

GaAs 30 dB IC Voltage Variable Dual Control Attenuator DC–6 GHz



AT006N3-01, AT006N3-10

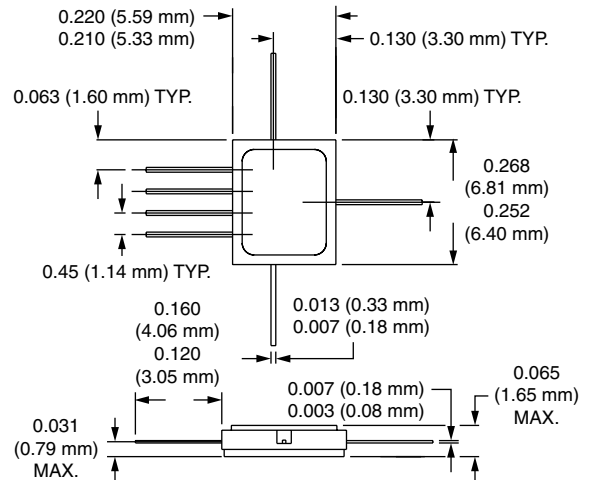
Features

- Dual Control Voltages
- Low Insertion Loss
- 7 Lead Hermetic Package
- Capable of Meeting MIL-STD Requirements⁵

Description

The AT006N3-01 is a GaAs IC FET non-reflective bridged “T” attenuator that provides over 30 dB of “matched” attenuation. This device has two independent bias controls which can be adjusted to obtain the desired attenuation under matched conditions. The AT006N3-10 is the gullwing version of this device for surface mount applications.

-01



Electrical Specifications at 25°C

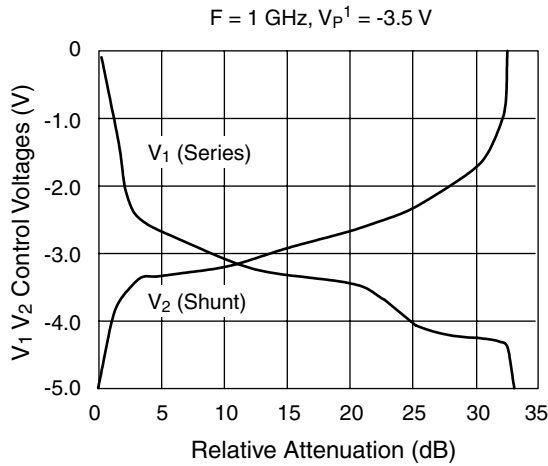
Parameter ¹	Frequency ⁴	Min.	Typ.	Max.	Unit
Insertion Loss ²	DC–1.0 GHz		0.8	1.0	dB
	DC–2.0 GHz		1.0	1.2	dB
	DC–4.0 GHz		1.2	1.4	dB
	DC–6.0 GHz		1.5	1.7	dB
Attenuation Range	DC–1.0 GHz	30	35		dB
	DC–2.0 GHz	29	33		dB
	DC–4.0 GHz	26	30		dB
	DC–6.0 GHz	25	28		dB
VSWR (I/O)	DC–2.0 GHz		1.25:1	1.3:1	
	DC–4.0 GHz		1.40:1	1.5:1	
	DC–6.0 GHz		1.50:1	1.6:1	

Operating Characteristics at 25°C

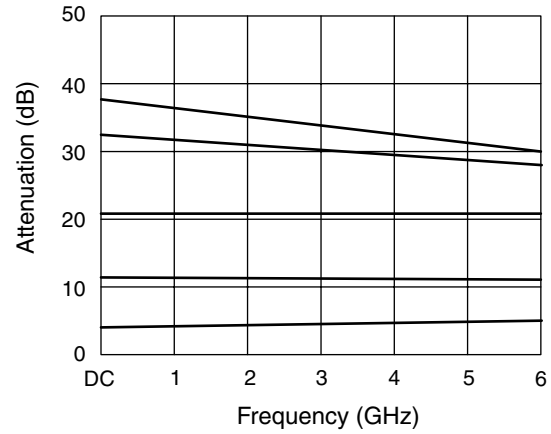
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF)			7		ns
	On, Off (50% CTL to 90/10% RF)			10		ns
	Video Feedthru ³			20		mV
Input Power for 1 dB Compression	For All Attenuation Levels	0.5–6 GHz		0		dBm
		0.05 GHz		-3		dBm
Control Voltages	$V_{Low} = 0 \text{ to } -0.2 \text{ V @ } 20 \mu\text{A Max.}$ $V_{High} = -5 \text{ V @ } 50 \mu\text{A Max.}$					

1. All measurements made in a 50 Ω system, unless otherwise specified.
2. Insertion loss changes by 0.003 dB/°C.
3. Video feedthru measured with 1 ns risetime pulse and 500 MHz bandwidth.
4. DC = 300 kHz.
5. See Quality/Reliability section.

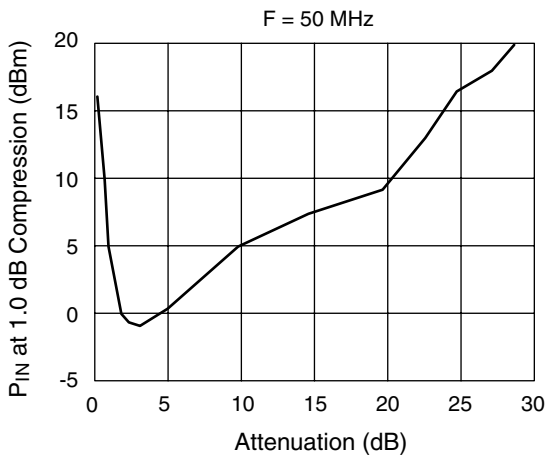
Typical Transfer Curve



Relative Attenuation vs. Control Voltages



Attenuation (By State) vs. Frequency

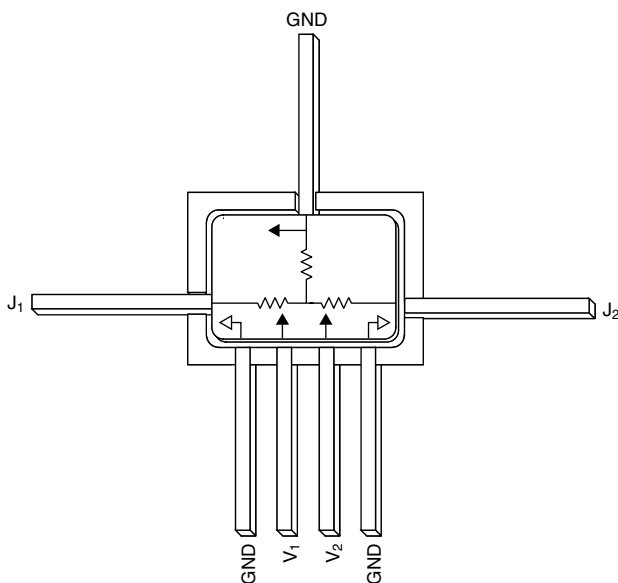


Attenuation vs. 1.0 dB Compression Point

Absolute Maximum Ratings

Characteristic	Value
RF Input Power (RF In)	10 mW > 500 MHz 4 mW @ 50 MHz
Control Voltage (V_C)	+0.2 V, -10 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

Pin Out



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