HMC-VVD102

v00.0907

GaAs PIN MMIC VOLTAGE-VARIABLE ATTENUATOR, 17 - 27 GHz

Typical Applications

This HMC-VVD102 is ideal for:

- Point-to-Point Radios
- Point-to-Multi-Point Radios
- Military Radios, Radar & ECM
- Test Equipment & Sensors
- Space

Features

Low Insertion Loss: 1.5 dB

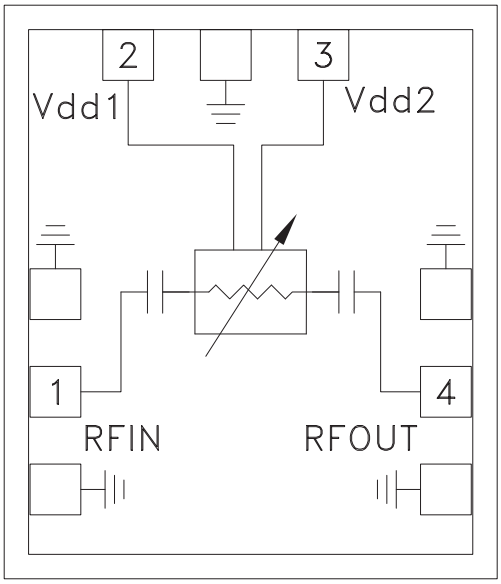
Wide Dynamic Range: 18 dB

High Input IP3: +17 dBm

Single Control Voltage: -4 to +4V

Die Size: 1.01 x 1.175 x 0.1 mm

Functional Diagram



General Description

The HMC-VVD102 is a monolithic GaAs PIN diode based Voltage Variable Attenuator (VVA) which exhibits low insertion loss, high IP3 and wide dynamic range. All bond pads and the die backside are Ti/Au metallized and the PIN diode devices are fully passivated for reliable operation. This wideband MMIC VVA is compatible with conventional die attach methods, as well as thermocompression and thermosonic wirebonding, making it ideal for MCM and hybrid microcircuit applications. All data shown herein is measured with the chip in a 50 Ohm environment and contacted with RF probes

Electrical Specifications*, T_A = +25 °C, 50 Ohm System

Parameter	Min.	Typ.	Max.	Units
Frequency Range		17 - 27		GHz
Insertion Loss		1.5	2	dB
Attenuation Range		18		dB
Return Loss (Min. Attenuation)		12		dB
Return Loss (Max. Attenuation)		15		dB
Input IP3		17		dBm
IM3 @ Pin = 0 dBm / Tone	30			dBc

*Unless otherwise indicated, all measurements are from probed die

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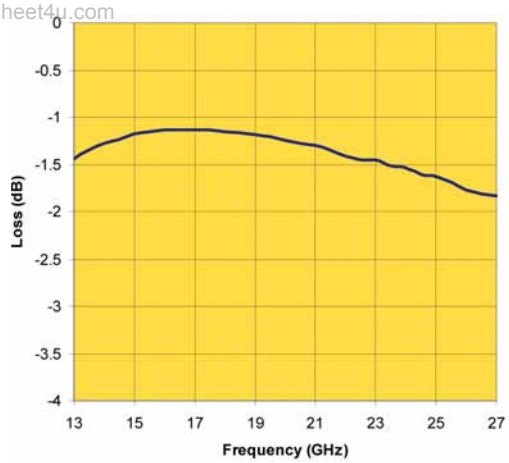
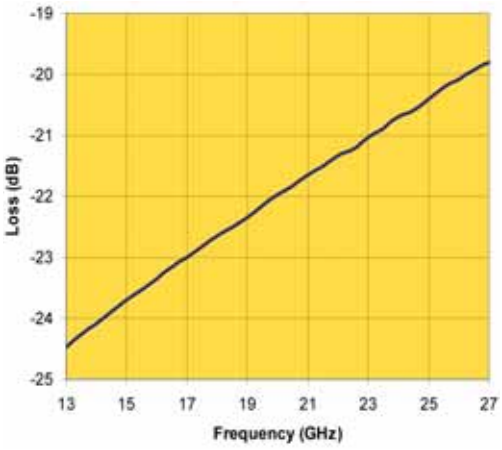
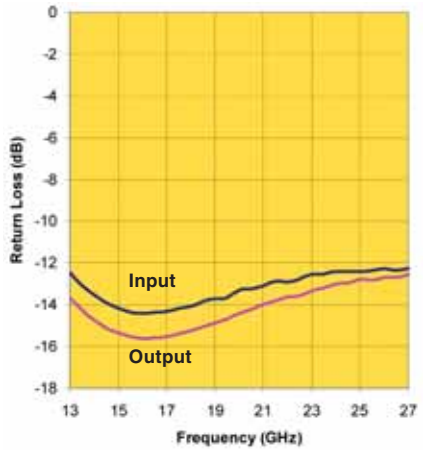
Minimum Attenuation vs. Frequency



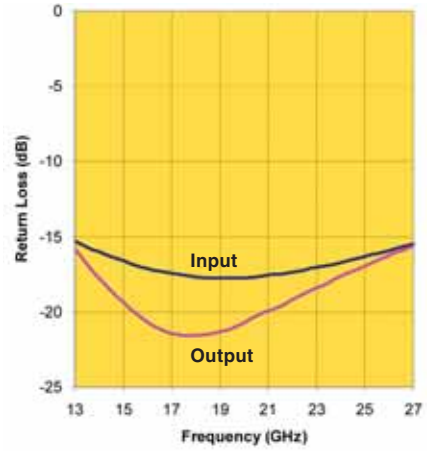
Maximum Attenuation vs. Frequency



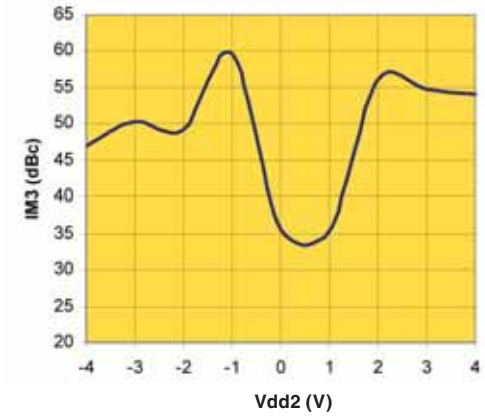
Input & Output Return Loss vs. Frequency @ Minimum Attenuation



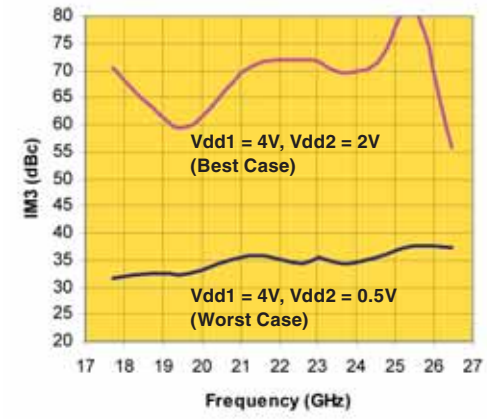
Input & Output Return Loss vs. Frequency @ Maximum Attenuation



IM3 vs. Vdd2 (Vdd1= 4V) @ 17.5 GHz



IM3 vs. Frequency



Note: Measured Performance Characteristics (Typical Performance at 25°C) Two-Tone measurement @ 0 dBm / tone

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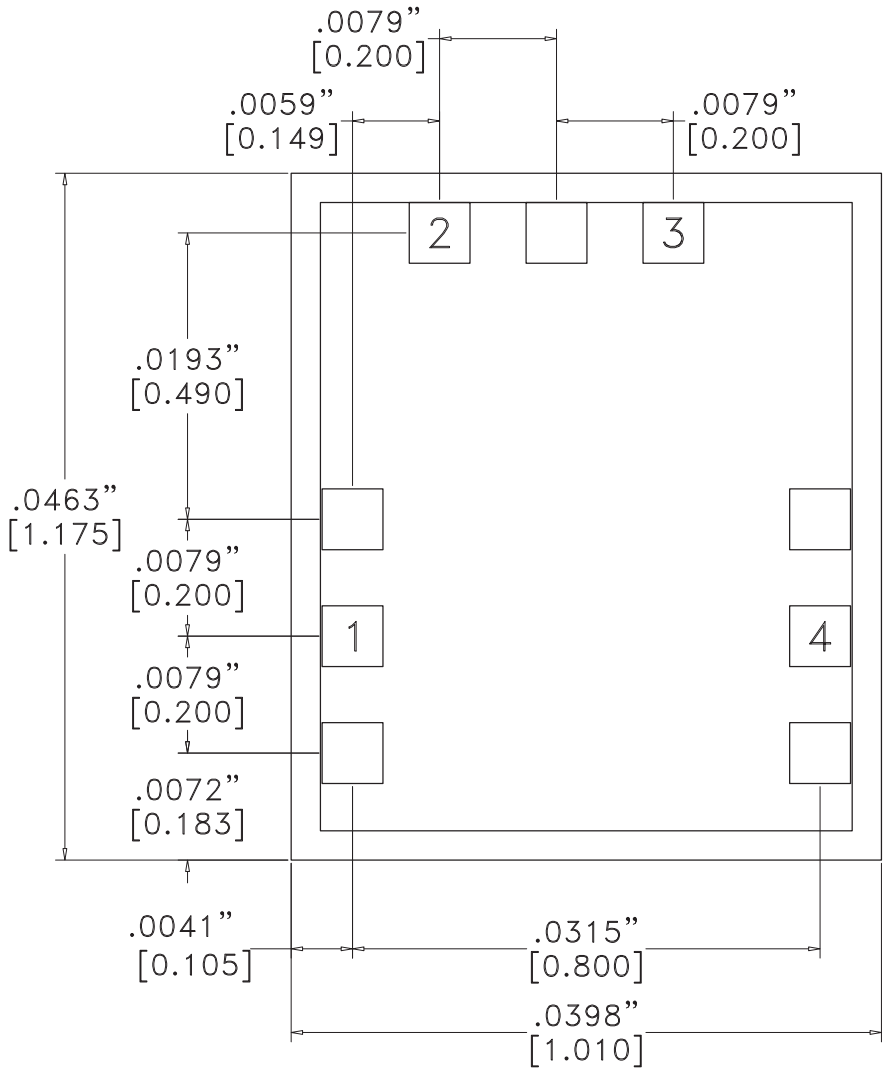
Absolute Maximum Ratings

Control Voltage Range (Vdd)	-6 to +6 Vdc
Storage Temperature	-65 to +150 °C
Operating Temperature	-55 to +85 °C
Bias Current (Idd)	20 mA

ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

1. ALL DIMENSIONS ARE IN INCHES [MM].
2. TYPICAL BOND PAD IS .004" SQUARE.
3. BACKSIDE METALLIZATION: GOLD.
4. BACKSIDE METAL IS GROUND.
5. BOND PAD METALLIZATION: GOLD.
6. CONNECTION NOT REQUIRED FOR UNLABELED BOND PADS.
7. OVERALL DIE SIZE ±.002"