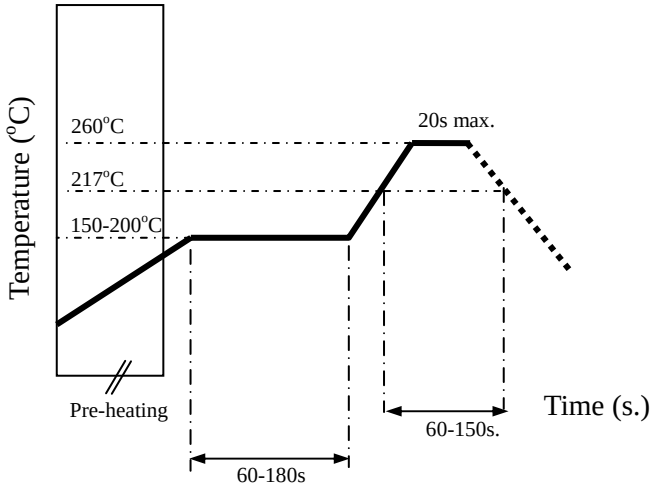
Mechanical & Environmental Characteristics

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. 3N 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 2. Fulfill the electrical specification	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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