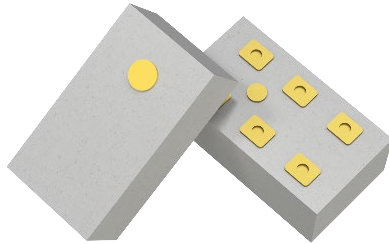




0603 Balun 50Ω to 100Ω Balanced



Description:

The BD3150L50100AHF is an ultra-small (0603), low profile, balanced to unbalanced transformer in an easy-to-use Xinger style manufacturing friendly surface mount package. The BD3150L50100AHF is ideal for high volume manufacturing and is higher performance than traditional ceramic balun, with improved CTE compatibility to commonly used PCB's materials. The BD3150L50100AHF has an unbalanced port impedance of 50Ω and a 100Ω balanced port impedance for applications in RFSOC's, ADC's and DAC's for 5G Telecom, COTS Mil- Aero and all other markets. BD3150L50100AHF is qualified in accordance with AEC-Q200, and it is suitable for all applications where AECQ qualification is required.

Parts have been subjected to rigorous Xinger qualification testing, including AEC-Q200 qualification, and they are manufactured using materials with coefficients of thermal expansion (CTE) compatible with common substrates such as FR4, RF-35, RO4350 and polyimide. Produced with 6 of 6 RoHS compliant ENIG finish. The BD3150L5000AHF is available on tape and reel for pick and place high volume manufacturing.

Features:

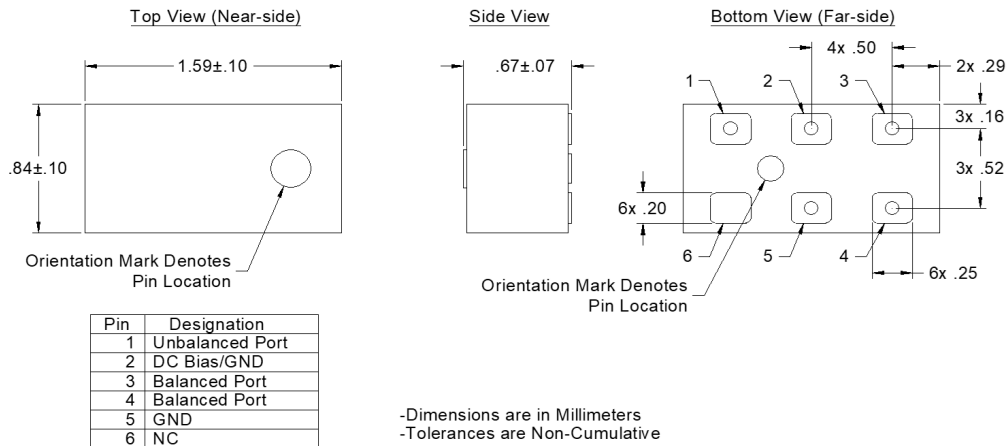
- 3100 – 5805 MHz
- Insertion Loss (<1.1dB)
- 0.67mm Height Profile
- 50 Ohm to 2 x 50 Ohm
- RFSOC's, ADC's and DAC's for 5G Telecom, COTS Mil- Aero and all other markets
- AEC-Q200 Qualified
- Input to Output DC Isolation
- Surface Mountable
- Tape & Reel
- Non-conductive Surface
- RoHS Compliant
- Halogen Free

Electrical Specifications:

Parameter (@25°C)	Min	Typ	Max	Min	Typ	Max	Unit
Frequency	4190		5805	3100		5000	MHz
Unbalanced Port Impedance		50			50		Ω
Balanced Port Impedance		100			100		Ω
Return Loss	14	19		9.5	12		dB
Insertion Loss*		0.7	0.9		0.8	1.1	dB
Amplitude Balance		0.3	0.9		0.5	0.9	dB
Phase Balance		3	7		4.0	9.0	Degrees
CMRR	25	30		24	28		dB
Power Handling			2			2	Watts
Operating Temperature	-55		+140	-55		+140	°C

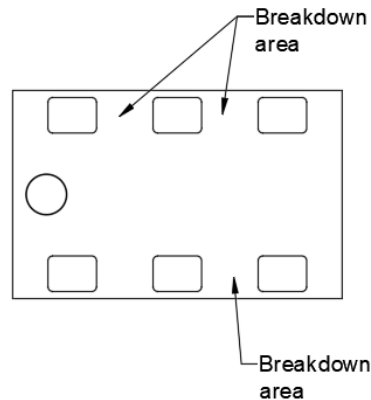
* Specifications subject to change without notice. Insertion Loss stated at room temperature (Insertion Loss is approximately 0.1 dB higher at +85 °C)

Mechanical Outline:

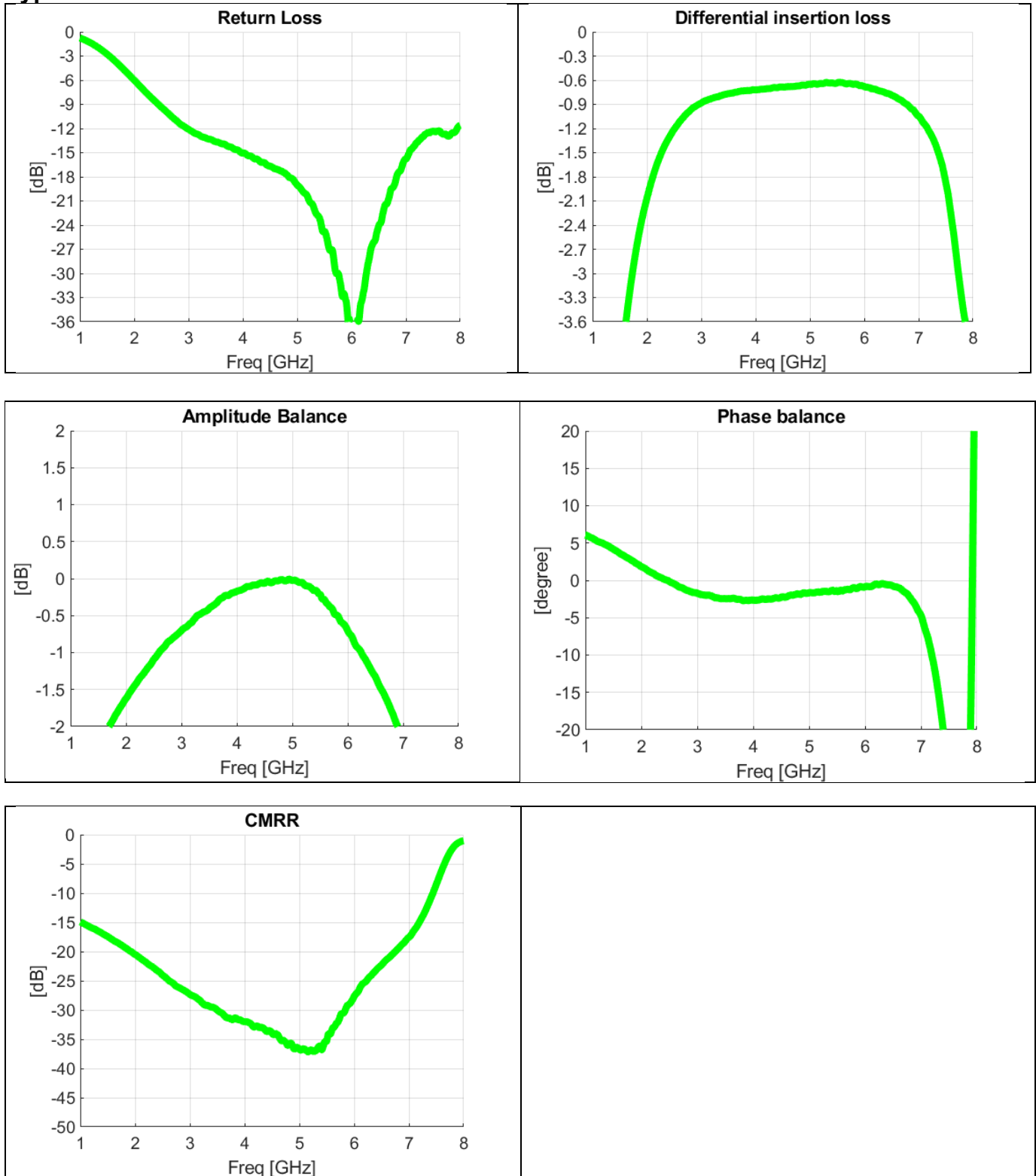


Peak Power Handling:

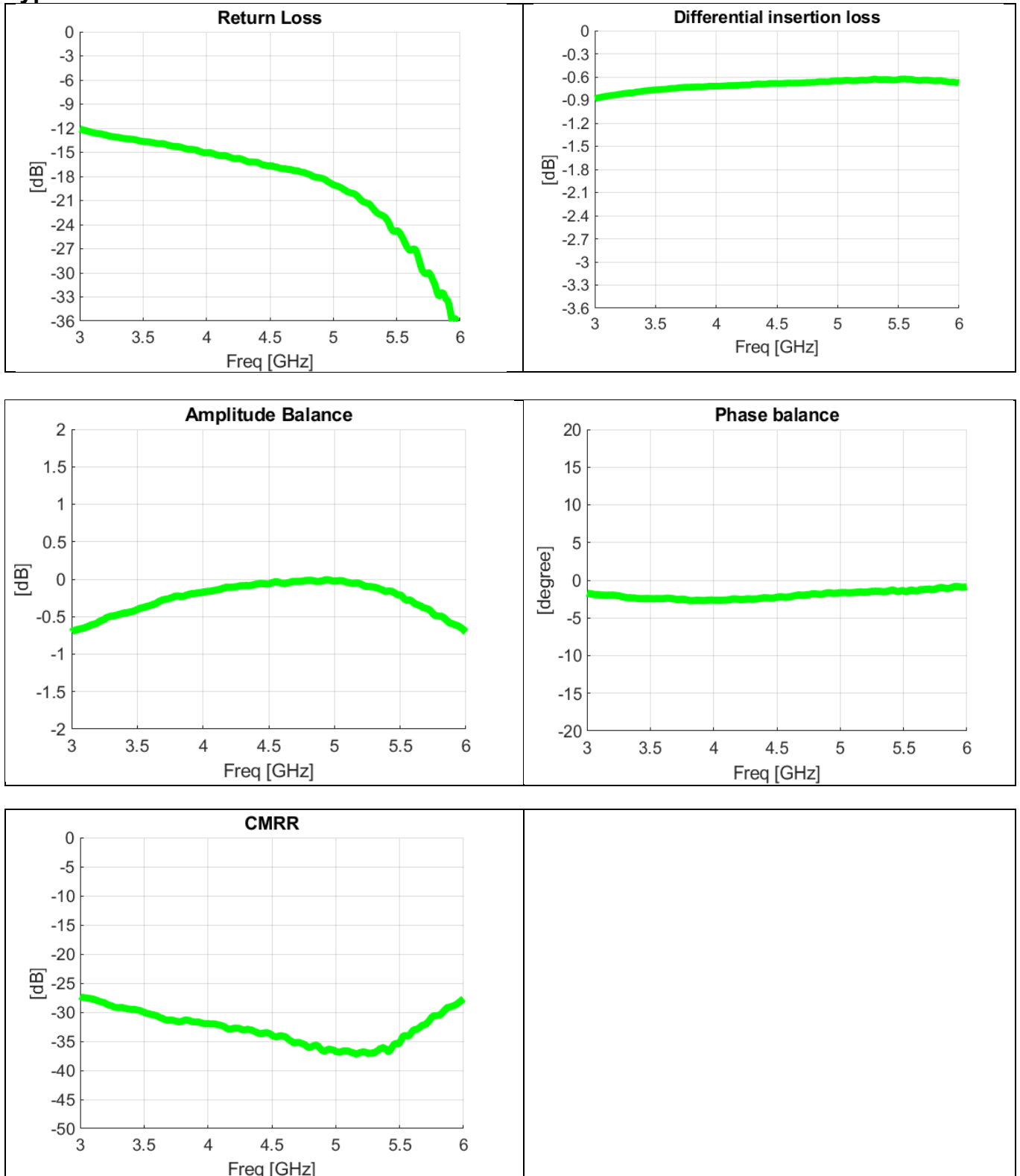
High-Pot testing of these components during the qualification procedure resulted in a minimum breakdown voltage of 1Kv (minimum recorded value). This voltage level corresponds to a breakdown resistance capable of handling at least 12dB peak over average power levels, for very short durations. The breakdown location consistently occurred across the pads and the ground pads. The breakdown levels at these points will be affected by any contamination in the gap area around these pads. These areas must be kept clean for optimum performance. It is recommended that the user test for voltage breakdown under the maximum operating conditions and over worst case modulation induced power peaking. This evaluation should also include extreme environmental conditions (such as high humidity).



Typical Broadband Performance: 1000 MHz to 8000 MHz



Typical Performance: 3000 MHz to 6000 MHz



Definition of Measured Specifications:

Parameter	Definition	Mathematical Representation
Return Loss	The impedance match at the single ended port.	$RL = 20\text{Log}_{10}(S_{11})$
Differential Port Return Loss	The impedance match at the differential port.	$RLD = 20\text{Log}_{10} 0.5 * (S_{22} - S_{23} - S_{32} + S_{33}) $
Insertion Loss	Power loss from common mode to differential mode.	$ILD = 20\text{Log}_{10}(0.707 * (S_{21} - S_{31}))$
Phase Imbalance	The difference in phase angle between the two differential ports, offset by 180 deg.	$PB = (\text{Phase}(S_{21}) - \text{Phase}(S_{31})) - 180^\circ$
Amplitude Imbalance	The ratio of the power at differential ports.	$AB = 20\text{Log}_{10} \frac{S_{21}}{S_{31}} $
Common Mode Rejection Ratio	The ratio of powers of the differential gain to the common-mode gain.	$CMRR = \pm 20\text{Log}_{10}(S_{21}+S_{31})/(S_{21}-S_{31})$

*Parts are 100% RF tested as per spec definition. Refer to page 1 for pin assignment

Packaging and Ordering Information:

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

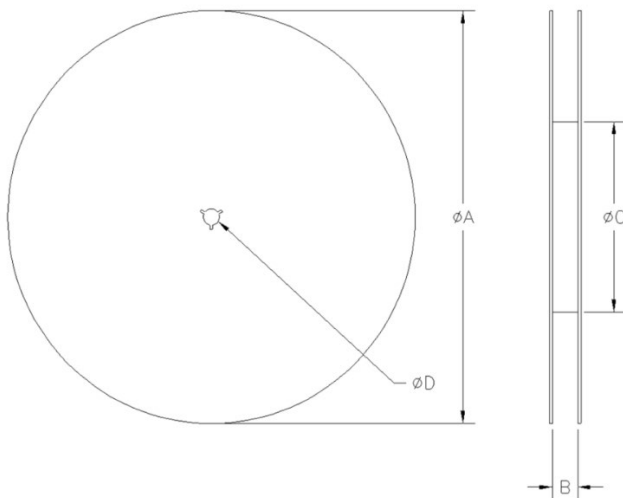
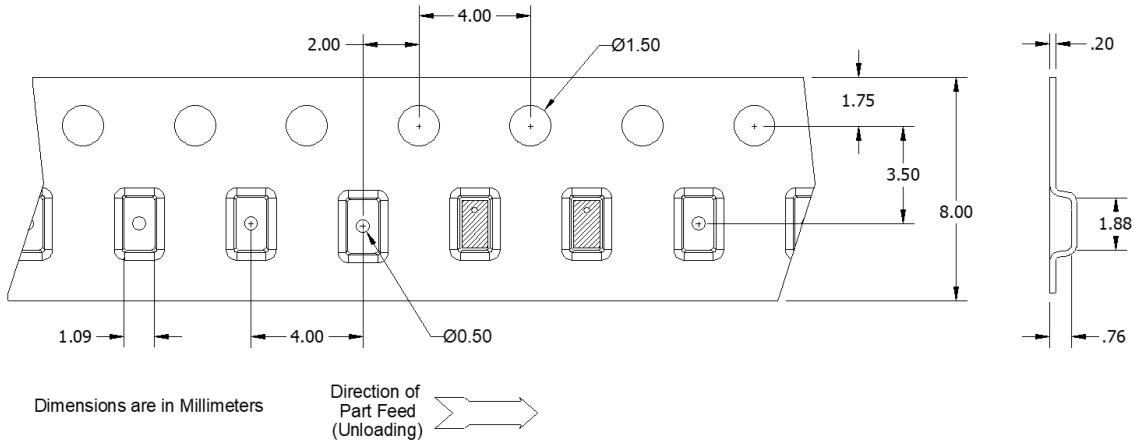


TABLE 1	
REEL DIMENSIONS (mm)	
ϕA	177.80
B	8.00
ϕC	50.80
ϕD	13.00

Contact us:
rf&s_support@ttm.com