

Absorptive Digital Control Attenuator 0-20GHz



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

Features

- Absorptive Digital Control Attenuator
- 1dB LSB Steps to 31dB
- Single Positive Control Line Per Bit

Product Description

RFDAT0018G5A 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 31dB.

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 ($T_A=+25^\circ\text{C}$), $V_{dd} = +5\text{V}$, $\text{TTL} = 0 / +5\text{V}$

Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range		0-6			6-20		GHz
Attenuation Range		31			31		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±1.0			±1.5		dB
Control Bits				5			Bit
Control Step Size		1			1		dB
Insertion Loss		3.5			5.0		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				200Typ.			ns
Bias Current (+5V)				20Typ.			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

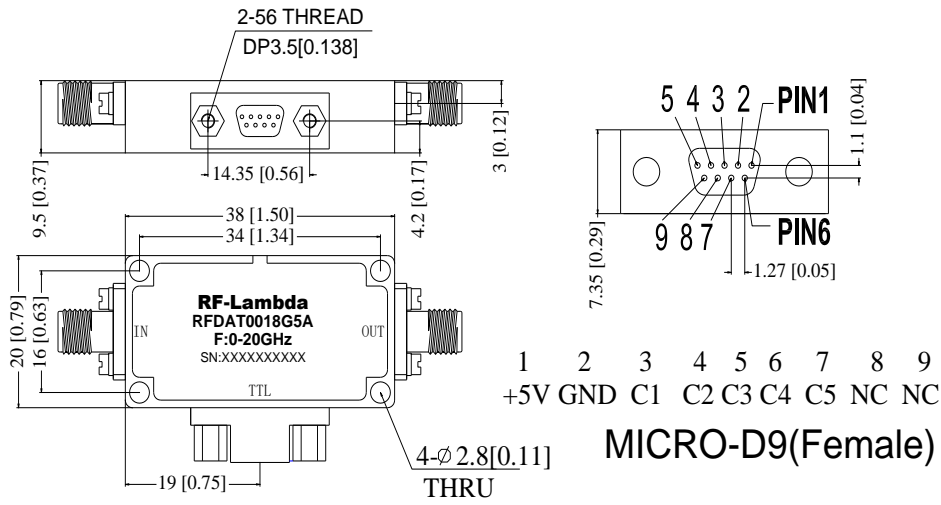
Parameter	Rating
Biasing Voltage	+5V±10%
RF Input Power	+25dBm

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.

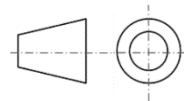
Outline Drawing



Truth Table					
TTL Control Voltage THRESHOLD					Low(0)=0~0.8V
					High(1)=2.8~5V
Control Input TTL					Attenuation State
C5	C4	C3	C2	C1	Reference IL
0	0	0	0	0	Reference IL
0	0	0	0	1	1dB
0	0	0	1	0	2dB
0	0	1	0	0	4dB
0	1	0	0	0	8dB
1	0	0	0	0	16dB
1	1	1	1	1	31dB

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
RFDAT0018G5A	Standard	0-20GHz Digital Control Attenuator

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