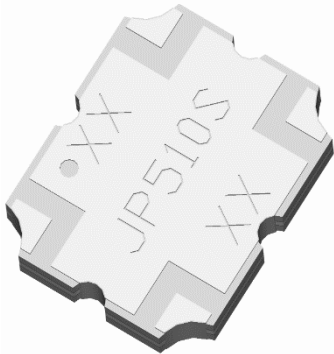




**Pico Xinger  
10dB Directional Coupler**

**Description:**

The JP510S Pico Xinger is a low profile, miniature 10dB directional coupler in an easy to use surface mount package designed for UMTS and WCDMA applications. The JP510S is for power and frequency detection as well as power injection. The JP510S is an ideal solution for the ever-increasing demands of the wireless industry for smaller printed circuit boards and high performance. 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.



**Electrical Specifications\*\***

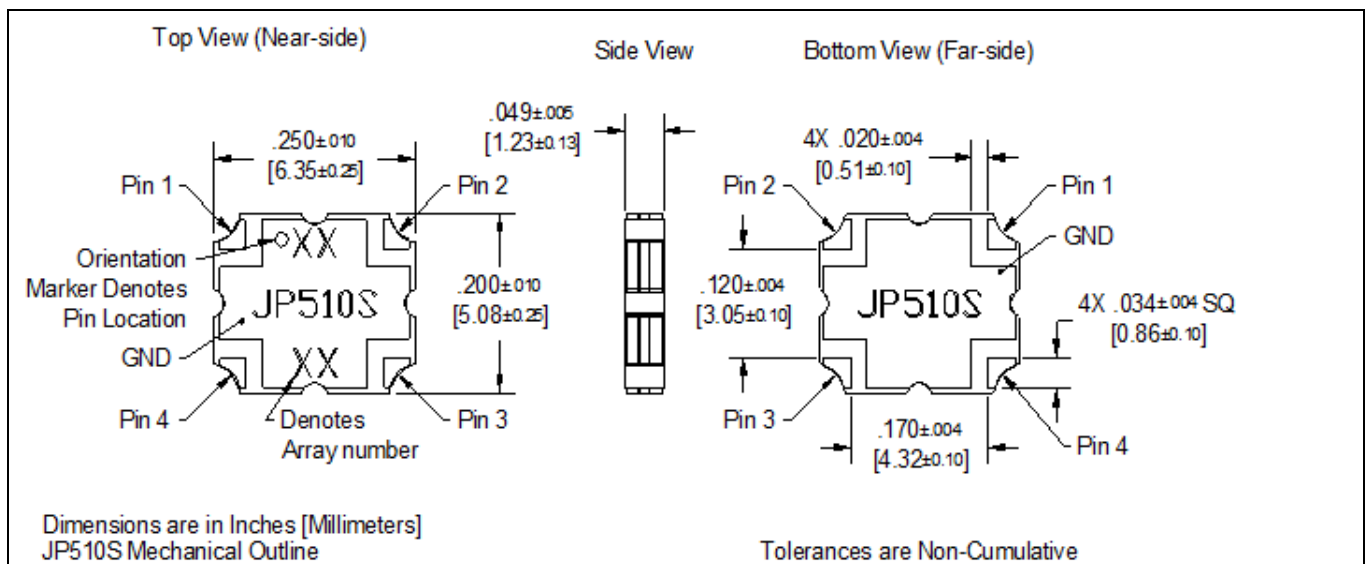
**Features:**

- 2000-2300 MHz
- UMTS and WCDMA
- Very Low Loss
- High Directivity
- Surface Mountable
- Tape and Reel
- New Pico-Package
- Lead Free
- 100% Tested

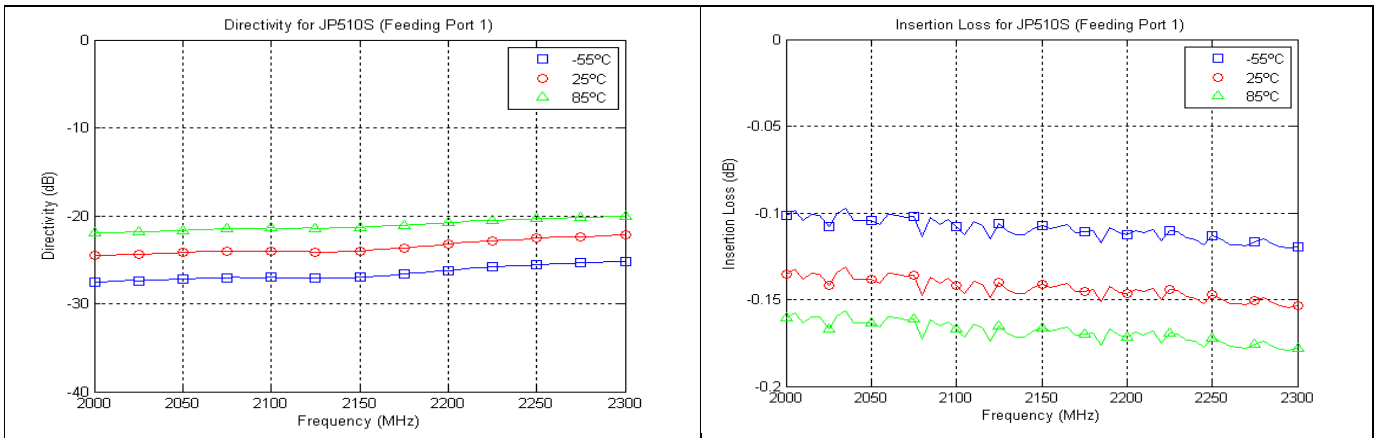
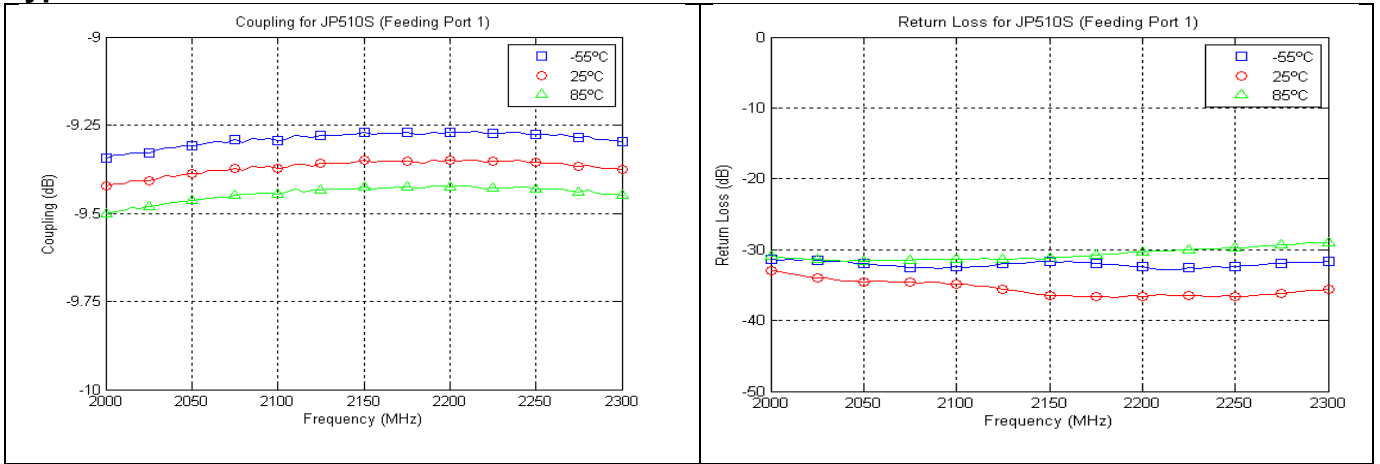
Frequency	Mean Coupling	Insertion Loss	VSWR	Freq. Sensitivity
<i>MHz</i>	<i>dB</i>	<i>dB Max</i>	<i>Max : 1</i>	<i>dB Max</i>
2000-2300	10 ± 0.75	0.25	1.22	± 0.2
	<b>Power Handling</b>	<b>Directivity</b>	<b>Group Delay</b>	<b>Operating Temp.</b>
	<i>Avg. CW Watts @ 85 °C</i>	<i>dB Min</i>	<i>ns</i>	<i>°C</i>
	20	20	0.15 ± 0.04	-55 to +150

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

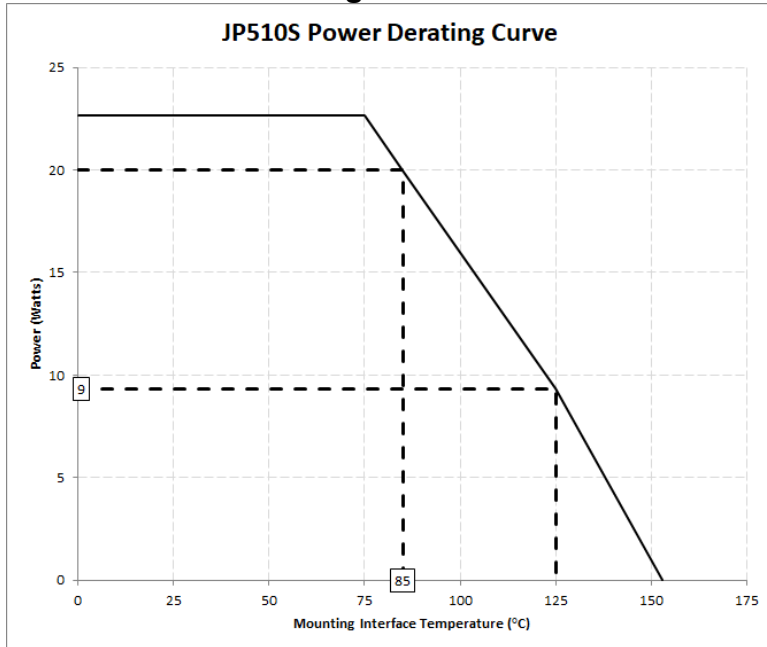
**Mechanical Outline:**



**Typical Performance 2 GHz – 2.3 GHz**



### JP510S Power Derating Curve



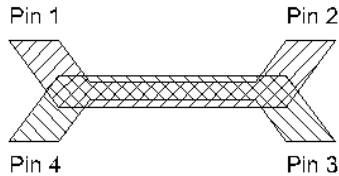
#### Power Derating

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.

**Pin Configuration**

The JP510S's have an orientation marker to denote either pin 1 or pin 2. When the input port is identified, the output, coupled and isolated ports are known automatically. For example, if the input port for a device was selected to be Pin 1, Pin 2 automatically becomes the output port, Pin 4 becomes the coupled port, and Pin 3 is the isolated port. Similarly, if Pin 2 was to be selected as the input port, the adjacent port on the long side (Pin 1) is the output port, the adjacent port on the short side (Pin 3) is the coupled port, and the opposite port (Pin 4) is the isolated port. Either port on the same side as the orientation marker can be selected as the input port, as shown in the table, which shows both pin configurations. The use of pin 1 or pin 2 as the input port ensures phase consistency as well as maximum power handling.



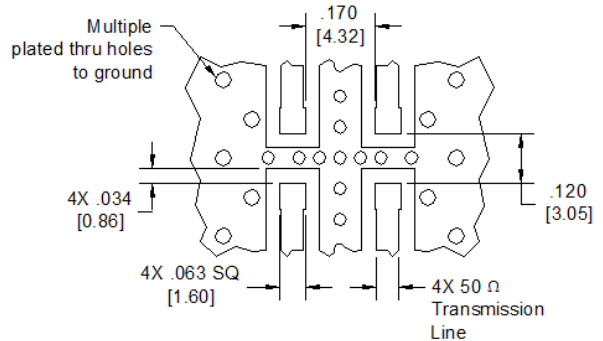
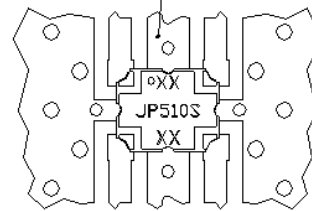
Directional Coupler Pin Configuration				
	Pin 1	Pin 2	Pin 3	Pin 4
Configuration #1	Input	Output	Isolated	Coupled
Configuration #2	Output	Input	Coupled	Isolated

**Mounting Footprint**

For Xinger surface mount couplers to operate optimally, there must be 50Ω transmission lines leading to and from all of the RF ports. To ensure proper electrical and thermal performance, there must be a ground plane with 100% solder connection underneath the part. If either of these two conditions is not satisfied, insertion loss, coupling, VSWR and directivity may not meet published specifications.

**SUGGESTED FOOTPRINT**

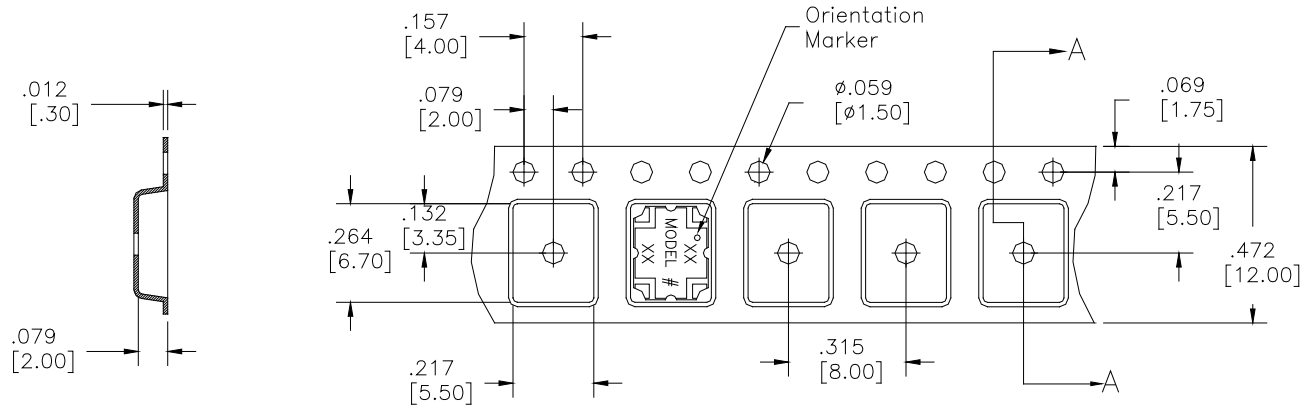
To ensure proper electrical and thermal performance there must be a ground plane with 100% solder connection underneath the part



Dimensions are in Inches [Millimeters]  
JP510S Mounting Footprint

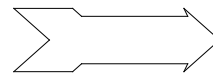
**Packaging and Ordering Information:**

Packaging follows EIA-481-2. Parts are oriented in tape as shown below.



SECTION A-A

Dimensions are in inches [mm]



Direction of  
Part Feed  
(Unloading)

**Xinger® Tape & Reel Diagram**

**Contact us:**  
[rf&s\\_support@ttm.com](mailto:rf&s_support@ttm.com)

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