

## Absorptive Digital Control Attenuator 0.01GHz-43.5GHz



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

### Product Description

RFDAT0040G8A is an absorptive digital control attenuator with a frequency range of 0.01 to 43.5GHz.

The max power input of this attenuator is 27 dBm typical. The insertion loss is 20dB with a typical attenuation range of 127.5dB.

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

### Features

- Absorptive Digital Control Attenuator
- 0.5dB LSB Steps to 127.5dB
- 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 ( $T_A=+25^{\circ}\text{C}$ ), $V_{dd} = +5\text{V}$ , $V_{CTL} = 0 / +5\text{V}$

Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.01		8	8		30	30		43.5	GHz
Attenuation Range		127.5			127.5			63		dB
Attenuation Flatness (Referenced to Insertion Loss)	0.5-60dB 60-127.5dB	<±3.0 <±4.0		0.5-60dB 60-127.5dB	<±3.0 <±4.0		0.5-60dB 60-127.5dB	<±4.0 <±5.0		dB
Control Bits					8					Bit
Control Step Size		0.5			0.5			0.5		dB
Insertion Loss		20			26			33		dB
Insertion Loss Temperature Coefficient		0.03			0.03			0.03		dB/ °C
Input VSWR ( All Atten. States)		3.0			2.5			2.5		: 1
Output VSWR ( All Atten. States)		3.0			2.5			2.5		: 1
Input 0.1dB Compression Point (P0.1dB)		26			25			23		mA
IP3 Input		42			40			38		dBm
Switching Speed 50% CTRL* to 90% or 10%					200 Typ.					ns
Bias Current ( +5V )					200 Max.					mA
Weight					- Max.					lbs.
Impedance					50					Ohms
Input / Output Connectors					2.92mm-Female (Input) – 2.92mm-Female (Output)					
Interface and Control Connector					MICRO-D15 (Female)					
Package					Epoxy Sealed (Standard)					
					Hermetically Sealed (Optional)					

**Absolute Maximum Ratings**

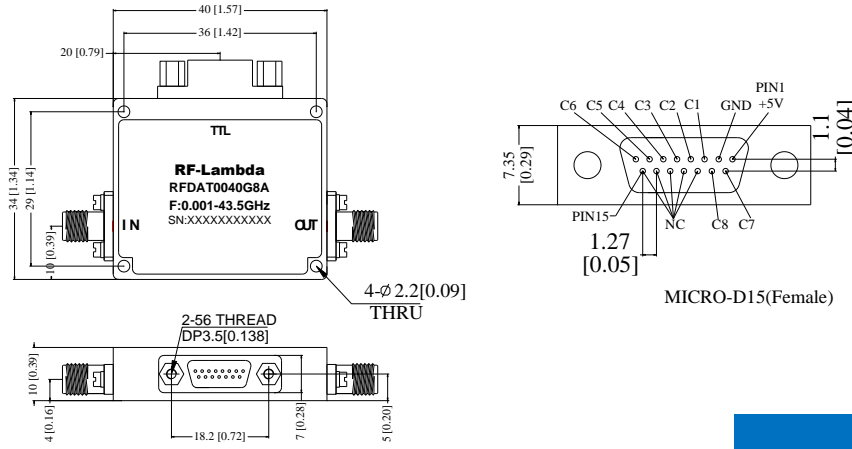
Parameter	Rating
Biasing Voltage	+5V±10%
RF Input Power	+27dBm

**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)

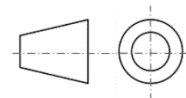
\*\*For vibration testing details please see additional information section.

**Outline Drawing**



**Truth Table**

TTL Control Voltage THRESHOLD	Low(0)=0~0.8 V High(1)=2.8~5 V
Control Input TTL	Attenuation State
C8 C7 C6 C5 C4 C3 C2 C1	Reference IL
1 1 1 1 1 1 1 1	0.5dB
1 1 1 1 1 1 0 1	1dB
1 1 1 1 1 0 1 1	2dB
1 1 1 1 0 1 1 1	4dB
1 1 1 0 1 1 1 1	8dB
1 1 0 1 1 1 1 1	16dB
1 0 1 1 1 1 1 1	32dB
0 1 1 1 1 1 1 1	64
0 0 0 0 0 0 0 0	127.5dB



**Notes:**

1. Package Material: Aluminum
2. Finish: Gold Plated
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
RFDAT0040G8A	connectors 2.92mm-Female	0.01-43.5GHz Digital Control Attenuator

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