

GaAs IC 30 dB Voltage Variable Attenuator

Single Positive 3 V Control 1.7–2.5 GHz



AV110-73

Applications

- General Purpose Telecommunication Systems

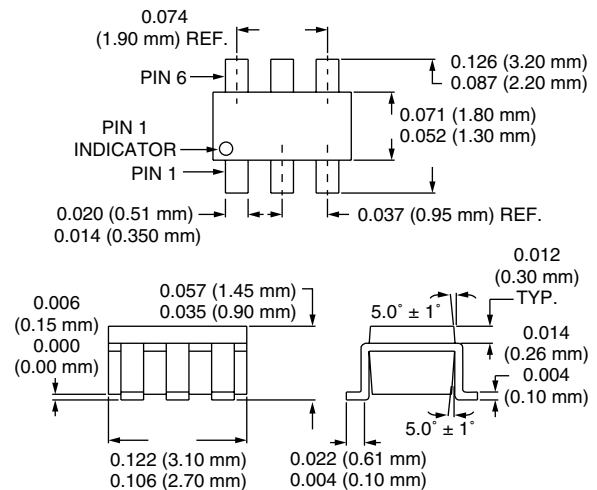
Features

- 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 ($V_S = 3\text{ V}$)

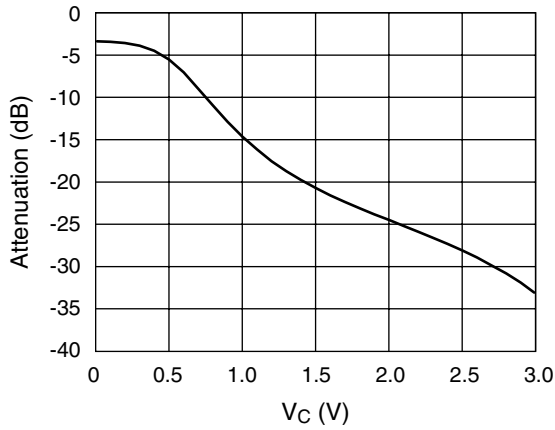
Parameter ¹	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss ($V_C = 0\text{ V}$)	1.7–2.0 GHz		3.5	3.8	dB
	2.0–2.5 GHz		3.8	4.2	dB
Maximum Attenuation ($V_C = 3\text{ V}$) ²	1.7–2.0 GHz	28	33		dB
	2.0–2.5 GHz	23	28		dB
VSWR (I/O) ³	1.7–2.5 GHz		2.0:1	2.5:1	

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

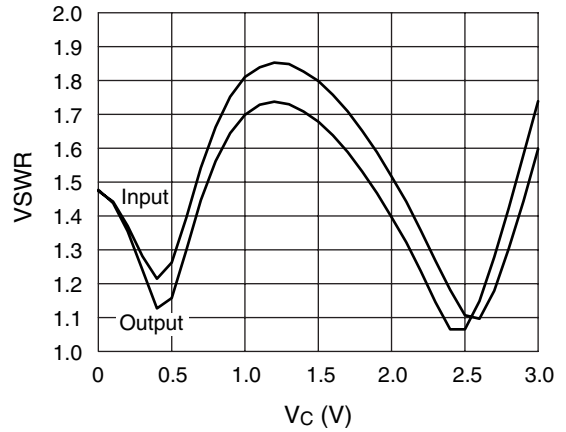
Parameter ¹	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, On (10/90% or 50% CTL to 90% RF)			1.0		μS
	Fall, Off (90/10% RF or 50% CTL to 10% RF)			0.3		μS
Intermodulation Intercept Point (IIP3) ³	For Two-tone Input Power +0 dBm	0.9 GHz		12		dBm
Control Voltage (V_C)			0		V_S	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.

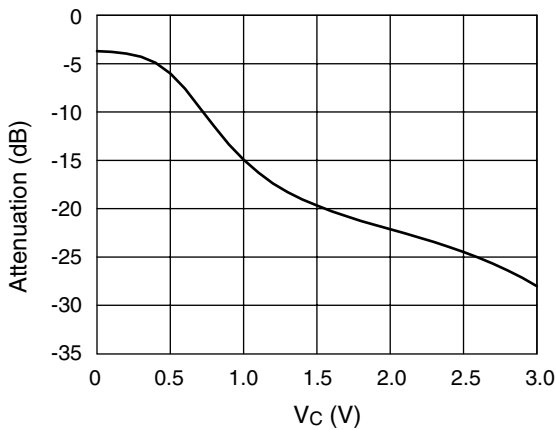
Typical Performance Data @ 1.9 GHz
(Unless Otherwise Specified)



Attenuation vs. Control Voltage @ 1900 MHz



VSWR vs. Control Voltage



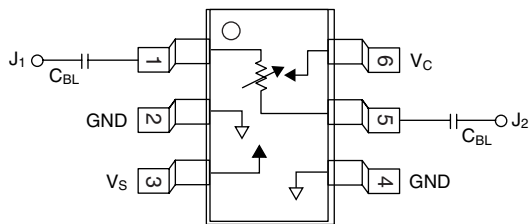
Attenuation vs. Control Voltage @ 2400 MHz

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 _{JC}	25°C/W

Note: Exceeding these parameters may cause irreversible damage.

Pin Out



DC blocking capacitors (C_{B_L}) supplied externally.
C_{B_L} = 25 pF for 1900 MHz operation.



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