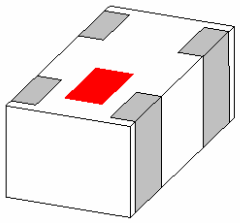
ACX
Advanced Ceramic X

BL 1005 Series
Multilayer Chip Baluns

Features

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



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)
BL1005-05E2450_	2400 ~ 2500	50	50	1.0 max.	2.0 max.	180 ± 10	2 max.

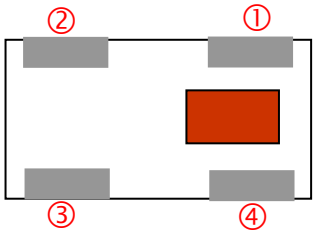
Q'ty/Reel (pcs) : 10,000
Operating Temperature Range : -40 ~ +85 °C
Storage Temperature Range : +5 ~ +35 °C, Humidity 45~75%RH
Storage Period : 12 months max.
Power Capacity : 2W max.

Part Number

BL	1005	-	05	E	2450	□	/LF
①	②		③	④	⑤	⑥	⑦

① Type	BL : Balun	② Dimensions (L × W)	1.0 × 0.5 mm
③ Balanced Impedance	05 : 50 ohm	④ Specification Code	E
⑤ Central Frequency	2450 : 2450MHz	⑥ Packaging	T: Tape & Reel B: Bulk
⑦ Soldering	=lead-containing /LF=lead-free		

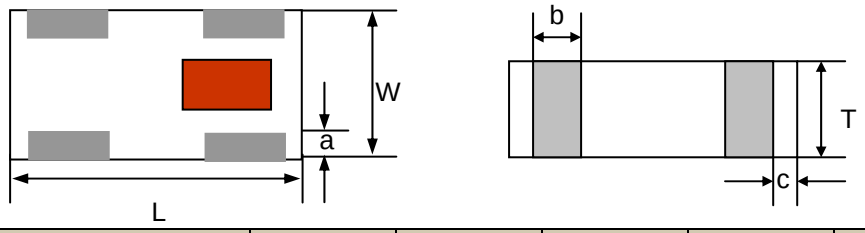
Terminal Configuration (Top View)



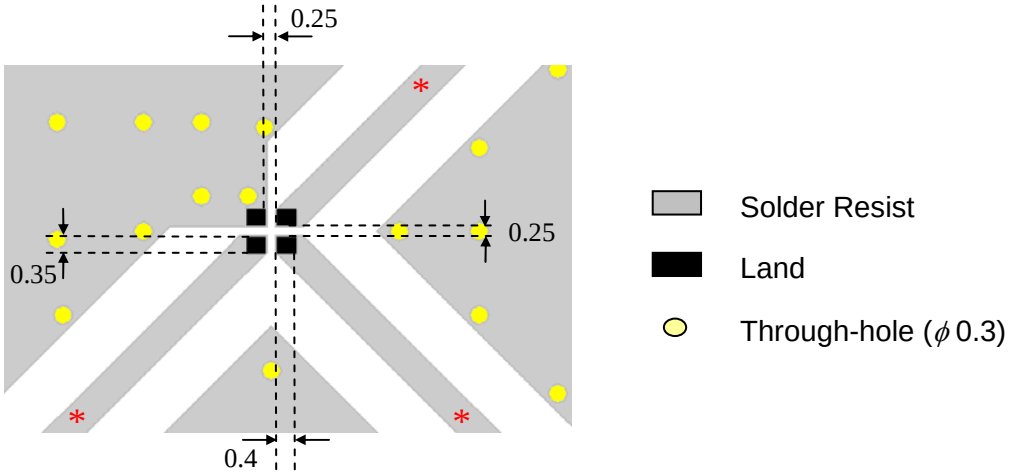
No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port (IN)	③	Balanced Port (OUT2)
②	Balanced Port (OUT1)	④	GND

Dimensions and Recommended PC Board Pattern

Unit : mm

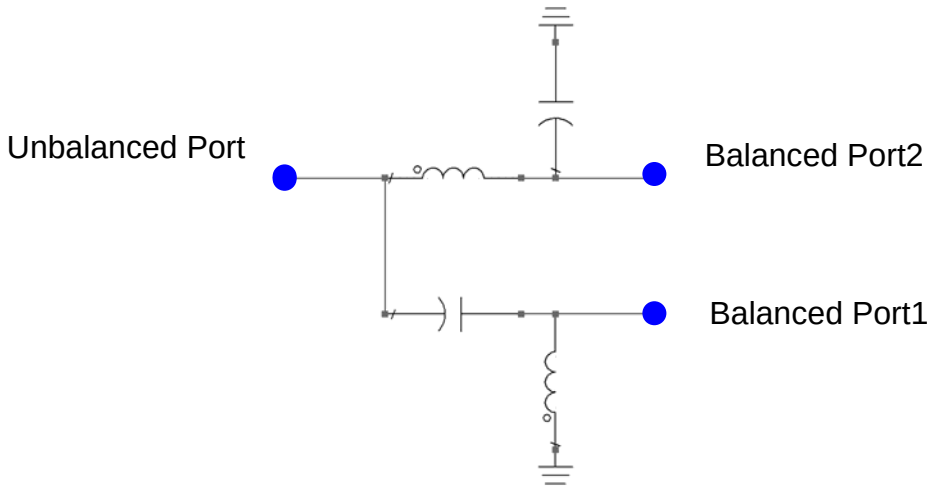


Mark	L	W	T	a	b	c
Dimensions	1.0 ± 0.1	0.5 ± 0.1	0.37 ± 0.05	0.1 +0.1/-0.05	0.25 +0.1/-0.05	0.1 +0.1/-0.05

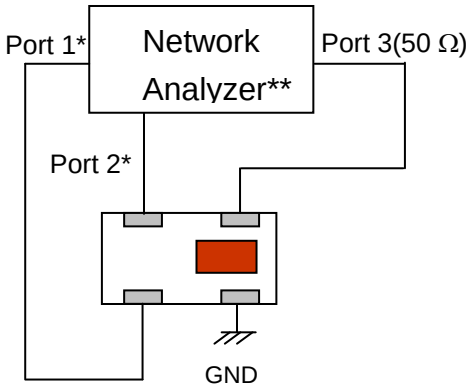


* Line width should be designed to match 50Ω characteristic impedance, depending on PCB material and thickness.

Equivalent Circuit



Measuring Diagram



Port 3:Unbalanced Port

Ports 1 and 2: Balanced Port

IL=S_{ds21}

RL=S_{ss11}

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

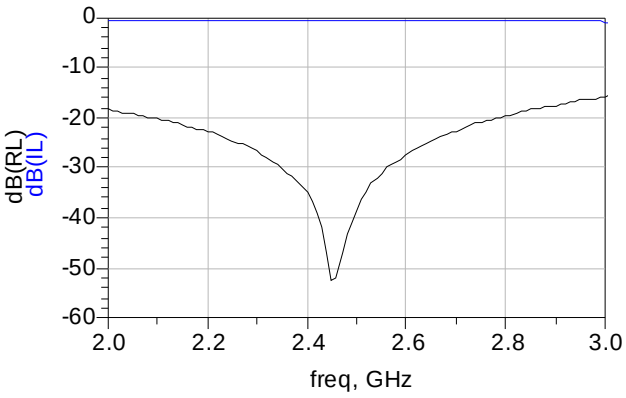
Phase_balance = Phase(S(2,3)/S(1,3))

*Impedance for ports 1 and 2 = Balanced Impedance/2

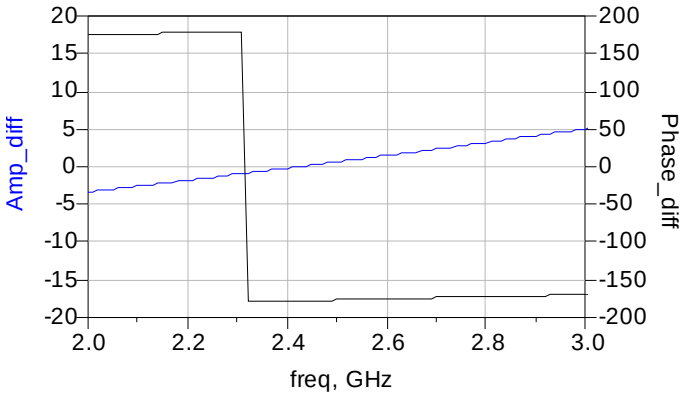
**E5071B from Agilent

Typical Electrical Characteristics (T=25°C)

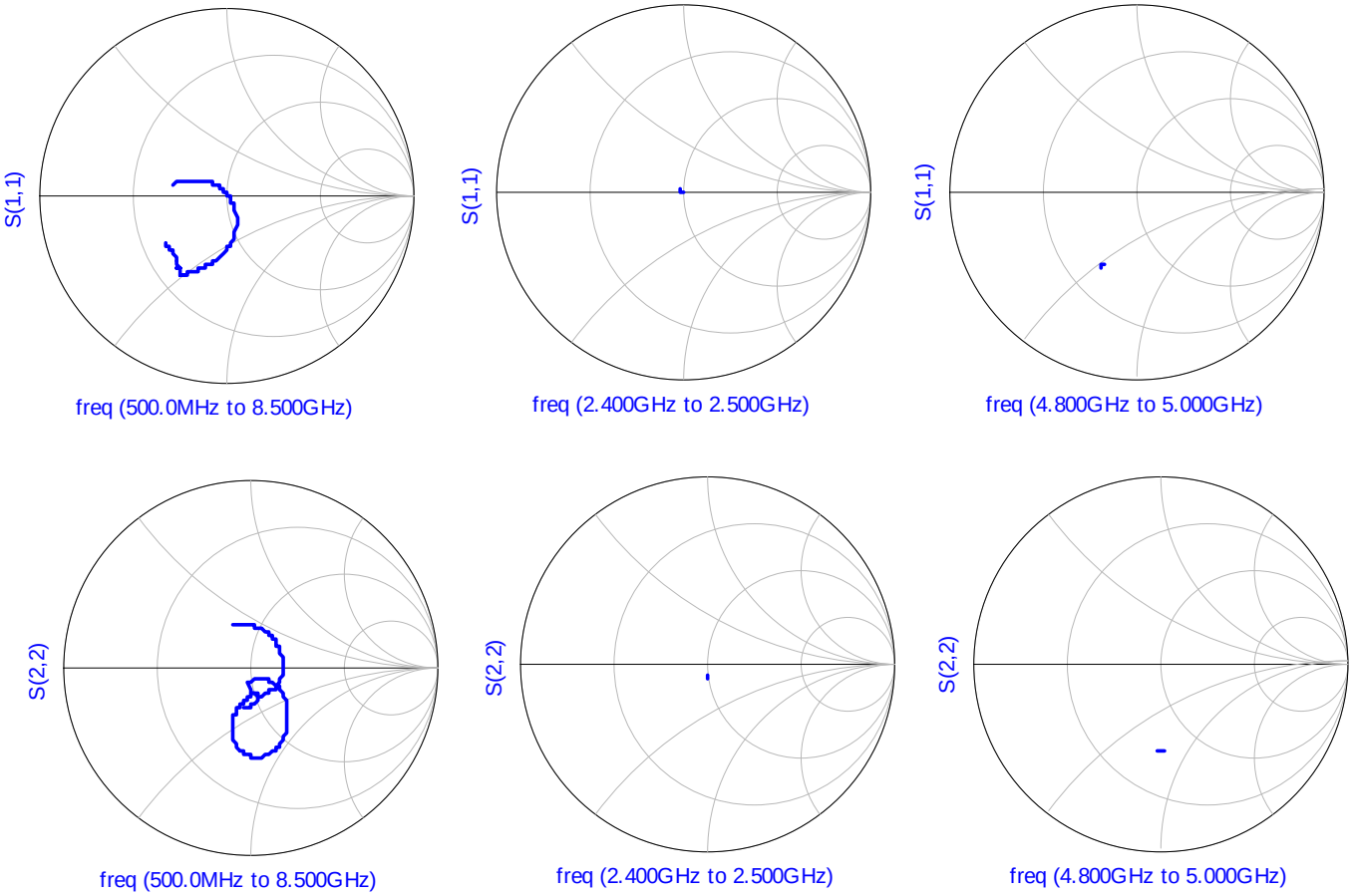
Insertion and Return Loss



Amplitude and Phase Balance



Return Loss on Smith Chart

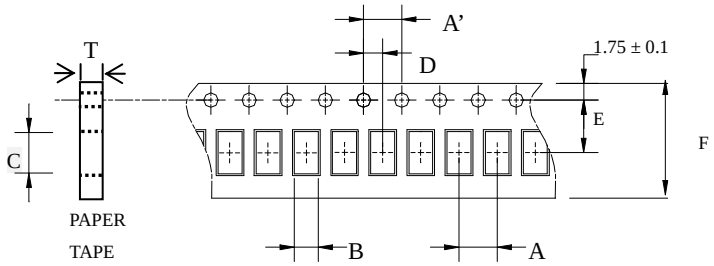


Production Test Limit

Part Number	Frequency Range (MHz)	Unbalanced Impedance (ohm)	Balance Impedance (ohm)	Insertion Loss (dB)	VSWR @BW	Phase Difference (degree)	Amplitude Difference (Pin2/Pin3) (dB)
BL1005-05E2450_	2400 ~ 2500	50	50	1.0 max.	1.43 max.	180 ± 7	1.5 max. -1.5 min.

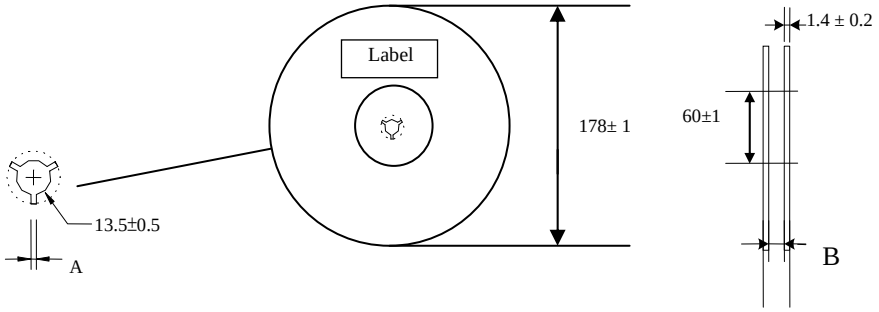
Taping Specifications

❖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	0.43± 0.03	10,000pcs	Paper

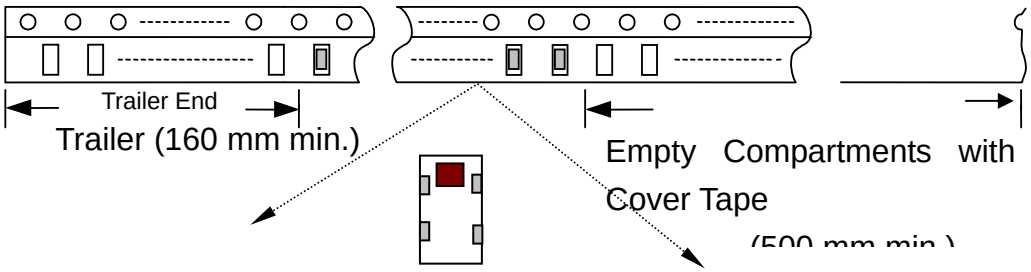
❖Reel Dimensions (Unit: mm)



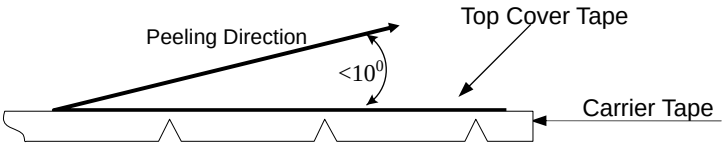
Label: Customer's Name,
ACX P/N, Q'ty, Date,
ACX Corp.

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 .

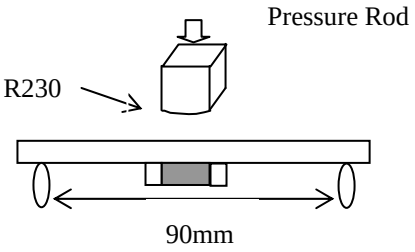
❖**Storage Conditions**

(1) Temperature: 15 ~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.

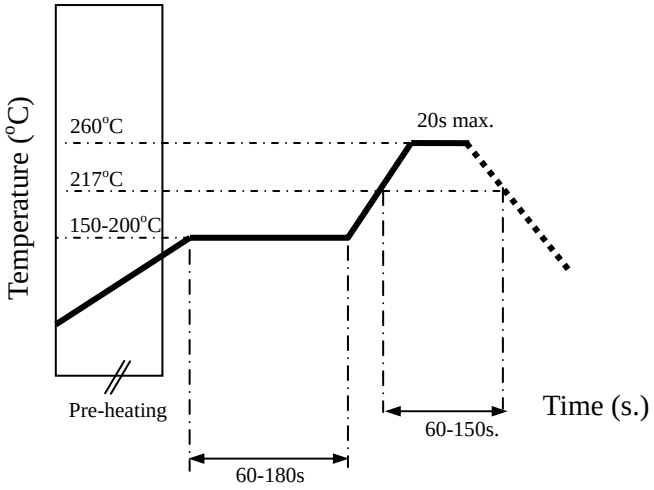
Mechanical & Environmental Characteristics

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. 0.7kg 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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