

Absorptive Digital Control Attenuator 0-20GHz



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

Product Description

RFDAT0018G3A is an absorptive digital control attenuator with a frequency range of 0 to 20GHz.

The maximum power input of this attenuation is 25dBm. The insertion loss is 3.8dB with a typical attenuation range of 30dB.

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

Features

- Absorptive Digital Control Attenuator
- 5dB LSB Steps to 30dB
- 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 ($T_A=+25^\circ\text{C}$), $V_{dd} = +5\text{V}$, $\text{TTL} = 0 / +5\text{V}$

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0-6			6-20		GHz
Attenuation Range		30			30		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±1.0			±1.5		dB
Control Bits				3			Bit
Control Step Size		5			5		dB
Insertion Loss		3.8			6		dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/ °C
Input VSWR (All Atten. States)		2.0			2.0		: 1
Output VSWR (All Atten. States)		2.0			2.0		: 1
Input 1dB Compression Point (P1dB)		23			23		dBm
IP3 Input		43			40		dBm
Switching Speed				200 Typ.			ns
Bias Current (+5V)				10 Typ.			mA
Weight				/			lbs.
Impedance				50			Ohms
Input / Output Connectors	SMA-Female (Input) – SMA-Female (Output)						
Interface and Control Connector	MICRO-D9 (Female)						
Package	Epoxy Sealed (Standard)						
	Hermetically Sealed (Optional)						

Absolute Maximum Ratings

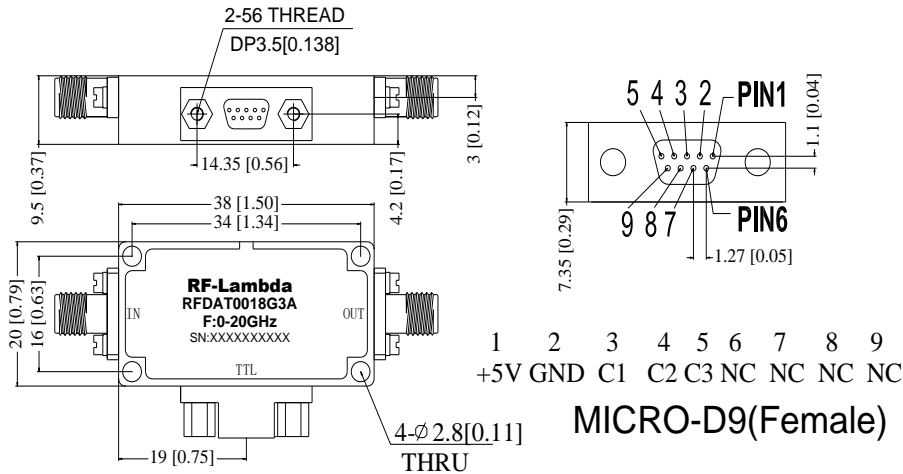
Parameter	Rating
Biasing Voltage	+5V±10%
RF Input Power	+25dBm

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

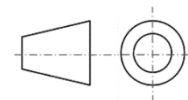


Truth Table

TTL Control Voltage	Low(0)=0~0.8V
THRESHOLD	High(1)=2.8~5V
Control Input TTL	Attenuation State
C3 C2 C1	
0 0 0	Reference IL
0 0 1	5dB
0 1 0	10dB
1 0 0	15dB
1 1 1	30dB

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
RFDAT0018G3A	Standard	0-20GHz Digital Control Attenuator

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