

Absorptive Voltage Control Attenuator With Inverted Control Signal 4GHz-8GHz



Product Description

RFVAT0408A30-I is an absorptive voltage controlled attenuator with a frequency range of 4 to 8GHz.

The power input rating of this attenuation is 30dBm. The Insertion Loss is 1.5dB with a typical attenuation range of 30dB.

The working temperature of this product is between - 40°C and + 85°C.

Features

- Absorptive Voltage Control Attenuator
- Functional Bandwidth : 4GHz - 8GHz
- Wide Attenuation Range 30dB Typical
- Insertion Loss 1.5dB Typical
- Absorptive Topology
- Single Control Operation

Typical Applications

- Wireless Infrastructure
- Military and Aerospace Applications
- Test Instrumentation
- Radar Systems
- 5G Wireless Communications
- Microwave Radio Systems
- TR Modules
- Research and Development
- Cellular Base Stations

Electrical Specifications ($T_A = +25^\circ\text{C}$, $V_{dd} = +5\text{V}$, $V_{ctl} = 10\sim 0\text{V}$)

Parameter	Min	Typ	Max	Units
Frequency Range	4		8	GHz
Attenuation Range	30			dB
Insertion Loss		1.5	2.0	dB
Insertion Loss Temperature Coefficient		0.003		dB/ °C
Input VSWR		1.4	1.6	: 1
Output VSWR		1.4	1.6	: 1
Input 1dB Compression Point			30	dBm
Input I_{p3}		45		dBm
Switching Speed		1		us
Control Voltage	@ Insertion Loss State	10 Typ.		V
	@ Attenuation State	10~0 Typ.		V
Biassing		5		V
Current		70 Max.		mA
Weight		0.155 Max.		lbs.
Impedance		50		Ohms
Input / Output Connectors	SMA-Female (Input) – SMA-Female (Output)			
Package	Epoxy Sealed (Standard)			
	Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Parameter	Rating
Supply Voltage	+5.5V
Control Voltage	13~0V
RF Input Power	+30dBm

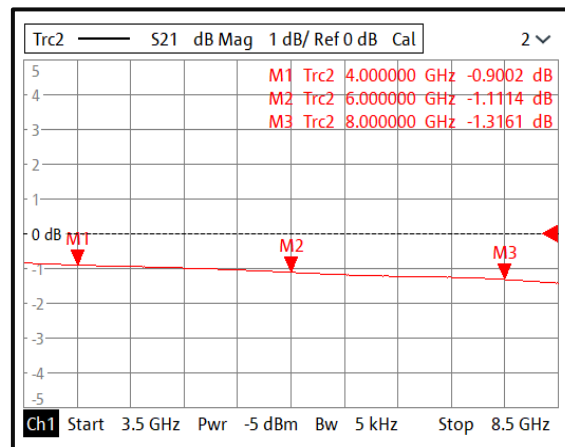
Environmental Specifications and Test Standards

Parameter	Description
Operational Temperature	-40°C to +85°C (Case Temperature)
Storage Temperature	-50°C to +105°C
Thermal Shock	-40°C → +85°C (5 Cycles / 10 hours)
**Random Vibration	MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis
High Temperature Burn In	Temperature +85°C for 72 Hours
Shock	1. Weight >20g, 50g half sine wave for 11ms, Speed variation 3.44m/s 2. Weight <=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s 3. Total 18 times (6 directions, 3 repetitions per direction).
Altitude	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)	MIL-STD-883 (For Hermetically Sealed Units)

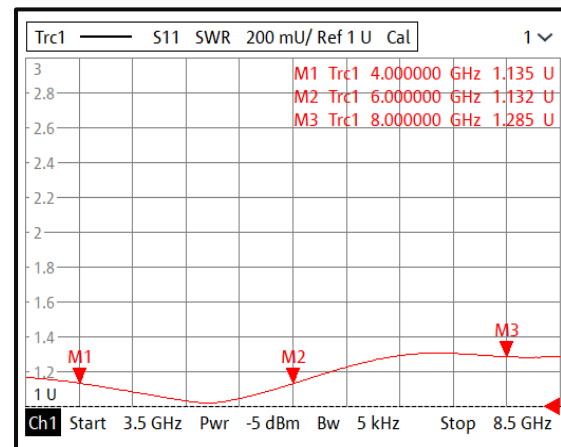
**For vibration testing details please see additional information section.

Typical Performance Plots

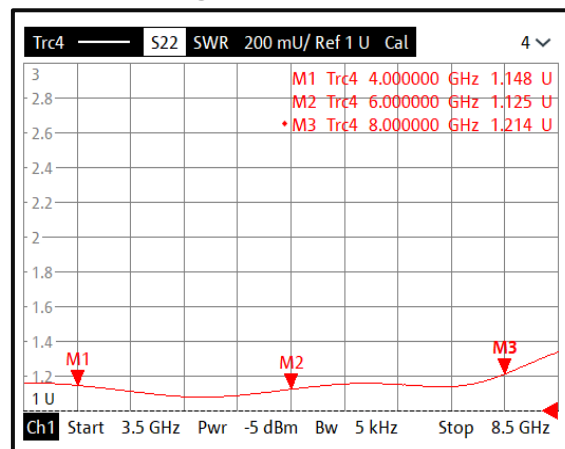
Insertion Loss @+25°C



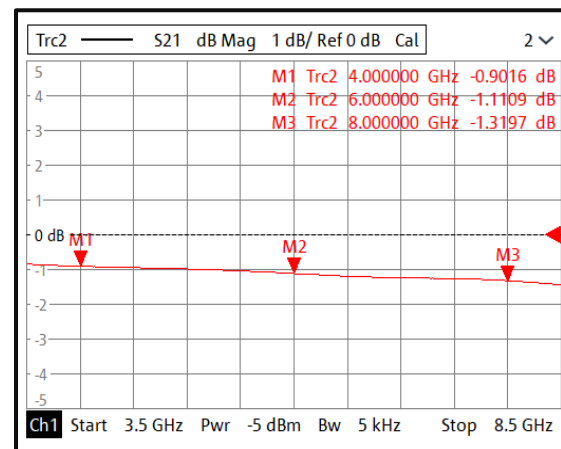
Input VSWR @+25°C



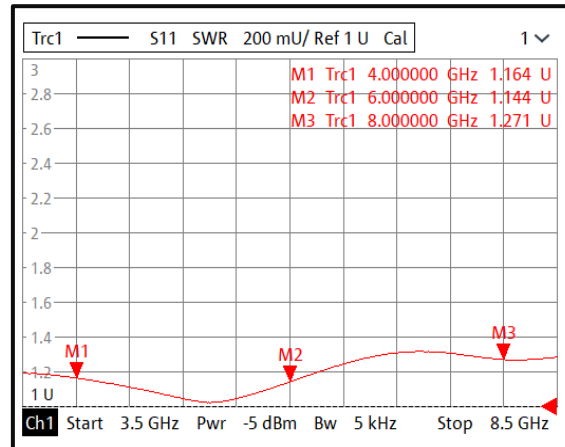
Output VSWR @+25°C



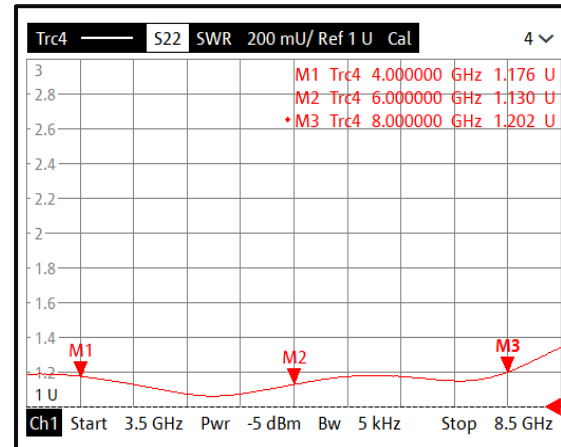
Insertion Loss @-40°C



Input VSWR @-40°C

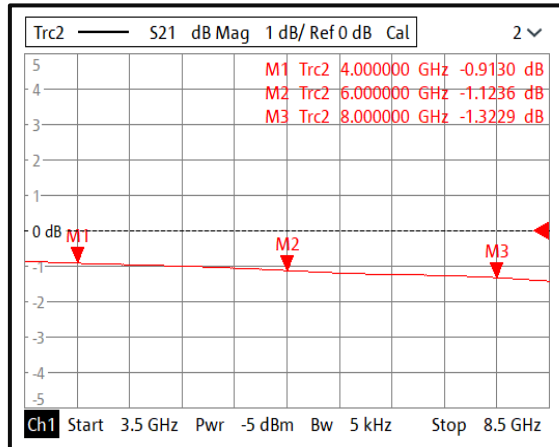


Output VSWR @-40°C

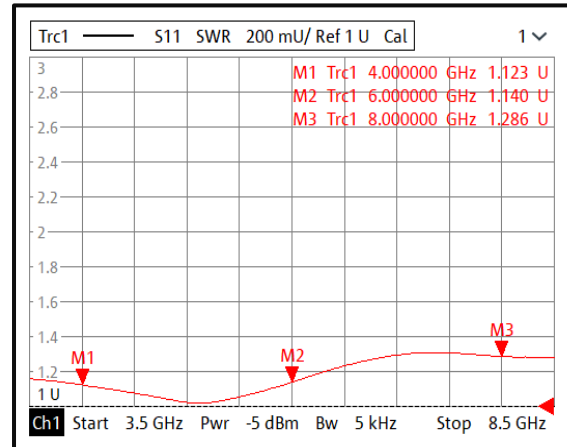


Typical Performance Plots

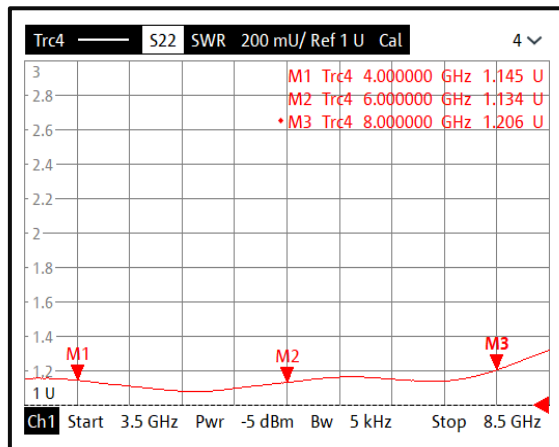
Insertion Loss @+85°C



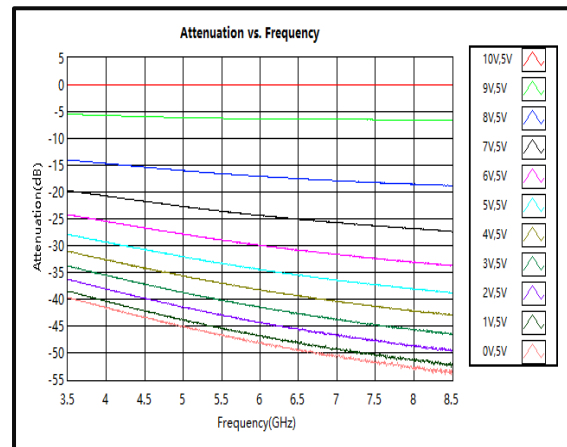
Input VSWR @+85°C



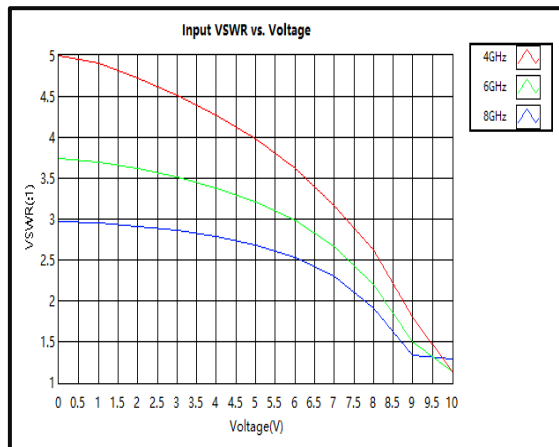
Output VSWR @+85°C



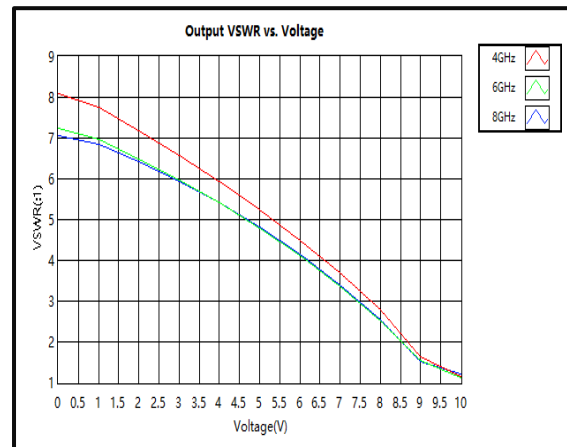
Attenuation vs. Frequency



VSWR vs. Voltage (S11)

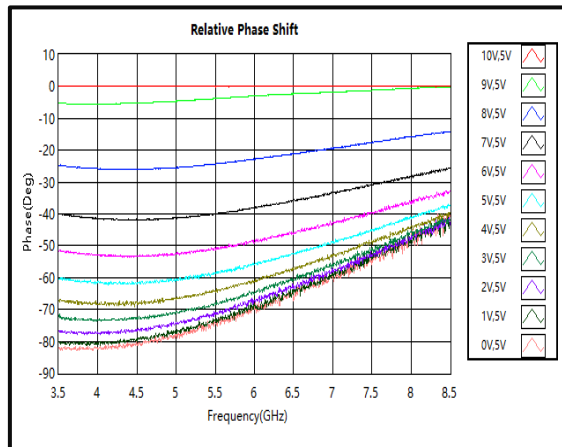


VSWR vs. Voltage (S22)

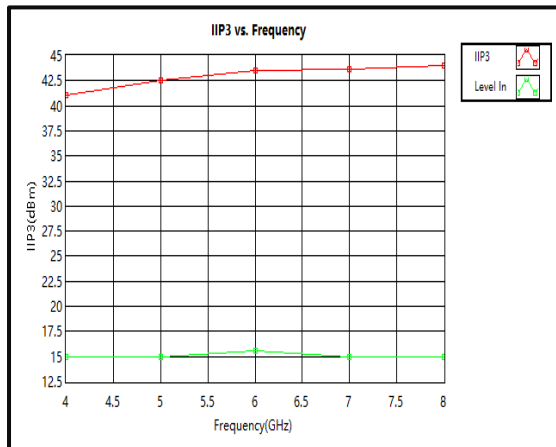


Typical Performance Plots

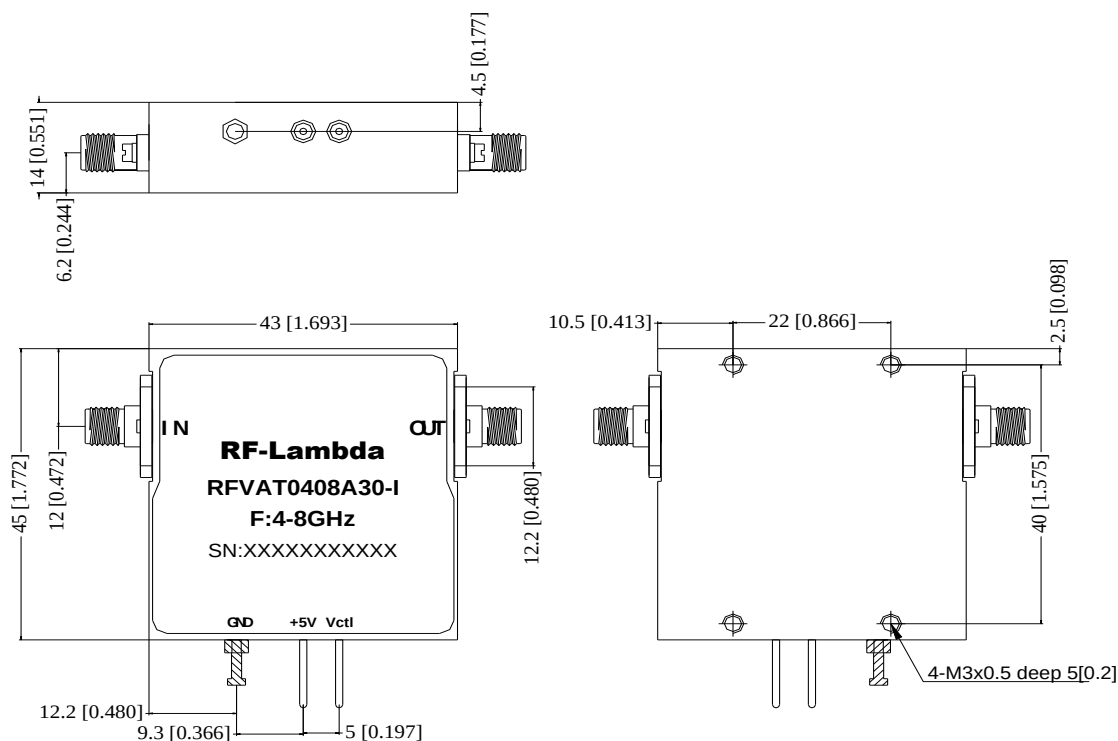
Phase Shift vs. Frequency



IIP3

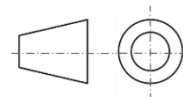


Outline Drawing



Notes:

1. Package Material: Aluminum
2. Finish: Nickel Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ± 0.1 [0.004] unless otherwise specified.
5. Standard torque wrench must be used to secure RF connectors.



Additional Information

Documentation

Webpage

ESD Policy

https://rflambda.com/pdf/rflambda_esd_control.pdf

Connector Torque Specifications

https://www.rflambda.com/pdf/Torque_Specifications.pdf

Random Vibration Test Standard

https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf

Ordering Information

Part Number	Modification	Description
RFVAT0408A30-I	Standard	4GHz-8GHz Voltage Control Attenuator

Important Notice

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