

# GaAs IC 30 dB Voltage Variable Attenuator Single Positive 3 V Control 1.7–2.5 GHz



AV110-73

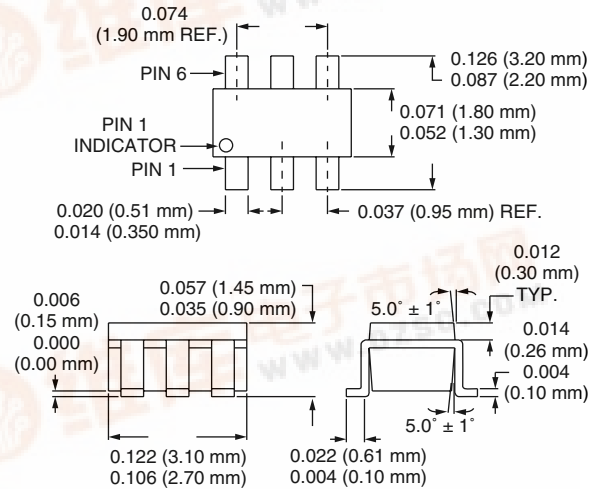
## Features

- Single Positive 3 V Control Voltage
- 33 dB Attenuation Range @ 1.9 GHz
- Excellent Linearity Performance

## Description

The AV110-73 GaAs IC FET voltage variable attenuator provides 33 dB attenuation range at 1900 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.

## SOT-6



## Electrical Specifications at 25°C (V<sub>S</sub> = 3 V)

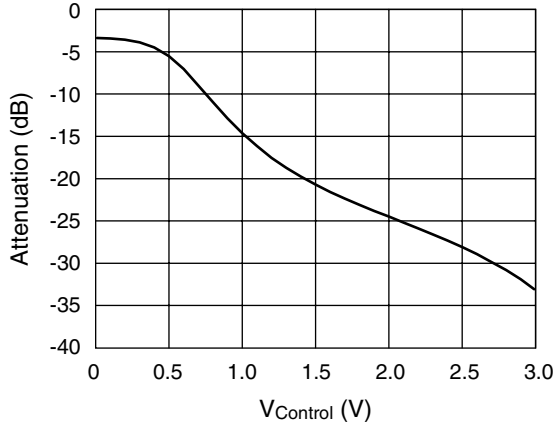
Parameter <sup>1</sup>	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss (V <sub>C</sub> = 0 V)	1.7–2.0 GHz		3.5		dB
	2.0–2.5 GHz		3.8		dB
Maximum Attenuation (V <sub>C</sub> = 3 V) <sup>2</sup>	1.7–2.0 GHz		33		dB
	2.0–2.5 GHz		28		dB
VSWR (I/O) <sup>3</sup>	1.7–2.5 GHz		2.0:1		

## Operating Characteristics at 25°C (V<sub>S</sub> = 3 V)

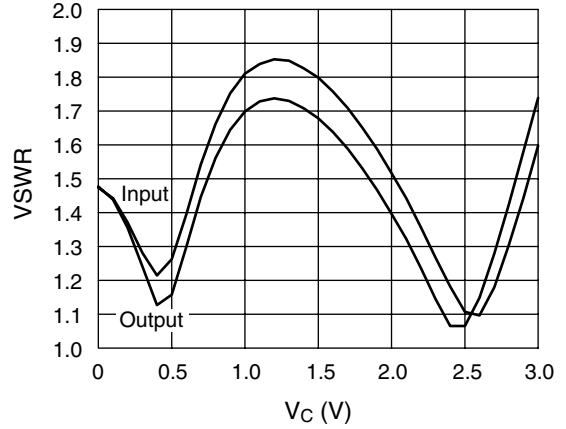
Parameter <sup>1</sup>	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, On (10/90% or 50% CTL to 90% RF)			1.0		μS
	Fall, Off (90/10% RF or 50% CTL to 10% RF)			0.3		μS
Intermodulation Intercept Point (IIP3) <sup>3</sup>	For Two-tone Input Power +0 dBm	0.9 GHz		12		dBm
Control Voltage (V <sub>C</sub> )			0.0		V <sub>S</sub>	V
Supply Voltage (V <sub>S</sub> )				3		
Control Current (I <sub>C</sub> )				0.2 x V <sub>C</sub>		mA
Supply Current (I <sub>S</sub> )				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.

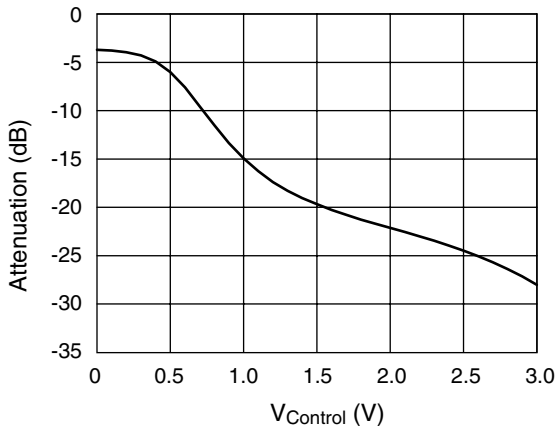
**Typical Performance Data @ 1.9 GHz**  
(Unless Otherwise Specified)



**Attenuation vs. Control Voltage @ 1900 MHz**



**VSWR vs. Control Voltage**



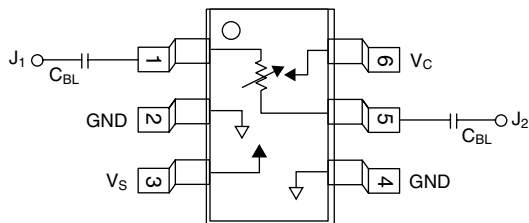
**Attenuation vs. Control Voltage @ 2400 MHz**

**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 <sub>JC</sub>	25°C/W

Note: Exceeding these parameters may cause irreversible damage.

**Pin Out**



DC blocking capacitors (C<sub>B<sub>L</sub></sub>) supplied externally.  
C<sub>B<sub>L</sub></sub> = 25 pF for 1900 MHz operation.