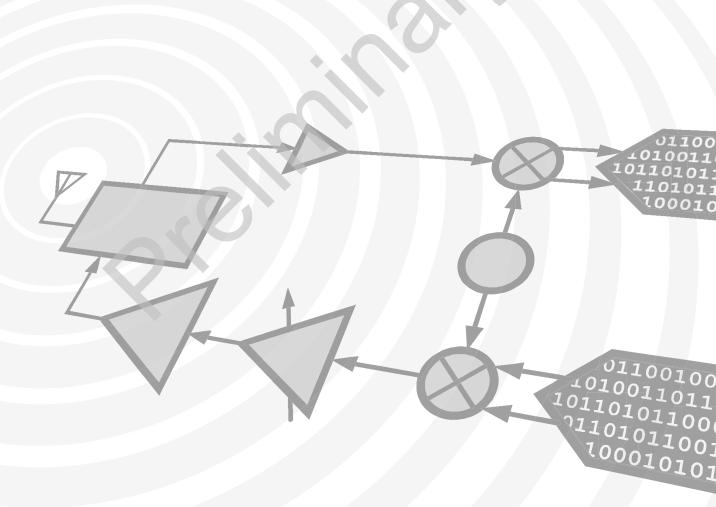




# Analog Devices Welcomes Hittite Microwave Corporation



www.hittite.com

www.analog.com

# THIS PAGE INTENTIONALLY LEFT BLANK



# HMC346ALP3 / 346ALP3E

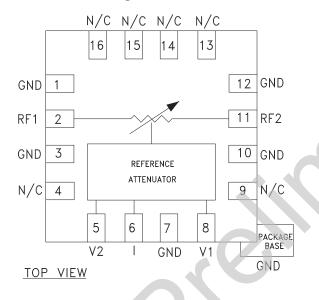
v00.1115

## Typical Applications

The HMC346ALP3 / HMC346ALP3E is ideal for:

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

#### **Functional Diagram**



# GaAs MMIC VOLTAGE-VARIABLE ATTENUATOR, DC - 14 GHz

#### 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

#### **General Description**

The HMC346ALP3 & HMC346ALP3E are pabsorptive 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, $T_A = +25^{\circ}$ C, 50 ohm system

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

Information furnished by Analog Devices is believed to be accurate and reliable. However, no responsibility is assumed by Analog Devices for its use, nor for any infringements of patents or other rights of third parties that may result from its use. Specifications subject to change without notice. No license is granted by implication or otherwise under any patent or patent rights of Analog Devices. Trademarks and registered trademarks are the property of their respective owners.



v00.1115

# HMC346ALP3 / 346ALP3E

## GaAs MMIC VOLTAGE-VARIABLE ATTENUATOR, DC - 14 GHz

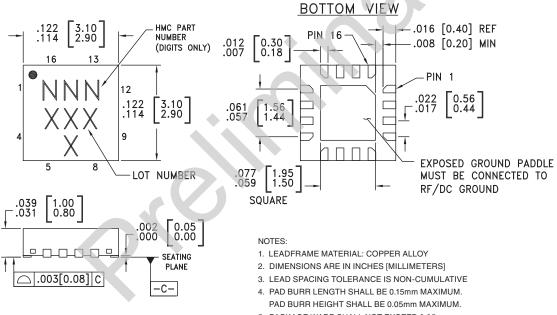
#### Absolute Maximum Ratings

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**



- 5. PACKAGE WARP SHALL NOT EXCEED 0.05mm.
- 6. ALL GROUND LEADS AND GROUND PADDLE MUST BE SOLDERED TO PCB RF GROUND.
- 7. REFER TO HITTITE APPLICATION NOTE FOR SUGGESTED LAND PATTERN.