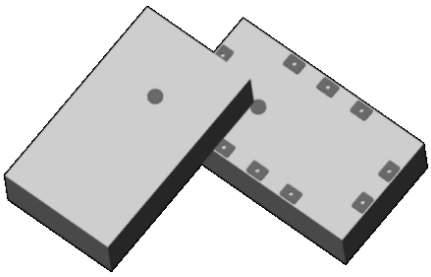
Model BD0205F5050A00

Rev A

Ultra Low Profile 1608 Balun
50Ω to 50Ω Balanced



Description

The BD0205F5050A00 is a low profile sub-miniature balanced to unbalanced transformer designed for differential input locations on data conversion devices such as A to D and D to A converters. In an easy to use surface mount package covering 200 MHz to 500 MHz and with CMRR performances over 2x that of the incumbent wire wound products, this transformer is optimized to offer improved SFDR management during operation of the data converter device. The BD0205F5050A00 is ideal for high volume manufacturing and is higher performance and smaller form factor than traditional wire wound transformers. The BD0205F5050A00 has an unbalanced port impedance of 50Ω and a 50Ω balanced port impedance. This transformation enables single ended signals to be applied to differential ports on the data converter devices. The output ports have equal amplitude (-3dB) with 180 degree phase differential. The BD0205F5050A00 is available on tape and reel for pick and place high volume manufacturing.

Features:

- **200 – 500 MHz**
- **0.74 mm Height Profile**
- **50 Ohm to 2 x 25 Ohm**
- **Excellent CMRR**
- **Input to Output DC Isolation**
- **Surface Mountable**
- **Tape & Reel**
- **Non-conductive Surface**
- **RoHS Compliant**
- **Cascadable**
- **Configurable as UnUn Transformer**

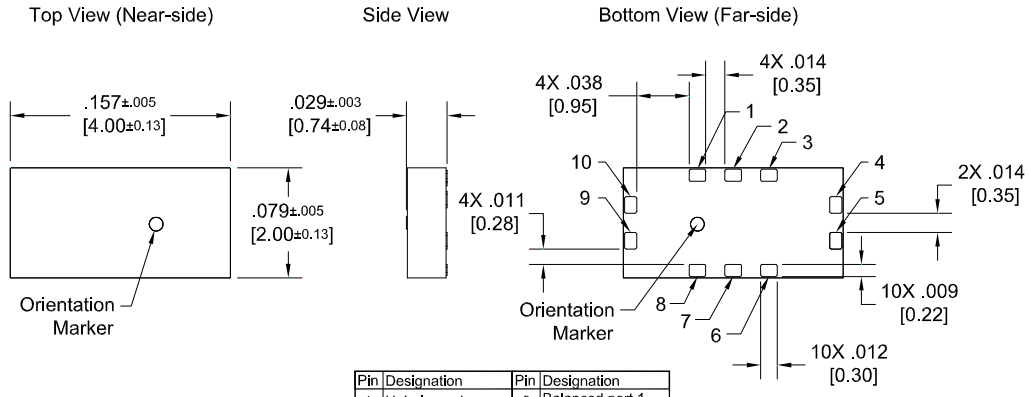
Detailed Electrical Specifications:

Specifications subject to change without notice.

Parameter	ROOM (25°C) Min.	Typ.	Max	Unit
Frequency	200		500	MHz
Unbalanced Port Impedance		50		Ω
Balanced Port Impedance		50		Ω
Return Loss	11	13		dB
Insertion Loss*		0.9	1.1	dB
Amplitude Balance		0.2	0.6	dB
Phase Balance		1	3	Degrees
CMRR		36		dB
Power Handling			2	Watts
Operating Temperature	-55		+85	ºC

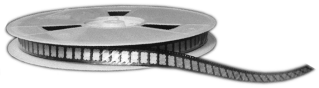
* Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 ºC)

Outline Drawing



Pin	Designation	Pin	Designation
1	Unbalanced	6	Balanced port 1
2	NC	7	DC Bias/NC
3	GND/Diff In	8	Balanced port 2
4	GND	9	GND
5	GND	10	GND

Dimensions are in Inches [Millimeters]
Mechanical Outline



Available on Tape and Reel for Pick and Place Manufacturing.

USA/Canada: (315) 432-8909
Toll Free: (800) 411-6596
Europe: +44 2392-232392

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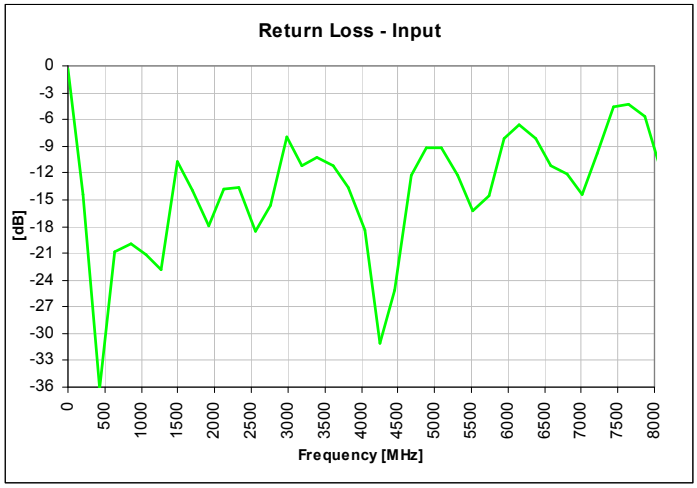
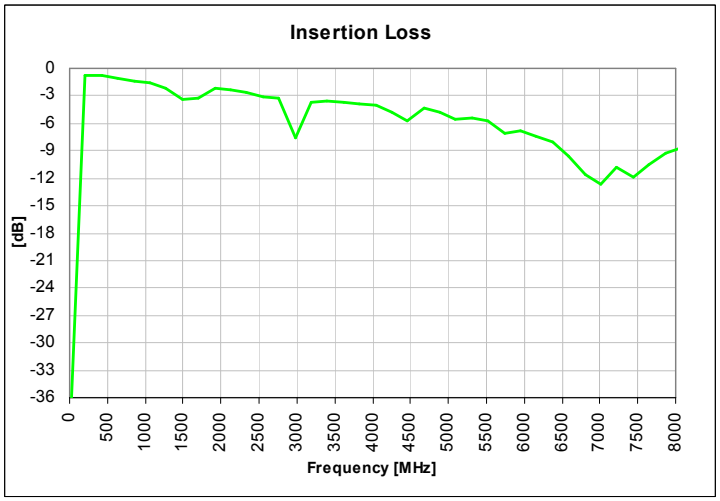
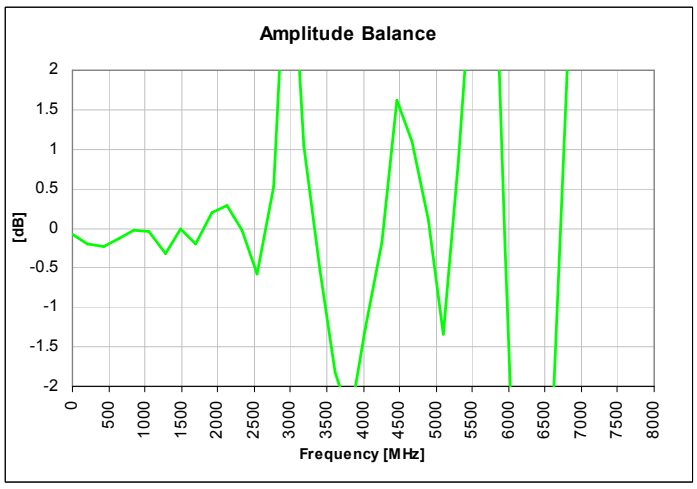
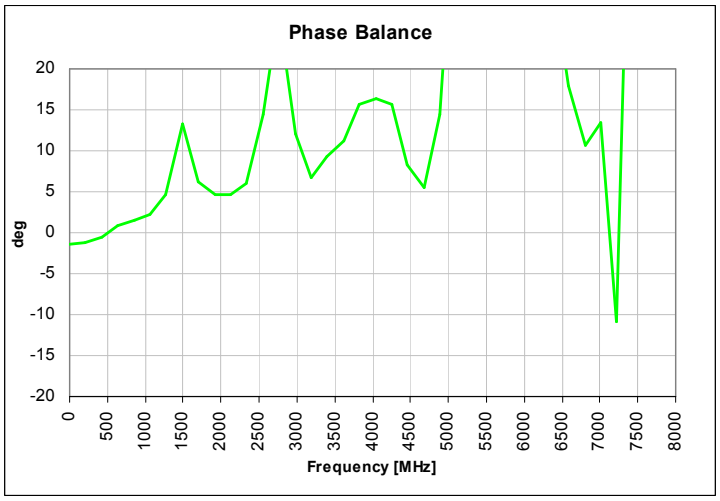
Rev. A

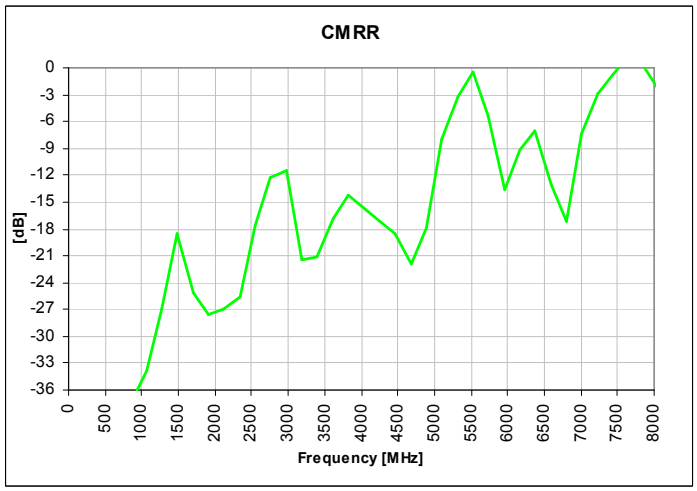
Typical Broadband Performance: 0 - 8.0 GHz.











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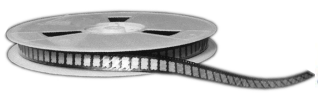

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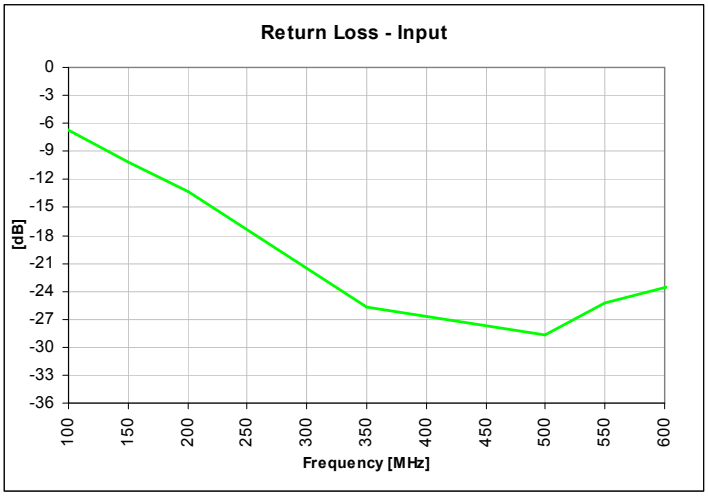
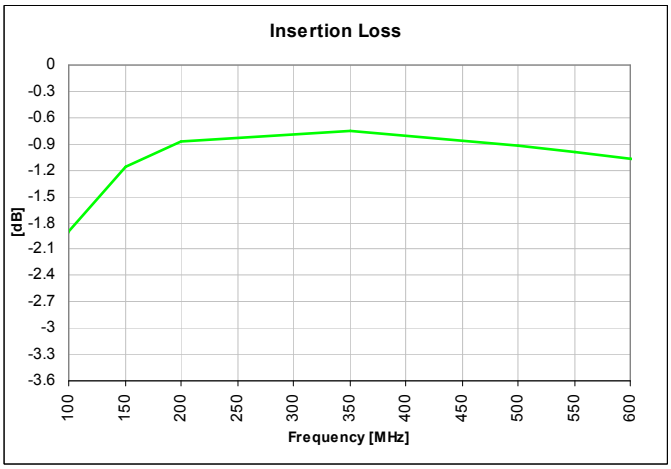
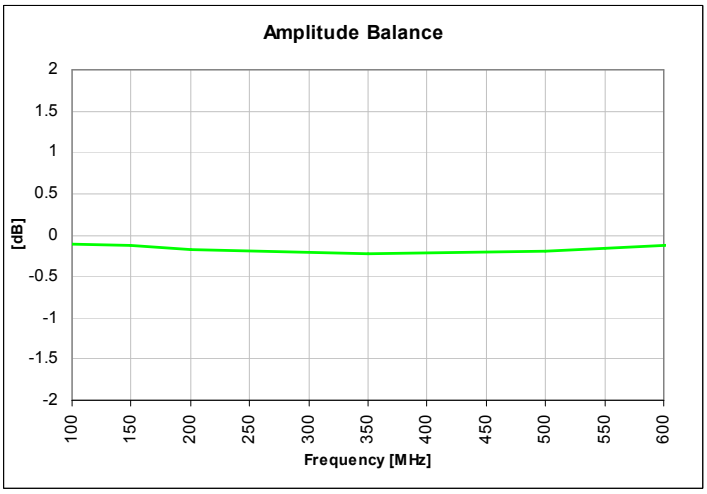
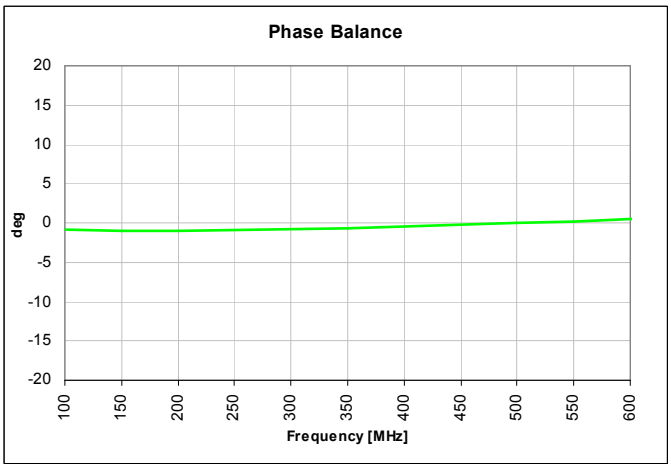
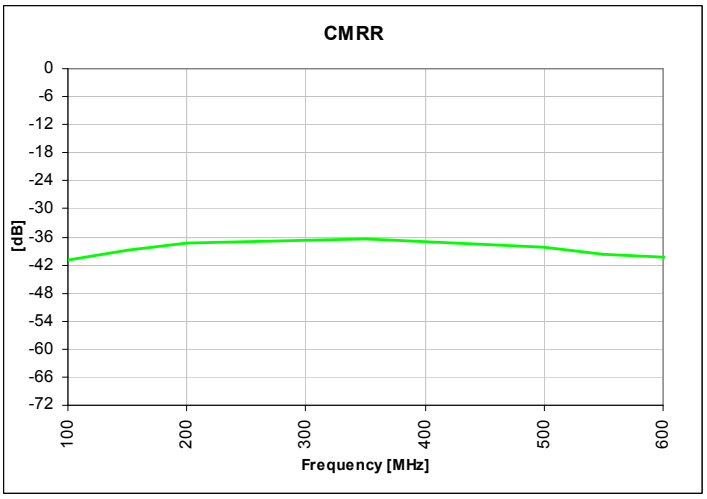
Typical Performance: 100 MHz. to 600 MHz.

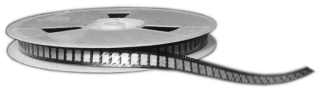












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Mounting Configuration:

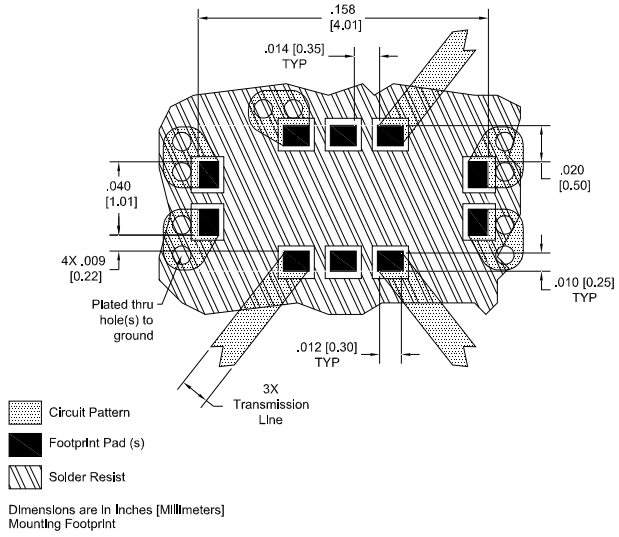
In order for Xinger surface mount components to work optimally, the proper impedance transmission lines must be used to connect to the RF ports. If this condition is not satisfied, insertion loss, Isolation and VSWR may not meet published specifications.

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/^{o}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.

If desired, DC biasing through the part may be accomplished by the addition of an inductor on Pin #7. Pins #6 and #8 are DC connected to Pin #7. The inductor should be of sufficient value to provide RF isolation on Pin #7.

No DC Bias



With DC Bias