# Reflective Digital Control Attenuator 12GHz-18GHz


Note: Photo is for illustration purposes only.
Please refer to outline drawing.

## Product Description

RFDAT1218G6R is a reflective digital control attenuator with a frequency range of 12 to 18GHz.

The power input of this attenuation is 30dBm typical. The insertion loss is 2.0dB with a typical attenuation range of 63dB.

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

## Features

- Reflective Digital Control Attenuator
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit

## 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) ,Vdd = +5V & VCTL = 0 / +5V

| Parameter | Min | Typ | Max | Units |
|---|---|---|---|---|
| Frequency Range | 12 | | 18 | GHz |
| Attenuation Range | | 63 | | dB |
| Attenuation Flatness (Referenced to Insertion Loss) | | ±2.0 | | dB |
| Control Bits | | 6 | | Bit |
| Control Step Size | | 1.0 | | dB |
| Insertion Loss | | 2.0 | 2.5 | dB |
| Insertion Loss Temperature Coefficient | | 0.005 | | dB/ °C |
| Input VSWR (IL State) | | 1.5 | 2.0 | : 1 |
| Output VSWR (IL State) | | 1.5 | 2.0 | : 1 |
| Input 0.1dB Compression Point (P0.1dB) | | 30 | | dBm |
| IP3 Input | | 43 | | dBm |
| Switching Speed | | 800 Typ. | | us |
| Bias Current ( +5V) | | 35 Typ. | | mA |
| Weight | | / Max. | | lbs. |
| Impedance | | 50 | | Ohms |
| Input / Output Connectors | | SMA-Female (Input) – SMA-Female (Output) | | |
| Interface and Control Connector | | MICRO-D15 (Female) | | |
| Package | | Epoxy Sealed (Standard) | | |
| | | Hermetically Sealed (Optional) | | |

## Absolute Maximum Ratings

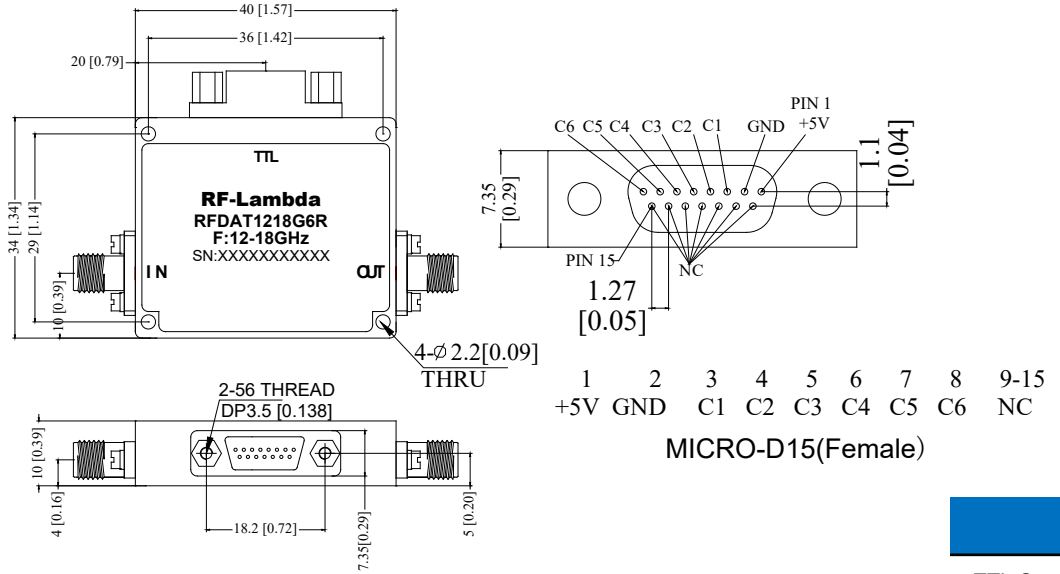
| Parameter | Rating |
|---|---|
| Biasing Voltage | +6V |
| RF Input Power | +30dBm |

## 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) |

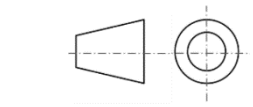
**For vibration testing details please see additional information section.

## Outline Drawing




### Truth Table

| TTL Control Voltage THRESHOLD | | | | | | Low(0)=0~0.8V<br>High(1)=2.8~5V |
|---|---|---|---|---|---|---|
| Control Input TTL | | | | | | Attenuation State |
| C6 | C5 | C4 | C3 | C2 | C1 | |
| 1 | 1 | 1 | 1 | 1 | 1 | Reference IL |
| 1 | 1 | 1 | 1 | 1 | 0 | 1dB |
| 1 | 1 | 1 | 1 | 0 | 1 | 2dB |
| 1 | 1 | 1 | 0 | 1 | 1 | 4dB |
| 1 | 1 | 0 | 1 | 1 | 1 | 8dB |
| 1 | 0 | 1 | 1 | 1 | 1 | 16dB |
| 0 | 1 | 1 | 1 | 1 | 1 | 32dB |
| 0 | 0 | 0 | 0 | 0 | 0 | 63dB |




Notes:
1. Package Material: Aluminum
2. Plating: 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 |
|---|---|---|
| RFDAT1218G6R | Standard | 12-18GHz Digital Control Attenuator |

## Important Notice





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