GaAs 30 dB IC Voltage Variable Dual Control Attenuator DC–4 GHz

AT004N3-11

Features

- Dual Control Voltages
- Low Insertion Loss
- 8 Lead Hermetic Surface Mount Package
- Capable of Meeting MIL-STD Requirements[5]

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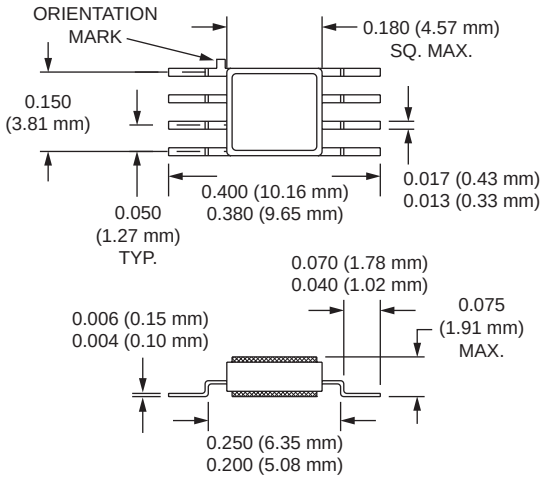


Description

The AT004N3-11 is a GaAs IC FET non-reflective bridged "T" attenuator. This device provides over 30 dB of "matched" attenuation with the input and output VSWR less than 1.5:1 under all attenuation values. The applications for these fast attenuators are AGC circuits and variable level control in high reliability and telecommunication systems.

Electrical Specifications at 25°C

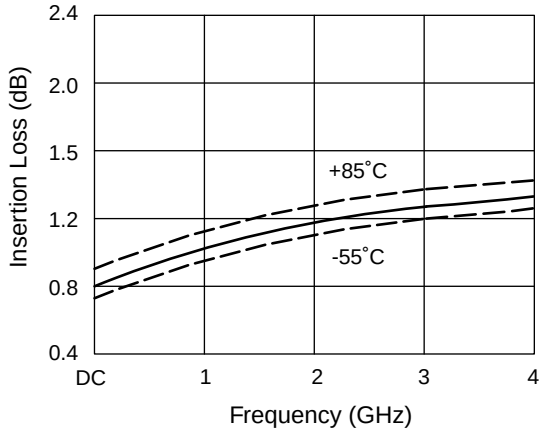
Parameter[1]	Frequency[4]	Min.	Typ.	Max.	Unit
Insertion Loss[2]	DC–1.0 GHz DC–2.0 GHz DC–4.0 GHz		0.8 1.0 1.2	1.0 1.2 1.4	dB dB dB
Attenuation Range	DC–1.0 GHz DC–2.0 GHz DC–4.0 GHz	30 29 26	35 33 30		dB dB dB
VSWR (I/O)	DC–2.0 GHz DC–4.0 GHz		1.25:1 1.40:1	1.3:1 1.5:1	

Operating Characteristics at 25°C

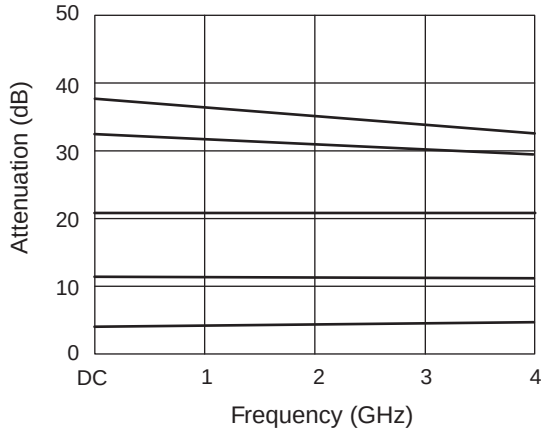
Parameter	Condition	Frequency	Min.	Typ.	Max.	Unit
Switching Characteristics	Rise, Fall (10/90% or 90/10% RF) On, Off (50% CTL to 90/10% RF) Video Feedthru[3]			7 10 20		ns ns mV
Input Power for 1 dB Compression	For All Attenuation Levels	0.5–4 GHz 0.05 GHz		0 -3		dBm dBm
Control Voltages	V_{Low} = 0 to -0.2 V @ 20 µA Max. V_{High} = -5 V @ 50 µA 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 Performance Data

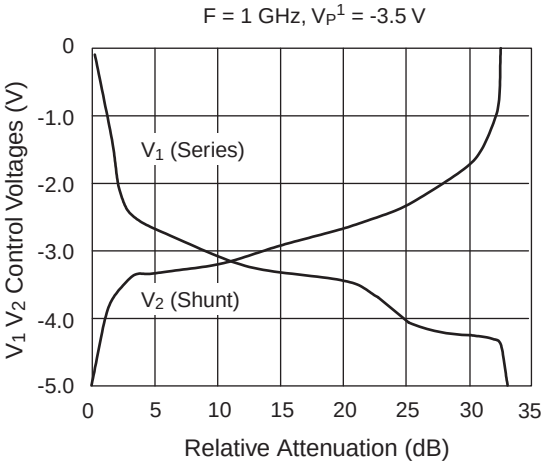


Insertion Loss vs. Frequency

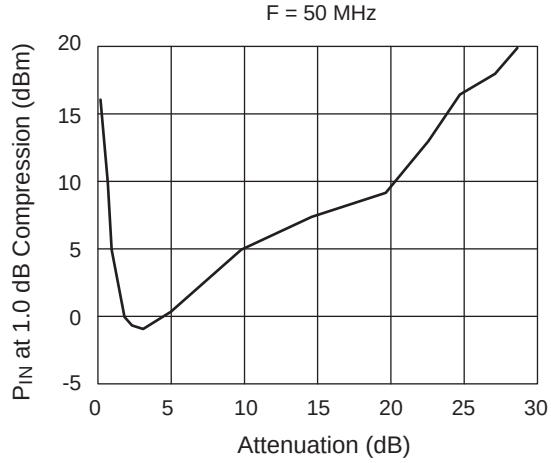


Attenuation (By State) vs. Frequency

Typical Transfer Curve



Relative Attenuation vs. Control Voltages



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

Truth Table

V_1	V_2	Attenuation J_1–J_2
0	-5	Insertion Loss
-5	0	Full Attenuation

Pin Out