

X=1990 μm Y=1845 μm

Product Features

- ◆ Frequency: 70 to 86 GHz
- ◆ Insertion Loss: 3 dB Max
- ◆ Dynamic Range: 13 dB
- ◆ Voltage Range: +5 to -5V
- ◆ Biasable from either side
- ◆ Die Size: < 3.7 sq. mm

Performance Characteristics (Ta = 25°C)

Specification	Min	Typ	Max	Unit
RF Frequency	70		86	GHz
Insertion Loss			3	dB
Dynamic Range		13		dB
Voltage Range	-5		5	V

Applications

- ◆ New FCC E-Band Communication Systems
  - Covers 71-76 GHz Frequency Band
  - Covers 81-86 GHz Frequency Band
- ◆ Short-Haul / High Capacity Links
- ◆ Enterprise Wireless LAN
- ◆ Wireless Fiber Replacement
- ◆ Automotive Radar

Product Description

The VVD104 is a monolithic PIN Diode broadband voltage variable attenuator. To ensure rugged and reliable operation, PIN Diode devices are fully passivated. Both bond pad and backside metallization are Ti/Au, which is compatible with conventional die attach, thermocompression and thermosonic wire bonding assembly techniques.

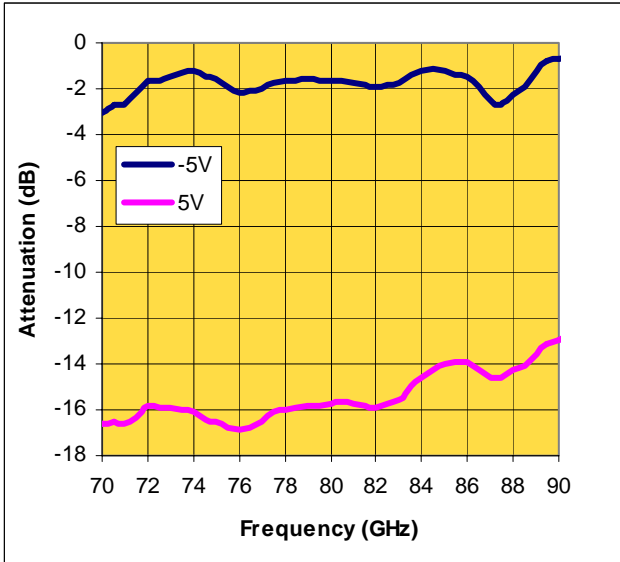
Absolute Maximum Ratings (Ta = 25°C)

Parameter	Min	Max	Unit
Vd	-6	6	V
Id		30	mA
Input drive level		TBD	dBm
Assy. Temperature (60 seconds)		300	deg. C

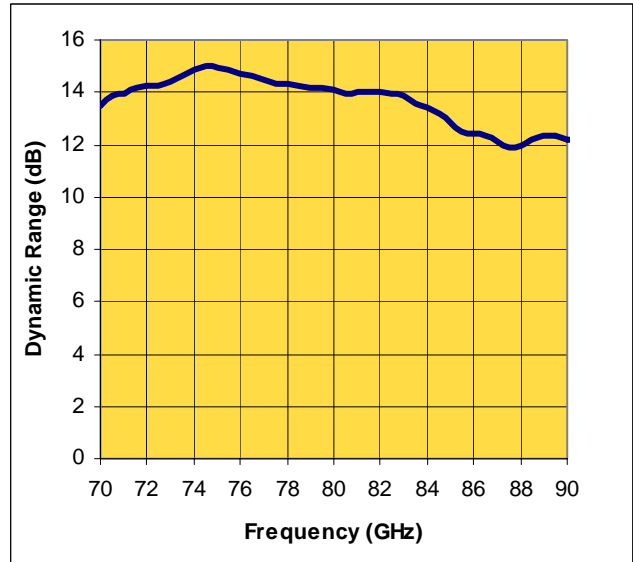
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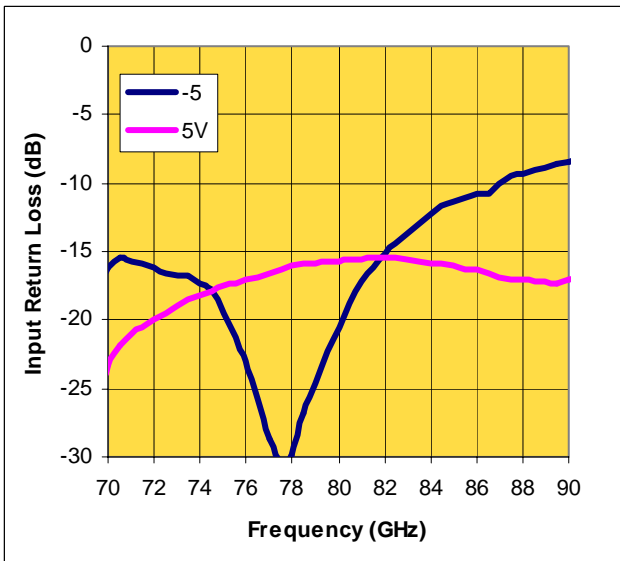
Attenuation Versus Frequency



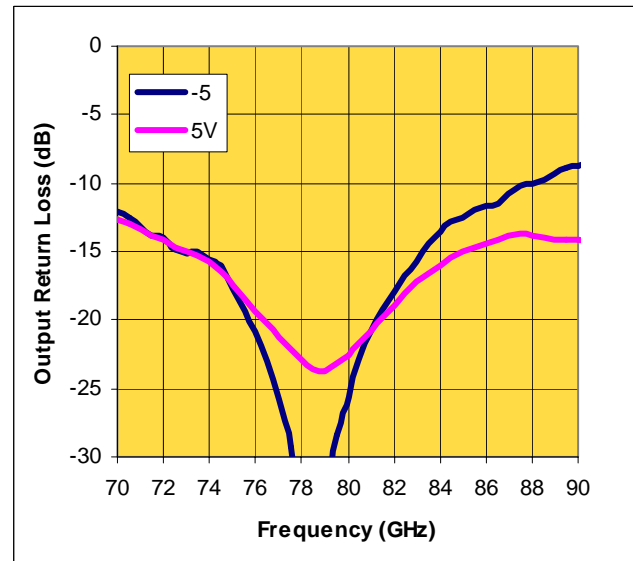
Dynamic Range Versus Frequency



Input Return Loss Versus Frequency



Output Return Loss Versus Frequency



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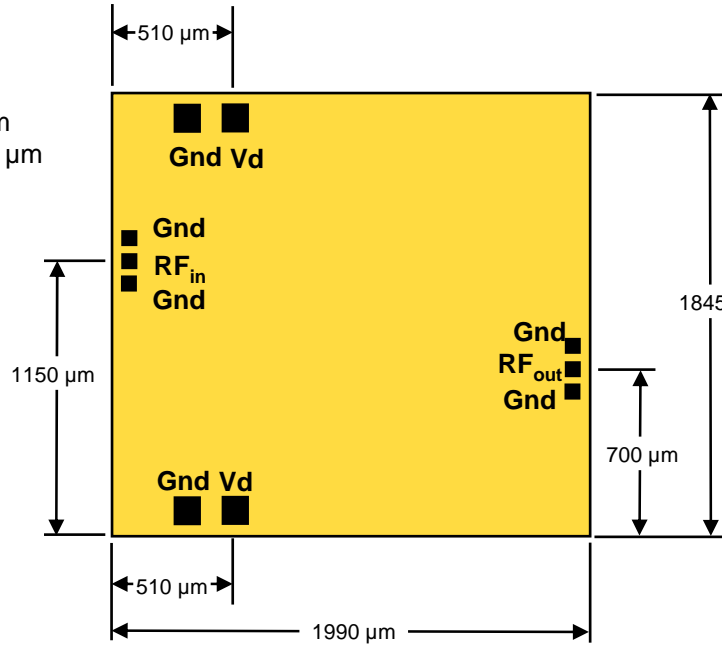


Preliminary Datasheet

Revision: May 2007

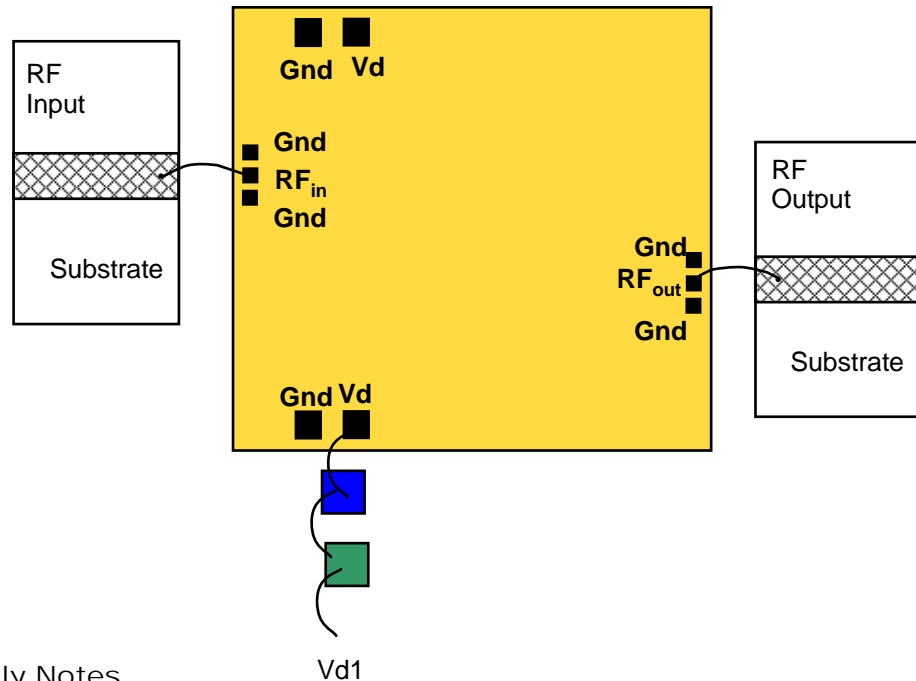
Die Size and Bond Pad Locations

- X Dimension:  $1990 \pm 25 \mu\text{m}$
- Y Dimension:  $1845 \pm 25 \mu\text{m}$
- RF Bond Pad Dimension:  $50 \times 50 \mu\text{m} \pm 0.5 \mu\text{m}$
- DC Bond Pad Dimension:  $101 \times 101 \mu\text{m} \pm 0.5 \mu\text{m}$
- Chip Thickness:  $101 \pm 5 \mu\text{m}$



Suggested Bonding Arrangement

- = 0.1uF
- = 100 pF
- = 10 Ohms



Recommended Assembly Notes

1. Bypass caps should be 100 pF (approximately) ceramic (single-layer) placed no farther than 30 mils from the amplifier.
2. Best performance obtained from use of <10 mil (long) by 1.5 by 0.5 mil ribbons on input and output.
3. Part can be biased from either side.

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