Model 2425B50-50C

Rev. A

Xinger Balun
50Ω to 100Ω Balanced

Description

The 2425B50-50C is a low profile sub-miniature balanced to unbalanced transformer designed for differential inputs and output locations on next generation wireless chipsets in an easy to use surface mount package covering 802.11b+g. The 2425B50-50C is ideal for high volume manufacturing and is higher performance than traditional ceramic baluns. The 2425B50-50C has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance*. This transformation enables single ended signals to be applied to differential ports on modern integrated chipsets. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The 2425B50-50C is available on tape and reel for pick and place high volume manufacturing.

Features:

- **2.4 – 2.5 GHz**
- **180° Transformer**
- **50 Ohm to 2 x 50 Ohm**
- **802.11 b+g Compliant**
- **Low Insertion Loss**
- **Medium Power**
- **No DC Decoupling Capacitors Required**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Convenient Package**

ELECTRICAL SPECIFICATIONS**

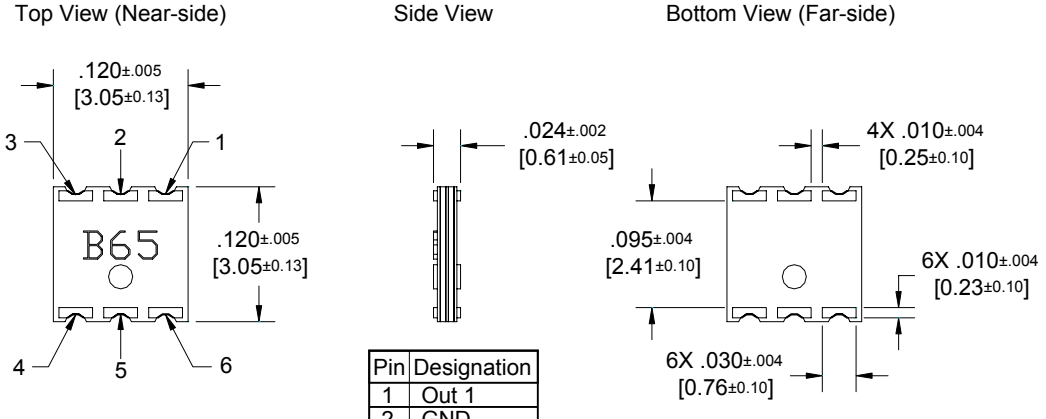
Frequency	Unbalanced Port Impedance	Balanced Port Impedance*	Return Loss	Insertion Loss
GHz	*Ohms*	*Ohms*	*dB min*	*dB max*
2.4 – 2.5	50	100	17	0.55***
Amplitude Balance	**Phase Balance**	**Power Handling**	**ΘJC**	**Operating Temp.**
dB	*Degrees max*	*Watts*	*ºC / Watt*	*ºC*
0 ± 0.5	180 ± 5.0	4	28	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

* 50Ω reference to ground

*** Insertion Loss stated at room temperature (0.6 dB Max at +85 ºC)

Outline Drawing



Pin	Designation
1	Out 1
2	GND
3	Out 2
4	GND
5	In
6	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline

Tolerances are Non-Cumulative

Available on Tape and Reel For Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 544-2414
Europe: +44 2392-232392

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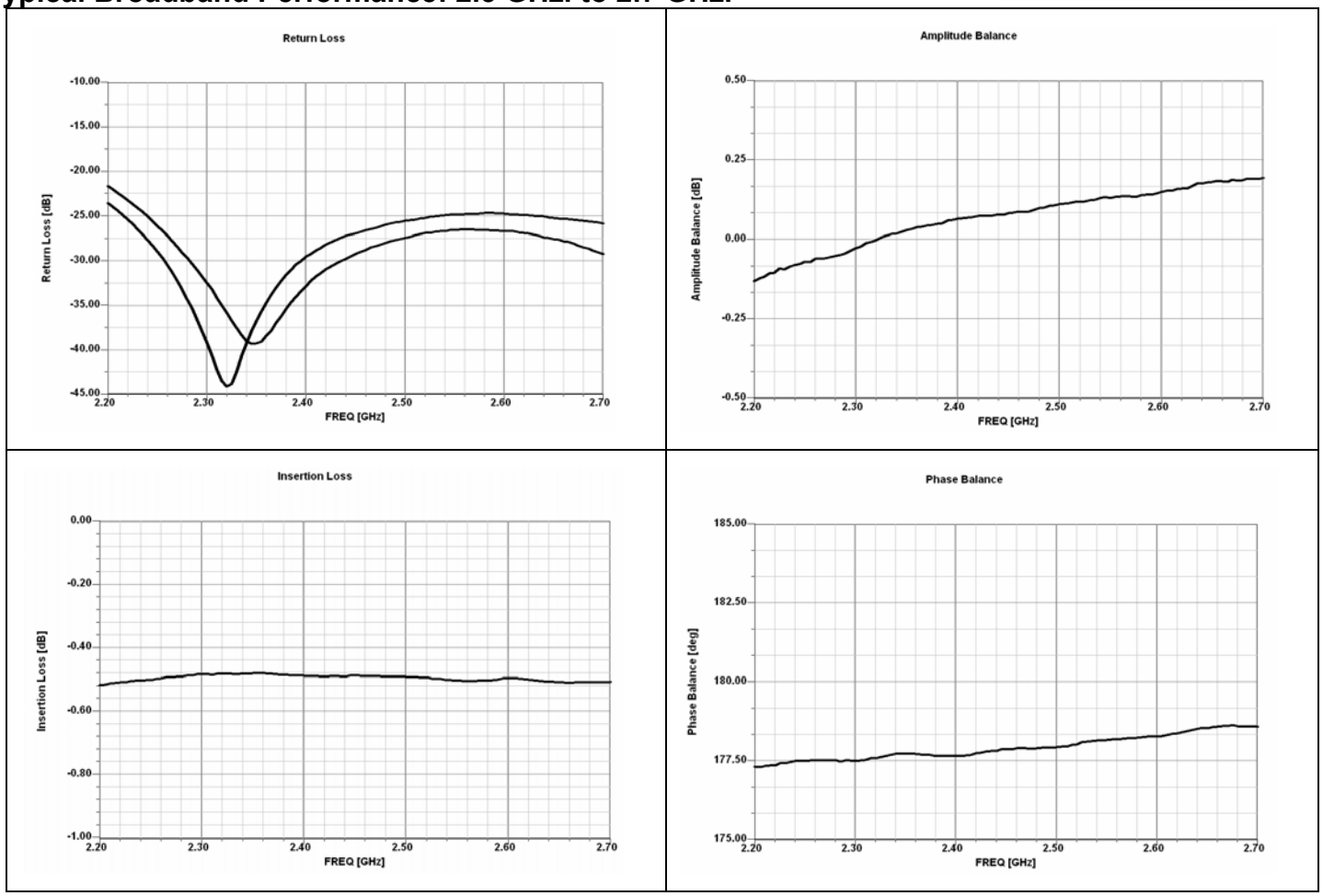
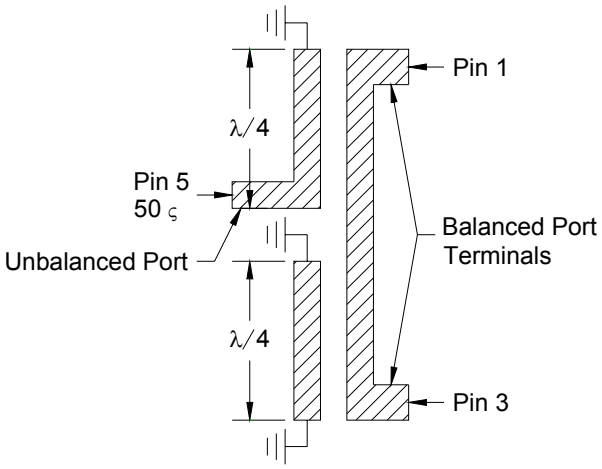
Typical Broadband Performance: 2.3 GHz. to 2.7 GHz.



Pin Configuration:

Balun Pin Configuration



The internal configuration of the Xinger® balun is diagramed to the left; the unbalanced port is DC connected to ground and the two balanced ports are DC connected and floating. For many chipset applications there is an opportunity to eliminate two decoupling capacitors and/or use a single bias point if applicable. Differential drive is popular in integrated circuit since it aids stability in the presence of bond wire and pin inductance, provides some degree of immunity to power supply and ground noise, and can provide higher output power in the case of some device limits. The construction of the Xinger® balun is bonded multi-layered stripline made of low loss dielectric material with plated through vias connecting the internal circuitry to the external printed circuit board, similar to that of the Xinger® hybrids and directional couplers.

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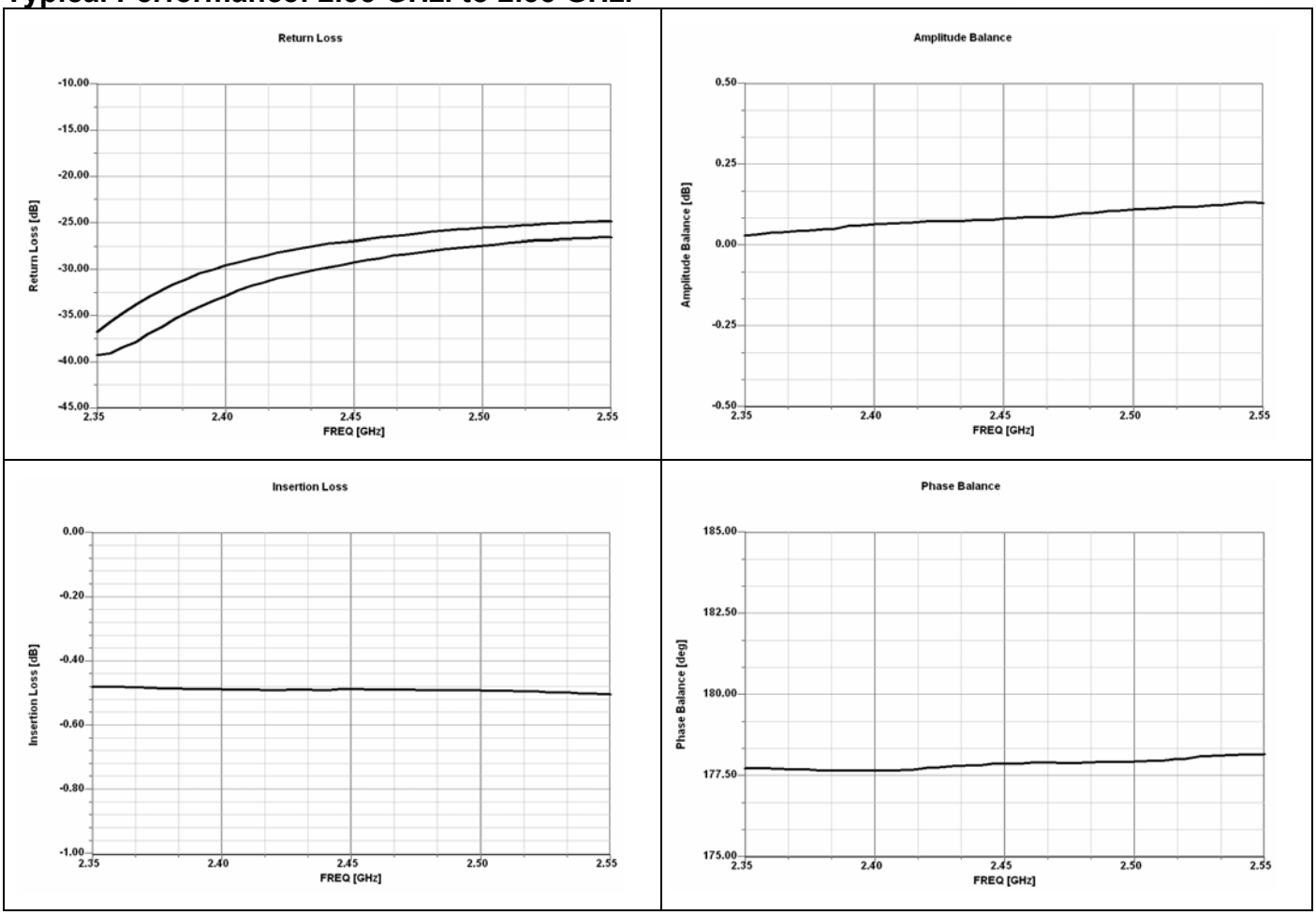
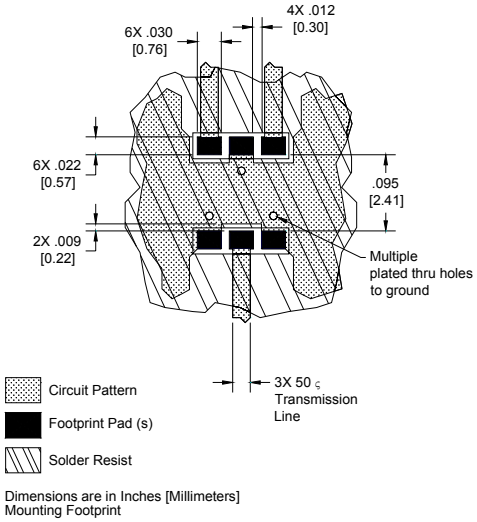
Xinger®

Typical Performance: 2.35 GHz. to 2.55 GHz.



Mounting Configuration:



Dimensions are in Inches [Millimeters]
Mounting Footprint

In order for Xinger surface mount components to work optimally, there must be a 50Ω transmission line to the balanced port and 50Ω transmission lines from the unbalanced ports. If this condition is not satisfied, amplitude balance, insertion loss and VSWR may not meet published specifications.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability having X and Y thermal coefficient of expansion (CTE) of 17 ppm/^{o}C

An example of the PCB footprint used in the testing of these parts is shown to the left. in specific designs, the transmission line widths need to be adjusted to the unique dielectric coefficients and thicknesses as well as varying pick and place equipment tolerances.

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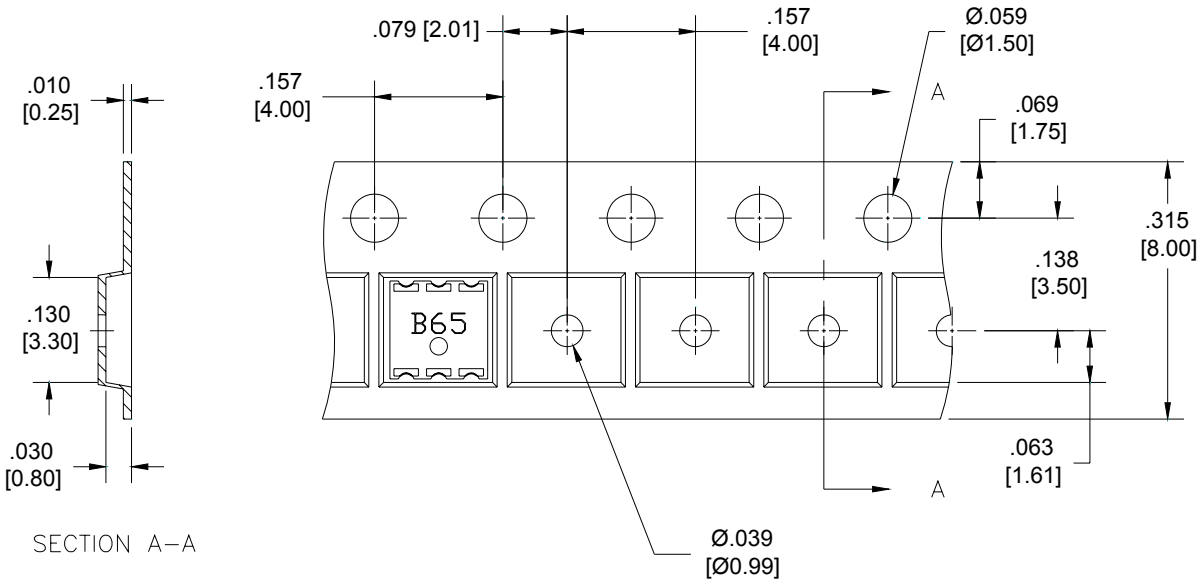
Packaging and Ordering Information

Parts are available in reel and are packaged per EIA 481-2. Parts are oriented in tape and reel as shown below. Minimum order quantities are 4000 per reel. See Model Numbers below for further ordering information.



Dimensions are in inches [mm]

Direction of Part Feed (Unloading)

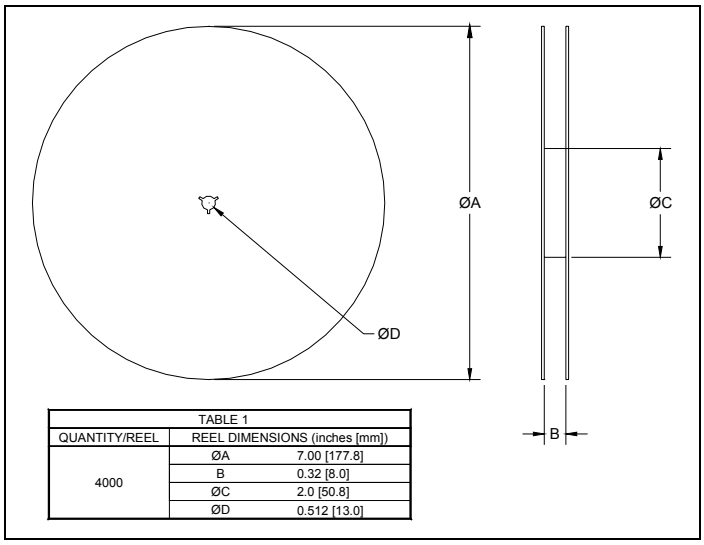


TABLE 1		
QUANTITY/REEL	REEL DIMENSIONS (inches [mm])	
4000	ØA	7.00 [177.8]
	B	0.32 [8.0]
	ØC	2.0 [50.8]
	ØD	0.512 [13.0]

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4859 B 50-12 A P R

Frequency

00550 = 50 – 500 MHz
0110 = 100 – 1000 MHz
0910 = 900 – 1000 MHz
0921 = 900 – 2100 MHz
1222 = 1200 – 2200 MHz
1416 = 1400 – 1500 MHz
1718 = 1700 – 1800 MHz
1719 = 1700 – 1900 MHz
1819 = 1800 – 1900 MHz
2122 = 2100 – 2200 MHz
2022 = 2000 – 2200 MHz
2425 = 2400 – 2500 MHz
3436 = 3400 – 3600 MHz
4859 = 4800 – 5900MHz
5153 = 5100 – 5300 MHz
5159 = 5100 – 5900 MHz
5759 = 5700 – 5900 MHz
1414 = 14000– 14500 MHz
0819 = 800 + 1900 MHz

Function

B = Balun
F = Filter
FB = Filter / Balun
C = 3dB Coupler
DC = Directional
CR = Circulator
DB = Dual Balun

Input Impedance

50 = 50 Ohm
75 = 75 Ohm

Output Impedance + Coupling

12 = 12.5Ω to Ground
15 = 15Ω to Ground
25 = 25Ω to Ground
37 = 37.5Ω to Ground
50 = 50Ω to Ground
75 = 75Ω to Ground
100 = 100Ω to Ground
03 = 3dB Hybrid
10 = 10dB Directional
20 = 20dB Directional
C = Clockwise
AC = Anti Clockwise

Package Dimensions

A = 150 x 150 mils (4mm x 4mm)
C = 120 x 120 mils (3mm x 3mm)
E = 100 x 80 mils (2.5mm x 2mm)
G = 120 x 60 mils (3mm x 1.5mm)
J = 80 x 50 mils (2mm x 1.25mm)
L = 60 x 30 mils (1.5mm x 0.75mm)
N = 140 x 80 mils (3.5mm x 2mm)

Plating

P = Lead
S = Tin

Shipping Package

R = Reel
B = Bulk

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