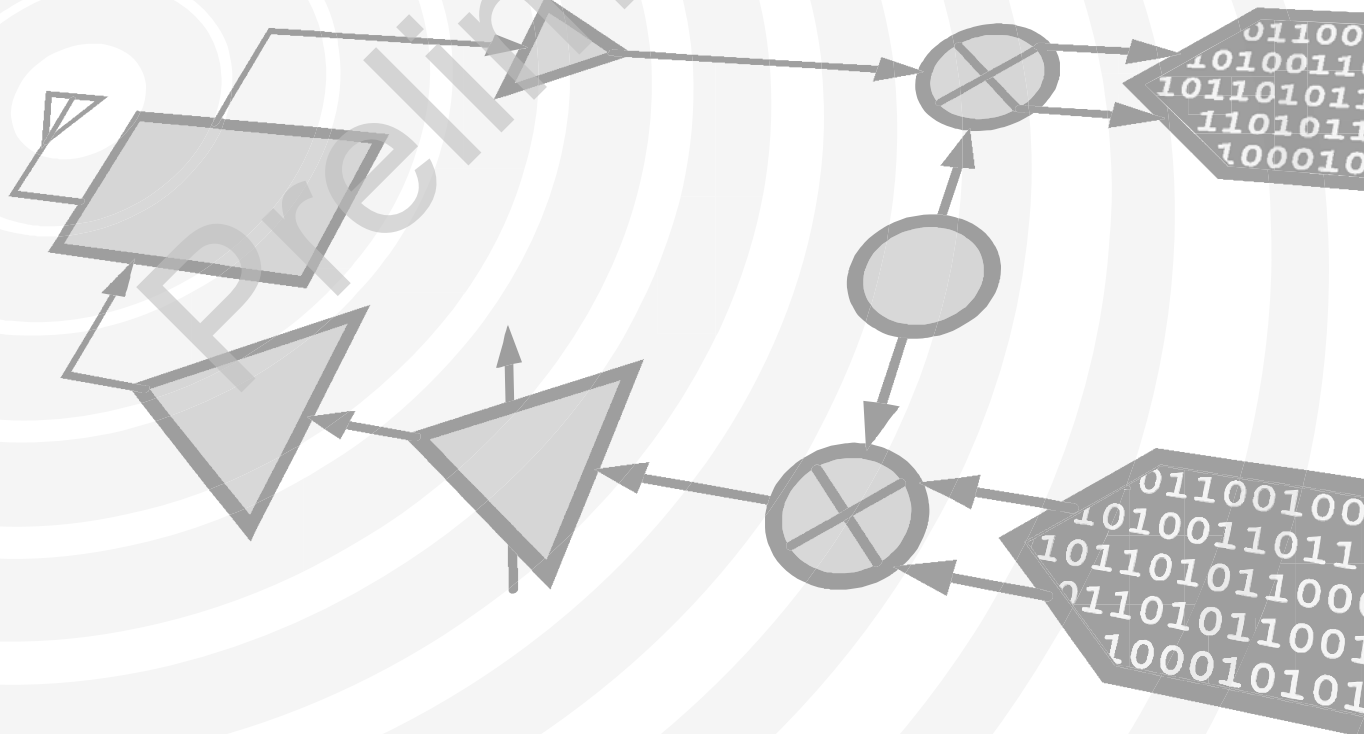


Analog Devices Welcomes Hittite Microwave Corporation



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Preliminary

GaAs MMIC VOLTAGE-VARIABLE ATTENUATOR, DC - 14 GHz

Typical Applications

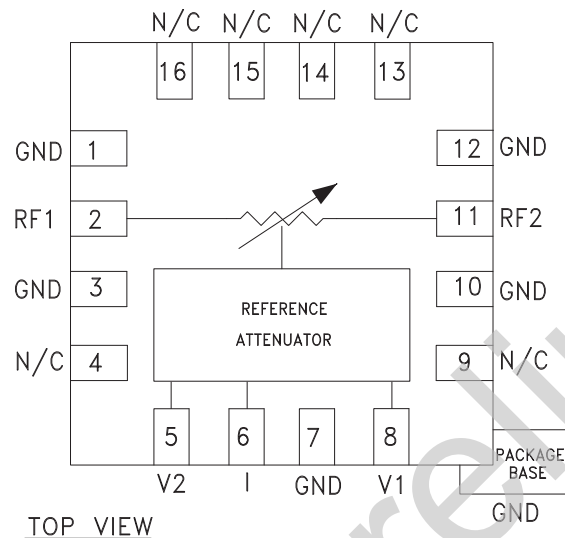
The HMC346ALP3 / HMC346ALP3E is ideal for:

- Basestation Infrastructure
- Fiber Optics & Broadband Telecom
- Microwave Radio & VSAT
- Military Radios, Radar, & ECM
- Test Instrumentation

Features

- Wide Bandwidth: DC - 14 GHz
- Low Phase Shift vs. Attenuation
- 30 dB Attenuation Range
- Simplified Voltage Control
- 3 x 3 x 1 mm SMT Package

Functional Diagram



General Description

The HMC346ALP3 & HMC346ALP3E are absorptive Voltage Variable Attenuators (VVA) in low cost leadless surface mount plastic packages operating from DC - 14 GHz. It features an on-chip reference attenuator for use with an external op-amp to provide simple single voltage attenuation control, 0 to -3V. The device is ideal in designs where an analog DC control signal must control RF signal levels over a 30 dB amplitude range. This VVA is an excellent alternative to the HMC121C8.

Electrical Specifications, $T_A = +25^\circ\text{C}$, 50 ohm system

Parameter	Min	Typical	Max	Units
Insertion Loss	DC - 10 GHz	1.7	2.2	dB
	DC - 14 GHz	2.8	3.3	dB
Attenuation Range	DC - 10 GHz	27	30	dB
	DC - 14 GHz	22	27	dB
Return Loss	DC - 14 GHz	5	10	dB
Switching Characteristics	tRISE, tFALL (10/90% RF):	2		ns
	tON, tOFF (50% CTL to 10/90% RF):	8		ns
Input Power for 0.25 dB Compression (0.5 - 8 GHz)	Min. Atten:	+8		dBm
	Atten. >2 dB:	-4		dBm
Input Third Order Intercept (0.5 - 8 GHz) (Two-tone Input Power = -8 dBm Each Tone)	Min. Atten:	+25		dBm
	Atten. >2 dB:	+10		dBm

GaAs MMIC VOLTAGE-VARIABLE ATTENUATOR, DC - 14 GHz

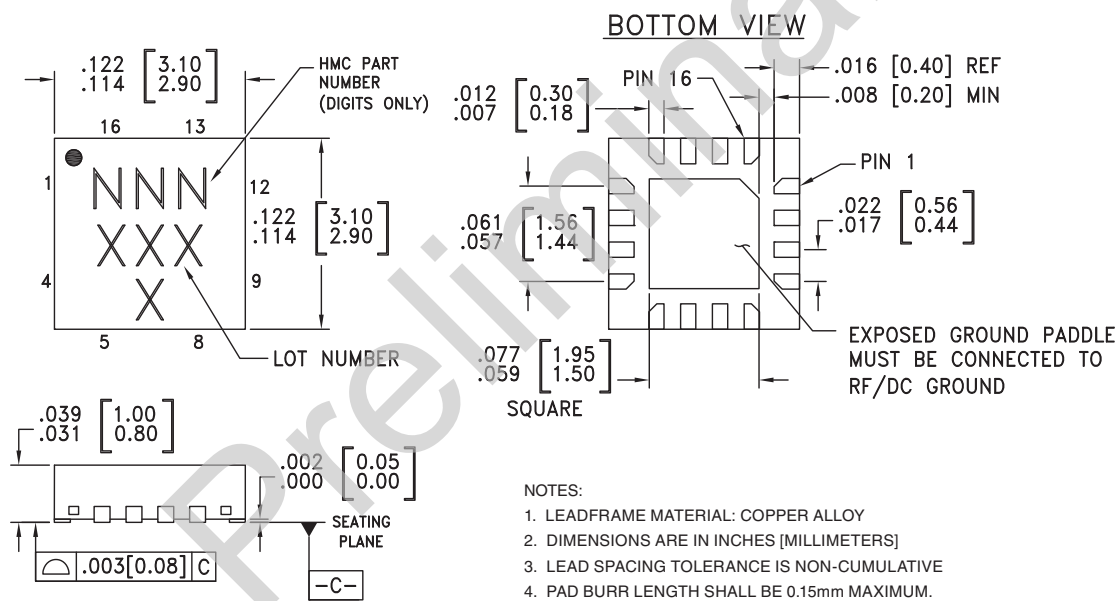
Absolute Maximum Ratings

RF Input Power	+18 dBm
Control Voltage Range	+1 to -5V
Storage Temperature	-65 to +150 °C
Operating Temperature	-40 to +85 °C
ESD Sensitivity (HBM)	Class 1A



ELECTROSTATIC SENSITIVE DEVICE
OBSERVE HANDLING PRECAUTIONS

Outline Drawing



NOTES:

- LEADFRAME MATERIAL: COPPER ALLOY
- DIMENSIONS ARE IN INCHES [MILLIMETERS]
- LEAD SPACING TOLERANCE IS NON-CUMULATIVE
- PAD BURR LENGTH SHALL BE 0.15mm MAXIMUM.
PAD BURR HEIGHT SHALL BE 0.05mm MAXIMUM.
- PACKAGE WARP SHALL NOT EXCEED 0.05mm.
- ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
- REFER TO HITTITE APPLICATION NOTE FOR SUGGESTED LAND PATTERN.