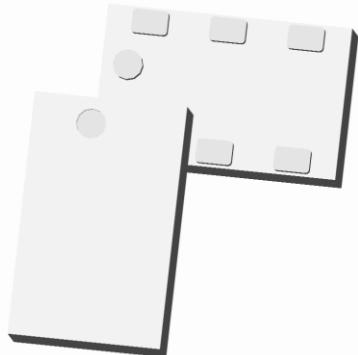


Xinger®



Ultra Low Profile 0805 Balun 50Ω to 100Ω Balanced

Description

The BD2040J50100AHF 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 multiple ISM bands. The BD2040J50100AHF is ideal for high volume manufacturing and is higher performance than traditional ceramic and lumped element baluns. The BD2040J50100AHF 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 semiconductors. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD2040J50100AHF is available on tape and reel for pick and place high volume manufacturing.

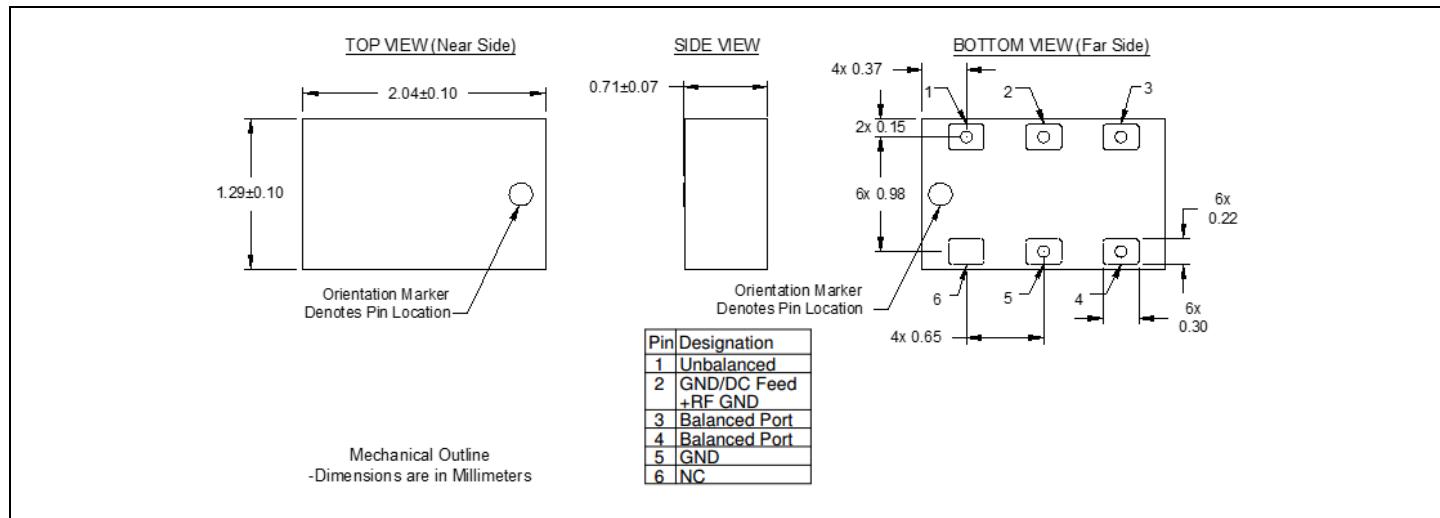
Detailed Electrical Specifications:

Specifications subject to change without notice.

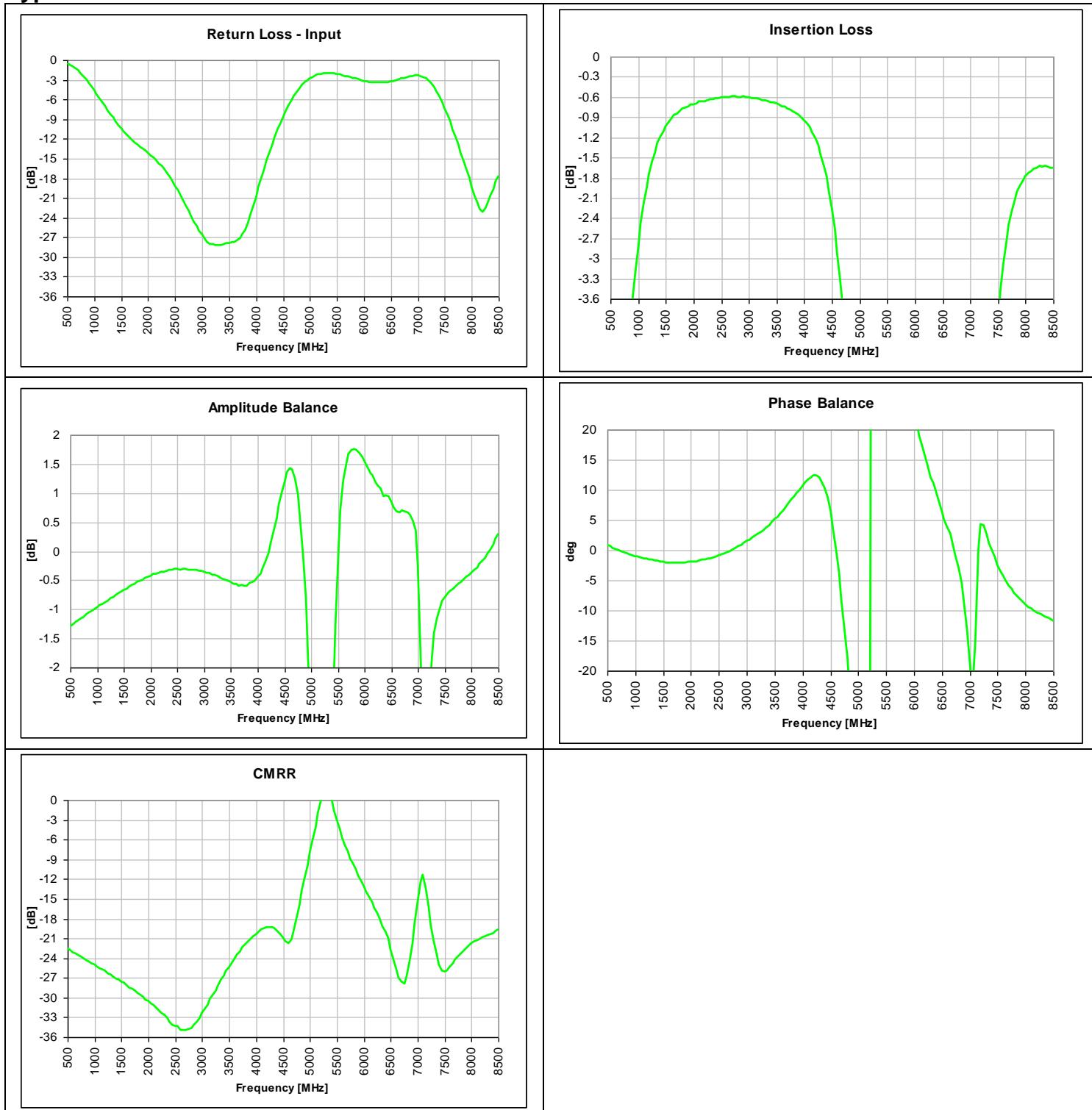
| Features: | Parameter | ROOM (25°C) | | | | | | |
|--------------------------------|---------------------------|-------------|------|------|------|------|------|---------|
| | | Min. | Typ. | Max | Min. | Typ. | Max | Unit |
| • 2000 – 4000 MHz | Frequency | 2650 | | 3500 | 2000 | | 4000 | MHz |
| • 0.7mm Height Profile | Unbalanced Port Impedance | | 50 | | | 50 | | Ω |
| • 50 Ohm to 2 x 50 Ohm | Balanced Port Impedance | | 100 | | | 100 | | Ω |
| • Multiple ISM bands | Return Loss | 13.0 | 16.9 | | 10 | 14.2 | | dB |
| • Low Insertion Loss | Insertion Loss* | 0.8 | 1.0 | | 1.06 | 1.3 | | dB |
| • Input to Output DC Isolation | Amplitude Balance | 0.6 | 1.3 | | 0.8 | 1.48 | | dB |
| • Surface Mountable | Phase Balance | 8.2 | 13.0 | | 15 | 16.5 | | Degrees |
| • Tape & Reel | CMRR | 21.7 | | | 17 | | | dB |
| • Non-conductive Surface | Power Handling @85C | | 2 | | | 2 | | Watts |
| • RoHS Compliant | Power Handling @105C | | 1.2 | | | 1.2 | | Watts |
| • Halogen Free | Operating Temperature | -55 | | +105 | -55 | | +105 | °C |

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

Outline Drawing



Typical Broadband Performance: 500 MHz. to 8.5 GHz.

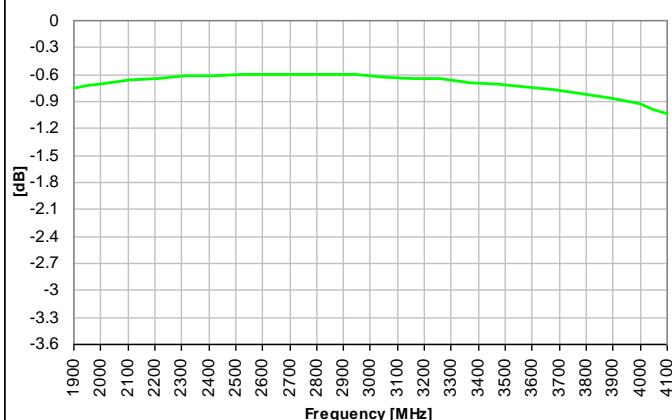


Typical Performance: 1900 MHz. to 4100 MHz.

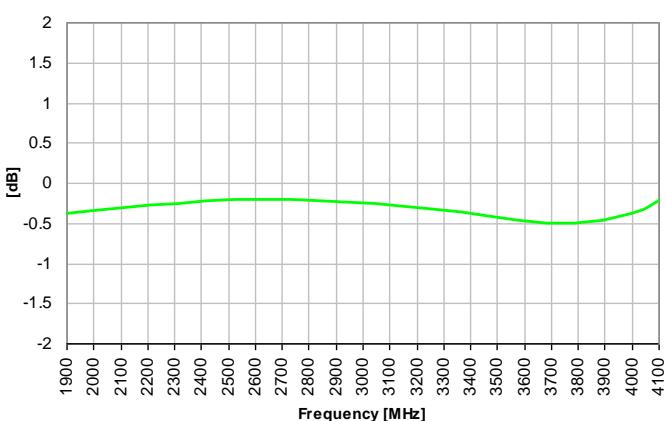
Return Loss - Input



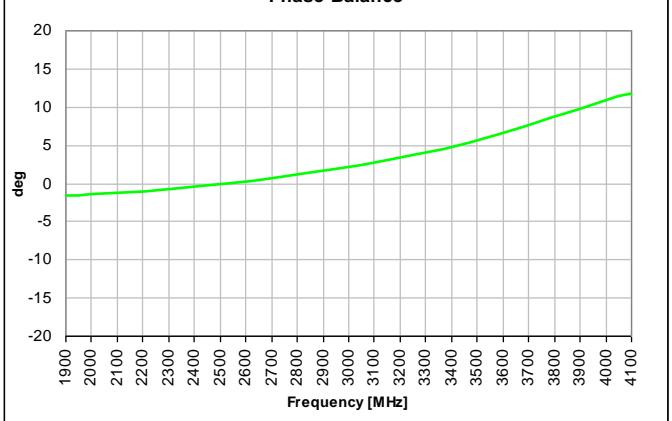
Insertion Loss



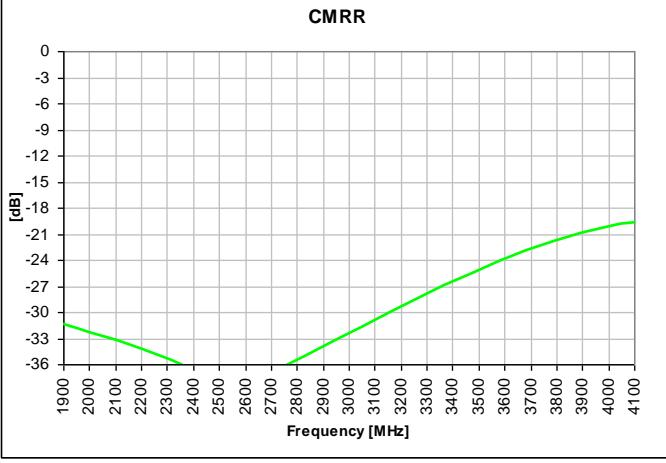
Amplitude Balance



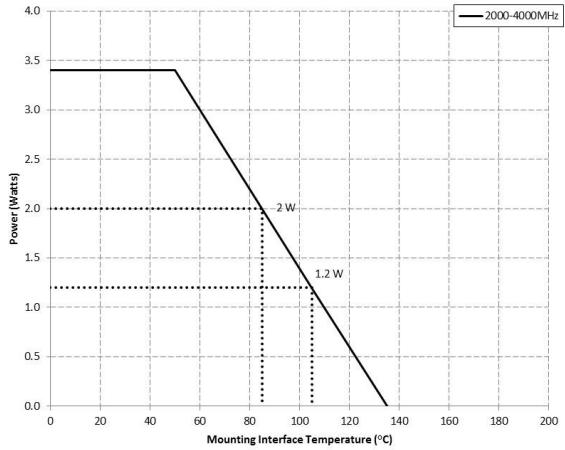
Phase Balance



CMRR



BD2040J50100AHF Power Derating Curve

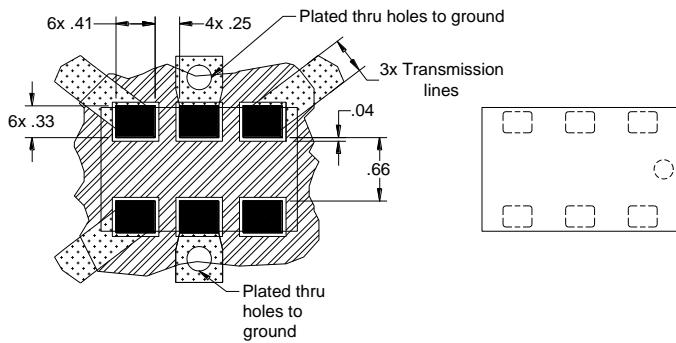
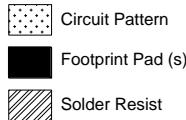


Mounting Configuration:

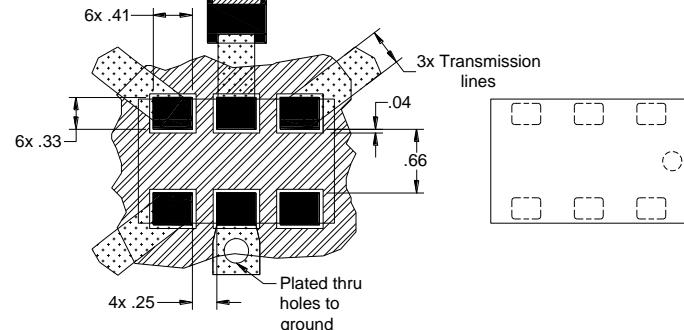
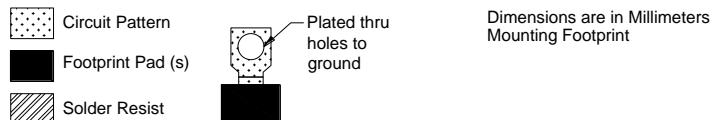
In order for Xinger surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation and VSWR may not meet published specifications.

All of the Xinger components are constructed from organic PTFE based composites which possess excellent electrical and mechanical stability. Xinger components are compliant to a variety of ROHS and Green standards and ready for Pb-free soldering processes. Pads are Gold plated with a Nickel barrier.

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.

No Bias Footprint

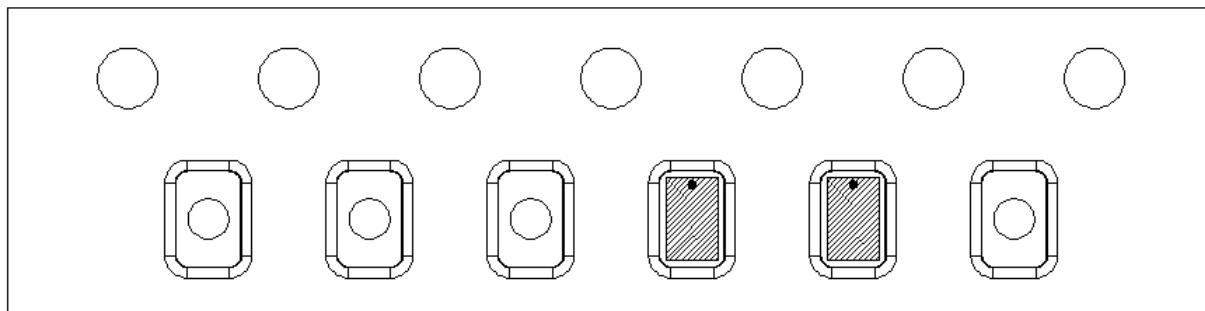
Dimensions are in Millimeters
Mounting Footprint

DC Bias Footprint

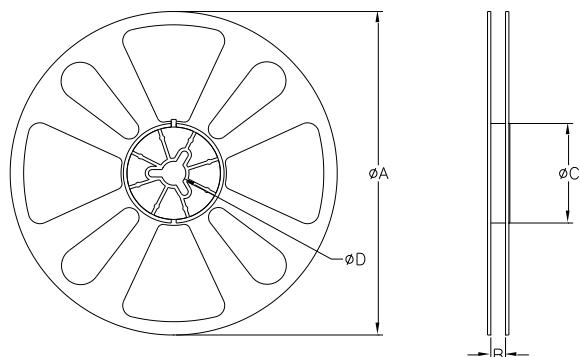
Dimensions are in Millimeters
Mounting Footprint

Packaging Information:

Parts are available in reel and are packaged per EIA 481-D. Parts are oriented in tape and reel as shown below. Minimum order quantities are 4000 per reel.



Direction of
Part Feed
(Unloading)



| TABLE 1 | | |
|---------------|--------------------|--------|
| QUANTITY/REEL | REEL DIMENSIONS mm | |
| 4000 | ØA | 177.80 |
| | B | 8.00 |
| | ØC | 50.80 |
| | ØD | 13.00 |