GaAs 35 dB IC Voltage Variable Single Control Attenuator 0.4–2.5 GHz

AT002S3-11

Features

- Single Positive Control Voltage
- 35 dB Attenuation Range
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements[5]

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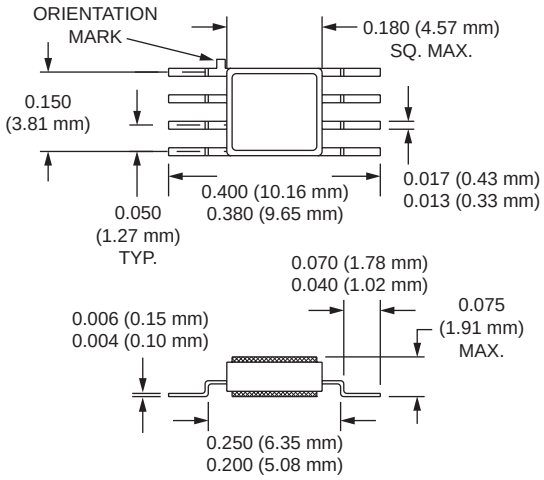


Description

The AT002S3-11 is a GaAs IC FET absorptive bridged "T" attenuator. This attenuator operates from 0.4–2.5 GHz and provides up to 35 dB of attenuation. The key feature of this attenuator is the requirement of only one "positive" control voltage. Blocking capacitors are required on the RF ports.

Electrical Specifications at 25°C

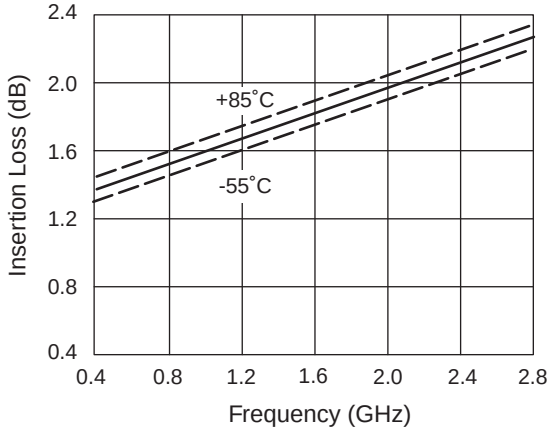
Parameter[1]	Frequency	Min.	Typ.	Max.	Unit
Insertion Loss (V_1 = 5 V)[2]	0.4–1.0 GHz 1.0–2.0 GHz 1.0–2.5 GHz		1.5 1.7 2.2	1.7 2.0 2.5	dB dB dB
Attenuation Range (V_1 = 0)	0.4–1.0 GHz 1.0–2.5 GHz	30 33	35 38		dB dB
VSWR (I/O)[3]	0.4–2.5 GHz		2.2:1	2.5:1	

Operating Characteristics at 25°C

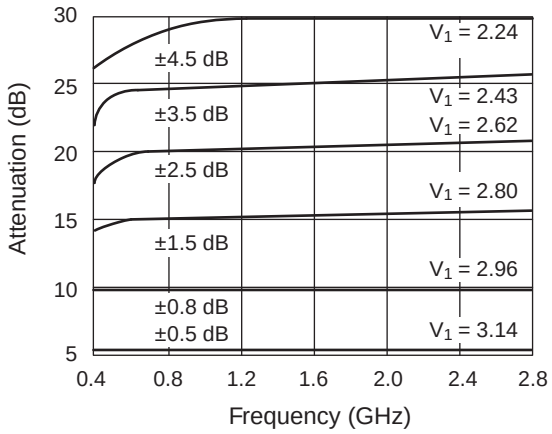
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru[4]			0.5 1.0 20		µs µs mV
Attenuation Flatness	0–10 dB 11–20 dB 21–30 dB 31–Max.	0.4–2.5 GHz		±1.0 ±1.5 ±3.0 ±4.0		dB dB dB dB
Input Power for 1 dB Compression	For All Attenuation Levels	0.9 GHz		-3		dBm
Control Voltages	V_{Low} = 0 to -0.2 V @ 25 µA Max. V_{High} = 5 V @ 100 µA Typ.					
Supply Voltages (V_S)	5 V @ 100 µA Max.					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes by 0.003 dB/°C.
3. For all attenuation levels.
4. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
5. See Quality/Reliability section.

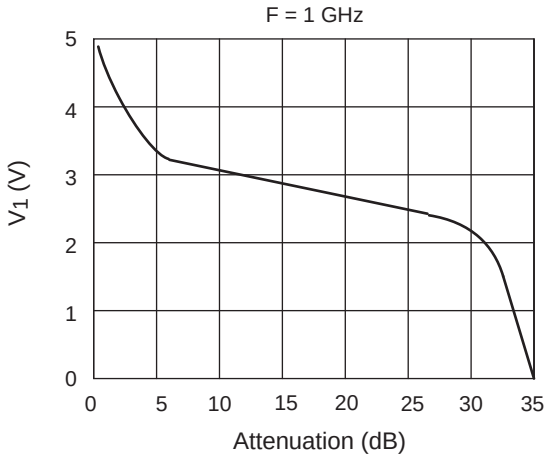
Typical Performance Data



Insertion Loss vs. Frequency



Attenuation (By State) vs. Frequency



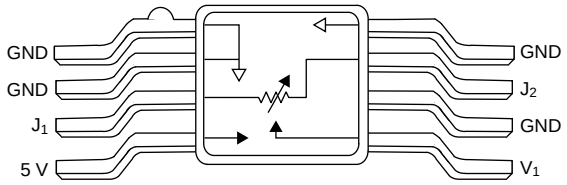
Relative Attenuation vs. Control Voltages

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	5 mW > 500 MHz
Bias Voltage (V_B)	8 V
Control Voltage (V_C)	≤ 8 V
Operating Temperature (T_{OP})	-55°C to +125°C
Storage Temperature (T_{ST})	-65°C to +150°C
Thermal Resistance (Θ_{JC})	25°C/W

Do not allow control voltage V_1 to exceed supply voltage (V_S).

Pin Out



Note: Blocking capacitors required at J_1 and J_2.