

HIP3™ Variable Attenuator

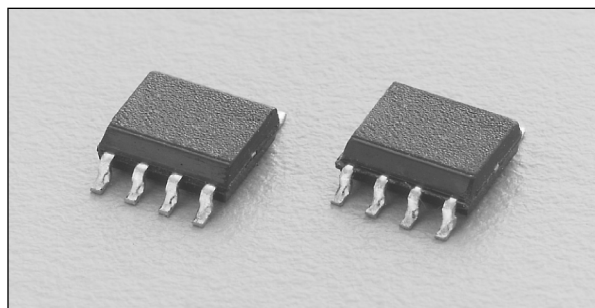
1.70–2.00 GHz



AV102-12

Features

- +50 dBm IP3 Typical
- Low Loss 1 dB Typical
- Attenuation 30 dB Typical
- Good VSWR <1.5:1 Typical
- Small SOIC-8 Package



Description

The AV102-12 is a current controlled variable attenuator from Alpha's series of HIP3™ components. It is designed to meet the wide dynamic range required in spread spectrum wireless base station applications. A monolithic quadrature hybrid is teamed with a silicon PIN diode pair in a plastic surface mount package reducing size and assuring consistency from part to part.

Electrical Specifications at 25°C

Parameter	Min.	Typ.	Max.	Unit
Frequency	1.70		2.00	GHz
Insertion Loss (0 mA Control Current)		1	1.5	dB
Attenuation @ 3.0 mA Control Current (1850 MHz)	18.5		25.0	dB
VSWR All Ports		1.5	1.8	
Input 3rd Order Intercept	+47	+50		dBm
Group Delay		0.6	1.0	ns

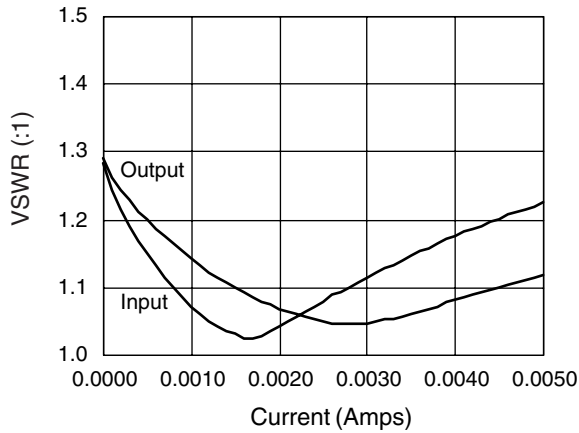
Operating Characteristics at 25°C (0, +5 V)

Parameter ¹	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics ²	Rise, Fall (10/90% or 90/10% RF)				5	μs
	On, Off (50% CTL to 90/10% RF)				8	μs
	Video Feedthru (Peak)				2	mV
Maximum Input Power for <1 dB Attenuation Variation				+15		dBm

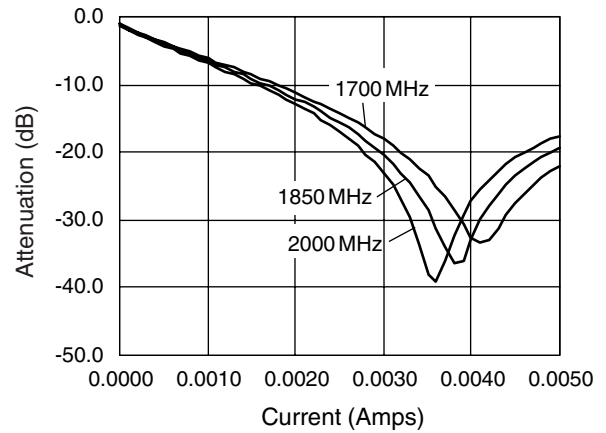
1. All measurements made in a 50 Ω system, unless otherwise specified.

2. 0–4 mA square wave total control current.

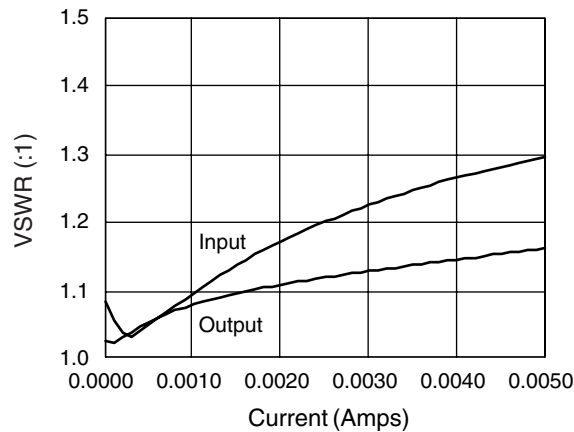
Typical Performance Data



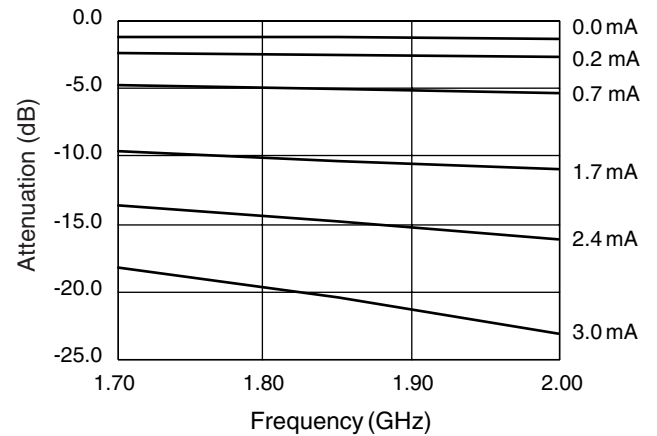
**Input/Output VSWR vs. Current
@ 1700 MHz**



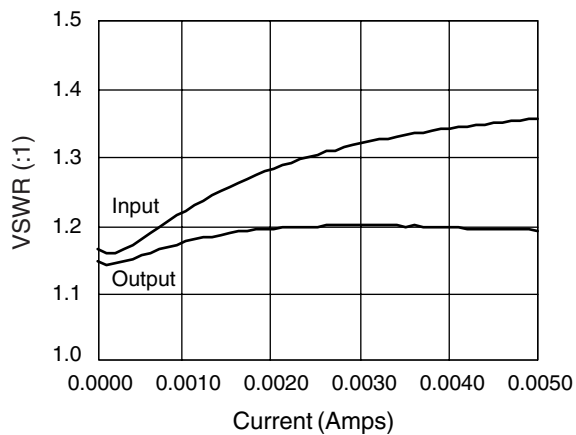
Attenuation vs. Current



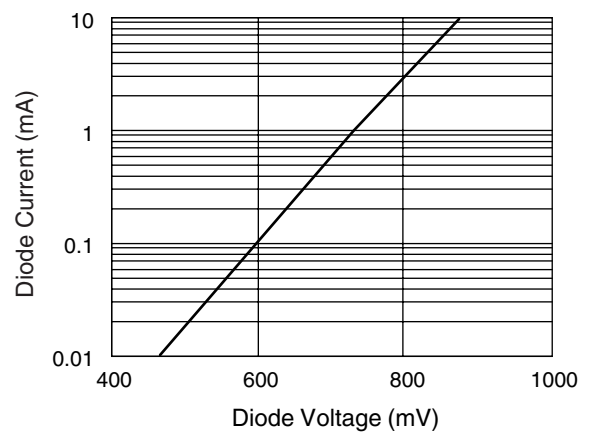
**Input/Output VSWR vs. Current
@ 1850 MHz**



Attenuation vs. Frequency

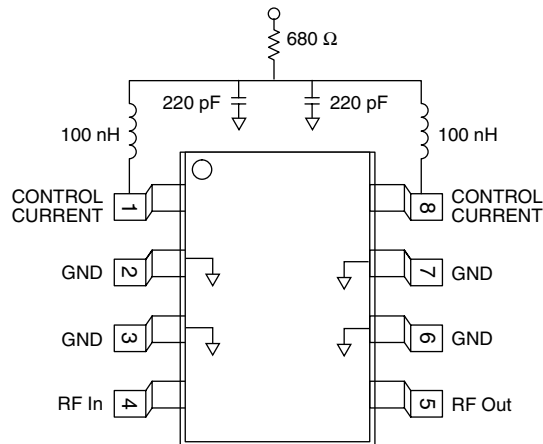


**Input/Output VSWR vs. Current
@ 2000 MHz**

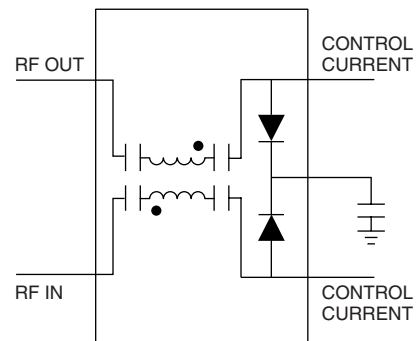


Typical PIN Diode Current vs. Voltage

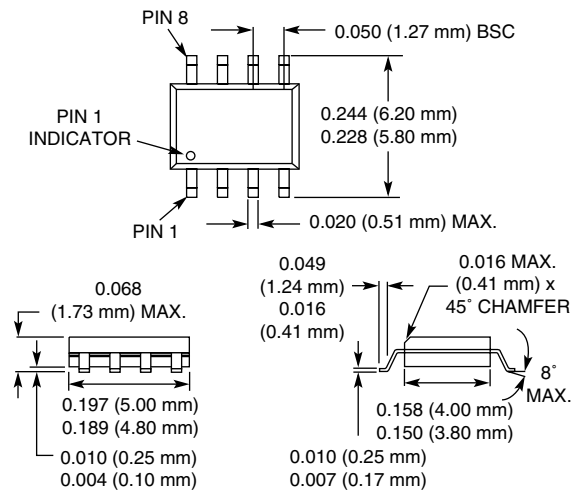
Pin Out



Connection Diagram



SOIC-8

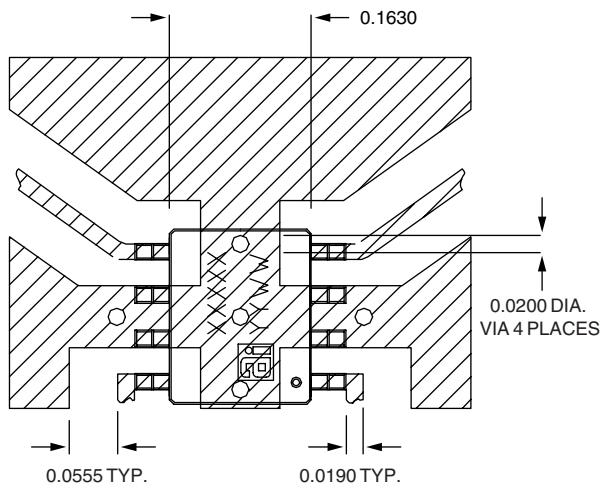


Absolute Maximum Ratings

Characteristic	Value
RF Input Power	.5 W CW, 4 W @ 12.5% Duty Cycle
Control Current	50 mA Each Diode
Operating Temperature	-40 to +85°C
Storage Temperature	-40 to +85°C
Maximum Reverse Diode Voltage	-10 V
Electrostatic Discharge	+125 V

Note: Operating this device above any of these parameters may cause irreversible damage.

Recommended Board Layout



Material is 10 mil FR4.