HMC121G8

GaAs MMIC SMT VOLTAGE-VARIABLE ATTENUATOR, DC - 8 GHz

Typical Applications

- Base Station Infrastructure
- Portable Wireless CATV & DBS
- MMDS & Wireless LAN
- Wireless Local Loop
- Fiber Optics, Military, Space & Test Equipment

Features

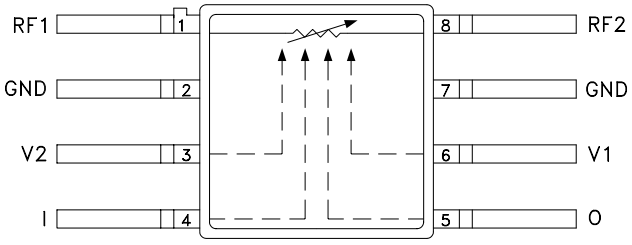
Wide Bandwidth: DC - 8 GHz

Low Phase Shift vs. Attenuation

30 dB Attenuation Range

Simplified Voltage Control

Functional Diagram



General Description

The HMC121G8 is an absorptive voltage variable attenuator provided in a surface-mount hermetic package. It features an on-chip reference attenuator for use with an external op-amp to provide simple single voltage attenuation control. The device is ideal in designs where an analog control signal must control RF signal levels over a 30 dB amplitude range, such as in AGC circuits and in temperature compensation of multiple gain stages.

Electrical Specifications, T_A = +25° C, 50 ohm system

Parameter		Min.	Typ.	Max.	Units
Insertion Loss	DC - 4 GHz: DC - 8 GHz:		1.5 2	3.0 3.5	dB dB
Attenuation Range		25	30		dB
Return Loss	DC - 4 GHz: DC - 8 GHz:	10 7	15 10		dB dB
Switching Characteristics	tRISE, tFALL (10/90% RF) tON, tOFF (50% CTL to 10/90% RF)		3 6		ns ns
Input Power for 0.25 dB Compression (0.5 - 8 GHz)	Min Atten: Atten >2 dB:		+10 -2		dBm dBm
Input Third Order Intercept (Two-tone Input Power = -8 dBm Each Tone	Min Atten: Atten >2 dB:		+25 +10		dBm dBm

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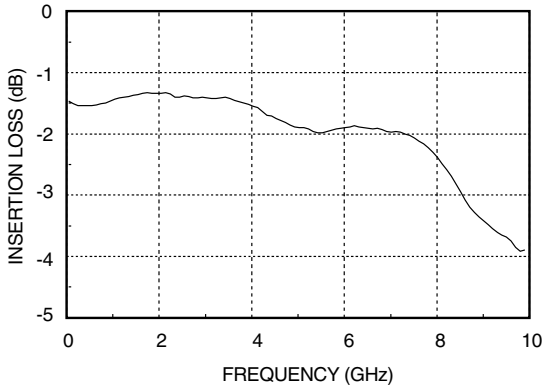
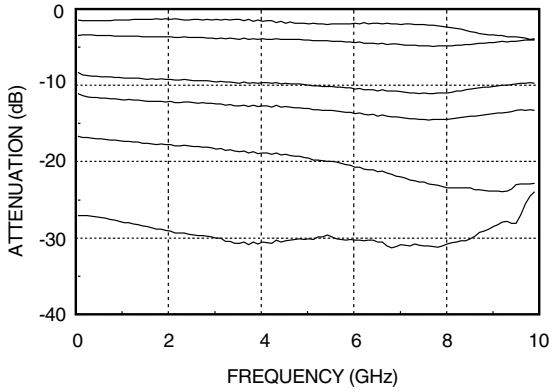
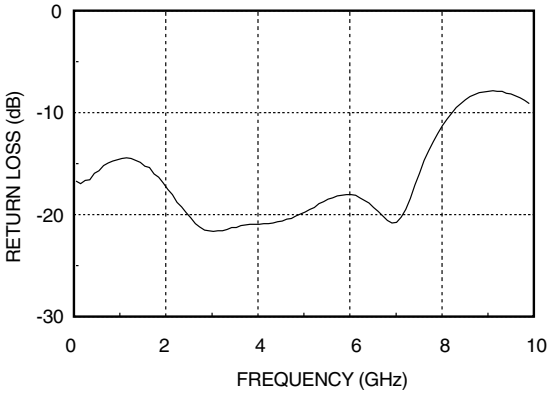
Insertion Loss



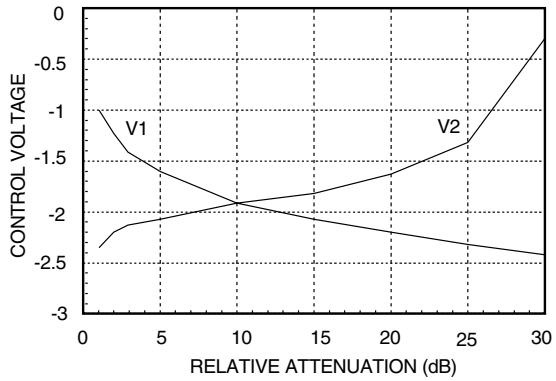
Relative Attenuation



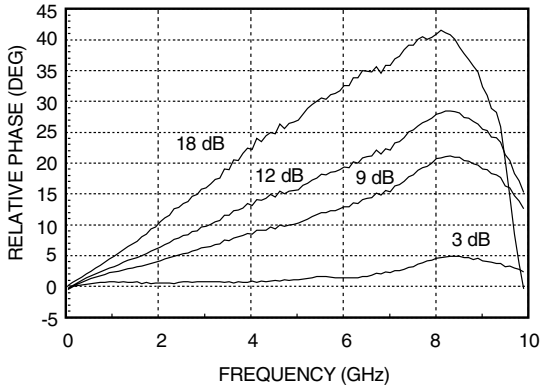
Return Loss



Relative Attenuation vs. Control Voltage



Relative Phase



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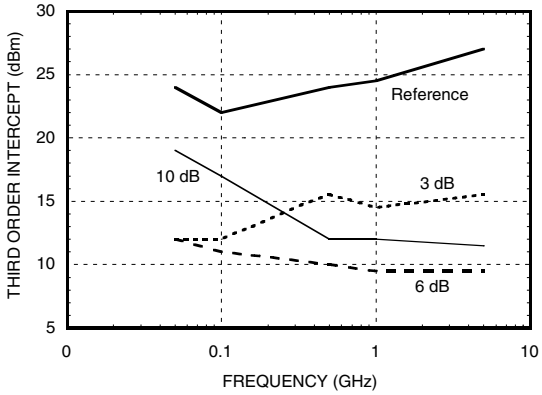
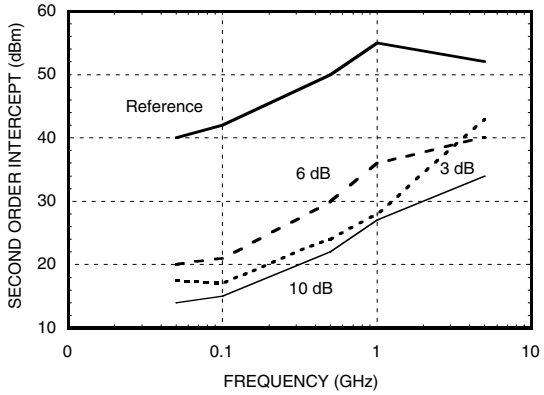
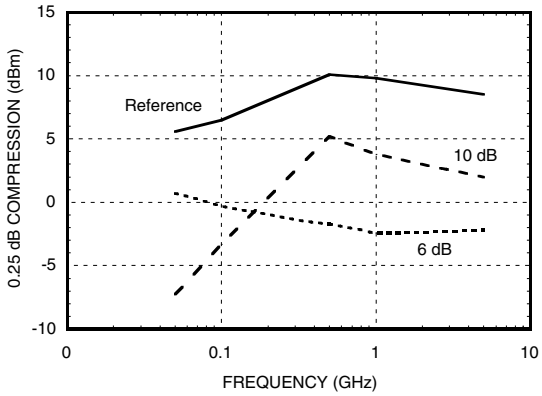
Input Third Order Intercept vs. Attenuation



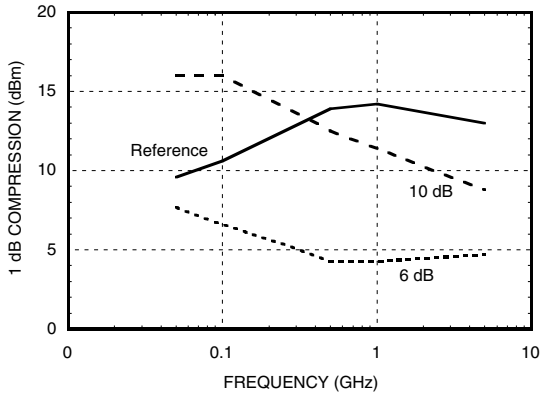
Input Second Order Intercept vs. Attenuation



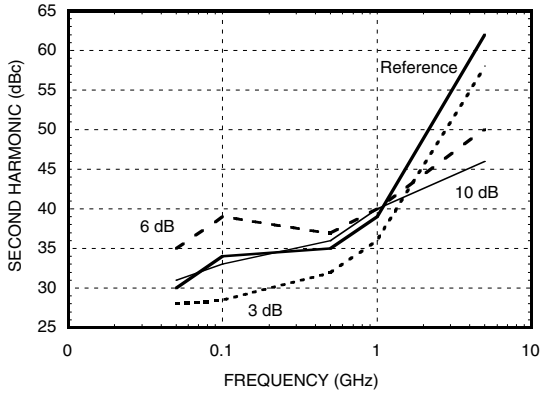
0.25 dB Compression vs. Attenuation



1 dB Compression vs. Attenuation



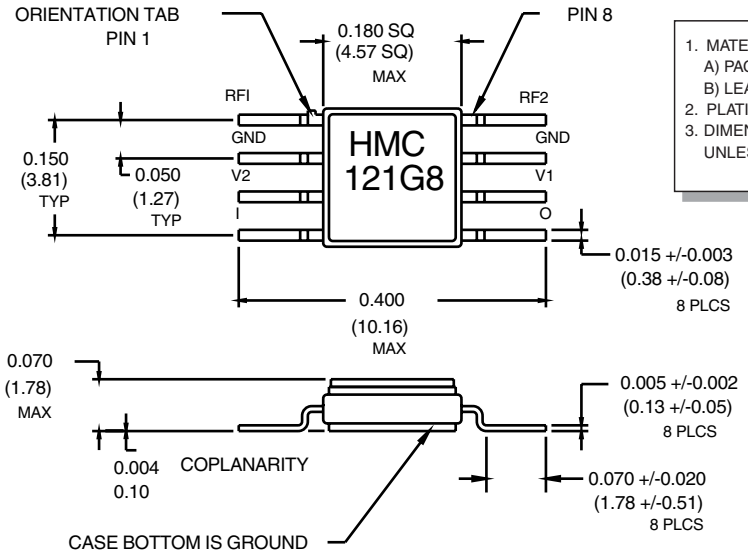
Second Harmonic vs. Attenuation



Absolute Maximum Ratings

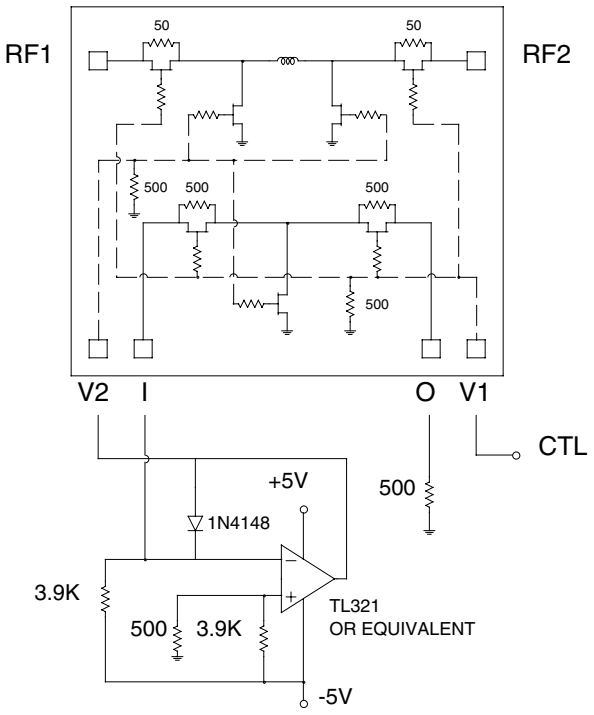
RF Input Power	+16 dBm
Control Voltage Range	+1.0 to -6.0 Vdc
Storage Temperature	-65 to +150 deg C
Operating Temperature	-55 to +125 deg C

Outline Drawing



1. MATERIAL:
   A) PACKAGE BODY - ALUMINA LOADED BOROSILI CATE GLASS
   B) LEADS, BASE, & COVER - ASTM F - 15 ALLOY
2. PLATING: ELECTROLYTIC GOLD 50 MICROINCHES MINIMUM.
3. DIMENSIONS ARE IN INCHES (MILLIMETERS).
   UNLESS OTHERWISE SPECIFIED TOL. ARE ±0.005 (±0.13).

Single-Line Control Driver



External op-amp control circuit maintains impedance match while attenuation is varied. Input control ranges from 0 Volts (min. attenuation) to -2.5 Volts (max. attenuation).