

GaAs IC 35 dB Voltage Variable Attenuator

Single Positive 3 V Control 0.8–1.0 GHz



AV109-73

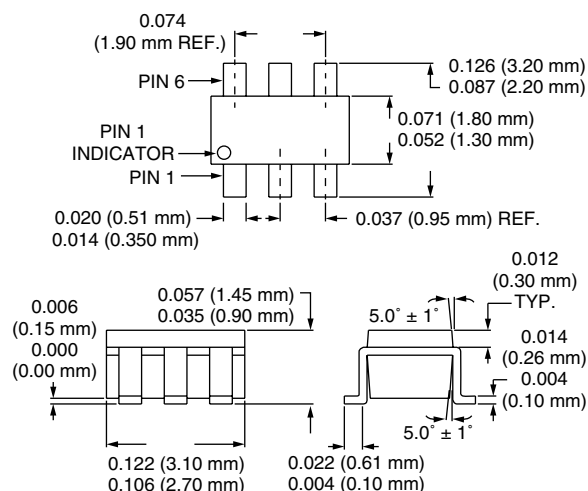
Features

- Single Positive 3 V Control Voltage
- 35 dB Attenuation Range @ 0.9 GHz
- Excellent Linearity Performance

Description

The AV109-73 GaAs IC FET voltage variable attenuator provides 35 dB attenuation range at 900 MHz controlled by a single positive voltage. The VVA has a linear transfer curve of 12 dB/V slope, with input and output VSWR better than 2:1 over all states. It operates with supply voltage of +3 V and control voltage of 0 V to +3 V in a low cost SOT-6 package. The RF ports require 25 pF DC blocking capacitors. In addition, an external grounding capacitor is required.

SOT-6



Electrical Specifications at 25°C ($V_S = 3\text{ V}$)

Parameter ¹	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss ($V_C = 0\text{ V}$)	0.8–1.0 GHz		3.3		dB
Maximum Attenuation ($V_C = 3\text{ V}$) ²	0.8–1.0 GHz		35		dB
VSWR (I/O) ³	0.5–2.5 GHz		2.0:1		

Operating Characteristics at 25°C ($V_S = 3\text{ V}$)

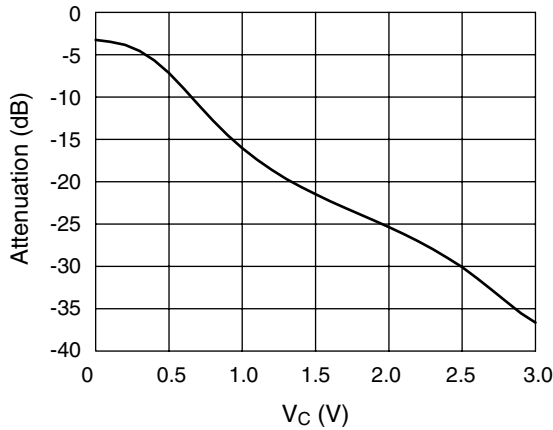
Parameter ¹	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, On (10/90% or 50% CTL to 90% RF)			1.0		μS
	Fall, Off (90/10% RF or 50% CTL to 10% RF)			0.3		μS
Intermodulation Intercept Point (IIP3) ³	For Two-tone Input Power +0 dBm	0.9 GHz		14		dBm
Control Voltage (V_C)			0.0		V_S	V
Supply Voltage (V_S)				3		
Control Current (I_C)				$0.2 \times V_C$		mA
Supply Current (I_S)				150		μA

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

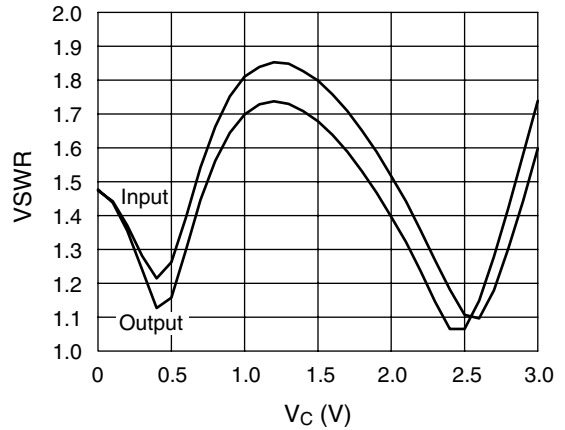
2. Maximum attenuation includes insertion loss.

3. For worst case state.

Typical Performance Data @ 0.9 GHz
(Unless Otherwise Specified)



Attenuation vs. Control Voltage



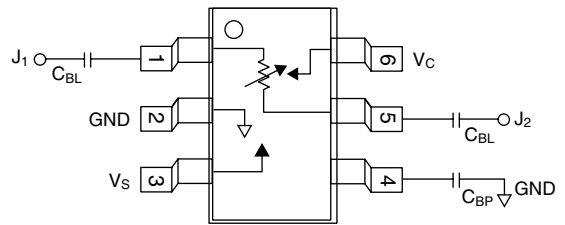
VSWR vs. Control Voltage

Absolute Maximum Ratings

Characteristic	Value
RF Input Power	50 mW > 500 MHz
Supply Voltage	+7 V
Control Voltage	+3.3 V
Operating Temperature	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Θ _{JC}	25°C/W

Note: Exceeding these parameters may cause irreversible damage.

Pin Out



DC blocking capacitors (C_{BL}) and RF bypass capacitors (C_{BP}) supplied externally. C_{BL} = 25 pF for 900 MHz operation. C_{BP} = 38 pF for 900 MHz operation.