

Absorptive Voltage Control Attenuator 0.01GHz-50GHz



Product Description

RFVAT0050A30V is an absorptive voltage controlled attenuator with a frequency range of 0.01 to 50GHz.

The power input rating of this attenuation is 25dBm. The insertion loss is 7.3dB with a typical attenuation range of 34dB.

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

Features

- Absorptive Voltage Control Attenuator
- Wide Attenuation Range 34dB
- Insertion Loss 7.3dB (Typ)
- RF Input Power 27dBm(Typ)
- Absorptive Topology

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°C)

Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0.01-18			18-34			34-50		GHz
Attenuation Range	25	30		28	34		30	34		dB
Insertion Loss		4.2	5.0		5.3	6.0		7.3	8.0	dB
Insertion Loss Temperature Coefficient		0.01			0.01			0.01		dB/ °C
Input VSWR @ Insertion Loss state		1.6	2.2		1.8	2.2		1.8	2.2	: 1
Output VSWR @ Insertion Loss state		1.6	2.2		1.8	2.2		1.8	2.2	: 1
Input 1dB Compression Point		18			16			14		dBm
Input Ip3		25			21			21		dBm
Control Voltage		-1	0.5		-1	0.5		-1	0.5	V
Current					40 Max.					mA
Weight					0.035					lbs.
Impedance					50					Ohms
Input / Output Connectors					2.4mm-Female (Input) – 2.4mm-Female (Output)					
Package					Epoxy Sealed (Standard)					
					Hermetically Sealed (Optional)					

Absolute Maximum Ratings

Parameter	Rating
Control Voltage	-3V ~ +0.5V
RF Input Power	+24dBm

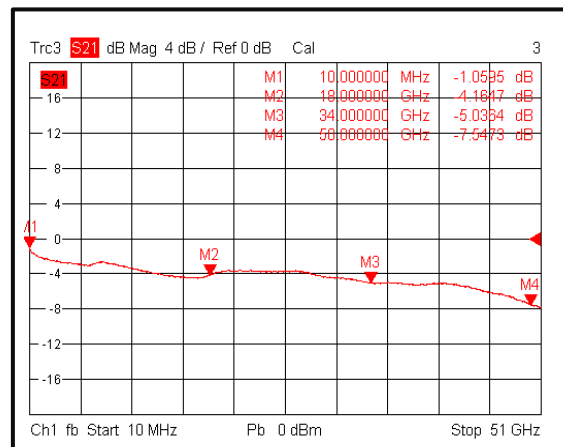
Environmental Specifications and Test Standards

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)

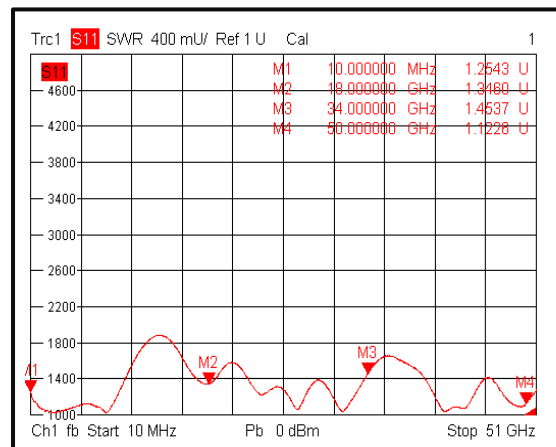
**For vibration testing details please see additional information section.

Typical Performance Plots

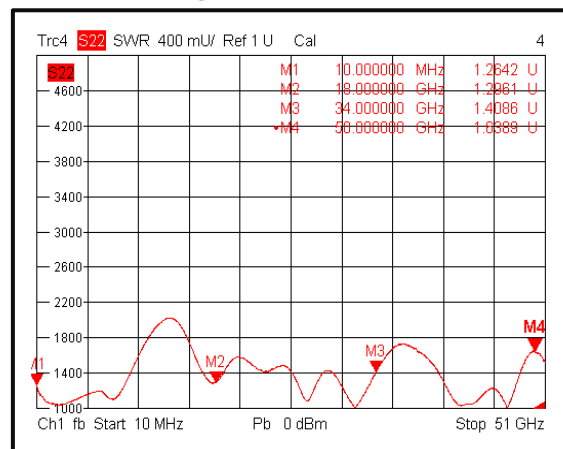
Insertion Loss @+25°C



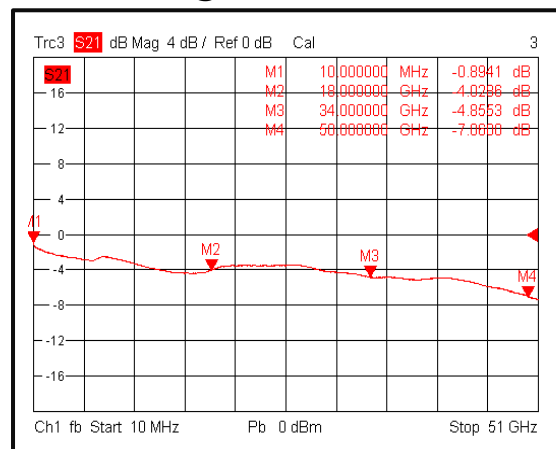
Input VSWR @+25°C



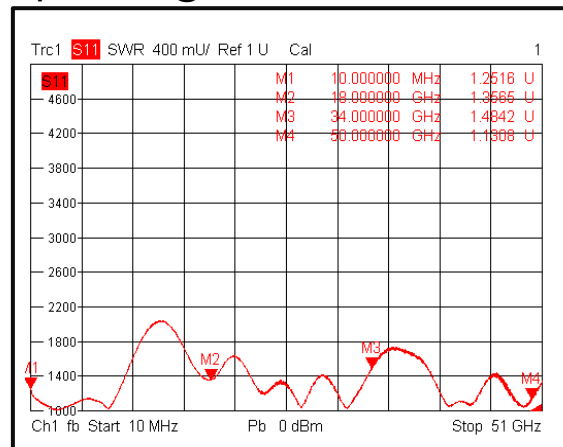
Output VSWR @+25°C



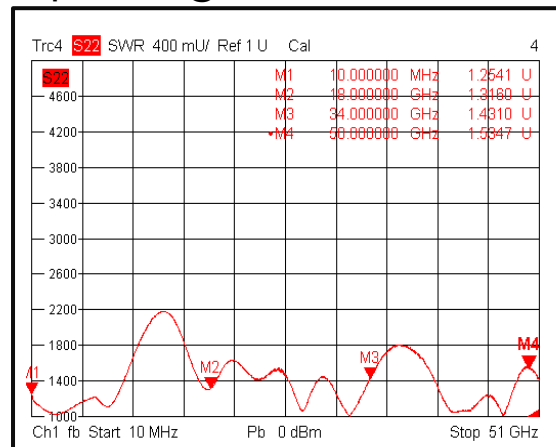
Insertion Loss @-40°C



Input VSWR @-40°C

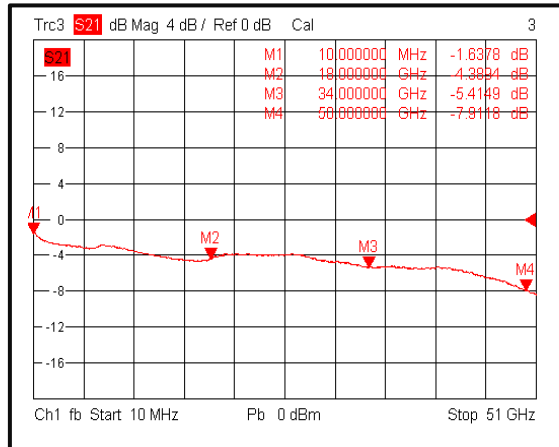


Output VSWR @-40°C

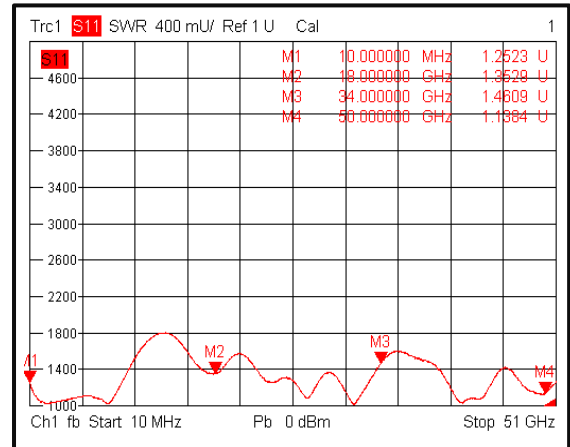


Typical Performance Plots

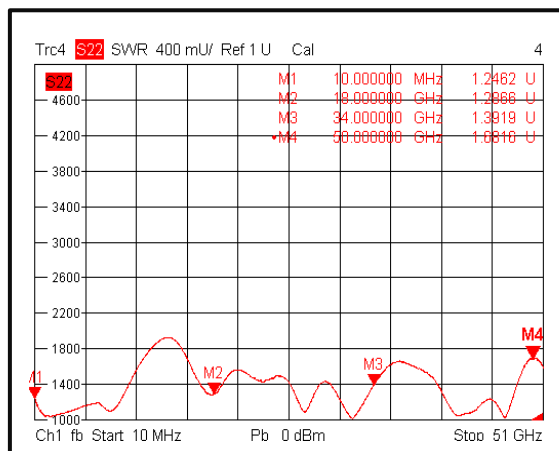
Insertion Loss @+85°C



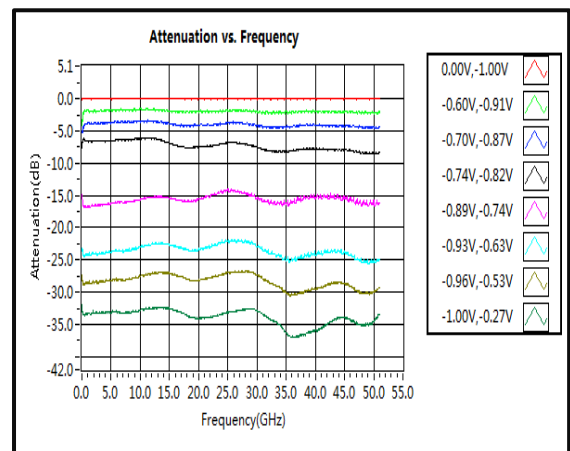
Input VSWR @+85°C



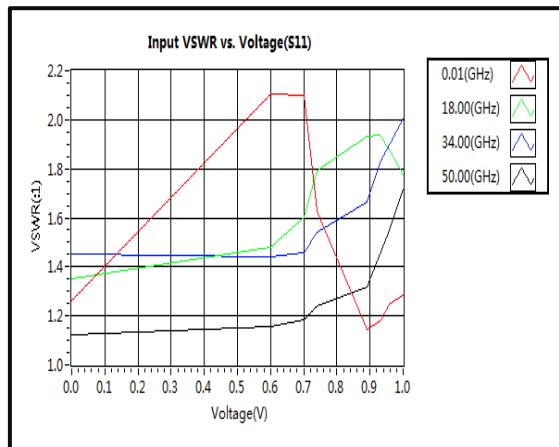
Output VSWR @+85°C



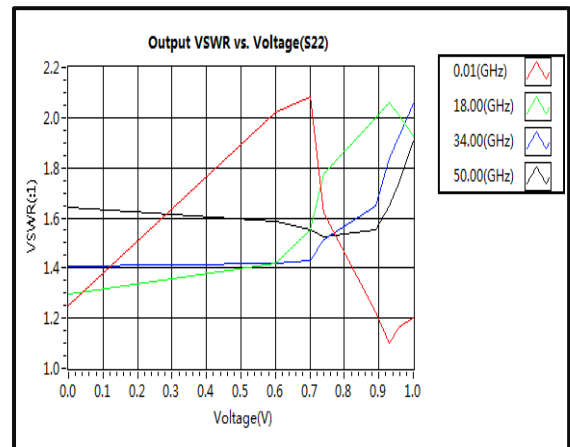
Attenuation vs. Frequency



VSWR vs. Voltage (S11)

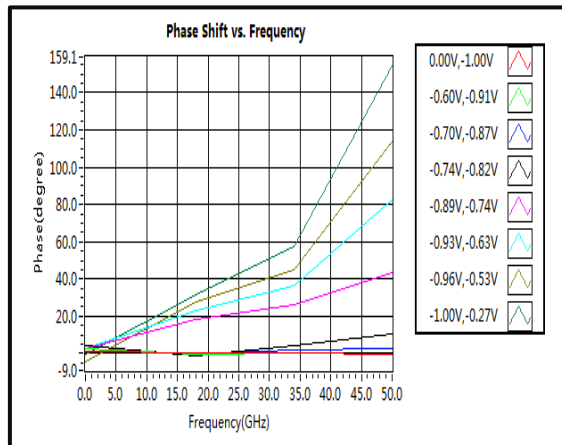


VSWR vs. Voltage (S22)

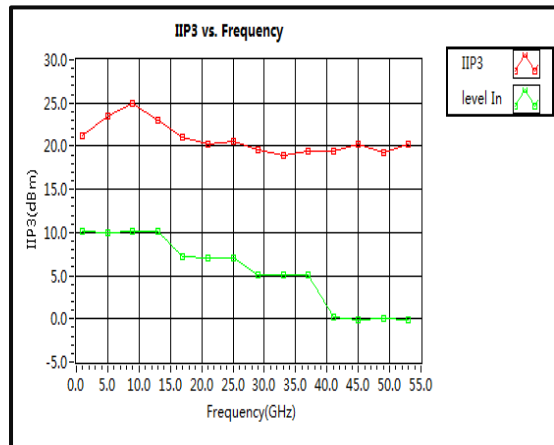


Typical Performance Plots

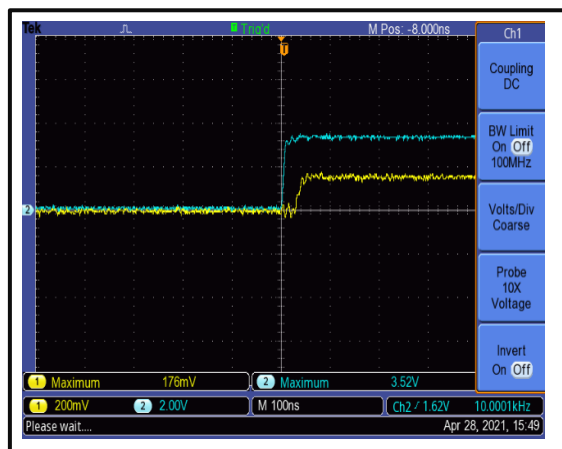
Phase Shift vs. Frequency



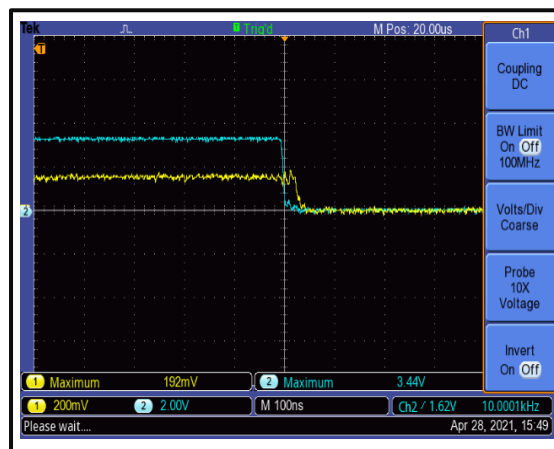
IIP3



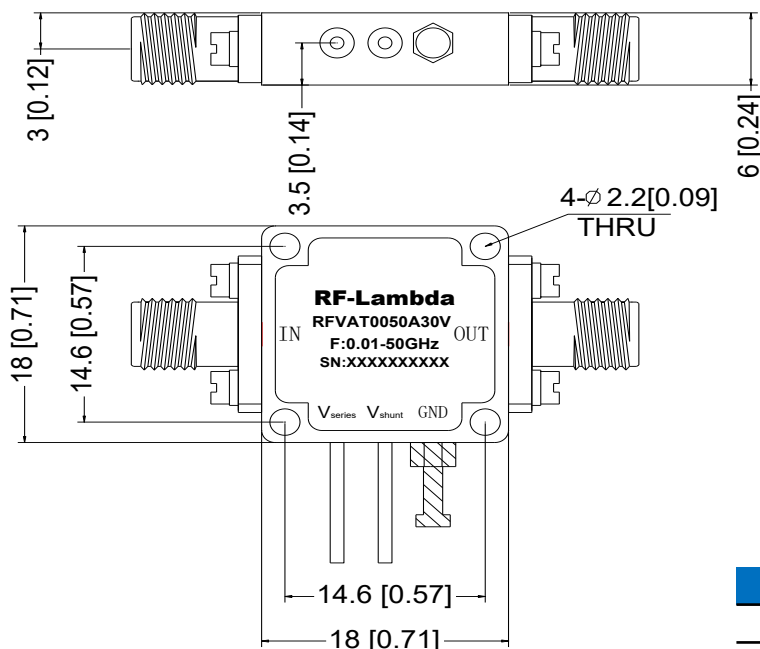
Speed



Speed



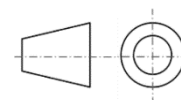
Outline Drawing



Voltage Control Table		
Vseries (V)	Vshunt (V)	Attenuation(dB)
0.00	-1	0
-0.36	-0.81	2
-0.43	-0.76	4
-0.66	-0.72	8
-0.77	-0.62	16
-0.81	-0.53	24
-0.91	-0.44	28
-1	0	34

Notes:

1. Package Material: Aluminum
2. Finish: Gold Plated
3. All dimensions are in millimeters [inches].
4. Housing Tolerances ± 0.1 [0.004] unless otherwise specified.



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
RFVAT0050A30V	Input connector 2.4mm and Output connector 2.4mm	0.01-50GHz Voltage Control Attenuator
RFVAT0050A30	Input connector 2.92mm and Output connector 2.92mm	0.01-50GHz Voltage Control Attenuator

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