# Absorptive Voltage Control Attenuator 0.2GHz-4GHz


## Product Description

RFVAT0201A30 is an absorptive voltage controlled attenuator with a frequency range of 0.2 to 4GHz.

The power input rating of this attenuation is 30dBm. The Insertion Loss is 3.3dB with a typical attenuation range of 35dB.

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

## Features

- Absorptive Voltage Control Attenuator
- Functional Bandwidth : 0.1GHz - 6GHz
- Wide Attenuation Range 35dB Typical
- Insertion Loss 3.3dB Typical
- Absorptive Topology
- Singe  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 ($T_A$=+25ºC)

| Parameter | Min | Typ | Max | Min | Typ | Max | Min | Typ | Max | Units |
|---|---|---|---|---|---|---|---|---|---|---|
| Frequency Range | | 0.2~ 1 | | | 1~2 | | | 2~4 | | GHz |
| Attenuation Range | 29 | 35 | | 29 | 35 | | 29 | 35 | | dB |
| Insertion Loss | | 2.8 | 3.5 | | 3.3 | 3.8 | | 4.3 | 4.8 | dB |
| Insertion Loss Temperature Coefficient | | 0.01 | | | 0.01 | | | 0.01 | | dB/ °C |
| Input VSWR @Insertion Loss state | | 1.5 | 2.0 | | 1.6 | 2.0 | | 1.8 | 2.2 | : 1 |
| Output VSWR @Insertion Loss state | | 1.5 | 2.0 | | 1.6 | 2.0 | | 1.8 | 2.2 | : 1 |
| 0.1dB Compression Point (P0.1dB) | | 30 | | | 30 | | | 30 | | dBm |
| Input Ip3 | | 45 | | | 50 | | | 45 | | dBm |
| Switching Speed | | | 15 | | | 15 | | | 15 | us |
| Control Voltage | 0 | 10 | | 0 | 10 | | 0 | 10 | | V |
| Current @+5V | 2 Max. | | | | | | | | | mA |
| Current @Vcc | 5 Max. | | | | | | | | | mA |
| Weight | 0.026Max. | | | | | | | | | 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 | +6V |
| Control Voltage | 0V to 12V |
| RF Input Power | +30dBm |

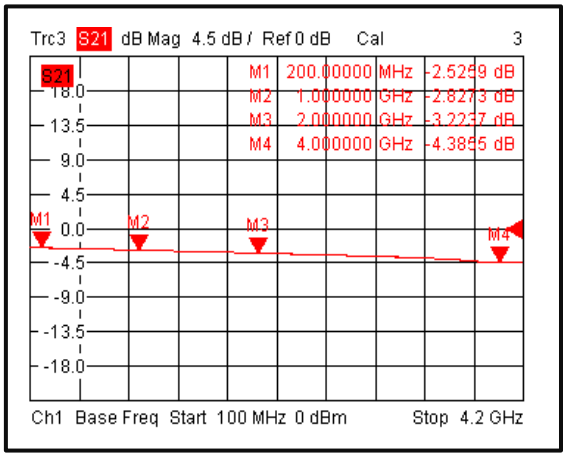
## Environmental Specifications and Test Standards

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

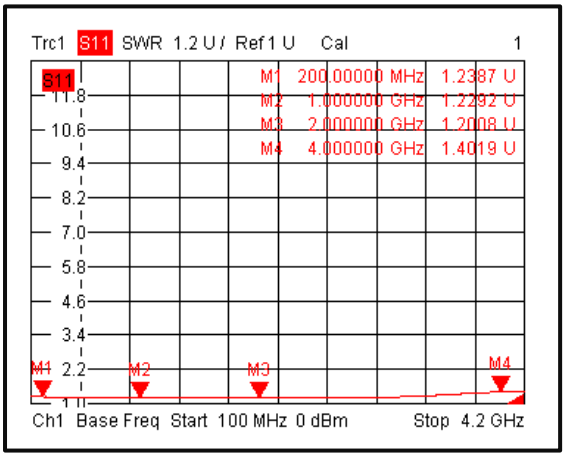
**For vibration testing details please see additional information section.

## Typical Performance Plots

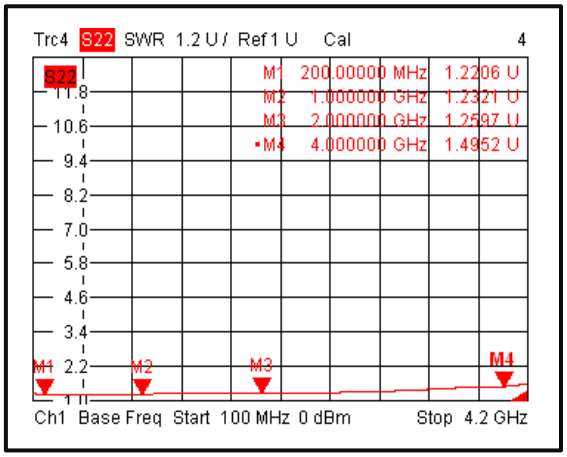
### Insertion Loss @+25ºC



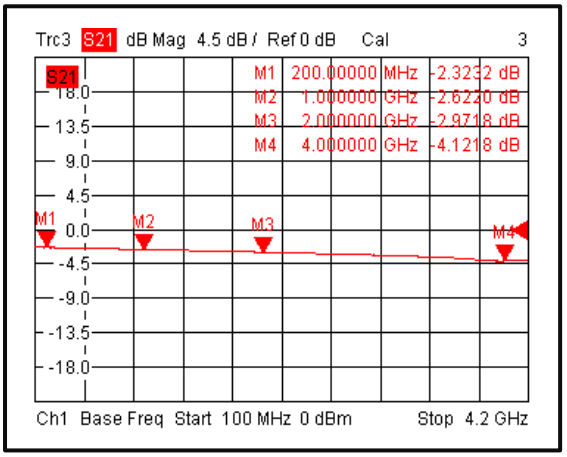

### Input VSWR @+25ºC



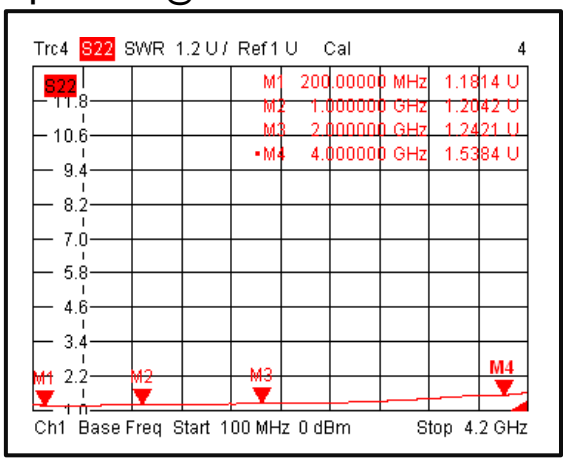

### Output VSWR @+25ºC



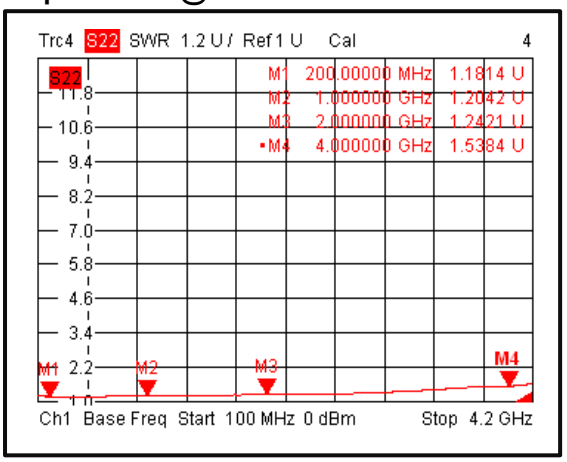

### Insertion Loss @-40ºC




### Input VSWR @-40ºC

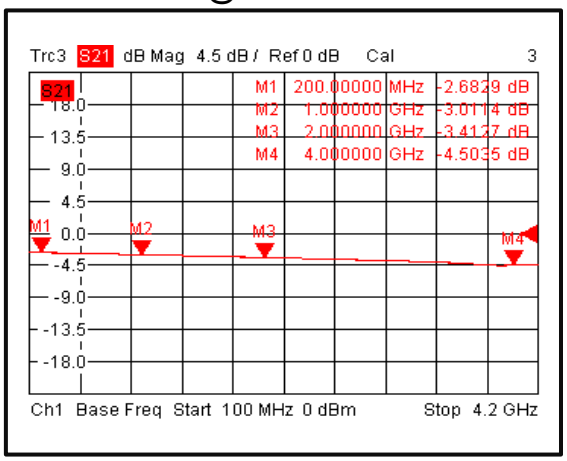



### Output VSWR @-40ºC

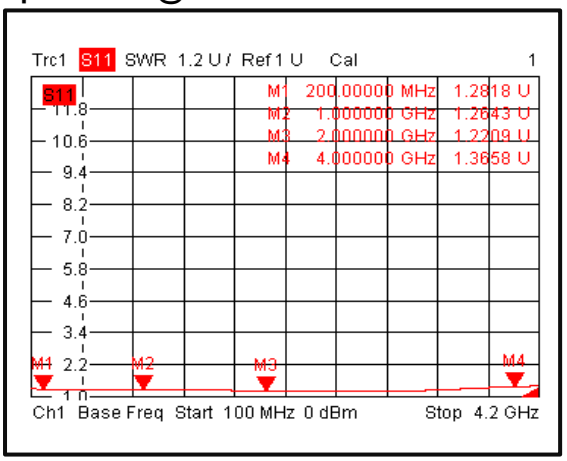


## Typical Performance Plots

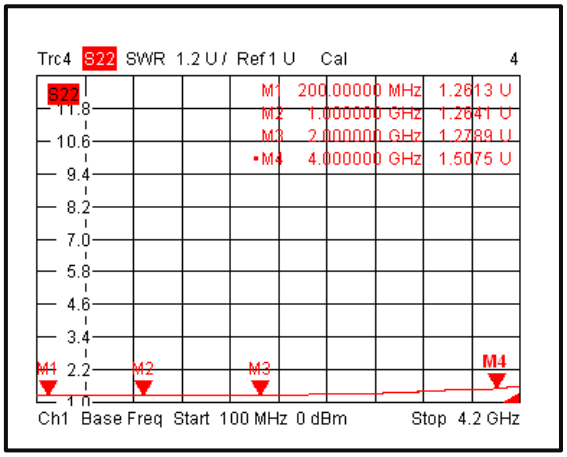
### Insertion Loss @+85ºC



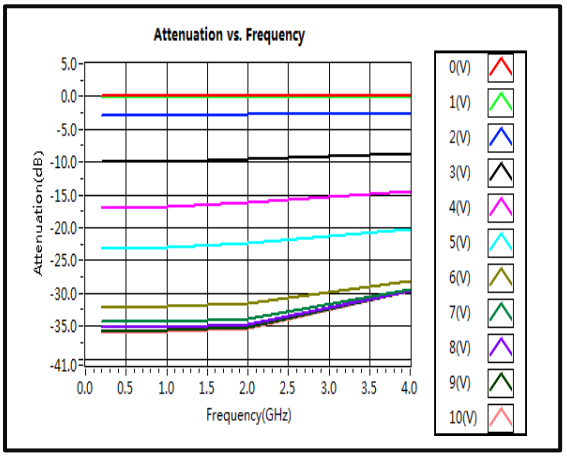

### Input VSWR @+85ºC



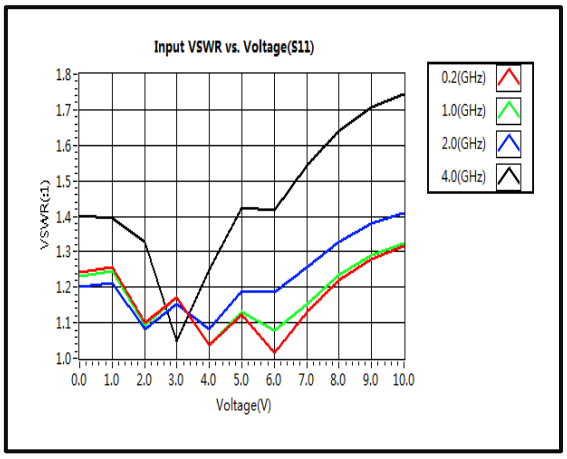

### Output VSWR @+85ºC



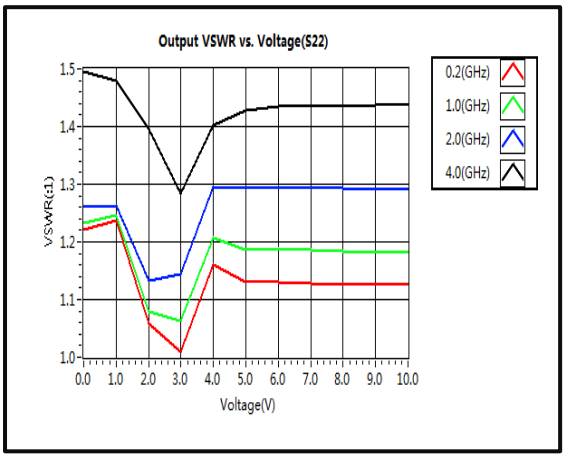

### Attenuation vs. Frequency




### VSWR vs. Voltage (S11)

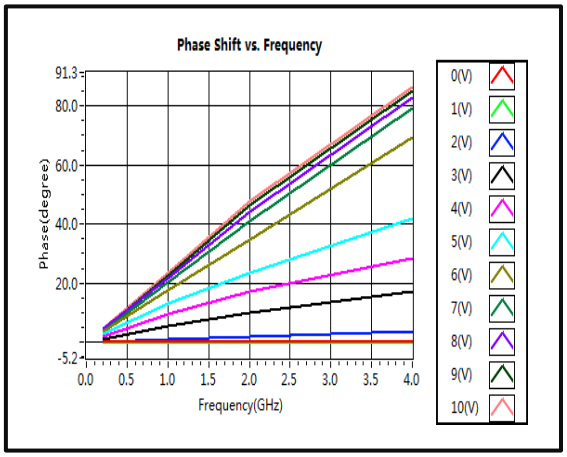



### VSWR vs. Voltage (S22)

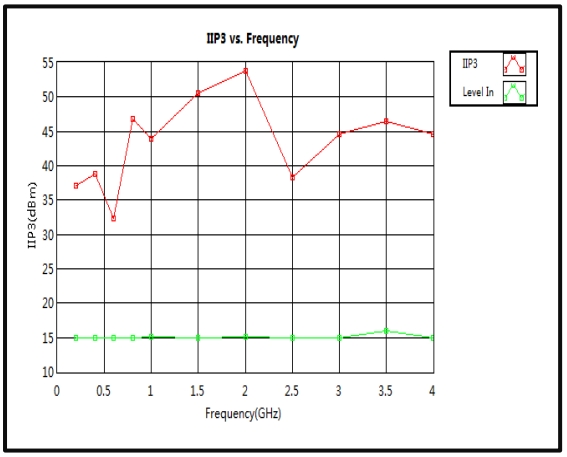


## Typical Performance Plots

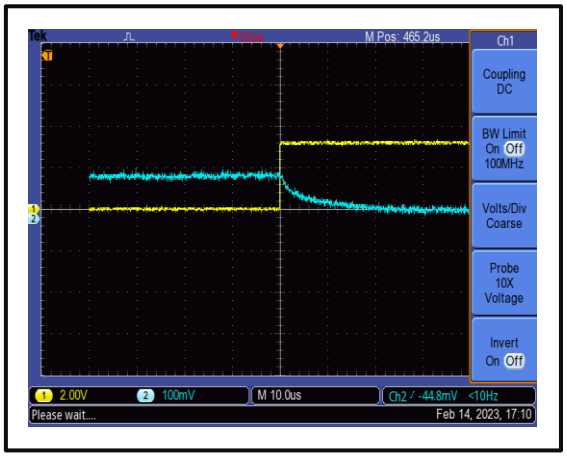
### Phase Shift vs. Frequency



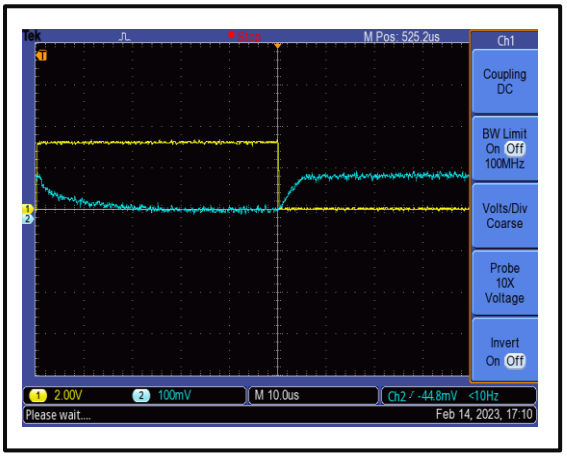

### IIp3



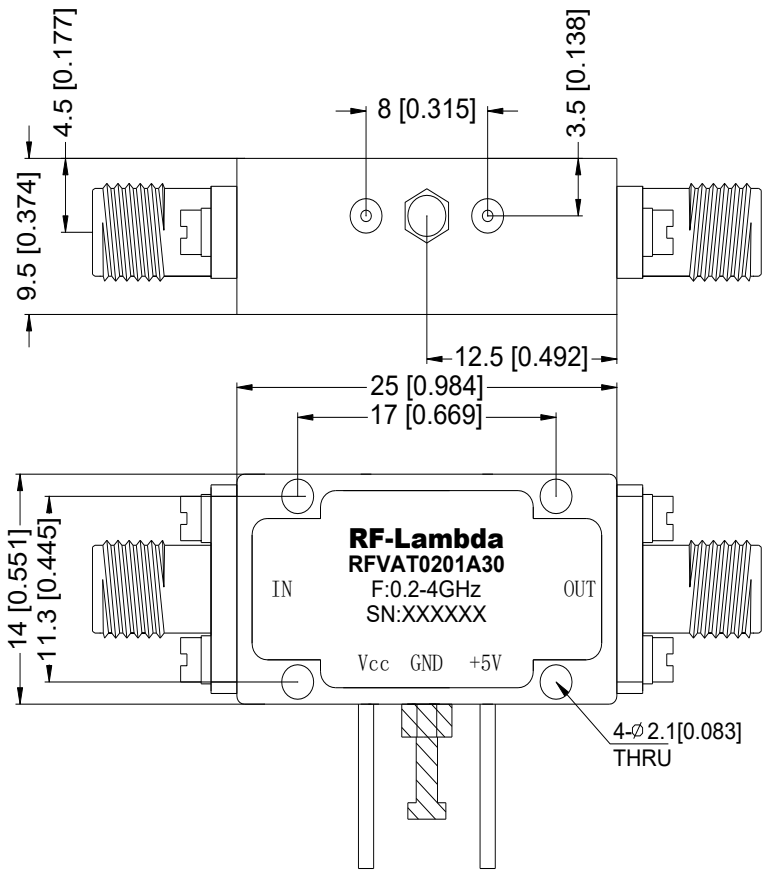

### Speed

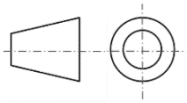



### Speed



## Outline Drawing




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.
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 |
|---|---|---|
| RFVAT0201A30 | Standard | 0.2GHz-4GHz Voltage Control Attenuator |

## Important Notice

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