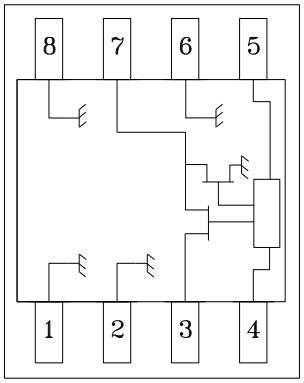
0.5-2.0GHz Voltage Variable Attenuator (Absorptive)

Features

- **Single Positive Voltage Control: 0 to +5V**
- **30dB Voltage Variable Attenuation**
- **Low Insertion loss**
- **I/O VSWR < 1.6 :1**
- **No external matching required**
- **Low DC power consumption**
- **SOIC- 8 Surface mount package**

Functional Diagram



Typical Applications

- **Automatic gain/level control circuits**
- **Cellular**
- **GPS**

Description

The ASL3001P is a GaAs MMIC Voltage Variable Absorptive Attenuator in a low cost SOIC-8 leaded surface mount plastic package. It is fabricated using a rugged 0.5µm pHEMT technology. The device is ideal in designs where an analog DC control signal is required to control RF signal levels over a 30 dB amplitude range. The device features excellent I/O return losses. It is ideally suited for use where linear attenuation, fine tuning and very low power consumption are required. The key feature of this attenuator is it requires only "positive" control voltage. External DC blocking capacitors are required on all RF ports.

Absolute Maximum Ratings(1)

Parameter	Absolute Maximum	Units
RF Input Power	25	dBm
Control Voltage	7	Volts
Supply Voltage	7	Volts
Operating Temperature	-40 to 85	°C
Storage Temperature	-55 to 150	°C

1. Operation beyond these limits may cause permanent damage to the component

Electrical Specifications @ T_A = 25 °C , Z_o =50 Ω

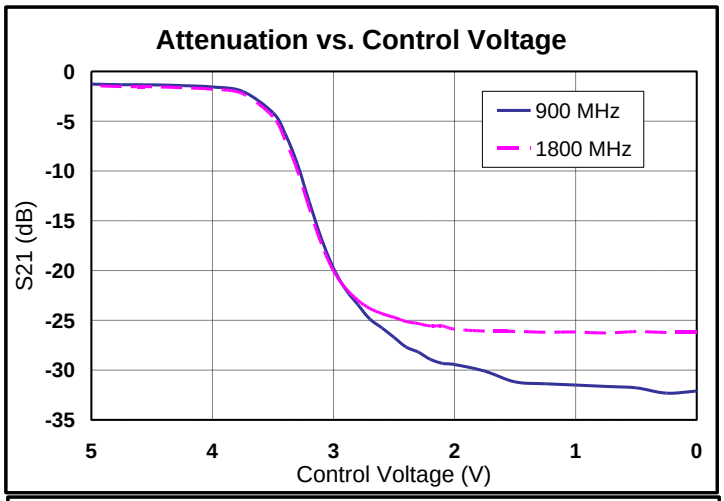
Parameter	Min.	Typ.	Max.	Units
Frequency range	0.5		2.0	GHz
Insertion Loss	1.3	1.4	1.5	dB
Attenuation	-	30	-	dB
Flatness	-	+/- 2.5	-	dB
VSWR (max.)	-	1.6	-	Ratio

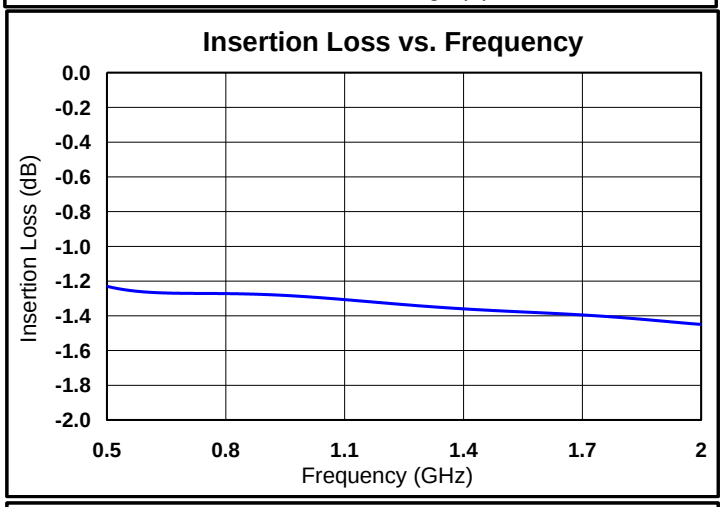
Note:

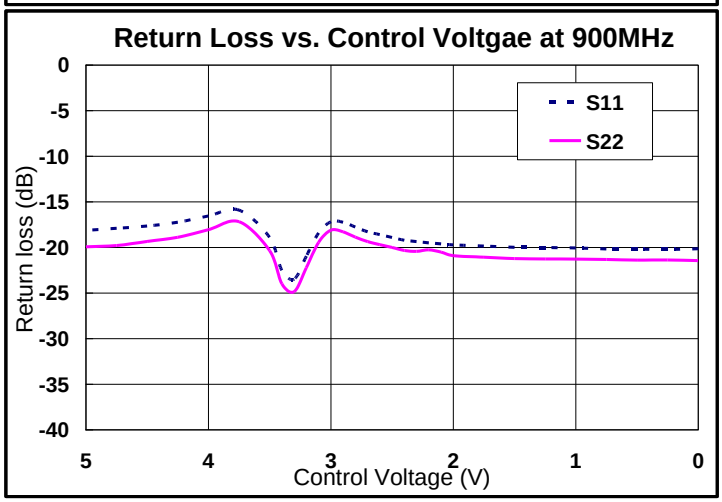
1. Supply +5V @600μA maximum.
2. VC = 0 to +5V @2mA maximum.
3. External DC blocking capacitors are required on all RF ports.

Test fixture data

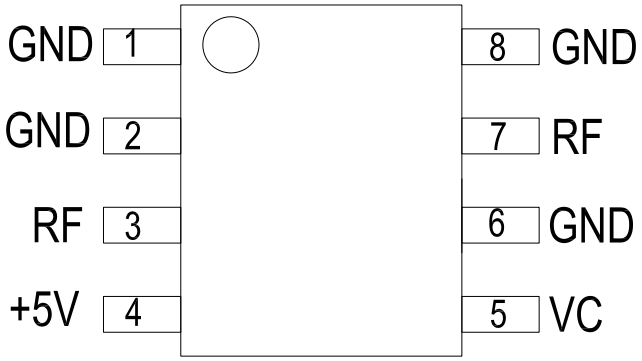
Operating Conditions: Supply Voltage =+5V, control Voltage = 0 - +5V





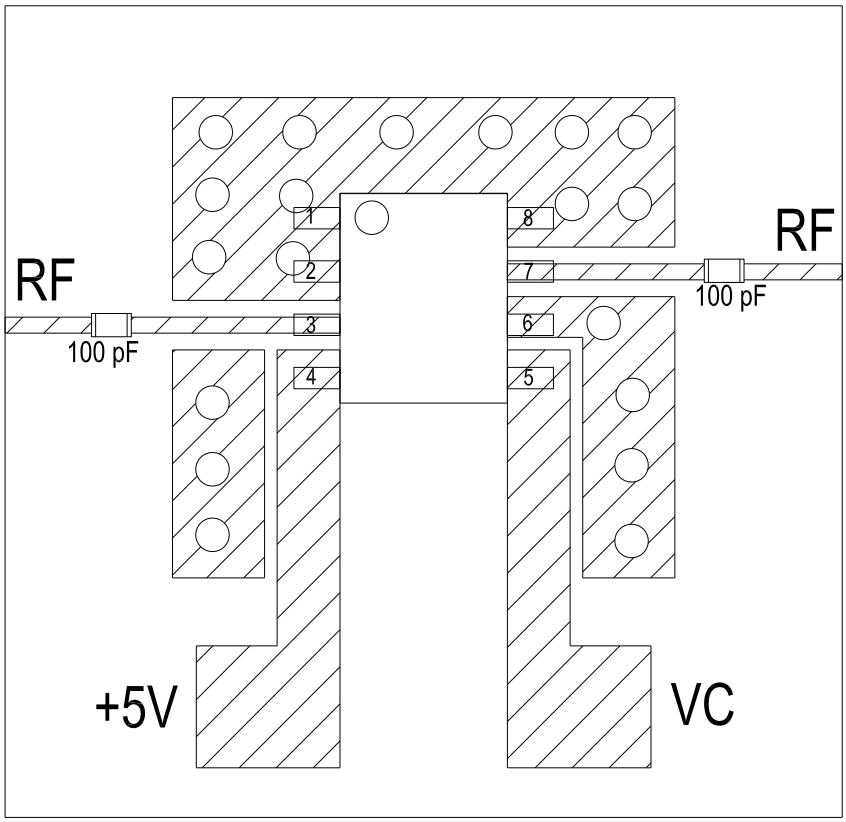


PIN Description



PIN	Function	Description
1,2,6,8	GND	Ground
3	RF In	RF Input
7	RF Out	RF Output
4	Vdd	+5V
5	VC	0-5V

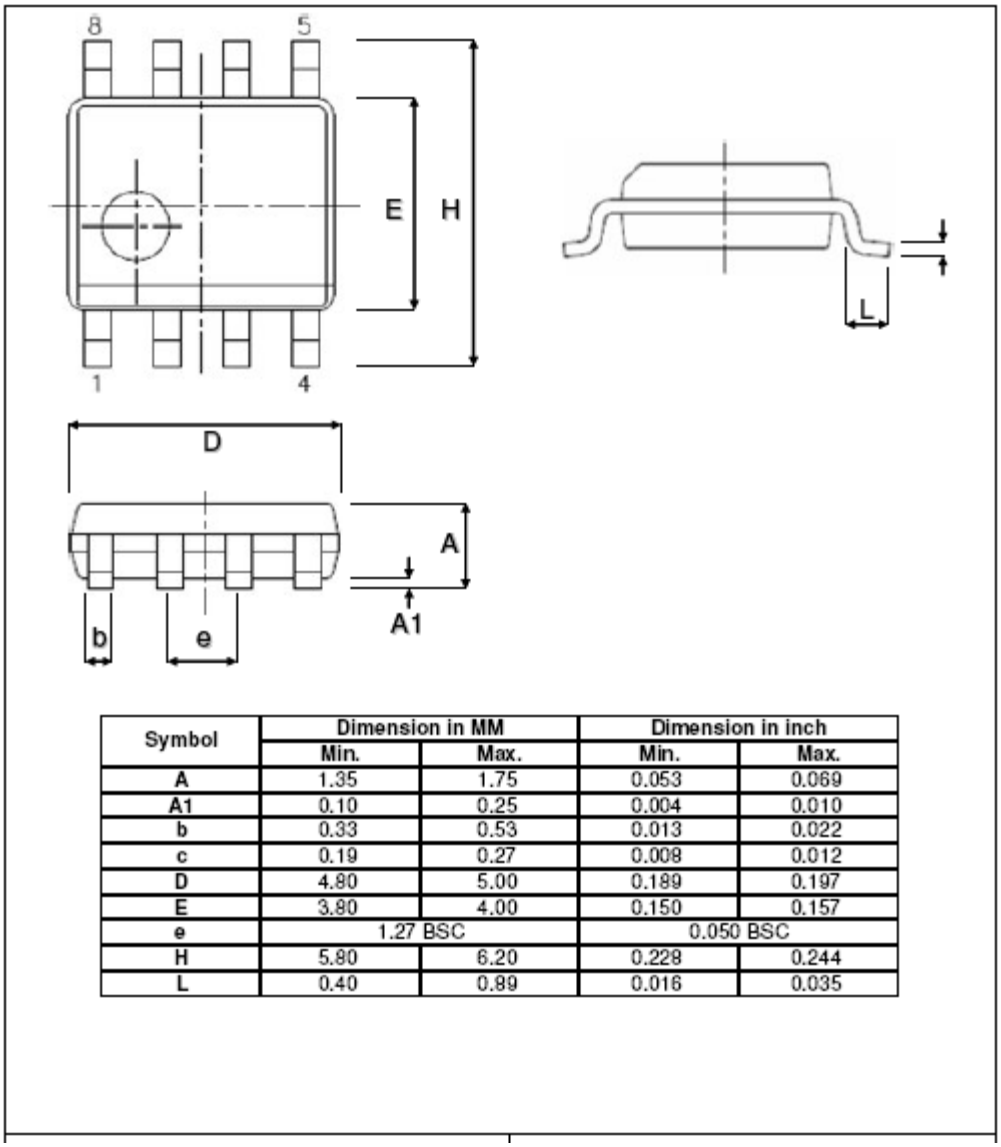
Evaluation PCB



Note:

1. DC Blocking Capacitors of 100pF are required on both RF ports.
2. Signal lines at the RF port should be of 50 ohm impedance.
3. Package ground leads should be connected directly to the PCB RF ground plane.

SOIC - 8 Outline



Symbol	Dimension in MM		Dimension in inch	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
b	0.33	0.53	0.013	0.022
c	0.19	0.27	0.008	0.012
D	4.80	5.00	0.189	0.197
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
L	0.40	0.89	0.016	0.035

GaAs MMIC devices are susceptible to Electrostatic discharge. Proper precautions should be observed during handling, assembly & testing