

Absorptive Voltage Control Attenuator DC-20GHz



Product Description

RFVAT0020A35 is an absorptive voltage controlled attenuator with a frequency range of DC to 20GHz.

The power input rating of this attenuation is 15dBm. The Insertion Loss is 4.5dB 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 Typical
- Insertion Loss 4.5dB Typical
- RF input power 15dBm Typical
- Double Negative 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°C)

Parameter	Min	Typ	Max	Units
Frequency Range	DC		20	GHz
Attenuation Range	27	34		dB
Insertion Loss		4.5	5.5	dB
Insertion Loss Temperature Coefficient		0.01		dB/ °C
Input VSWR @ Insertion Loss state		1.8		: 1
Output VSWR @ Insertion Loss state		1.8		: 1
0.1dB Compression Point (P0.1dB)		15		dBm
Input Ip3		35		dBm
Control Voltage(Vctrl1 /Vctrl2)	-5	0		V
Current		10 Max.		mA
Weight		0.025 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
Control Voltage	+0.3V to -8V
RF Input Power	+27dBm

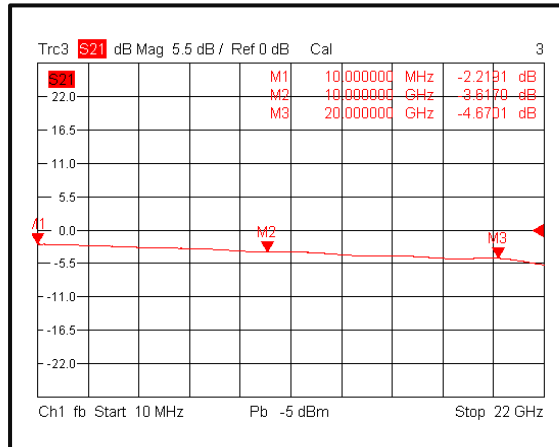
Environmental Specifications and Test Standards

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)

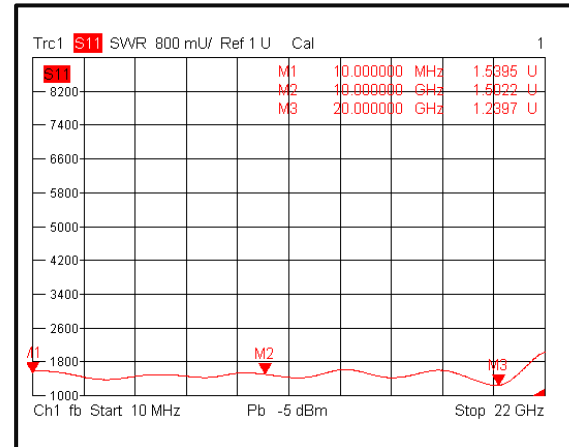
**For vibration testing details please see additional information section.

Typical Performance Plots

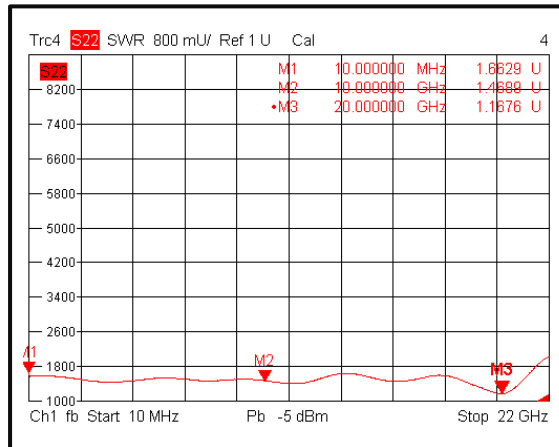
Insertion Loss @+25°C



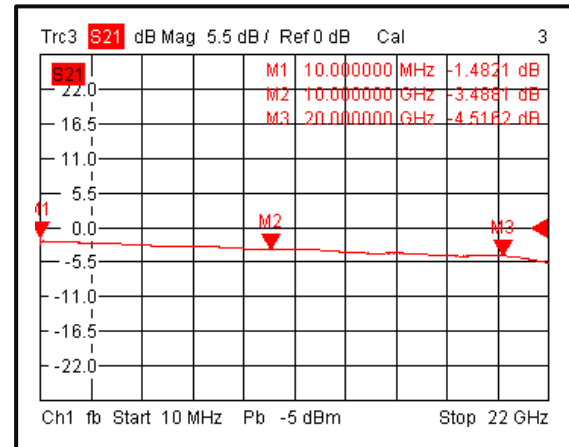
Input VSWR @+25°C



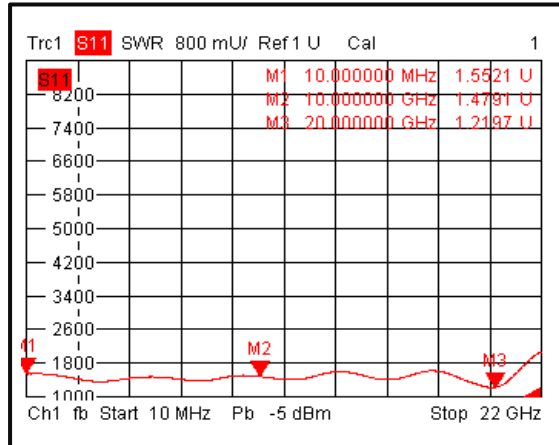
Output VSWR @+25°C



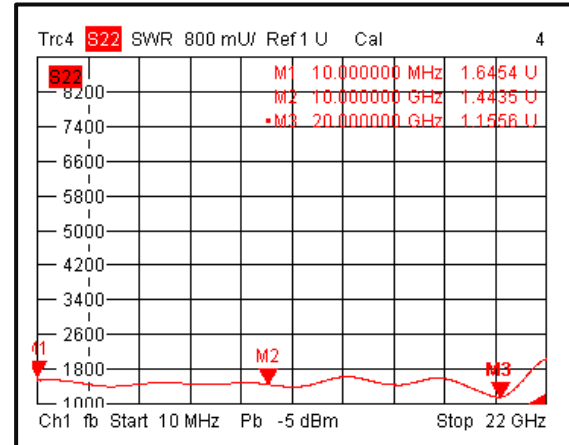
Insertion Loss @-40°C



Input VSWR @-40°C

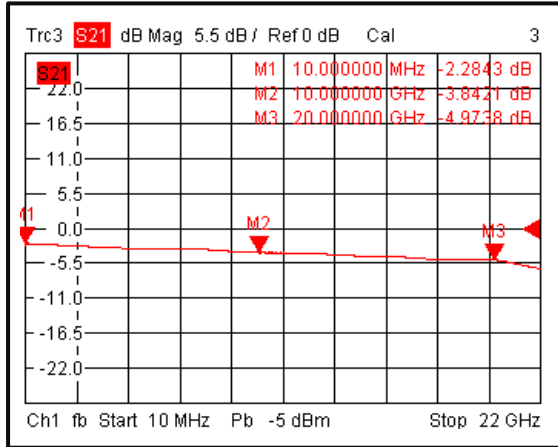


Output VSWR @-40°C

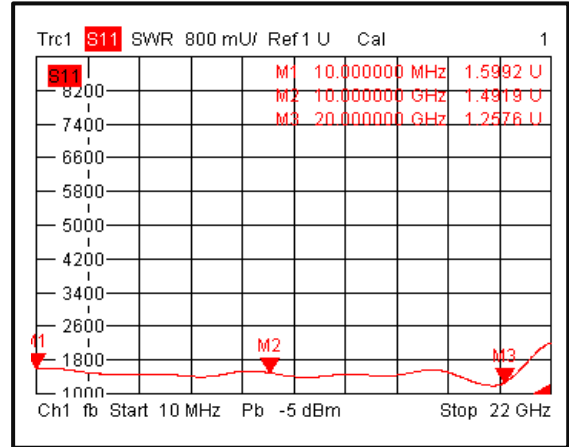


Typical Performance Plots

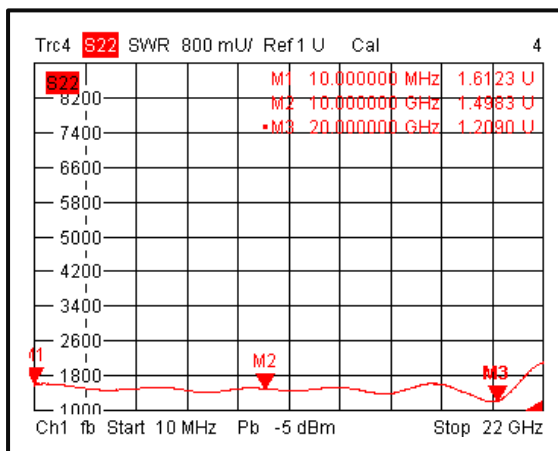
Insertion Loss @+85°C



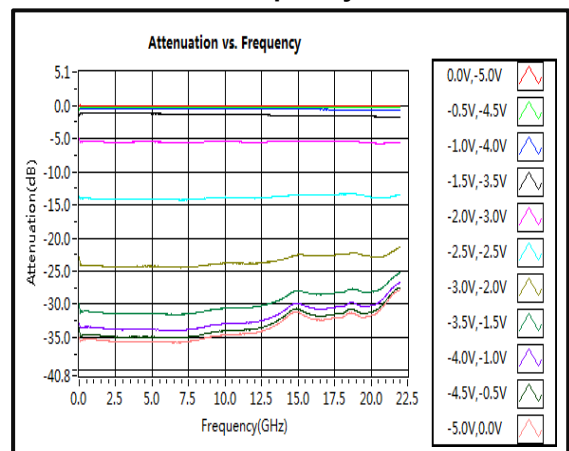
Input VSWR @+85°C



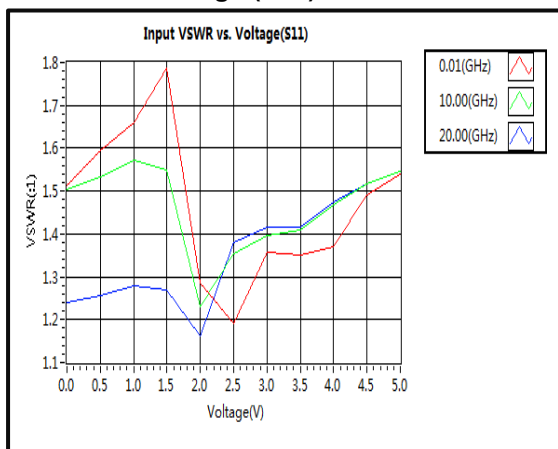
Output VSWR @+85°C



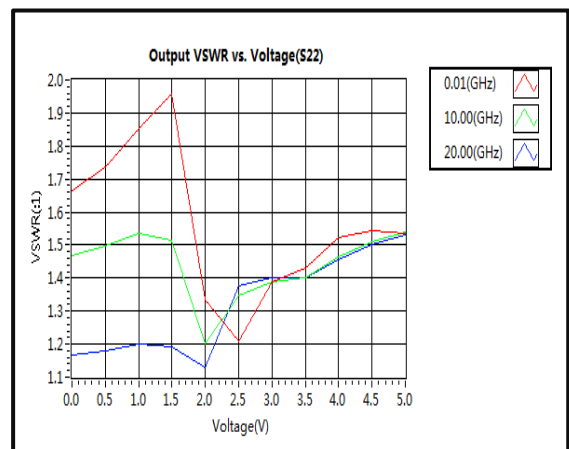
Attenuation vs. Frequency



VSWR vs. Voltage (S11)

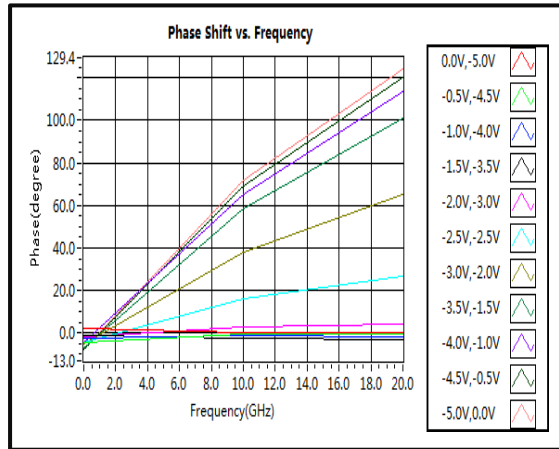


VSWR vs. Voltage (S22)

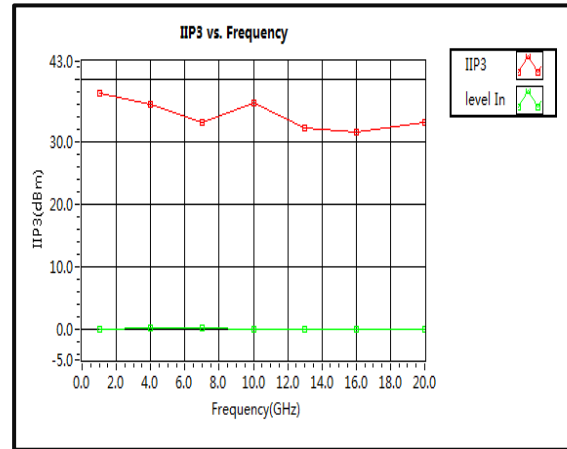


Typical Performance Plots

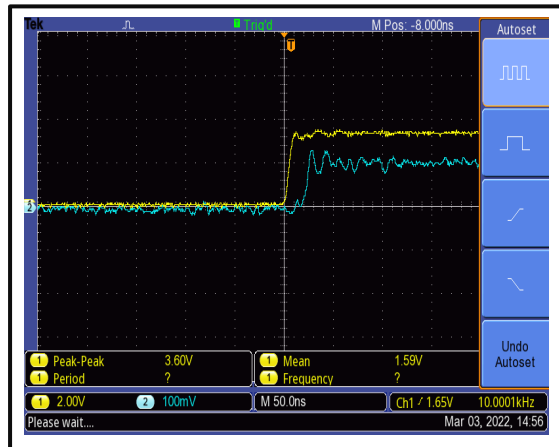
Phase Shift vs. Frequency



IIP3



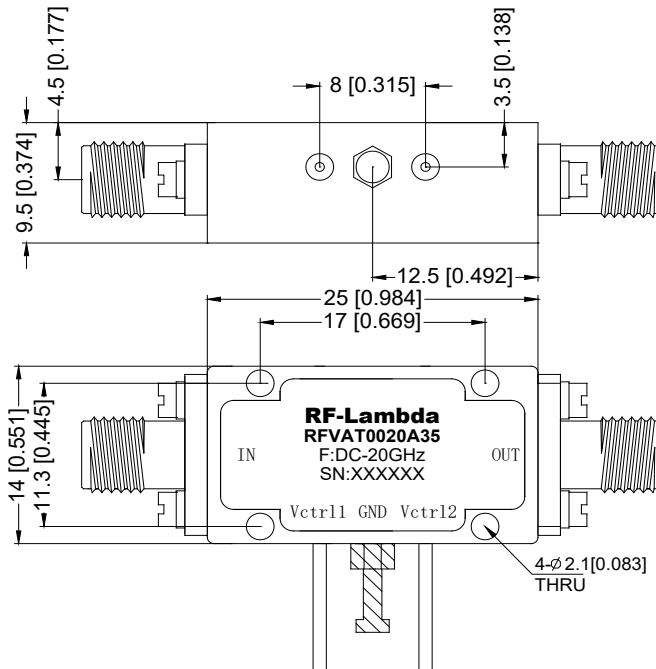
Speed



Speed

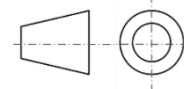


Outline Drawing



Voltage Control Table

Vctrl1 (V)	Vctrl2 (V)	Attenuation(dB)
0	-5	0
-0.5	-4.5	0.3
-1.0	-4.0	0.5
-1.5	-3.5	2
-2.0	-3.0	6
-2.5	-2.5	14
-3	-2.0	23
-3.5	-1.5	30
-4.0	-1.0	31
-4.5	-0.5	32
-5.0	0	34



Notes:

1. Package Material: Aluminum
2. Plating: Gold
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
RFVAT0020A35	Standard	DC-20GHz Voltage Control Attenuator

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