

BD2012 Series

Multilayer Chip Dual Band Balun

Features

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

Applications

- ❖ Dual-band/Dual mode cellular phones.



Specifications

Part Number	Freq. Range (MHz)	Unbalanced Impedance (ohm)	Balanced Impedance (ohm)	Insertion Loss @ BW (dB)	VSWR @ BW	Phase Diff. (degree)	Amp. Diff. (dB)	Attenuation (dB)
BD2012-20L0820-V2_	869 ~ 960	50	200	1.1 max.	2.0 max.	180±10	2.0 max.	10 min. @ 1738~1920MHz 20 min. @ 2400~2500MHz 20 min. @ 2607~2880MHz
	1805 ~ 1990			1.6 max.	2.0 max.	180±15	2.0 max.	15 min. @ 2400~2500MHz 20 min. @ 3610~3980MHz 20 min. @ 5415~5970MHz

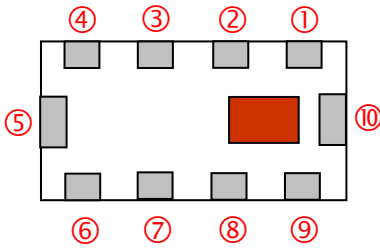
Q'ty/Reel (pcs) : 4,000
 Operating Temperature Range : -40 ~ +85 °C
 Storage Temperature Range : -40 ~ +85 °C
 Storage Period : 12 months max.
 Power Capacity : 2W max.

Part Number

BD 2012 - 20 L 0820 - V2 □ /LF
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

① Type	BD : Dual-band Balun	② Dimensions (L x W)	2.0 x 1.2 mm
③ Balanced Impedance	20 : 200 ohm	④ Specification Code	L
⑤ Central Frequency	0820 : 869/1990MHz	⑥ Version	V2
⑦ Packaging	T: Tape & Reel B: Bulk	⑧ Soldering	=lead-containing /LF=lead-free

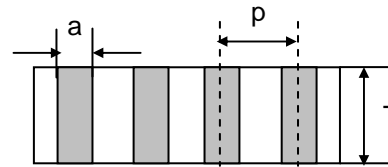
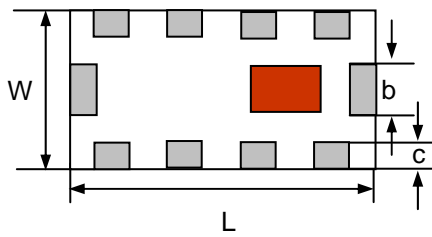
Terminal Configuration



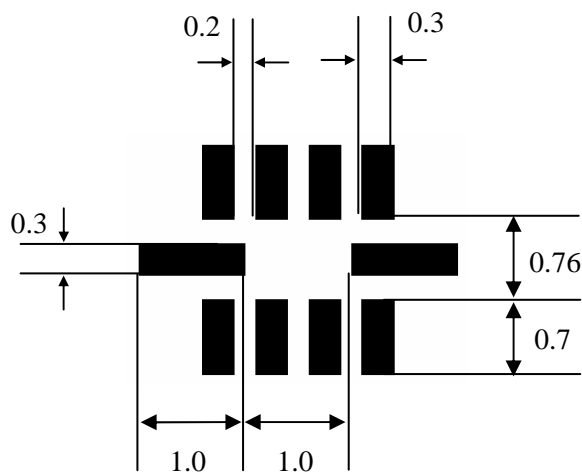
No.	Terminal Name	No.	Terminal Name
①	Unbalanced Port (Lower Band)	⑥	Balanced Port (Higher Band)
②	GND	⑦	Balanced Port (Higher Band)
③	GND	⑧	Balanced Port (Lower Band)
④	Unbalanced Port (Higher Band)	⑨	Balanced Port (Lower Band)
⑤	GND	⑩	GND

Dimensions and Recommended Land Pattern

unit:mm

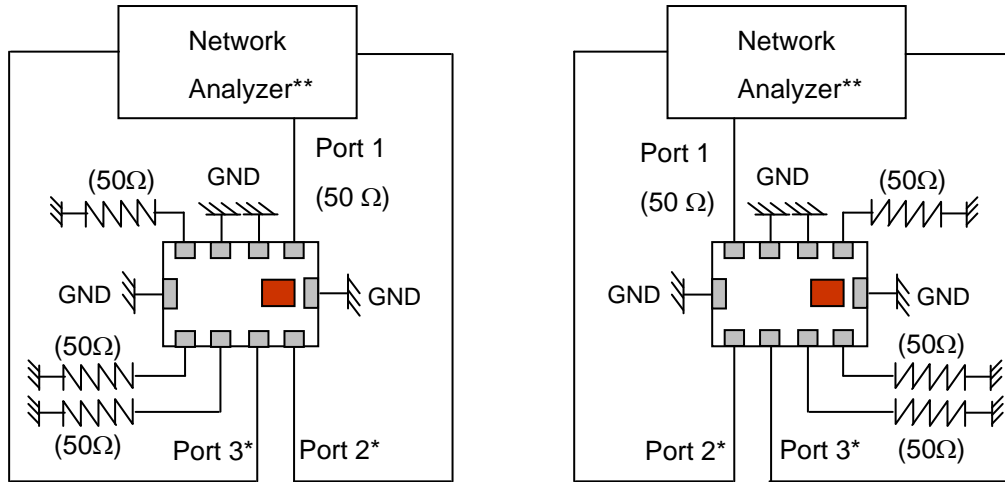


Mark	L	W	T	a	b	c	p
Dimensions	2.0±0.1	1.25±0.1	0.95±0.1	0.25±0.1	0.3±0.1	0.2+ 0.1/-0.15	0.5±0.1



■ Land Pattern

Measuring Diagram



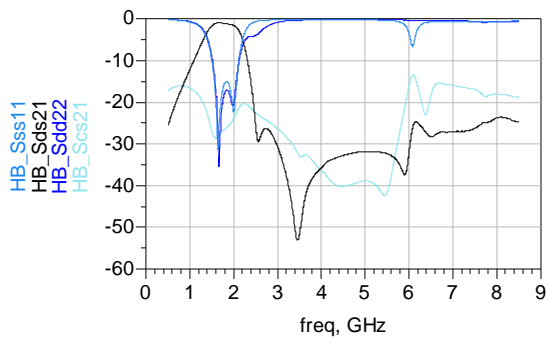
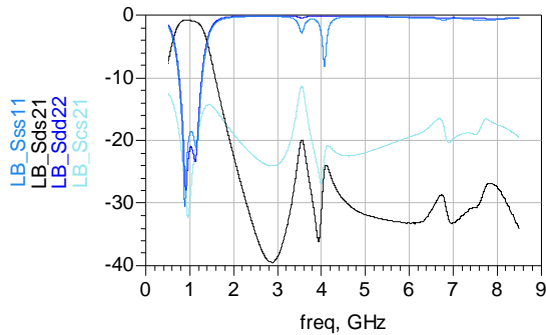
Port 1: Unbalanced Port, Ports 2 and 3: Balanced Port

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

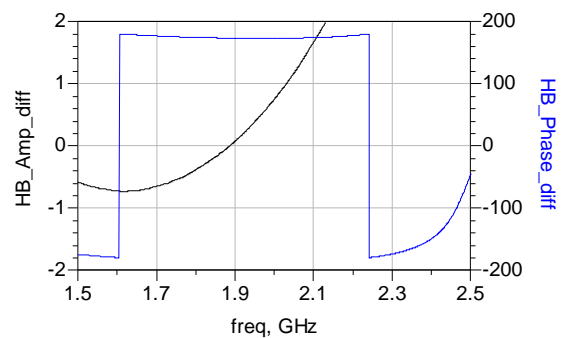
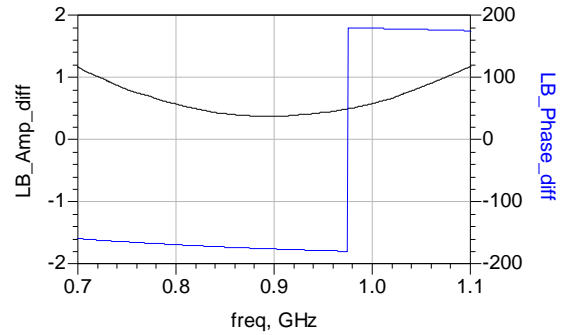
**E5071B/C from Agilent

Typical Electrical Characteristics (T=25°C)

Insertion and Return Loss



Amplitude and Phase Balance

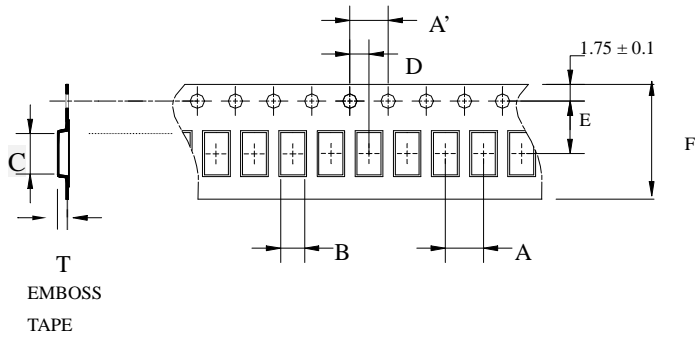


Notes

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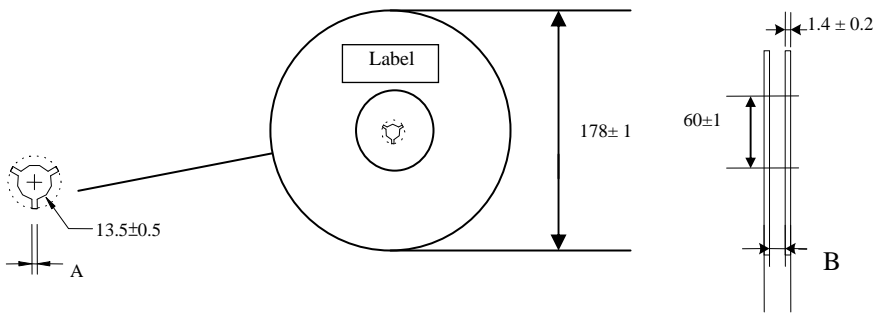
Taping Specifications

❖Tape Dimensions (Unit: mm) & Quantity



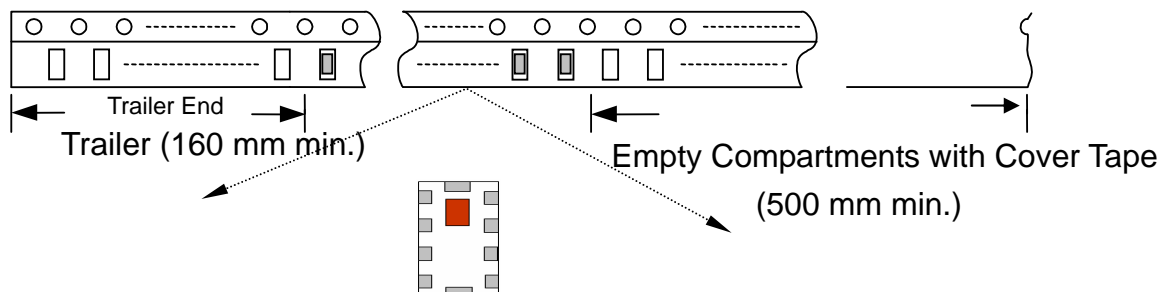
Type	A	A'	B	C	D	E	F	T	Quantity/reel	Tape material
2012	4.0± 0.1	4.0± 0.1	1.35± 0.05	2.15± 0.05	2.0± 0.05	3.5± 0.1	8.0± 0.1	1.08± 0.05	4,000pcs	Plastic (Embossed)

❖Reel Dimensions (Unit: mm)

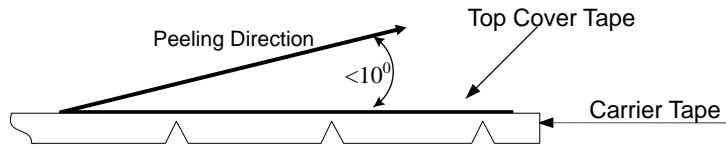


Type	A	B
2012	2.3±0.5	9.0±0.3

❖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 .

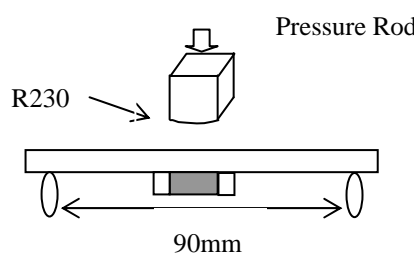
❖ **Storage Conditions**

- (1) Temperature: $+5 \sim 35^{\circ}\text{C}$, relative humidity (RH): 45~75%.
- (2) Non-corrosive environment

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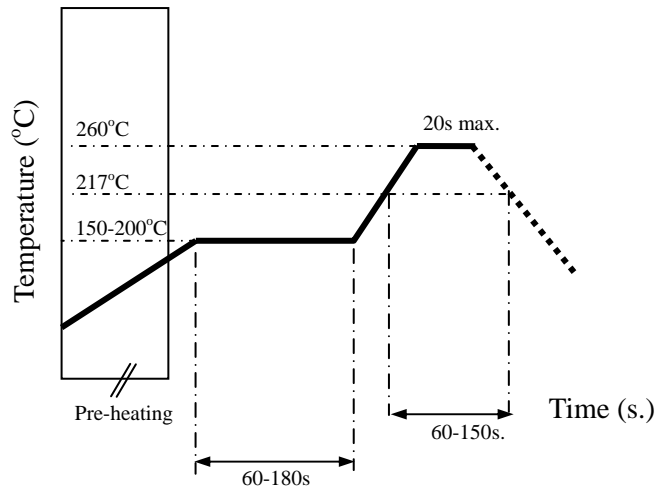
Mechanical & Environmental Characteristics

Item	Requirements	Procedure
Solderability	<ol style="list-style-type: none"> No apparent damage More than 95% of the terminal electrode shall be covered with new solder 	<ol style="list-style-type: none"> Preheat: $120 \pm 5^\circ\text{C}$ Solder: $245 \pm 5^\circ\text{C}$ for 5 ± 1 sec
Soldering strength (Termination Adhesion)	<ol style="list-style-type: none"> 1kg minimum 	<ol style="list-style-type: none"> Solder specimen onto test jig. 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)	<ol style="list-style-type: none"> No apparent damage 	<ol style="list-style-type: none"> Solder specimen onto test jig (FR4, 0.8mm) using the recommend soldering profile. Apply a bending force of 2mm deflection 
Heat/Humidity Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $85 \pm 2^\circ\text{C}$ Humidity: 90% ~ 95% RH Duration: 1000 ± 48hrs Recovery: 1-2hrs
Thermal shock (Temperature Cycle)	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> One cycle/step 1 : $125 \pm 5^\circ\text{C}$ for 30 min step 2 : $-40 \pm 5^\circ\text{C}$ for 30 min No of cycles : 100 Recovery: 1-2 hrs
Low Temperature Resistance	<ol style="list-style-type: none"> No apparent damage Fulfill the electrical specification after test 	<ol style="list-style-type: none"> Temperature: $-40 \pm 5^\circ\text{C}$ Duration: 500 ± 24hrs Recovery: 1-2hrs

Soldering Conditions

❖ Typical Soldering Profile for Lead-free Process

Reflow Soldering :



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Advanced Ceramic X Corp.

16 Tzu Chiang Road, Hsinchu Industrial District Hsinchu Hsien 303, Taiwan

TEL:886-3-5987008 FAX:886-3-5987001

E-mail: acx@acxc.com.tw <http://www.acxc.com.tw>