SMT Crossover

Xinger®

Description

The X2AS is a low profile crossover to intersect an RF and DC circuit trace in an easy to use surface mount package designed for frequencies up to 6 GHz. The X2AS is ideal for any application where an RF circuit must intersect with a DC circuit without resorting to a multilayer PCB.

Parts have been subjected to rigorous qualification testing and units are 100% tested. They are manufactured using materials with x and y thermal expansion coefficients compatible with common substrates such as FR4, G-10, RF-35, RO4003 and polyimide. Produced with 6 of 6 RoHS compliant tin immersion finish.

Features:

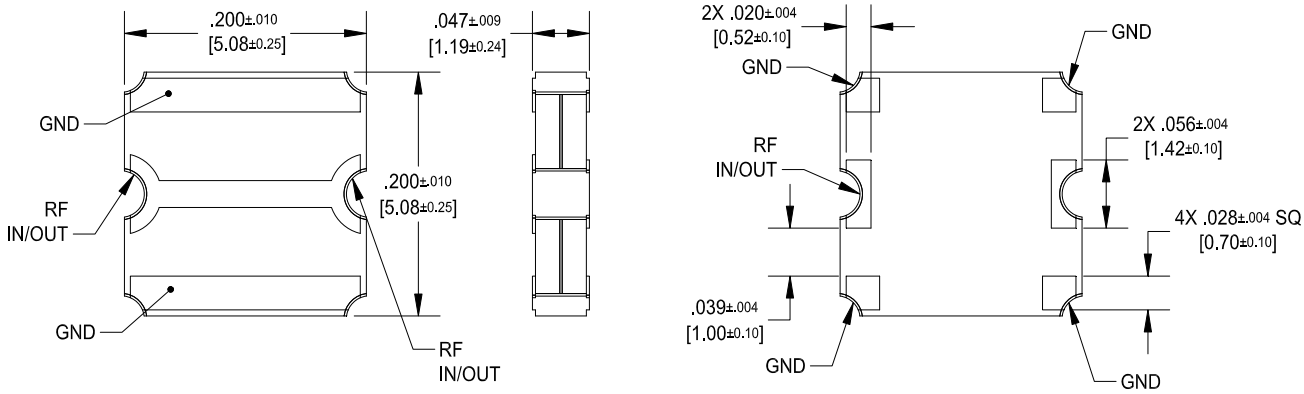
- **DC – 6.0 GHz**
- **RF – DC Crossover**
- **Low Loss**
- **DC Isolation**
- **Surface Mountable**
- **Tape And Reel**
- **Convenient Package**
- **Lead Free**
- **100 % Tested**

Electrical Specifications **

Frequency	Port Impedance	Return Loss	
GHz	*Ohms*	*dB Min*	
DC – 2.5	50	20	
2.5 – 3.5	50	17	
3.5 – 6.0	50	15	
Insertion Loss	**Power**	**ΘJC**	**Operating Temp.**
dB Max	*Watts*	*ºC / Watt*	*ºC*
0.05	30	250.9	-55 to +85
0.10	15	250.9	-55 to +85
0.15	10	250.9	-55 to +85

**Specification based on performance of unit properly installed on microstrip printed circuit boards with 50 Ω nominal impedance. Specifications subject to change without notice.

Mechanical Outline

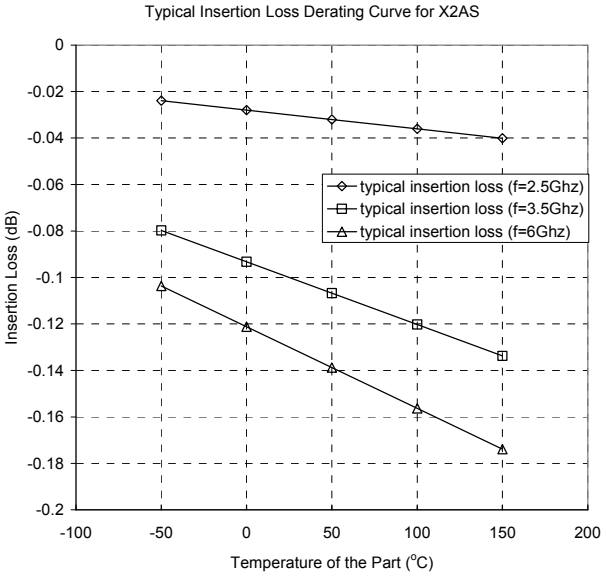


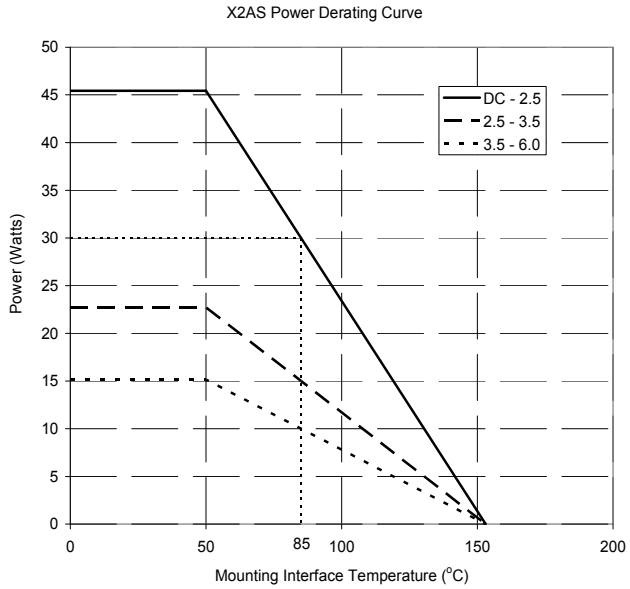
Dimensions are in Inches [Millimeters]
X2AS Mechanical Outline

Available on Tape and Reel for Pick and Place Manufacturing.

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

Insertion Loss and Power Derating Curves





Insertion Loss Derating:

The insertion loss, at a given frequency, of a group of couplers 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 85°C and 150°C. A best-fit line for the measured data is computed and then plotted from -55°C to 150°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 95°C, Xinger crossover will perform reliably as long as the input power is derated to the curve above.

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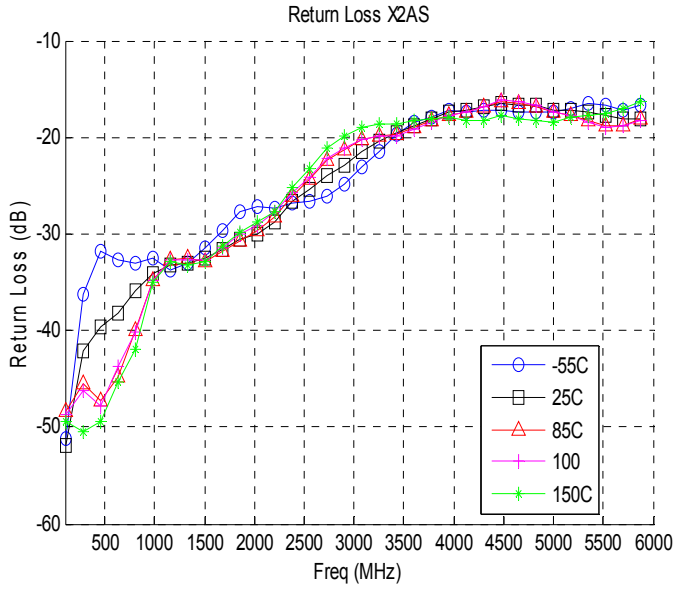
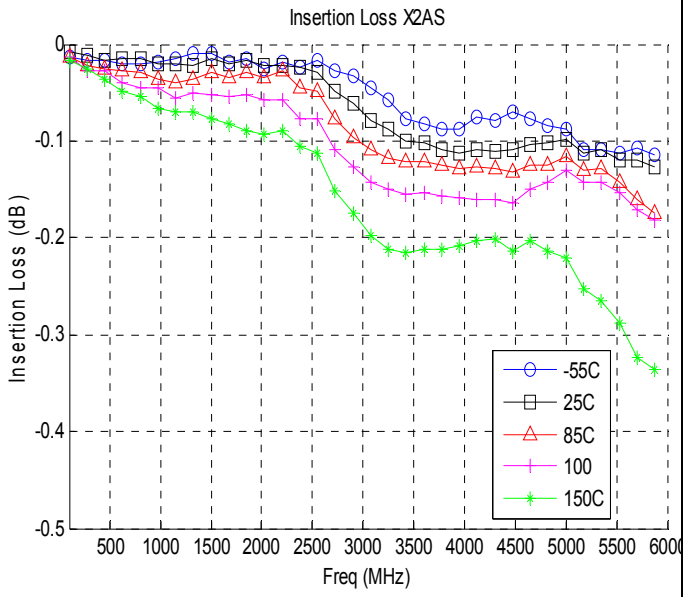
Typical Performance: 0.5 GHz to 6.0 GHz



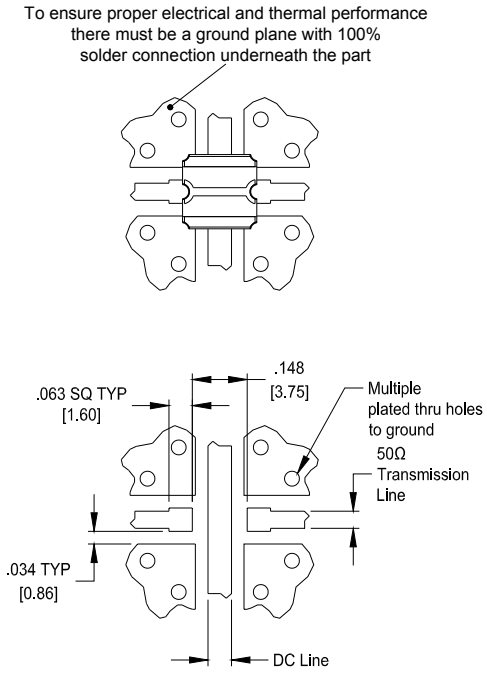


Mounting

In order for Xinger crossovers to work optimally, there must be 50Ω transmission lines leading to and from all of the RF ports. Also, there must be a very good ground to the corners of the crossover to insure proper electrical performance. If either of these two conditions are not satisfied, insertion loss, VSWR and isolation parameters may not meet published specifications.

When a surface mount crossover is mounted to a printed circuit board, the primary concerns are; insuring the RF pads of the device are in contact with the circuit trace of the PCB and insuring the ground plane of neither the component nor the PCB is in contact with the RF signal. Since the component is not symmetrical, the crossovers are specifically oriented in the tape and reel. An example of how the PCB footprint could look is shown below. In specific designs, the 50Ω lines need to be adjusted to the unique dielectric coefficients and thicknesses as well as varying pick and place equipment tolerances.

Mounting Footprint



Dimensions are in Inches [Millimeters]
X2AS Rev A Mounting Footprint

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