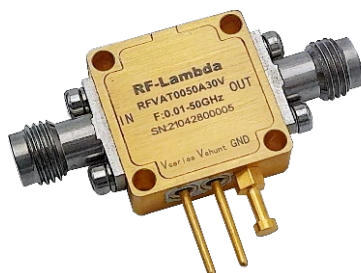


## Absorptive Voltage Control Attenuator 0.01GHz-50GHz



### 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 27dBm. The Insertion Loss is 7.0dB 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 7.0dB (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<sub>A</sub>=+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
0.1dB Compression Point (P0.1dB)		27			27			26		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	+27dBm

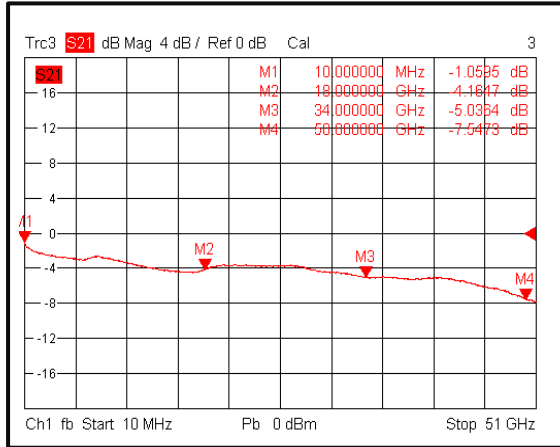
**Environmental Specifications and Test Standards**

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)

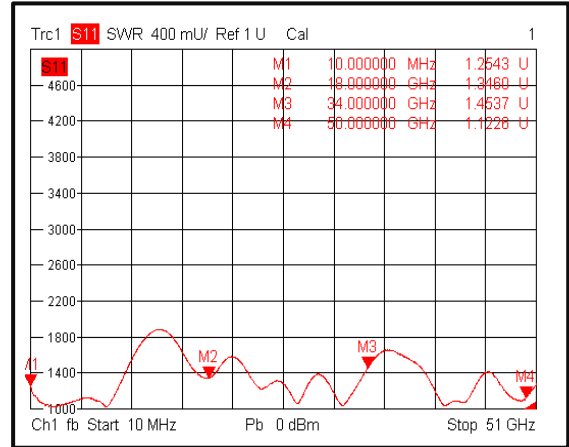
\*\*For vibration testing details please see additional information section.

**Typical Performance Plots**

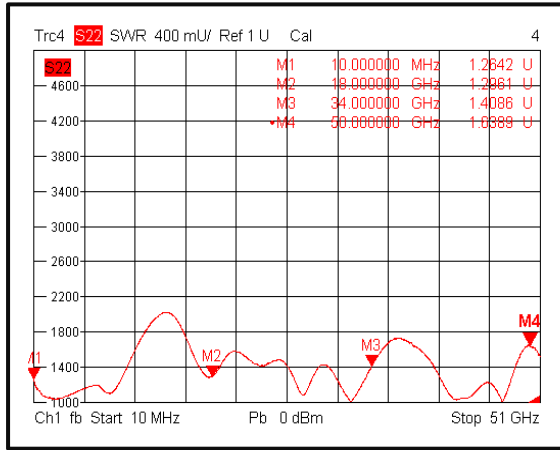
**Insertion Loss @+25°C**



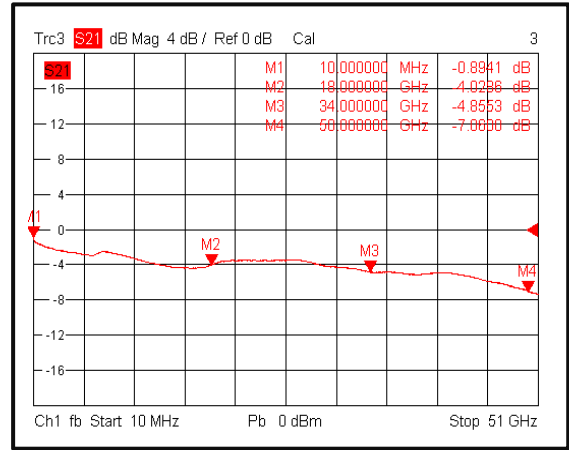
**Input VSWR @+25°C**



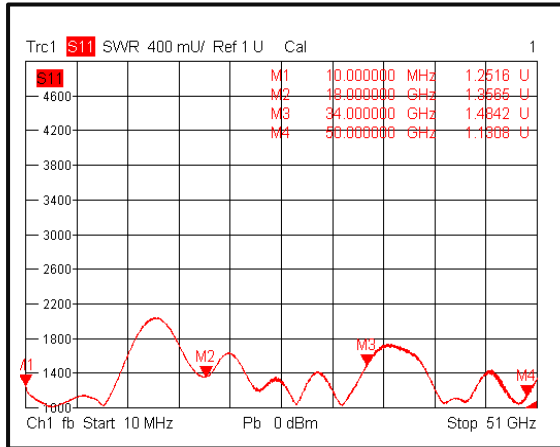
**Output VSWR @+25°C**



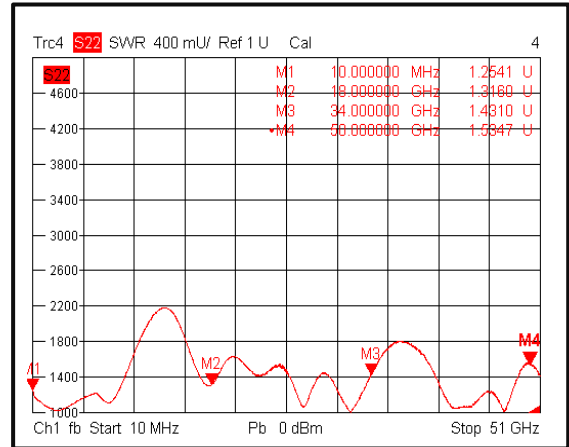
**Insertion Loss @-40°C**



**Input VSWR @-40°C**

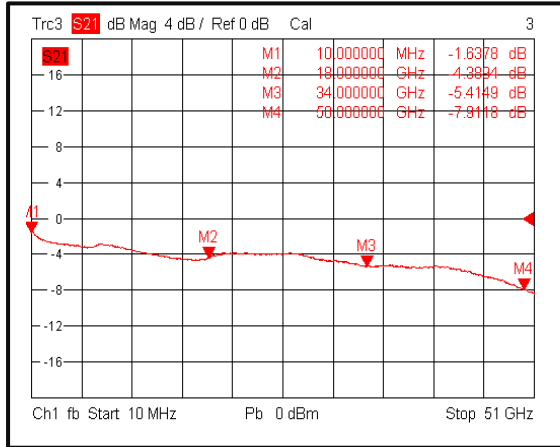


**Output VSWR @-40°C**

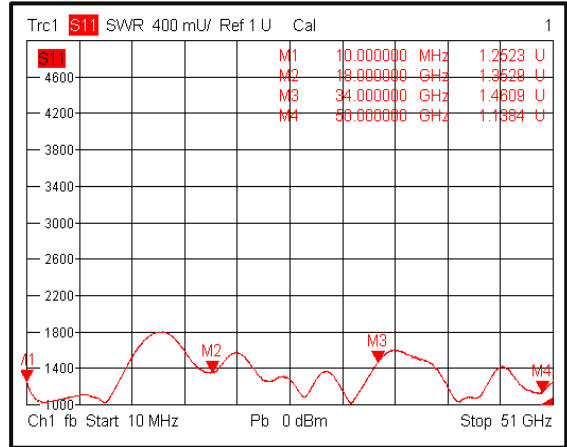


**Typical Performance Plots**

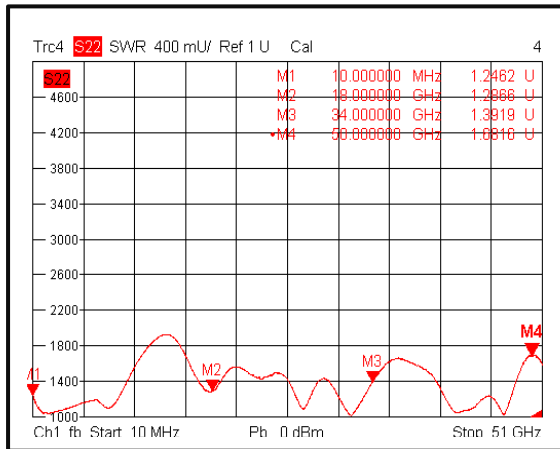
**Insertion Loss @+85°C**



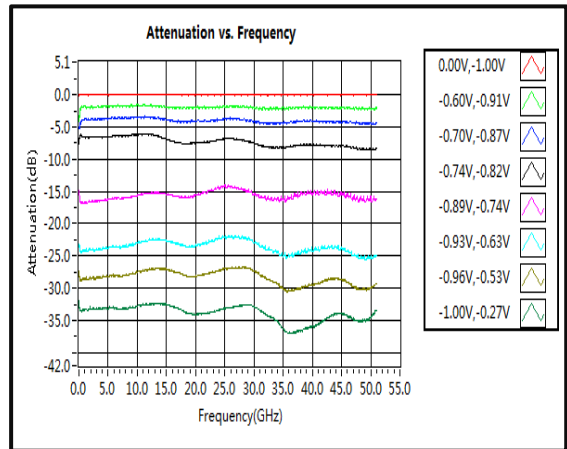
**Input VSWR @+85°C**



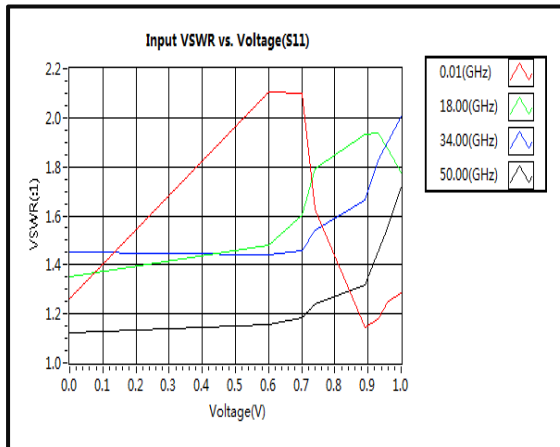
**Output VSWR @+85°C**



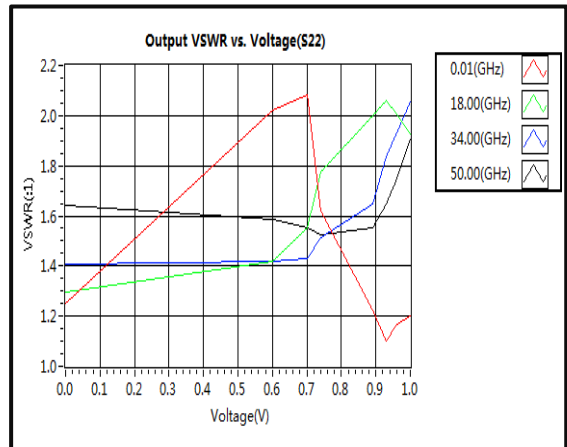
**Attenuation vs. Frequency**



**VSWR vs. Attenuation (S11)**

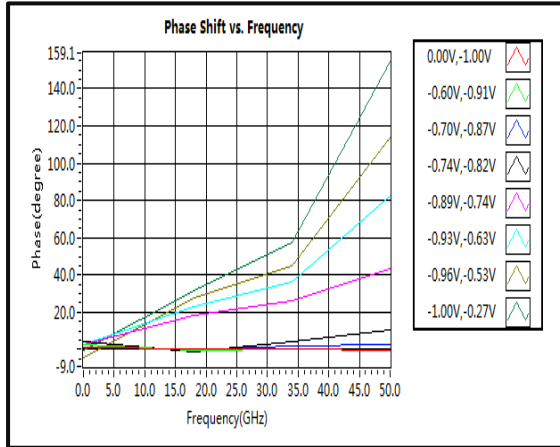


**VSWR vs. Attenuation (S22)**

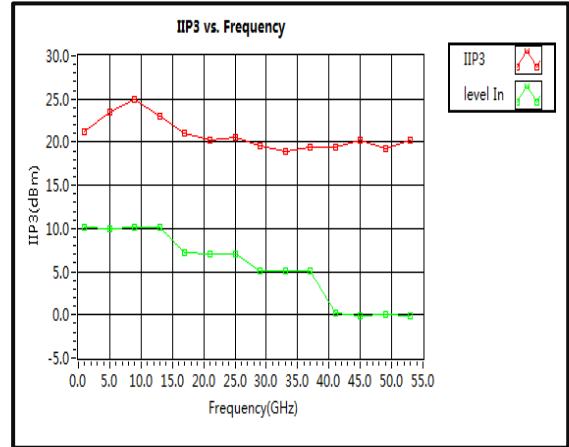


**Typical Performance Plots**

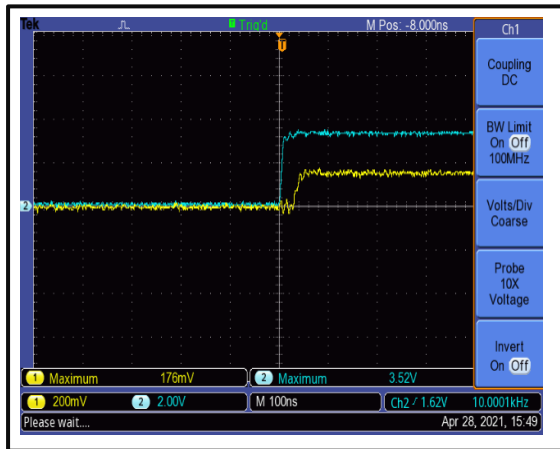
**Phase Shift vs. Frequency**



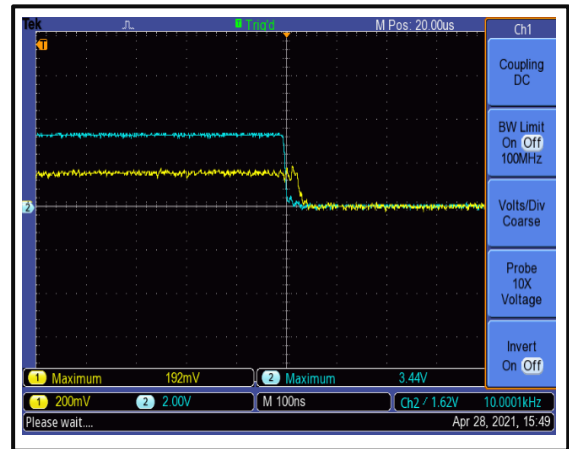
**IIP3**



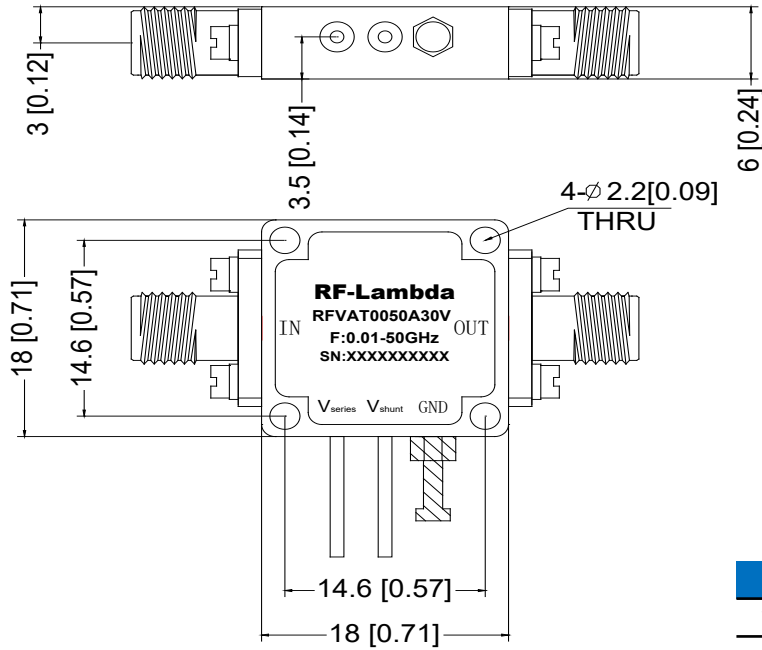
**Speed**



**Speed**



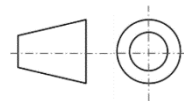
**Outline Drawing**



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. Plating: Gold
3. All dimensions are in millimeters [inches].
4. Housing Tolerances  $\pm 0.1$  [0.004] unless otherwise specified.



Additional Information

Documentation	Webpage
ESD Policy	<a href="https://rflambda.com/pdf/rflambda_esd_control.pdf">https://rflambda.com/pdf/rflambda_esd_control.pdf</a>
Connector Torque Specifications	<a href="https://www.rflambda.com/pdf/Torque_Specifications.pdf">https://www.rflambda.com/pdf/Torque_Specifications.pdf</a>
Random Vibration Test Standard	<a href="https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf">https://www.rflambda.com/pdf/rflambda_random_vibration_MIL-STD-202G.pdf</a>

**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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