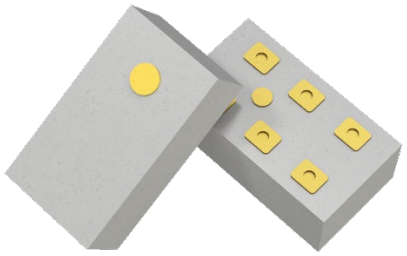
RF Cross Over

Xinger®



Description:

The X0060L5050AHF2 is a low cost, low profile sub-miniature (0603) DC-6GHz RF crossover that enables the transition of two intersecting RF traces in an easy to use Xinger style manufacturing friendly surface mount package. X0060L5050AHF2 has a power rating of 2 Watts (AVG) and a peak to average ratio of 12dB. It is designed particularly for all end markets in Telecom and COTS Mil-Aero applications. The crossover is ideal for any critical applications where layout and available space are at a premium and resorting to additional PWB layers and larger overall footprints are costly.

Parts have been subjected to rigorous Xinger qualification testing 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.

Features:

- **0-6000 MHz**
- **0.67mm Height Profile**
- **Power 2W (AVG)**
- **Peak to Average Ratio 12dB**
- **All end markets in Telecom and COTS Mil-Aero**
- **Low Insertion Loss (<0.15dB)**
- **Tape & Reel**
- **Production Friendly**

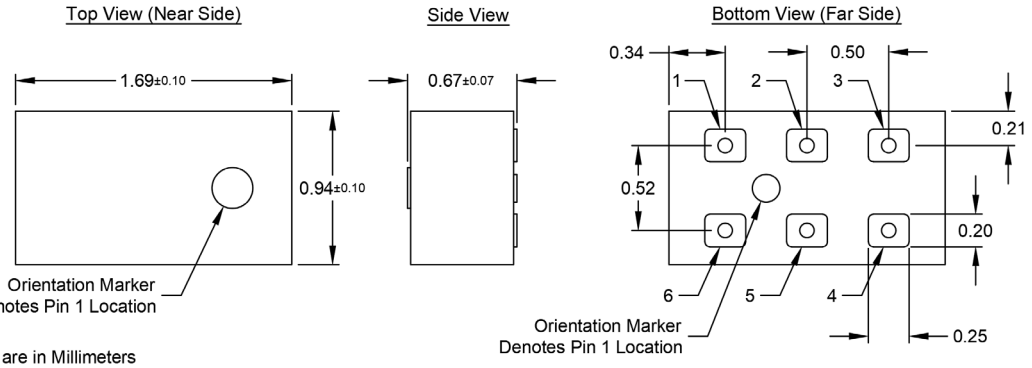
Electrical Specifications*:

Parameter (@25°C)	Min	Typ	Max	Unit
Frequency	0		6000	MHz
Port Impedance		50		Ω
Return Loss	16	19		dB
Insertion Loss		0.1	0.15	dB
Isolation (cross-talk)				
0 – 700 MHz	45	53		dB
700 - 1700 MHz	40	47		dB
1700 - 2200 MHz	39	46		dB
2200 - 3000 MHz	37	43		dB
3000 - 6000 MHz	27	31		dB
Power Handling @ 85°C			2	Watts
Operating Temperature	-55		+140	°C

*Specification based on performance of unit properly installed on a TTM test board with small signal applied. Specifications subject to change without notice. Refer to parameter definitions for details.

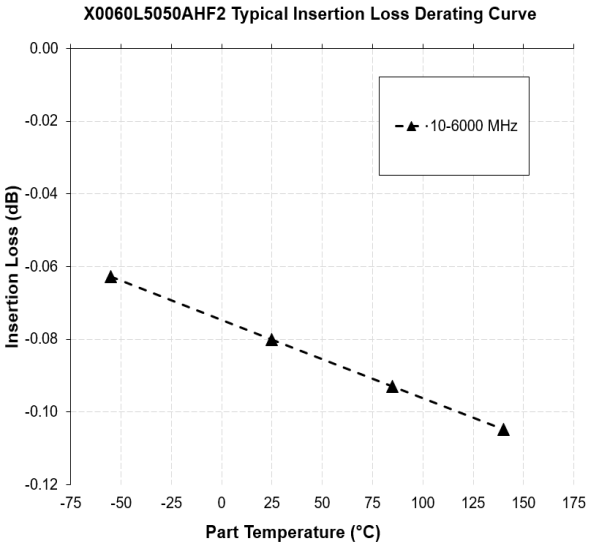
Mechanical Outline:

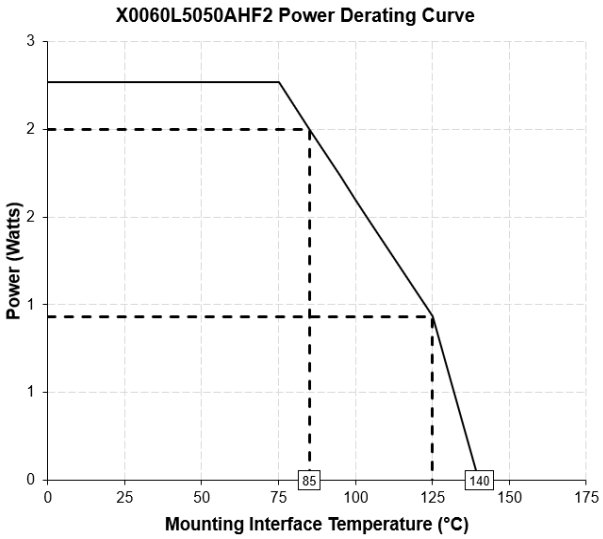
PIN	DESIGNATION
1	GND
2	RF1 IN / OUT
3	GND
4	RF2 IN / OUT
5	RF1 IN / OUT
6	RF2 IN / OUT



-Dimensions are in Millimeters
-Tolerances are Non-Cumulative

Insertion Loss and Power Derating Curves:





Insertion Loss Derating:

The insertion loss, at a given frequency, of the Cross Over is measured at 25°C and then averaged. The measurements are performed under small signal conditions (i.e. using a Vector Network Analyzer). The process is repeated at -55°C and 140°C. A best-fit line for the measured data is computed and then plotted from -55°C to 140°C.

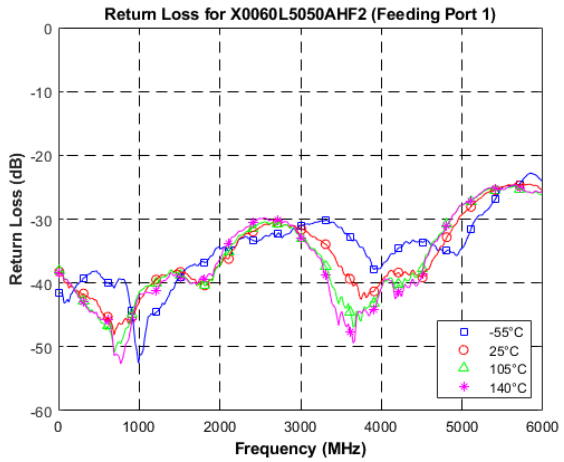
Power Derating:

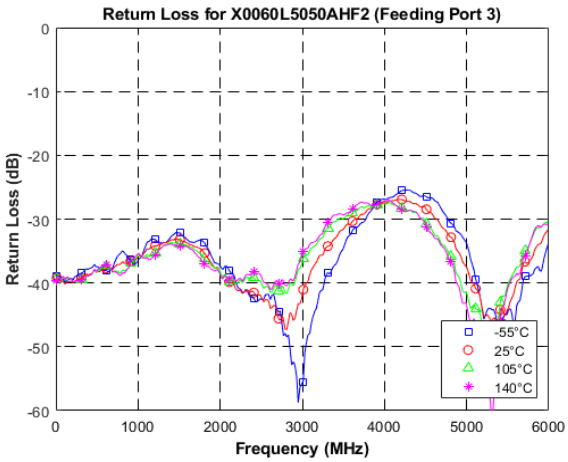
The power handling and corresponding power derating plots are a function of the thermal resistance, mounting surface temperature (base plate temperature), maximum continuous operating temperature of the coupler, and the thermal insertion loss. The thermal insertion loss is defined in the Power Handling section of the data sheet.

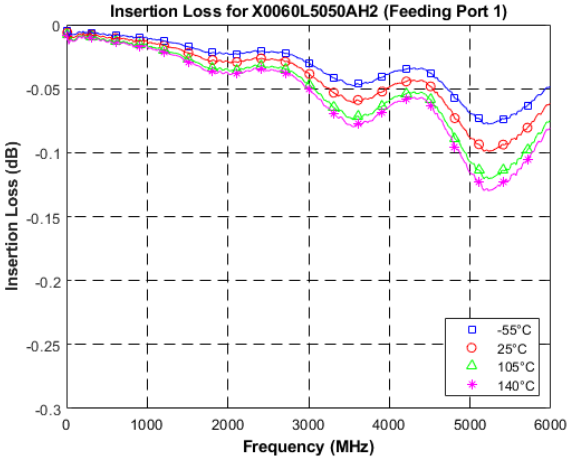
As the mounting interface temperature approaches the maximum continuous operating temperature, the power handling decreases to zero.

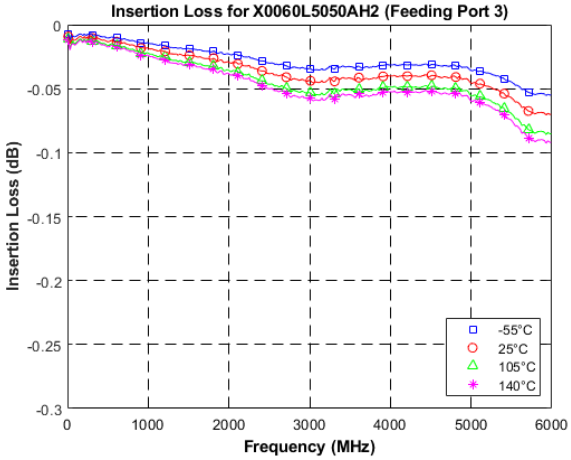
If mounting temperature is greater than 85°C, the Xinger Cross Over will perform reliably if the input power is derated to the curve above.

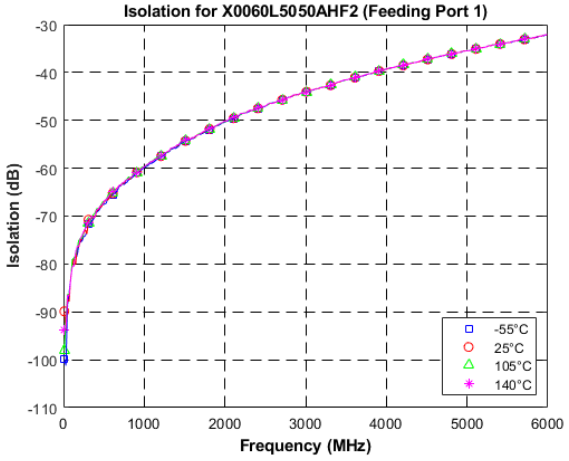
Typical Performance: 0 MHz to 6000 MHz

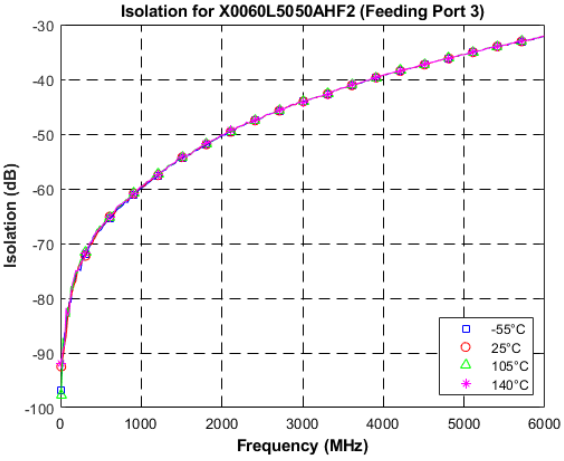












Definition of Measured Specifications:

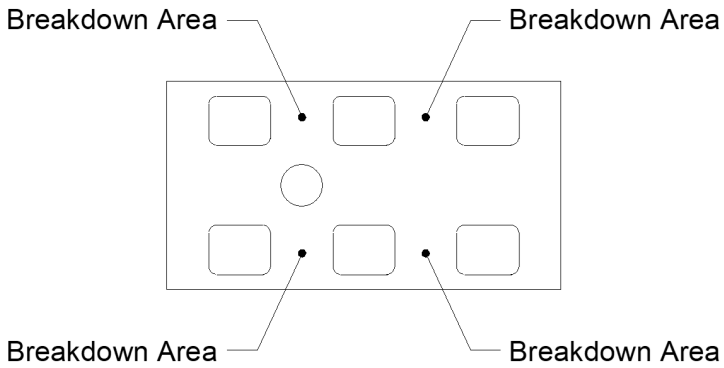
Parameter	Definition	Mathematical Representation**
Return Loss	The impedance match of the crossover to a 50Ω system.	$Return\ Loss(dB) = 20\log[mag(S_{nn})]$; $n = i, j, k, m$
Insertion Loss	The input power divided by the power at the output port.	$Insertion\ Loss(dB) = 20\log\ [mag(S_{ji})]$ Or $Insertion\ Loss(dB) = 20\log\ [mag(S_{km})]$
Isolation	RF1 in/out power divided by RF2 in/out power.	$Isolation(dB) = 20\log\ [mag(S_{ik})]$ Or $Isolation(dB) = 20\log\ [mag(S_{jm})]$

*100% RF test is performed per spec definition for pin configuration 1 and 2.

** *i*, *j*, *k*, *m* is denoted as the port index of RF2 in, out; RF1 in, out ports for specific pin configuration shown in the table on page 1

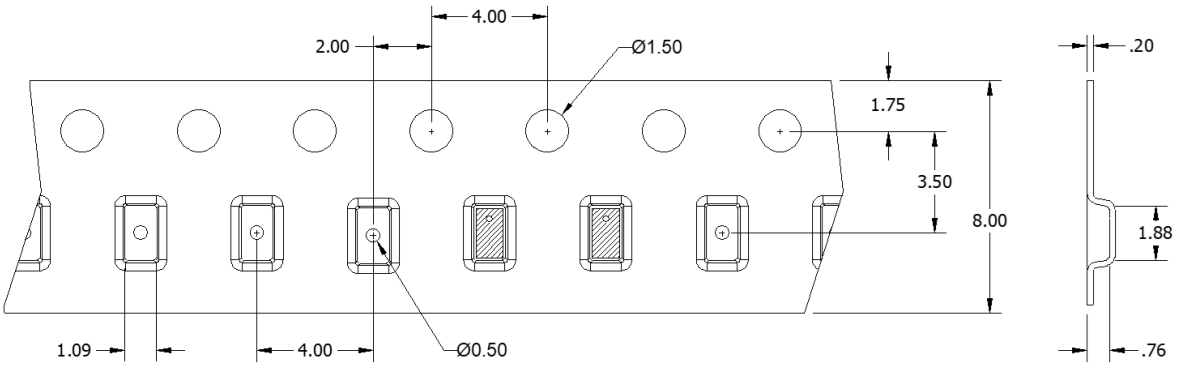
Peak Power Handling:

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).



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.



Dimensions are in Millimeters

Direction of Part Feed (Unloading)

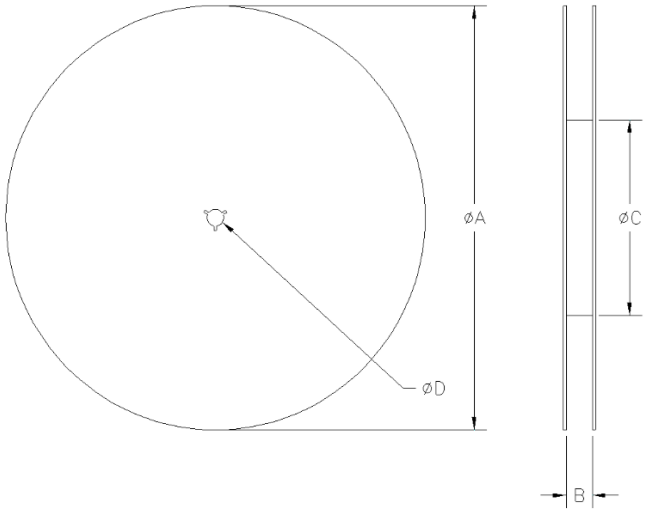


TABLE 1		
QUANTITY/REEL	REEL DIMENSIONS mm	
4000	øA	177.80
	B	8.00
	øC	50.80
	øD	13.00

Contact us:
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