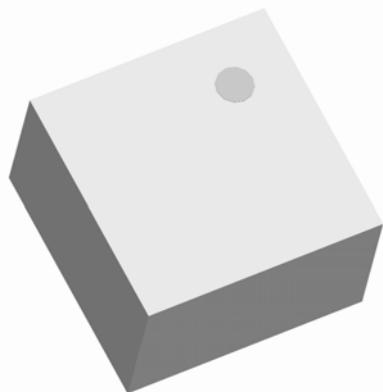


# Xinger®



## Ultra Low Profile 0404 Balun 50Ω to 100Ω Balanced

### Description

The BD2425N50100A00 is a low cost, low profile sub-miniature unbalanced to balanced transformer designed for differential inputs and output locations on modern chipsets in an easy to use surface mount package. The BD2425N50100A00 is ideal for high volume manufacturing and delivers higher performance than traditional ceramic baluns. The BD2425N50100A00 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 BD2425N50100A00 is available on tape and reel for pick and place high volume manufacturing.

### Detailed Electrical Specifications: Specifications subject to change without notice.

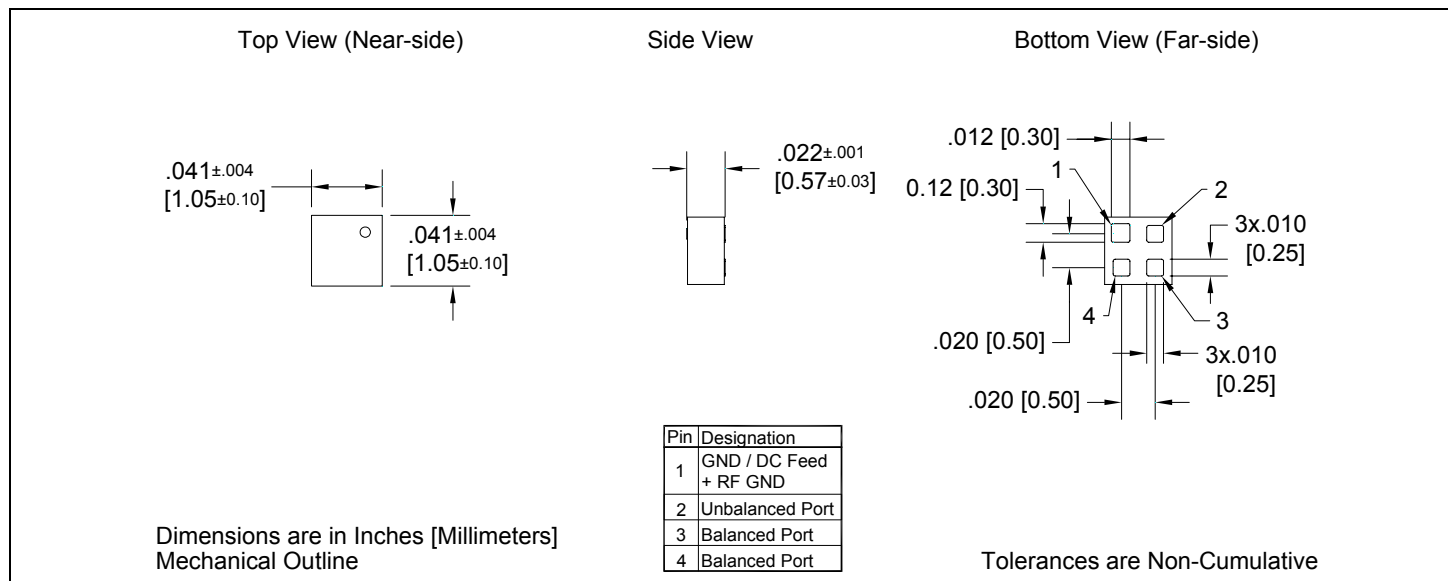
#### Features:

- 2400 – 2500 MHz
- 0.57 mm Height Profile
- 50 Ohm to 2 x 50 Ohm
- Low Insertion Loss
- 802.11 b+g
- MIMO b+g
- Bluetooth
- Zigbee
- Surface Mountable
- Tape & Reel
- Non-conductive
- RoHS Compliant

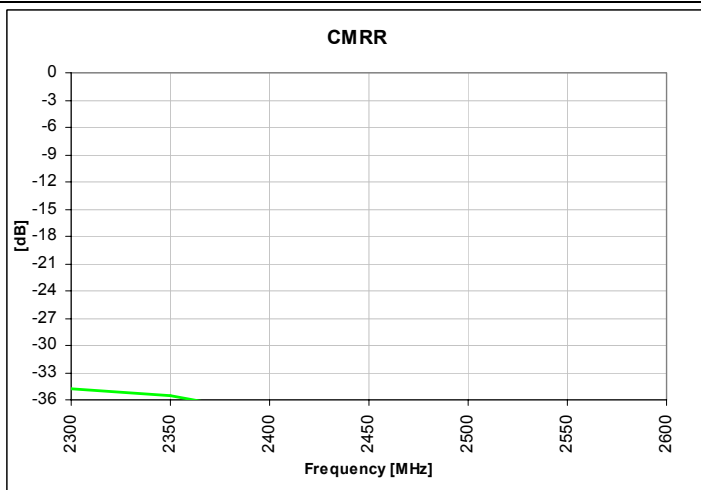
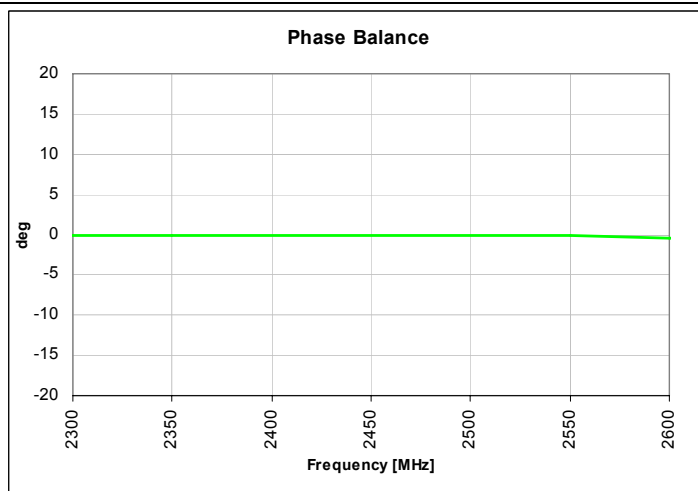
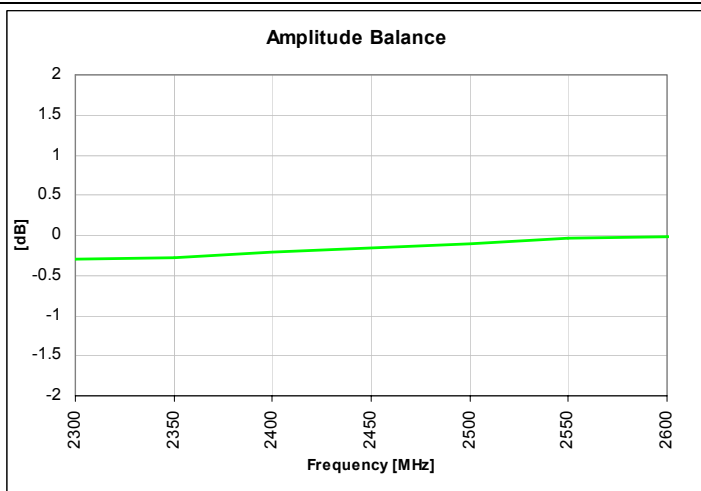
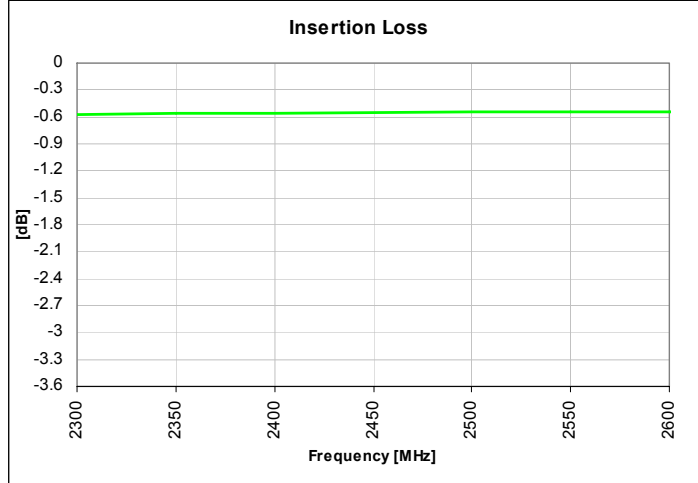
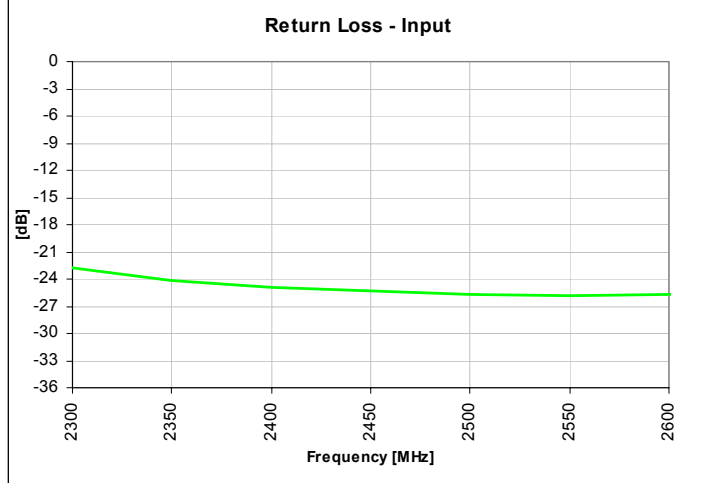
| Parameter                 | ROOM (25°C) |      |      | Unit    |
|---------------------------|-------------|------|------|---------|
|                           | Min.        | Typ. | Max  |         |
| Frequency                 | 2400        |      | 2500 | MHz     |
| Unbalanced Port Impedance |             | 50   |      | Ω       |
| Balanced Port Impedance   |             | 100  |      | Ω       |
| Return Loss               | 18          | 25   |      | dB      |
| Insertion Loss*           |             | 0.6  | 0.7  | dB      |
| Amplitude Balance         |             | 0.2  | 0.6  | dB      |
| Phase Balance             |             | 1    | 3    | Degrees |
| CMRR                      |             | 37   |      | dB      |
| Power Handling            |             |      | 1    | Watts   |
| Operating Temperature     | -55         |      | +85  | °C      |

\* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 °C)

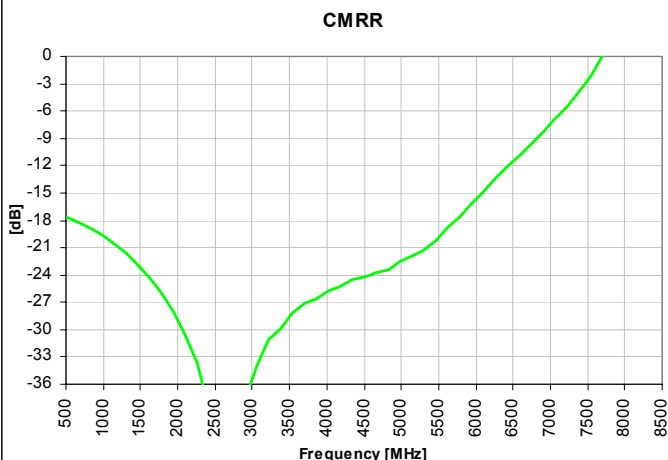
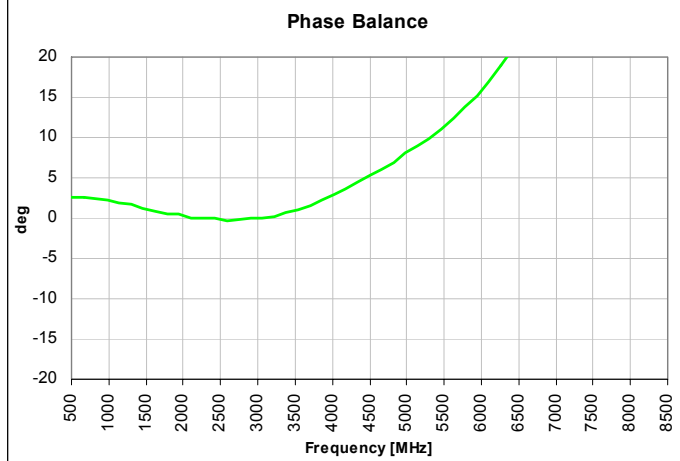
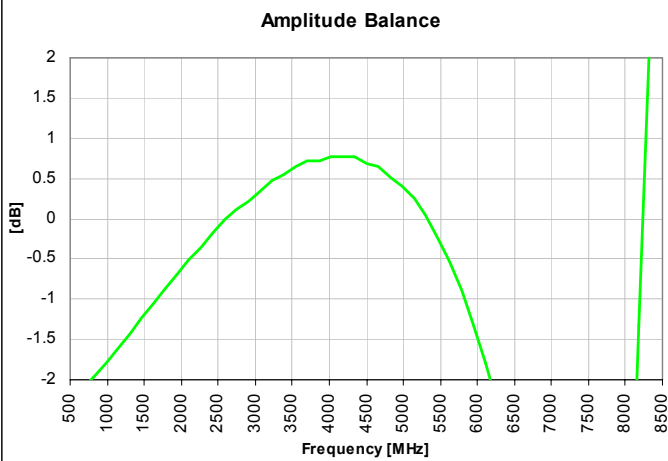
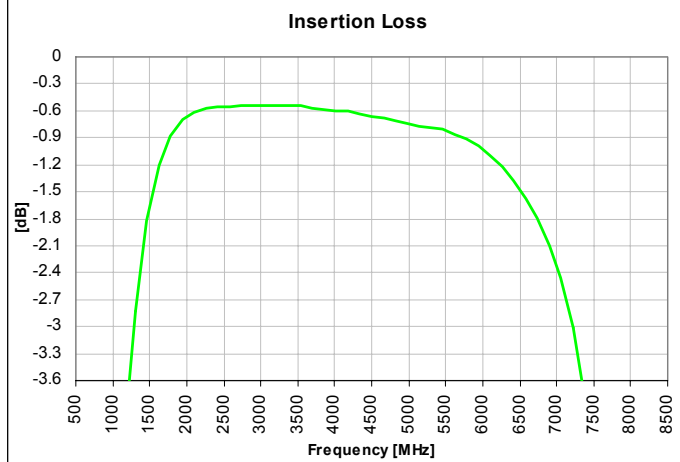
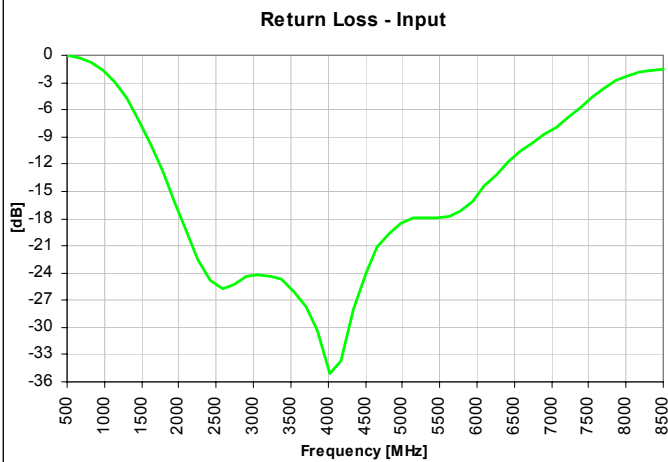
### Outline Drawing



## Typical Performance: 2300 MHz. to 2600 MHz.



### Wide Band Performance: 500 MHz. to 8500 MHz.

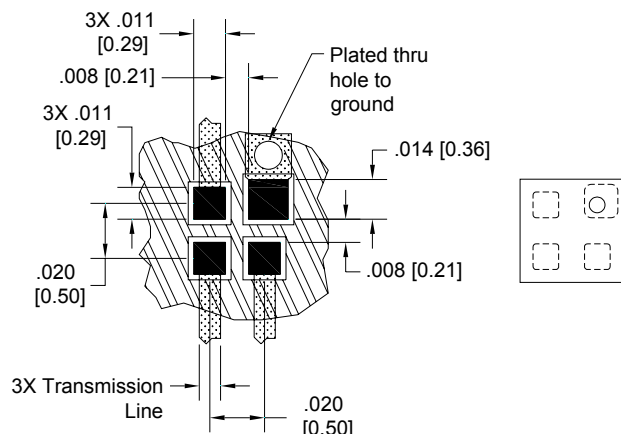
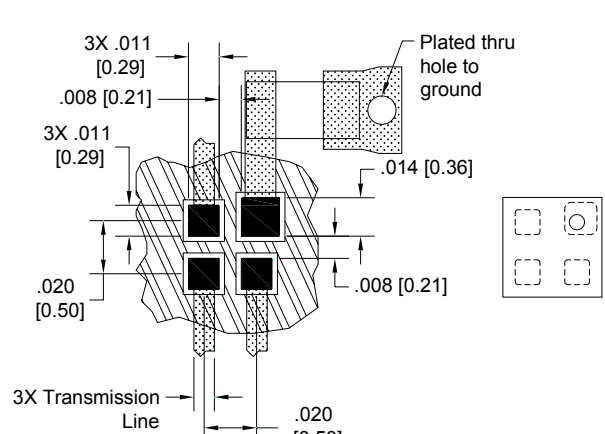


## Mounting Configuration:

In order for Xinger surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation 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/°C.

An example of the PCB footprint used in the testing of these parts is shown below. An example of a DC-biased footprint is also shown below. 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.

| With No DC Bias                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | With DC Bias                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>3X .011 [0.29]</p> <p>.008 [0.21]</p> <p>3X .011 [0.29]</p> <p>.014 [0.36]</p> <p>.020 [0.50]</p> <p>.008 [0.21]</p> <p>Plated thru hole to ground</p> <p>3X Transmission Line</p> <p>.020 [0.50]</p> <p>Legend:<br/>  Circuit Pattern<br/>  Footprint Pad (s)<br/>  Solder Resist</p> <p>Dimensions are in Inches [Millimeters]<br/>Mounting Footprint</p> |  <p>3X .011 [0.29]</p> <p>.008 [0.21]</p> <p>3X .011 [0.29]</p> <p>.014 [0.36]</p> <p>.020 [0.50]</p> <p>.008 [0.21]</p> <p>Plated thru hole to ground</p> <p>3X Transmission Line</p> <p>.020 [0.50]</p> <p>Legend:<br/>  Circuit Pattern<br/>  Footprint Pad (s)<br/>  Solder Resist</p> <p>Dimensions are in Inches [Millimeters]<br/>Mounting Footprint</p> |





# BD 2425 J 50 100 A 00

| Function                                                                                                                                                                                               | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Package Dimensions                                                                                                                                                                                                                                                      | Unbalanced Impedance                     | Balanced Impedance + Coupling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Plating Finish                         | Codes |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-------|
| <b>B = Balun</b><br><b>BD = Balun + DC</b><br><b>F = Filter</b><br><b>FB = Filter / Balun</b><br><b>C = 3dB Coupler</b><br><b>DC = Directional</b><br><b>J = RF Jumper</b><br><b>X = RF cross over</b> | <b>0110 = 100 – 1000 MHz</b><br><b>0810 = 800 – 1000 MHz</b><br><b>0922 = 950 – 2150 MHz</b><br><b>0826 = 800 – 6200 MHz</b><br><b>1222 = 1200 – 2200 MHz</b><br><b>1416 = 1400 – 1600 MHz</b><br><b>1722 = 1700 – 2200 MHz</b><br><b>2326 = 2300 – 2600 MHz</b><br><b>2425 = 2400 – 2500 MHz</b><br><b>3150 = 3100 – 5000 MHz</b><br><b>3436 = 3400 – 3600 MHz</b><br><b>4859 = 4800 – 5900MHz</b><br><b>5153 = 5100 – 5300 MHz</b><br><b>5159 = 5100 – 5900 MHz</b><br><b>5759 = 5700 – 5900 MHz</b> | <b>A = 150 x 150 mils</b><br>(4mm x 4mm)<br><b>C = 120 x 120 mils</b><br>(3mm x 3mm)<br><b>E = 100 x 80 mils</b><br>(2.5mm x 2mm)<br><b>J = 80 x 50 mils</b><br>(2mm x 1.25mm)<br><b>L = 60 x 30 mils</b><br>(1.5mm x 0.75mm)<br><b>N = 40 x 40 mils</b><br>(1mm x 1mm) | <b>50 = 50 Ohm</b><br><b>75 = 75 Ohm</b> | <b>25 = 25 <math>\Omega</math> Balanced</b><br><b>30 = 30 <math>\Omega</math> Balanced</b><br><b>50 = 50 <math>\Omega</math> Balanced</b><br><b>75 = 75 <math>\Omega</math> Balanced</b><br><b>100 = 100 <math>\Omega</math> Balanced</b><br><b>150 = 150 <math>\Omega</math> Balanced</b><br><b>200 = 200 <math>\Omega</math> Balanced</b><br><b>300 = 300 <math>\Omega</math> Balanced</b><br><b>400 = 400 <math>\Omega</math> Balanced</b><br><b>03 = 3dB Hybrid</b><br><b>10 = 10dB Directional</b><br><b>20 = 20dB Directional</b> | <b>A = Gold</b><br><b>P = Tin-Lead</b> |       |

