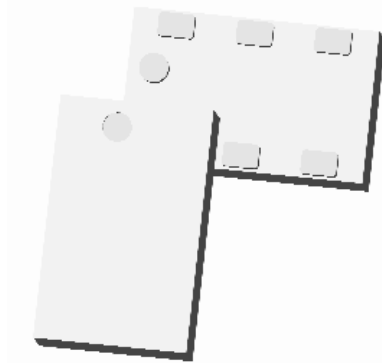




**Ultra Low Profile 0805  
3 dB, 90° Hybrid Coupler**

**Description:**



The C0727J5003AHF is a low cost, low profile sub-miniature high performance 3 dB coupler in an easy to use surface mount package. The C0727J5003AHF is ideal for balanced power and low noise amplifiers, plus signal distribution and other applications where low insertion loss and tight amplitude and phase balance are required. The C0727J5003AHF is available on tape and reel for pick and place high volume manufacturing.

All of the Xinger components are constructed from ceramic filled PTFE composites which possess excellent electrical and mechanical stability. All parts have been subjected to rigorous qualification testing and units are 100% RF tested.

**Detailed Electrical Specifications:**

Specifications subject to change without notice.

**Features:**

- 700 – 2700 MHz
- 0.7mm Height Profile
- High Isolation & Low Loss
- LTE Bands: 24
- Surface Mountable
- Tape & Reel
- Non-conductive Surface
- RoHS Compliant
- Halogen-Free
- 100% RF Tested
- -55°C to 140°C

Parameter	ROOM (25°C)			Unit
	Min.	Typ.	Max	
Frequency	700		2700	MHz
Port Impedance		50		Ω
Return Loss	23	31		dB
Isolation	23	28.8		dB
Insertion Loss*		0.7	0.8	dB
Amplitude Balance		2.3	2.8	dB
Phase Balance (relative to 90°)		6.5	11	Degrees
Power Handling @85°C			2	Watts
Operating Temperature	-55		+140	°C

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

**Outline Drawing:**

**Top View (Nearside)**  
2.04±0.10  
1.29±0.10  
Orientation Marker Denotes Pin Location

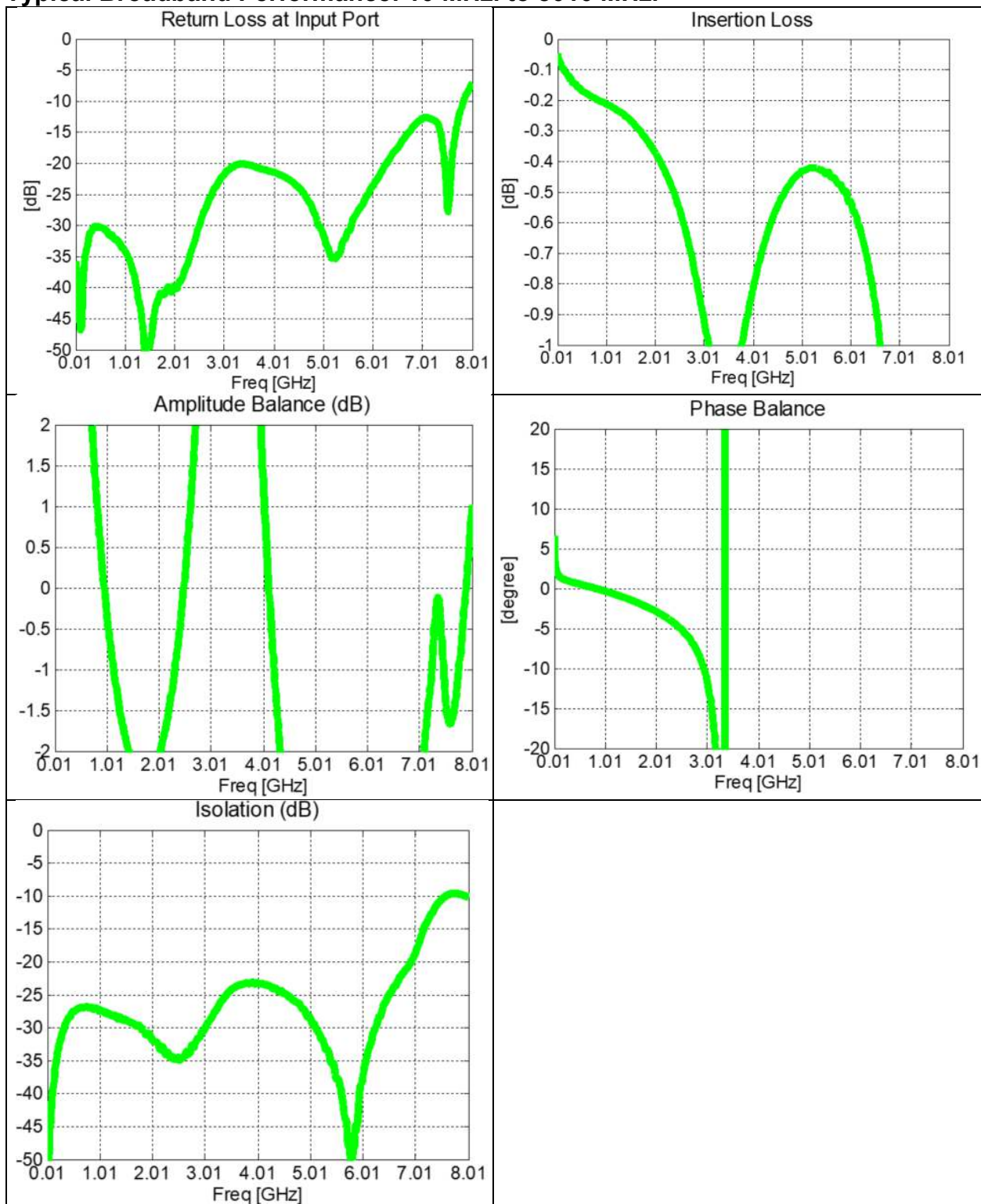
**Side View**  
0.70±0.07  
Orientation Marker Denotes Pin Location

**Bottom View (Farside)**  
4x 0.37  
2x 0.15  
6x 0.98  
6x 0.22  
4x 0.65  
6x 0.30

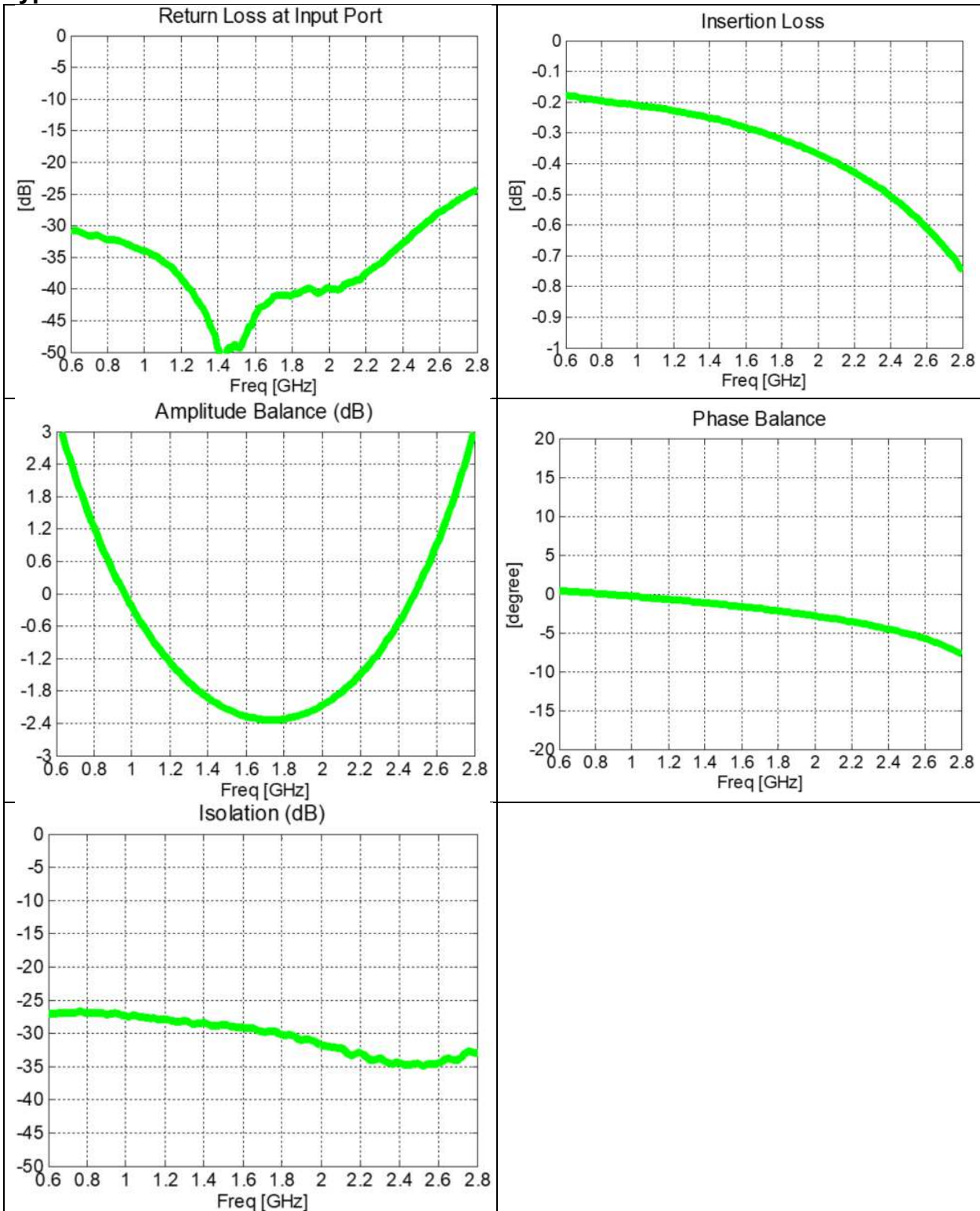
Pin	Configuration-1	Configuration-2	Configuration-3	Configuration-4
1	Input	Isolated	Direct	Coupled
2	GND	GND	GND	GND
3	Isolated	Input	Coupled	Direct
4	Direct	Coupled	Input	Isolated
5	GND	GND	GND	GND
6	Coupled	Direct	Isolated	Input

Mechanical Outline  
-Dimensions are in Millimeters  
-Tolerances are Non-Cumulative

**Typical Broadband Performance: 10 MHz. to 8010 MHz.**



**Typical Performance: 600 MHz. to 2800 MHz.**



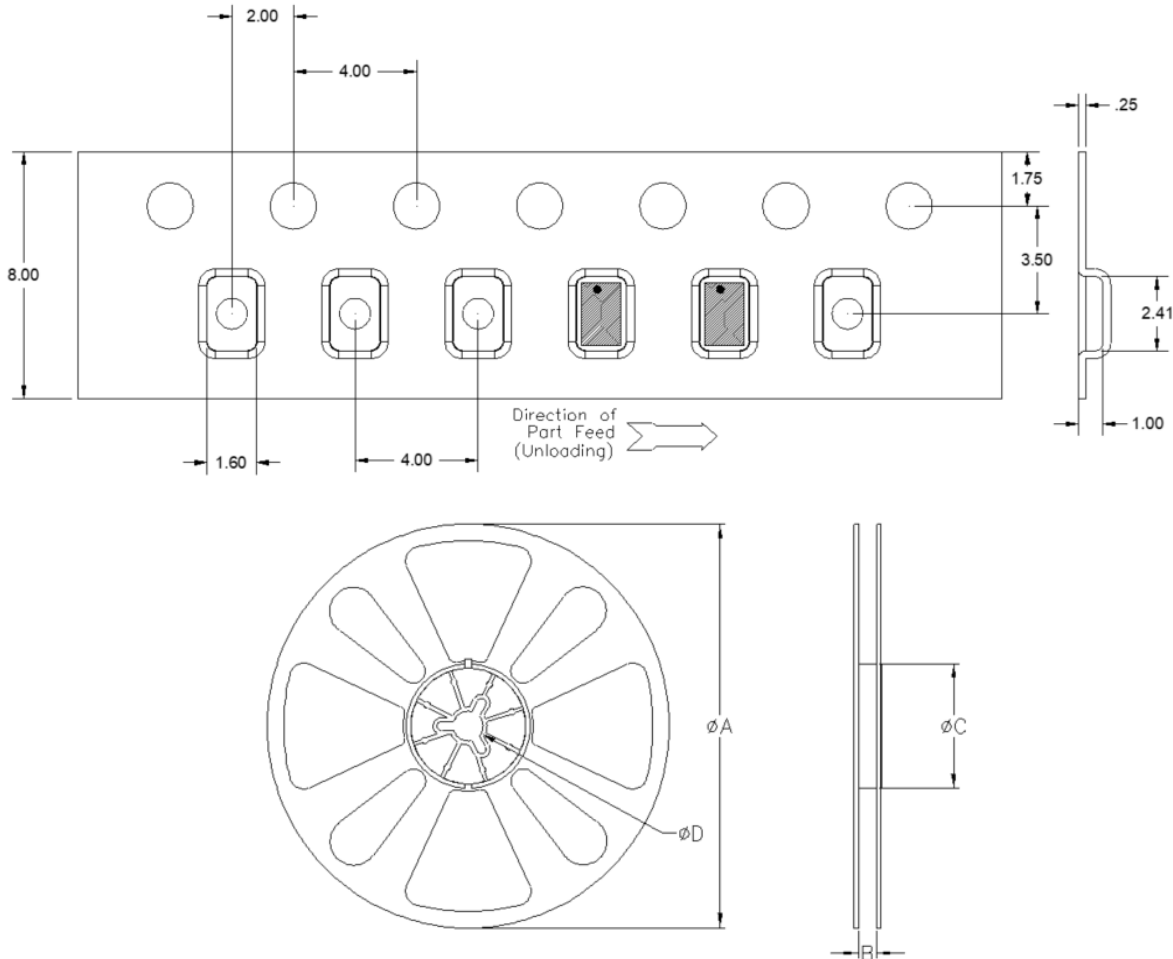
## Definition of Measured Specifications

Parameter	Definition	Mathematical Representation
<b>VSWR (Voltage Standing Wave Ratio)</b>	The impedance match of the coupler to a 50Ω system. A VSWR of 1:1 is optimal.	$VSWR = \frac{V_{max}}{V_{min}}$ Vmax = voltage maxima of a standing wave Vmin = voltage minima of a standing wave
<b>Return Loss</b>	The impedance match of the coupler to a 50Ω system. Return Loss is an alternate means to express VSWR.	$Return\ Loss(dB) = 20\log \frac{VSWR + 1}{VSWR - 1}$
<b>Insertion Loss</b>	The input power divided by the sum of the power at the two output ports.	$Insertion\ Loss(dB) = 10\log \frac{P_{in}}{P_{cpl} + P_{direct}}$
<b>Isolation</b>	The input power divided by the power at the isolated port.	$Isolation(dB) = 10\log \frac{P_{in}}{P_{iso}}$
<b>Phase Balance</b>	The difference in phase angle between the two output ports.	Phase at coupled port – Phase at direct port

\*100% RF test is performed per spec definition for pin configuration 1 and port 1 (input port) is connected to pin1, port 2 (isolated port) is connected to pin 3, port 3 (direct port) is connected to pin 4 and port 4 (isolated) is connected to pin 6.

## Packaging and Ordering 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.



QUANTITY/REEL	REEL DIMENSIONS mm	
4000	$\phi A$	177.80
	B	8.00
	$\phi C$	50.80
	$\phi D$	13.00