



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0812G8A

Absorptive Digital Control Attenuator 8 - 12GHz



Features

- Wide Band Operation 8-12GHz
- 0.5dB LSB Steps to 127dB
- Single Positive Control Line Per Bit
- Customization available upon request

Electrical Specifications, $T_A = +25^{\circ}\text{C}$, $V_{dd} = +5\text{V}$, $V_{ss} = -5\text{V}$, $V_{CTL} = 0 / +5\text{V}$

Description	PN: RFDAT0812G8A			
	Absorptive Digital Attenuator			
Parameters	Min	Typ.	Max	Units
Frequency Range	8 - 12			GHz
Attenuation Range			127	dB
Attenuation Flatness: (Referenced to Insertion Loss)		± 3.0		dB
Control Bits			8	Bit
Control Step size		0.5		dB
Insertion Loss		6.8	7	dB
Insertion Loss Temperature Coefficient		0.01		dB/ $^{\circ}\text{C}$
Input VSWR (All Atten. States)		1.5	1.7	: 1
Output VSWR (All Atten. States)		1.5	1.7	: 1
Input 0.1 dB Compression Point		25		dBm
IP ₃ Input		50		dBm
Switching Speed		100		ns
Weight	1.41			Ounces
Impedance	50			Ω
Bias Current (+5V / -5V)	140 / 140			mA
Input / Output Connectors	SMA - Female			
Interface and Control Connector	MICRO- D15 (Female)			
Finishing	Gold Plating			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			

Absorptive Digital Control Attenuator 8-12GHz



Absolute Maximum Ratings

Biasing	+5V±10%/-5V±10%
TTL Control Voltage	0~0.8V/2~5V

Ordering Information

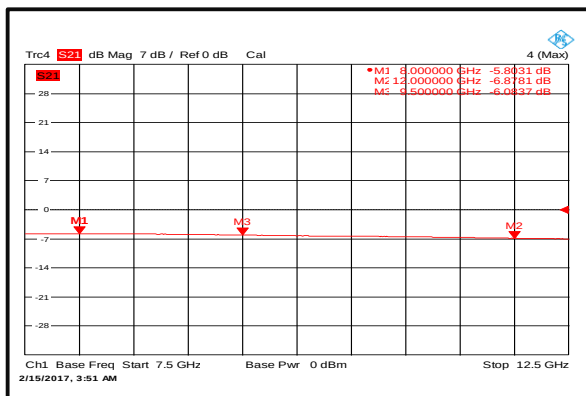
Part No.	ECCN	Description
RFDAT0812G8A	EAR99	8-12GHz Digital Control Attenuator

Environmental Specifications

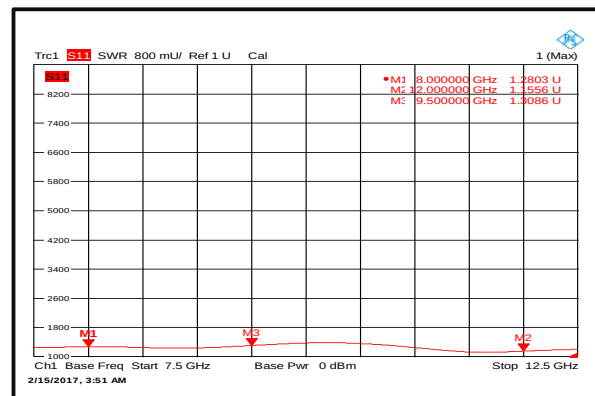
Operational Temperature (°C)	-45 ~ +85
Storage Temperature (°C)	-50 ~ +125
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40 deg c
Shock	20G for 11msec half sine wave, 3 axis both directions

Typical Performance Plots

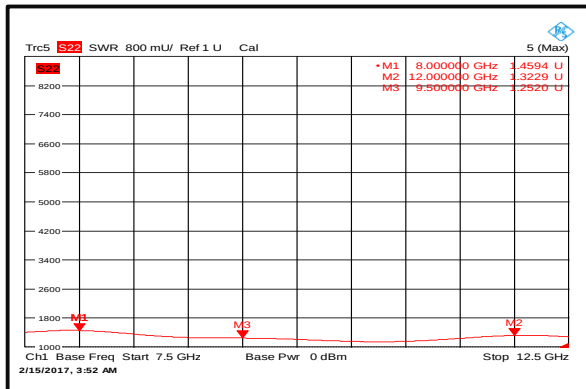
Insertion Loss



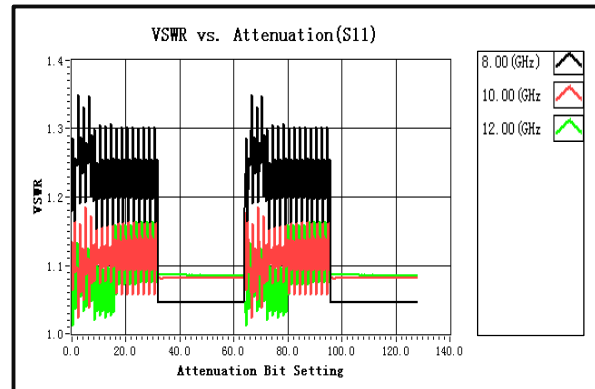
Input VSWR



Output VSWR

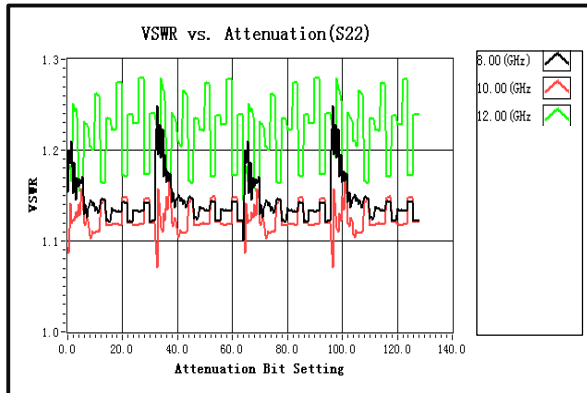


VSWR vs. Attenuation

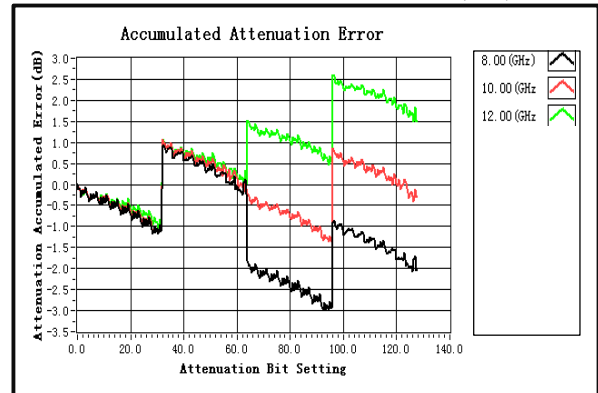




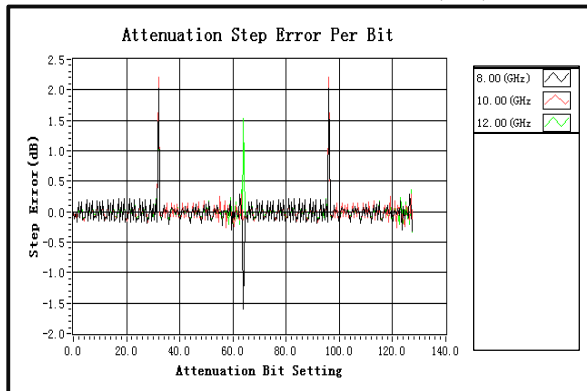
VSWR vs. Attenuation



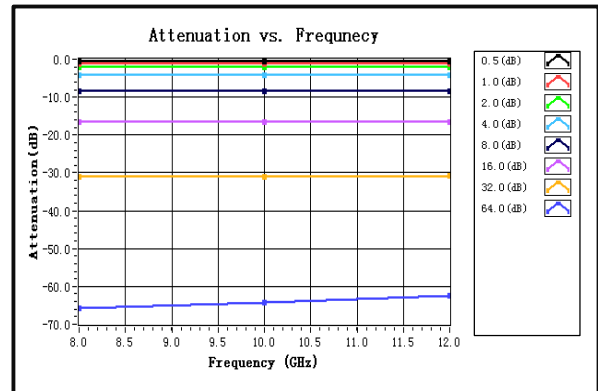
Accumulated Attenuation Error (dB)



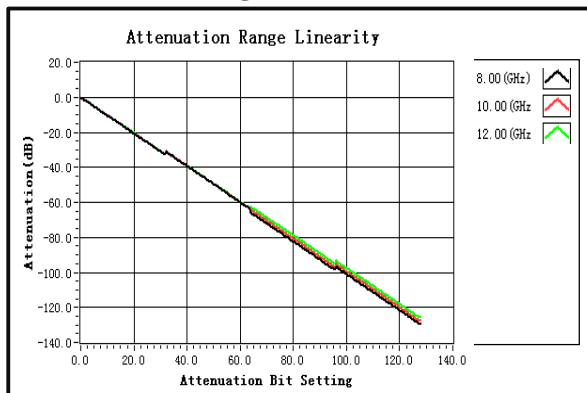
Attenuation Step Error Per Bit (dB)



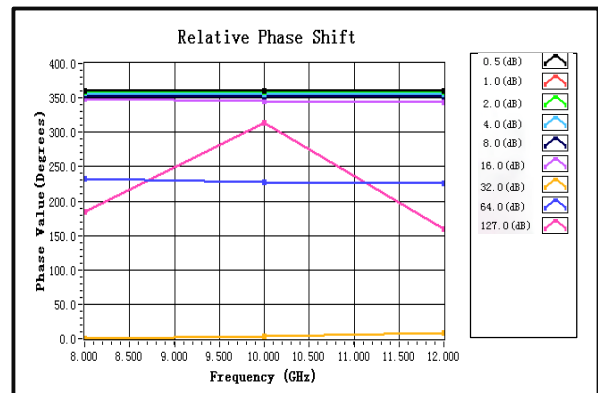
Attenuation Flatness vs. Frequency



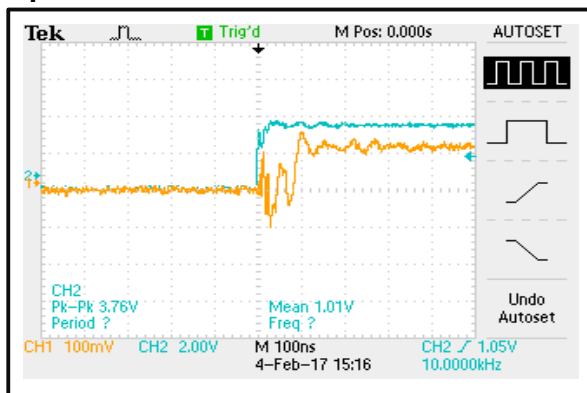
Attenuation Range Linearity



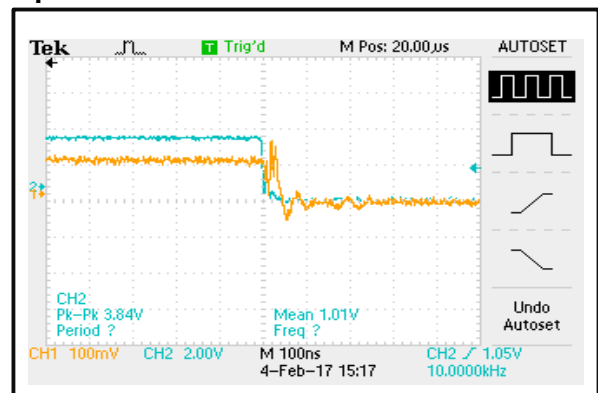
Relative Phase Shift



Speed



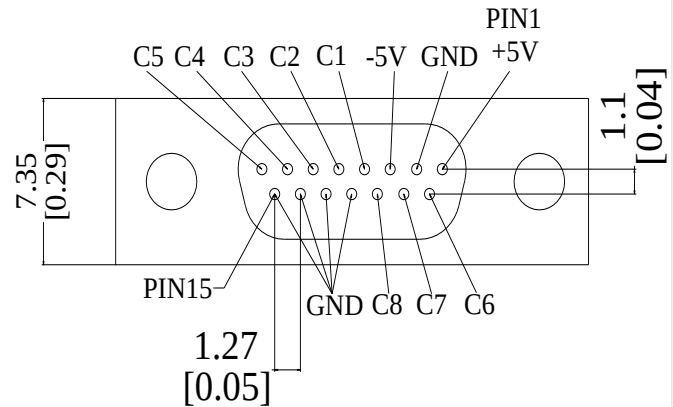
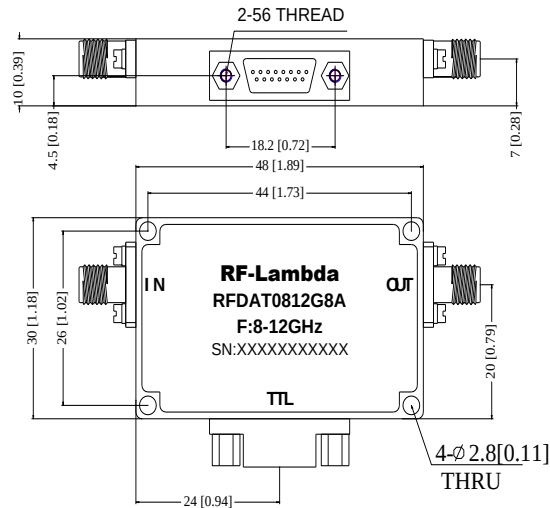
Speed





Outline Drawing:

All Dimensions in mm[inches]



MICRO-D15 (Female)

Truth Table

Control Voltage Input								Attenuation State
C8	C7	C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	1	1	Reference IL
1	1	1	1	1	1	1	0	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	64dB
0	0	0	0	0	0	0	0	127dB



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