

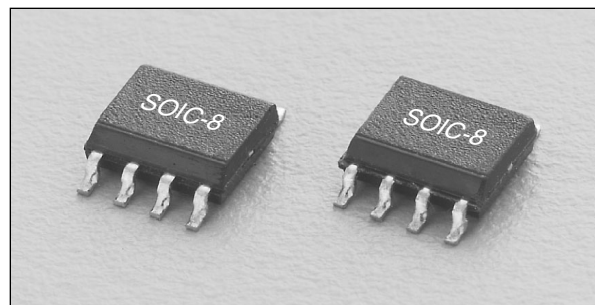
# HIP3™ Variable Attenuator 1.7–2.0 GHz



AV112-12

## Features

- Specified Attenuation: 17.5–25 dB
- Total Attenuation: 30 dB Typical
- Low Insertion Loss: < 1.5 dB
- Low Distortion: +40 dBm Typical
- Low Phase Shift and Delay



## Description

The AV112-12 is a low distortion, PIN diode variable attenuator in a small SOIC-8 package. The design is based on Skyworks' unique series of HIP3™ components. The AV112-12 consists of a monolithic quadrature hybrid and a matched pair of PIN diodes designed for low distortion attenuators.

## Electrical Specifications at 25°C

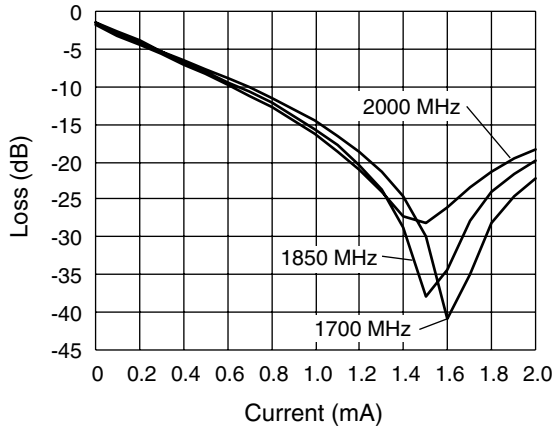
Parameter	Min.	Typ.	Max.	Unit
Frequency	1.7		2.0	GHz
Insertion Loss (0 mA Control Current)		1.0	1.5	dB
Attenuation @ 1.2 mA Control Current (1.85 GHz)	17.5		25.0	dB
SWR (All Ports)		1.5	1.8	
Input 3rd Order Intercept Point	+37	+40		dBm
Relative Phase Shift Up to 20 dB Attenuation		7	10	Deg.
Group Delay		0.6	0.9	ns

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

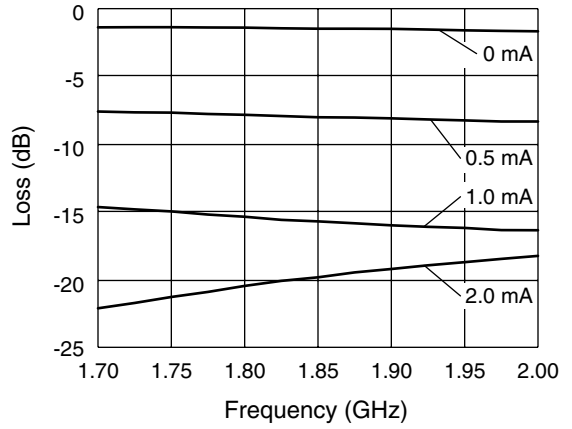
Parameter <sup>1</sup>	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics <sup>2</sup>	Rise, Fall (10/90% or 90/10% RF)				5	μs
	On, Off (50% CTL to 90/10% RF)				8	μs
	Video Feedthru (Peak)				5	mV
Maximum Input Power for < 1 dB Attenuation Variation					+15	dBm

1. All measurements made in a 50 Ω system.  
2. Driver Pulse — 0–4 mA square wave.

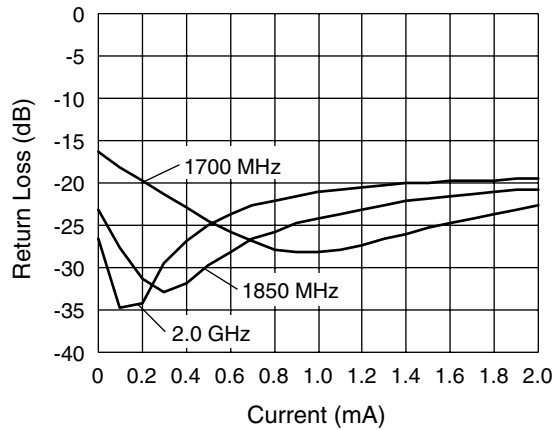
### Typical Performance Data



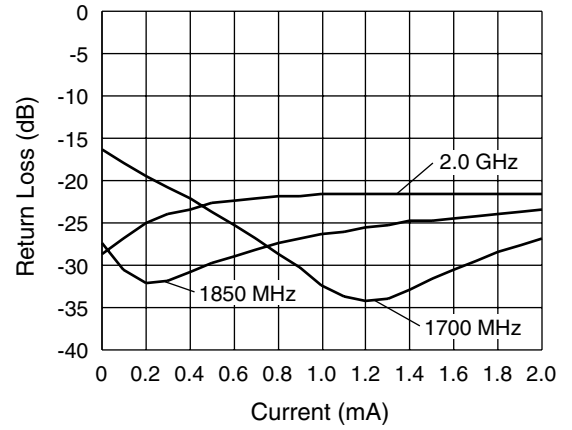
**Attenuation vs. Control Current**



**Attenuation vs. Frequency**



**Input Return vs. Current Control**



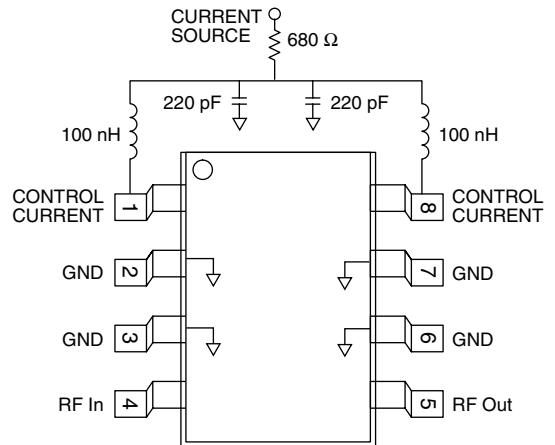
**Output Return vs. Current Control**

### Absolute Maximum Ratings

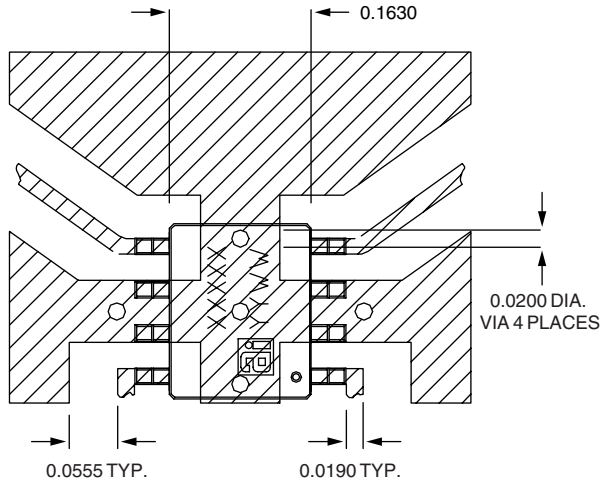
Characteristic	Value
RF Input Power	0.5 W CW, 4 W @ 12.5% Duty Cycle
Control Current	50 mA per Diode
Operating Temperature	-65 to +125°C
Storage Temperature	-65 to +125°C
Maximum Reverse Diode Voltage	-100 V
Electrostatic Discharge	+125 V

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

### Pin Out

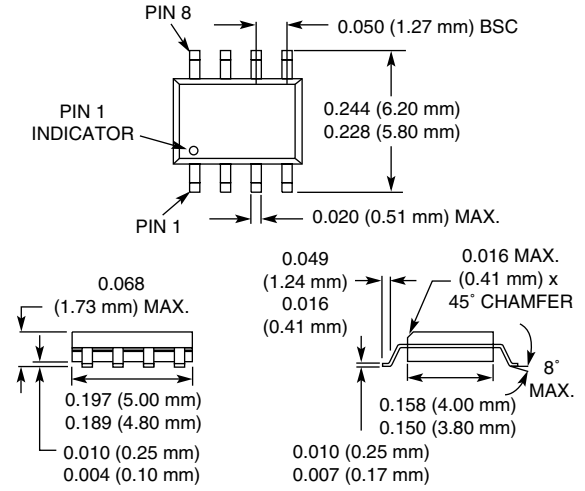


### Recommended Board Layout



Material is 10 mil FR4.

### SOIC-8



### Connection Diagram

