

HIP3™ Variable Attenuator

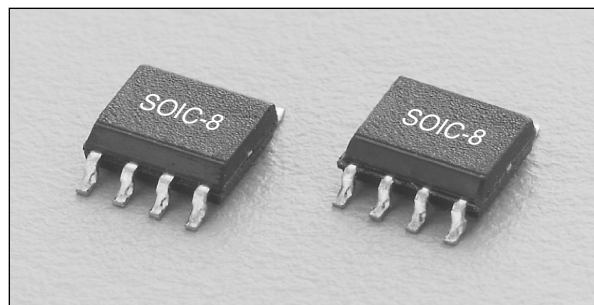
1.7–2.0 GHz



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

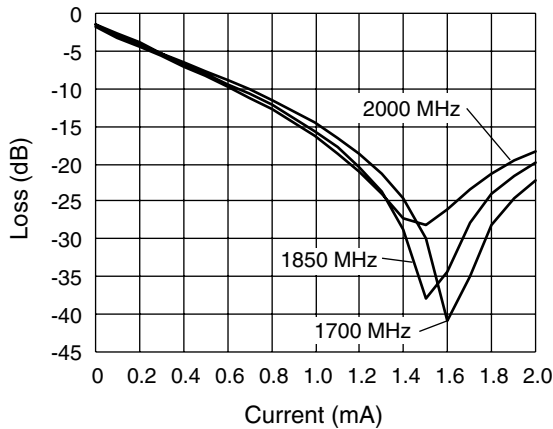
Operating Characteristics at 25°C (0, +5 V)

Parameter 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)				5	mV
Maximum Input Power for < 1 dB Attenuation Variation					+15	dBm

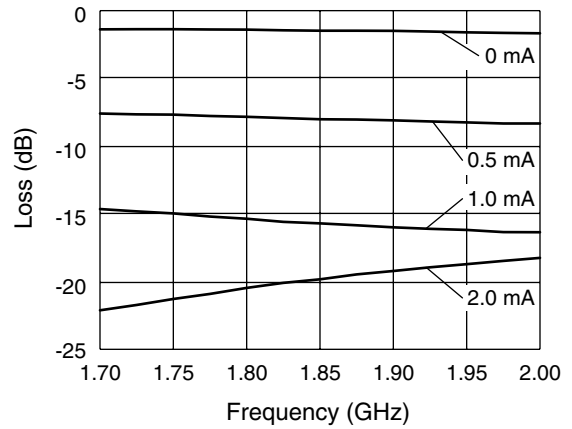
1. All measurements made in a 50 Ω system.

2. Driver Pulse — 0–4 mA square wave.

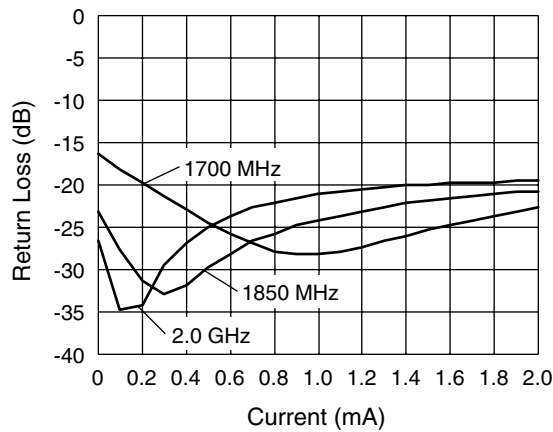
Typical Performance Data



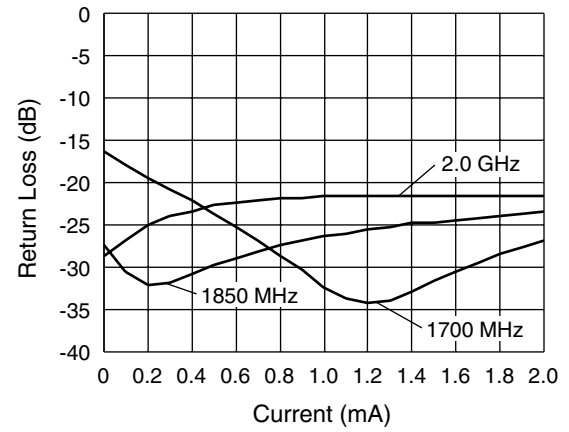
Attenuation vs. Control Current



Attenuation vs. Frequency



Input Return vs. Current Control



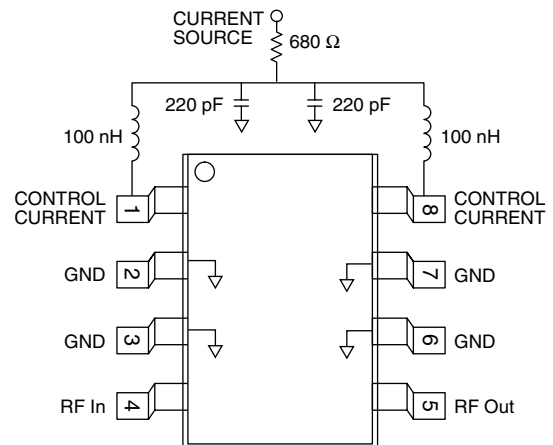
Output Return vs. Current Control

Absolute Maximum Ratings

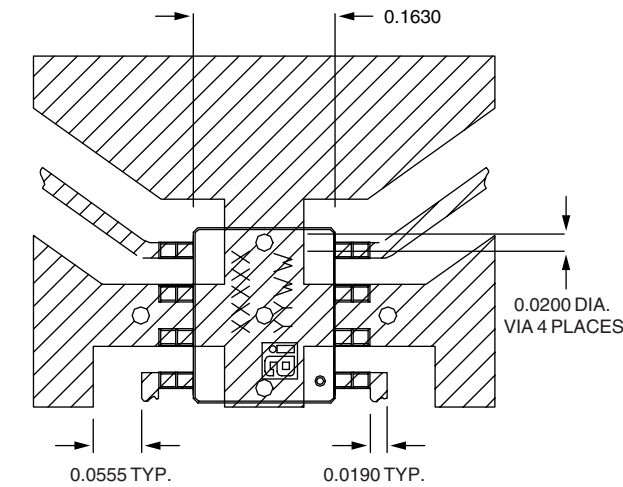
Characteristic	Value
RF Input Power	0.5 W CW, 4 W @ 12.5% Duty Cycle
Control Current	50 mA per Diode
Operating Temperature	-65 to +125°C
Storage Temperature	-65 to +125°C
Maximum Reverse Diode Voltage	-100 V
Electrostatic Discharge	+125 V

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

Pin Out

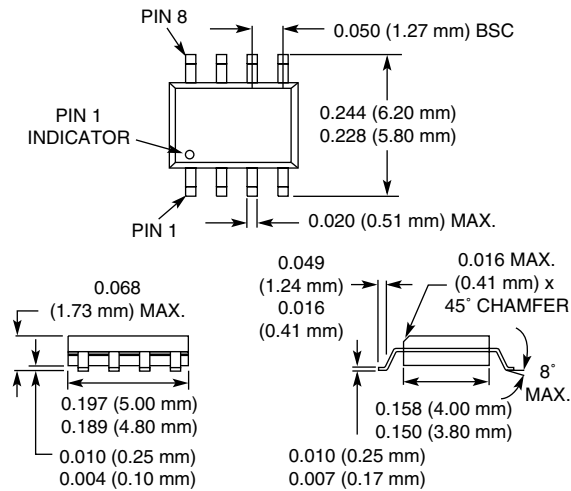


Recommended Board Layout



Material is 10 mil FR4.

SOIC-8



Connection Diagram

