

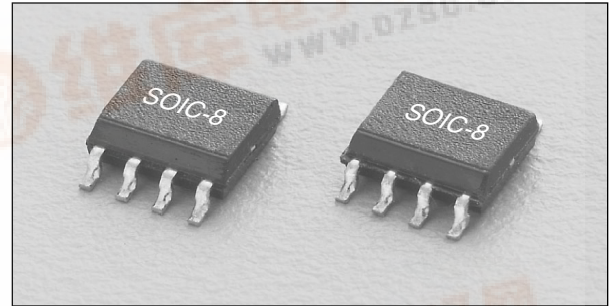
HIP3™ Variable Attenuator 1.7–2.0 GHz



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 |

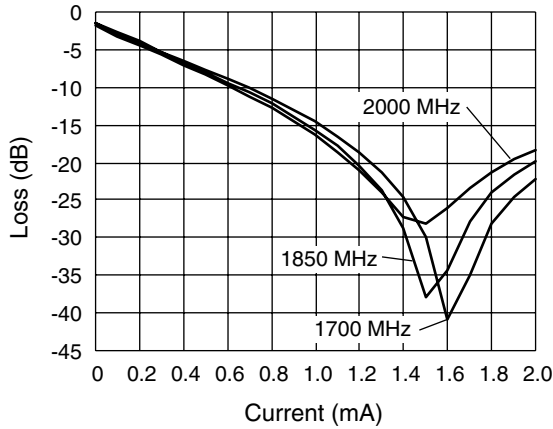
Operating Characteristics at 25°C (0, +5 V)

| 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 |

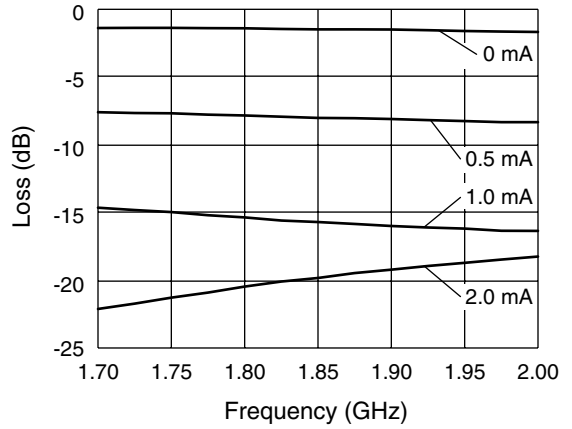
1. All measurements made in a 50 Ω system.
2. Driver Pulse — 0–4 mA square wave.



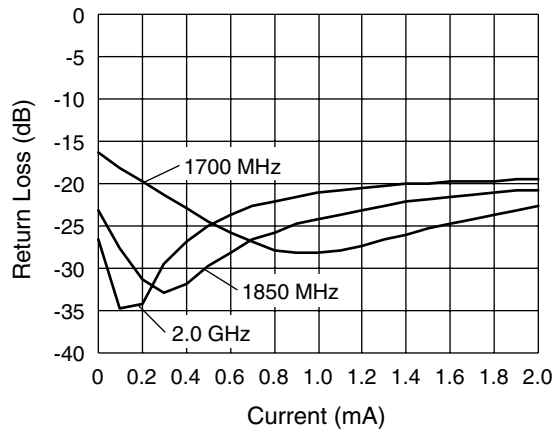
Typical Performance Data



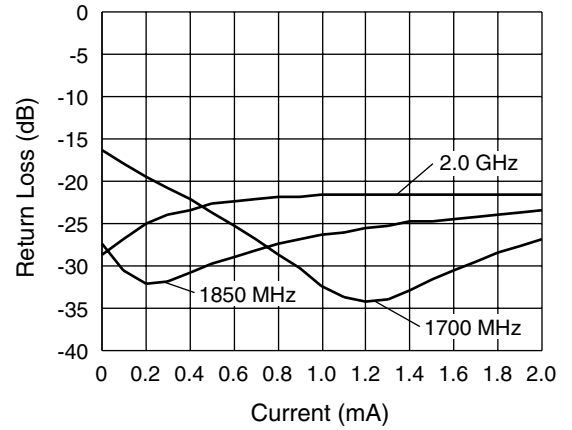
Attenuation vs. Control Current



Attenuation vs. Frequency



Input Return vs. Current Control



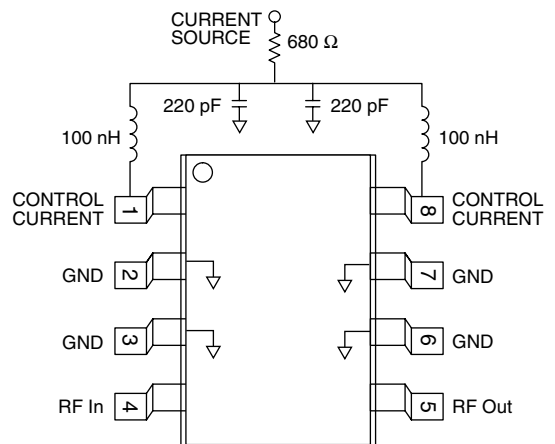
Output Return vs. Current Control

Absolute Maximum Ratings

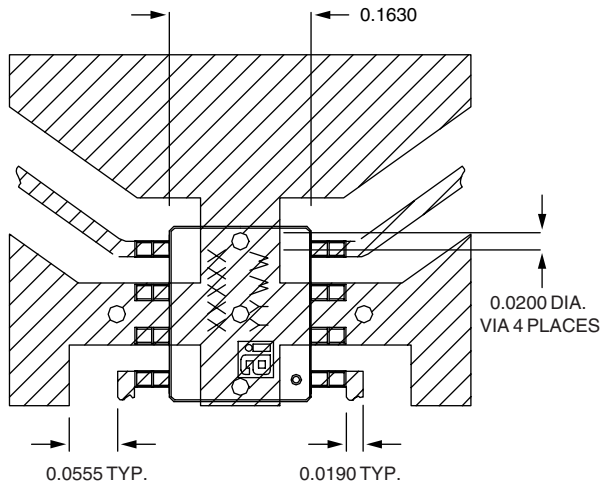
| Characteristic | Value |
|-------------------------------|----------------------------------|
| RF Input Power | 0.5 W CW, 4 W @ 12.5% Duty Cycle |
| Control Current | 50 mA per Diode |
| Operating Temperature | -65 to +125°C |
| Storage Temperature | -65 to +125°C |
| Maximum Reverse Diode Voltage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

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

Pin Out

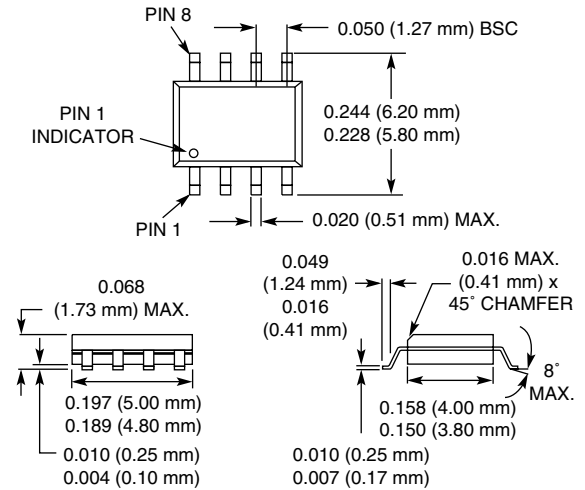


Recommended Board Layout



Material is 10 mil FR4.

SOIC-8



Connection Diagram

