

Absorptive Digital Control Attenuator 0.01GHz-40GHz



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

Features

- Absorptive Digital Control Attenuator
- 0.125dB LSB Steps to 31.875dB
- Single Positive Control Line Per Bit

Product Description

RFDAT0040G8B is an absorptive digital control attenuator with a frequency range of 0.01 to 40GHz.

The maximum power input of this attenuator is 25dBm. The insertion loss is 8dB with a typical attenuation range of 31.875dB.

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

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	Units
Frequency Range	0.01		18	18		40	GHz
Attenuation Range		31.875			31.875		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±2.0			±2.0		dB
Control Bits			8			8	Bit
Control Step Size		0.125			0.125		dB
Insertion Loss		6.0			8.5		dB
Insertion Loss Temperature Coefficient		0.005					dB/ °C
Input VSWR (All Atten. States)		2.0			2.5		: 1
Output VSWR (All Atten. States)		2.0			2.5		: 1
Input 0.1 dB Compression Point (P0.1dB)		24			24		dBm
IP3 Input		38			38		dBm
Switching Speed			150Typ.				ns
Bias Current (+5V)			50Typ.				mA
Weight			0.085Max.				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

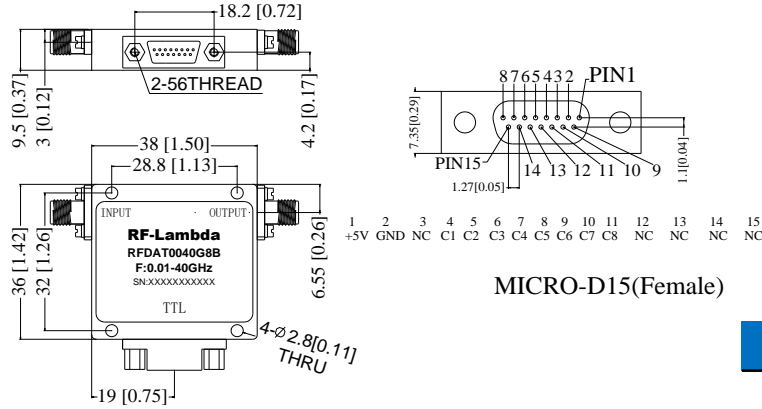
Parameter	Rating
Biasing Voltage	+5V±10%
RF Input Power	+25dBm

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

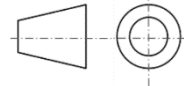


Truth Table

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	0.125dB
1 1 1 1 1 1 0 1	0.25dB
1 1 1 1 1 0 1 1	0.5dB
1 1 1 1 0 1 1 1	1dB
1 1 1 0 1 1 1 1	2dB
1 1 0 1 1 1 1 1	4dB
1 0 1 1 1 1 1 1	8dB
0 1 1 1 1 1 1 1	16dB
0 0 0 0 0 0 0 0	31.875dB

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
RFDAT0040G8B	Standard	0.01GHz-40GHz Digital Control Attenuator

Important Notice

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information.

RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.