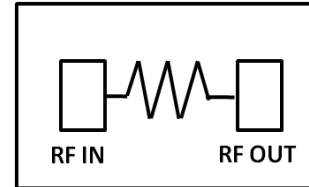


## DC- 40 GHz Passive Fixed Attenuator Pads

### Features

- ◆ Frequency Range DC - 40GHz
- ◆ Input Return Loss ~ 20dB.
- ◆ Output Return Loss ~ 20dB.
- ◆ No External Matching required.
- ◆ InGaAs pHEMT Technology.

### Functional diagram



### Description

ASTRA 2373XX1 is a passive fixed attenuator MMIC chip. It features an attenuation range from 1 to 10 with 1dB step and also 15 and 20dB over the frequency band from DC - 40GHz with I/O return Losses that is greater than 20dB. The die is fabricated using reliable GaAs pHEMT process. The Circuit grounds are provided through on wafer ground vias to the backside metallization. The die is used for any suitable applications where the attenuation is required in RF & Microwave systems.

### Absolute Maximum Ratings<sup>1</sup>

Parameter	Absolute Maximum	Units
RF input power	+30	dBm
Operating Temperature	-55 to +85	°C
Storage Temperature	-65 to +150	°C

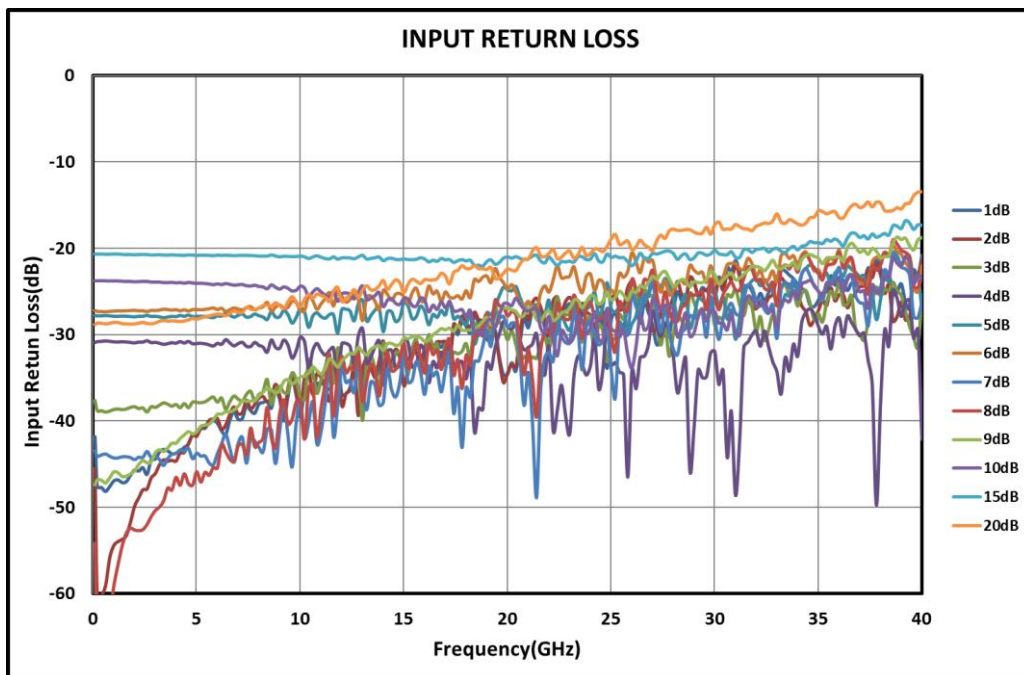
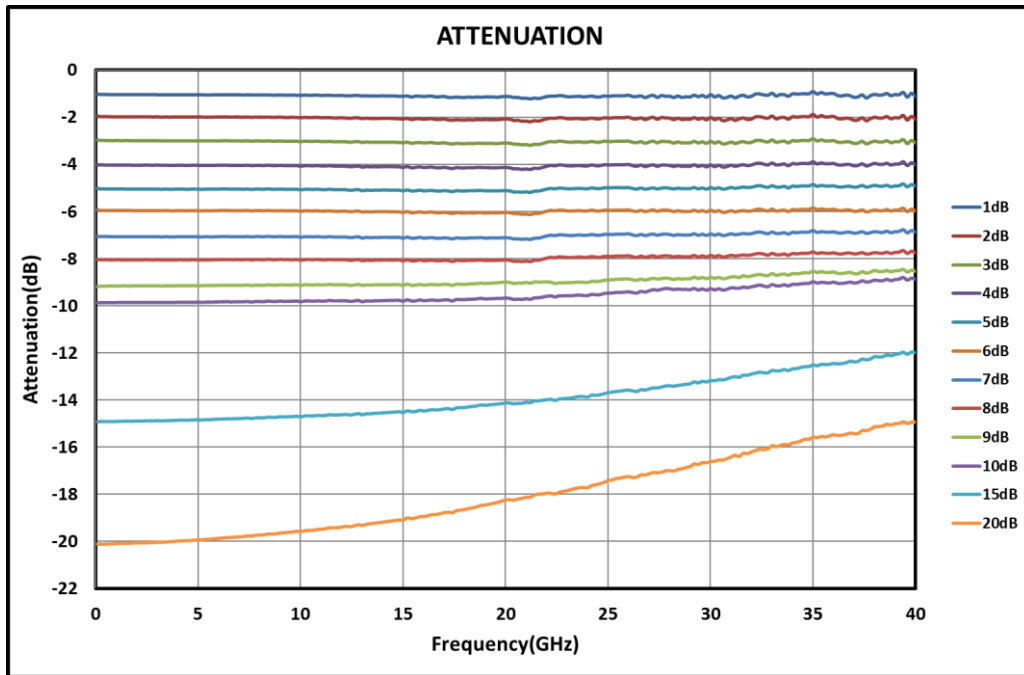
1. Operation beyond these limits may cause permanent damage to the component

### Electrical Specifications @ T<sub>A</sub> = 25 °C, Z<sub>o</sub> =50Ω,

Parameter	Min	Typ	Max	Units
Frequency	DC	--	40	GHz
Attenuation	1 to 10 (with 1dB step), 15 & 20			dB
Attenuation Flatness	±0.2	--	±2.5	dB
Input Return Loss(min.)	--	20	--	dB
Output Return Loss (min.)	--	20	--	dB
Power Handling	--	25	---	dBm

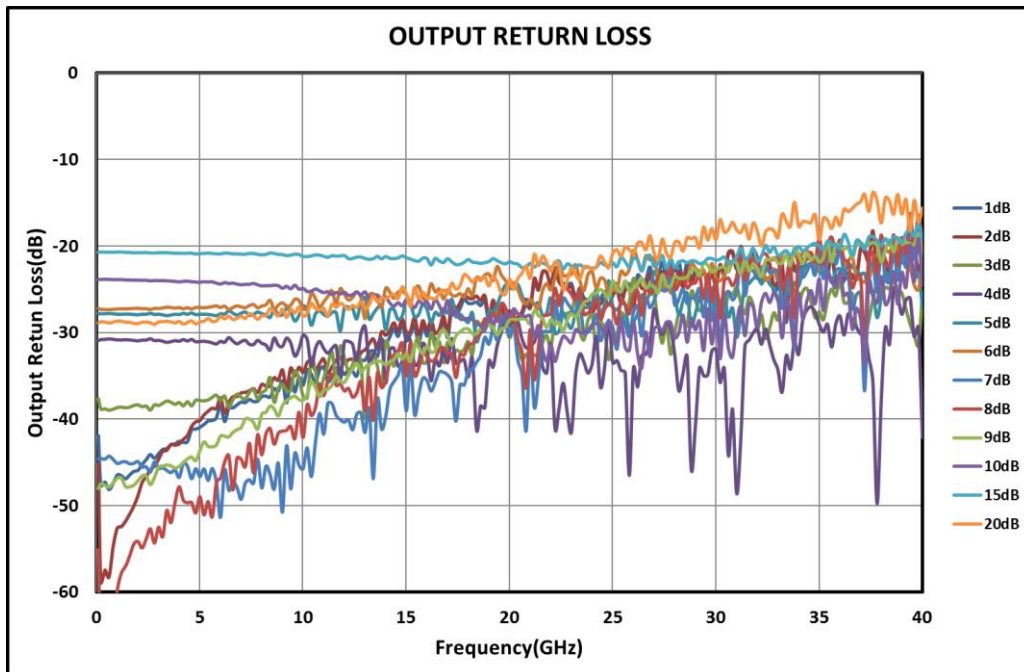


On Wafer Measured Results





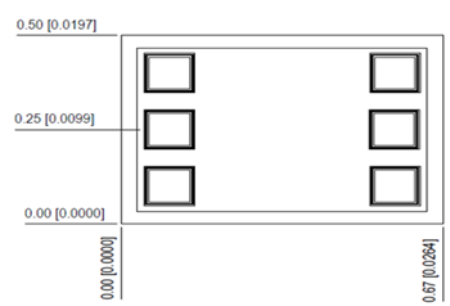
## On Wafer Measured Results



## For Ordering Information: Attenuator Part Numbers

Attenuation Value	Part Number	Attenuation Value	Part Number
1dB	ASTRA 2373011	7dB	ASTRA 2373071
2dB	ASTRA 2373021	8dB	ASTRA 2373081
3dB	ASTRA 2373031	9dB	ASTRA 2373091
4dB	ASTRA 2373041	10dB	ASTRA 2373101
5dB	ASTRA 2373051	15dB	ASTRA 2373151
6dB	ASTRA 2373061	20dB	ASTRA 2373201

## Mechanical Characteristics



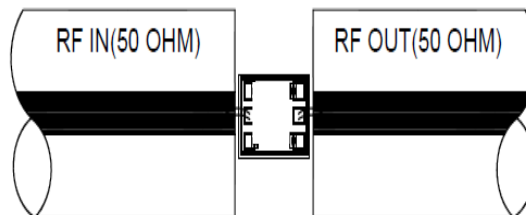
Units: millimeters

All RF bond pads are 100µm x 100µm unless specified

Note:

1. Pad No. 1 : RF INPUT
2. Pad No. 2 : RF OUT

## Recommended Assembly Diagram



Note:

1. Double 1 mil (0.0254 mm) bond wire of length 300µm should be used for RF Input.
2. Double 1 mil (0.0254 mm) bond wire of length 300µm should be used for RF Output

**Die attach:** For Epoxy attachment, use of a two-component conductive epoxy is recommended. An epoxy fillet should be visible around the total die periphery. If Eutectic attachment is preferred, use of fluxless AuSn (80/20) 1-2 mil thick preform solder is recommended. Use of AuGe preform should be strictly avoided.

**Wire bonding:** For best RF performance, use of 150 - 200µm length of wedge bonds is advised. Ball bonds are also acceptable.



**GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing**

All information and Specifications are subject to change without prior notice