



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0212G6A

Absorptive Digital Control Attenuator 2 - 12GHz



Features

- Wide Band Operation 2-12GHz
- 1dB LSB Steps to 63dB
- 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: RFDAT0212G6A									
	Absorptive Digital Attenuator									
Parameter	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	2		4	4		8	8		12	GHz
Attenuation Range			63			63			63	dB
Attenuation Flatness: (Referenced to Insertion Loss)		± 2.0			± 2.0			± 2.0		dB
Control Bits		6			6			6		Bit
Control Step size		1			1			1		dB
Insertion Loss		4.5	5		4.5	5.8		5.5	7	dB
Insertion Loss Temperature Coefficient		0.005			0.005			0.005		dB/ $^{\circ}\text{C}$
Input VSWR (All States)		1.7	2.2		1.6	2.2		1.5	1.8	:1
Output VSWR (All States)		1.7	2.2		1.6	2.2		1.5	1.8	:1
Input 0.1 dB Compression Point ($P_{0.1\text{dB}}$)	27									dBm
Input IP3	45									dBm
Switching Speed	150									ns
Weight	0.71									Ounces
Impedance	50									Ω
Bias Current (+5V/-5V)	50/50									mA
Input / Output Connectors	SMA - Female									
Interface and Control Connector	MICRO-D9-Female									
Finish	Gold Plated									
Material	Aluminum									
Sealing	Hermetically Sealed (Optional)									

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Absolute Maximum Ratings

Biasing	+5V / -5V $\pm$ 10%
TTL Control Voltage	0~0.8V/2.8~5V
RF Input Power	+27dBm

Ordering Information

Part No.	ECCN	Description
RFDAT0212G6A	EAR99	2-12GHz Digital Control Attenuator

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-55°C~+125°C
Thermal Shock		1 Hour@ -45°C → 1 Hour @ +85°C (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & 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	MIL-STD-883 (For Hermetically Sealed Units)



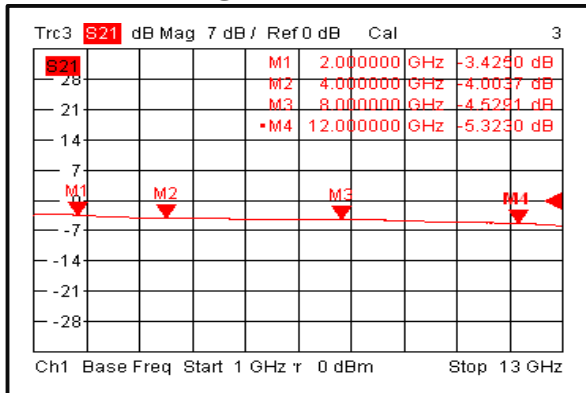
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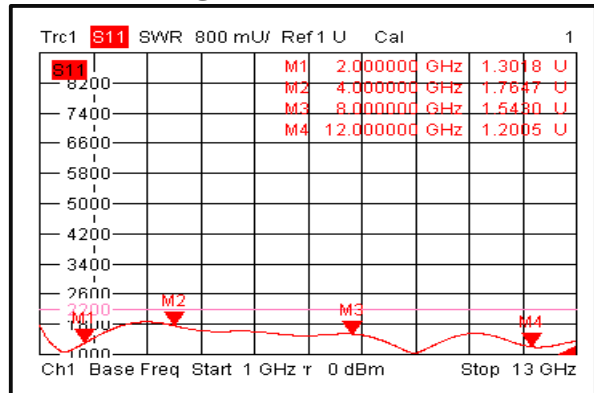
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Typical Performance Plots

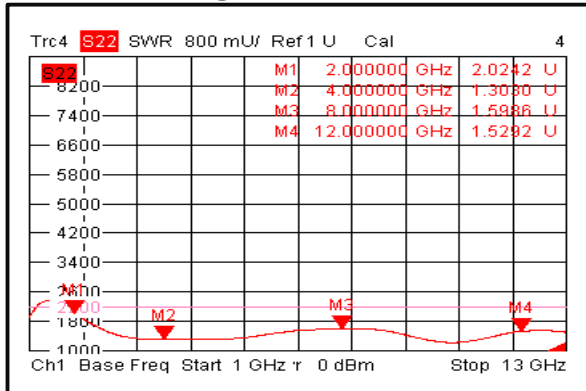
Insertion Loss @+25°C



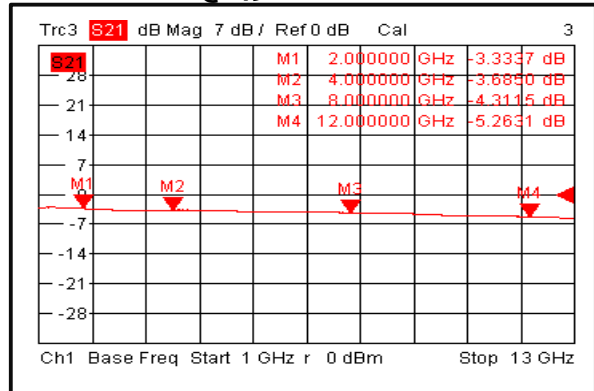
Input VSWR @+25°C



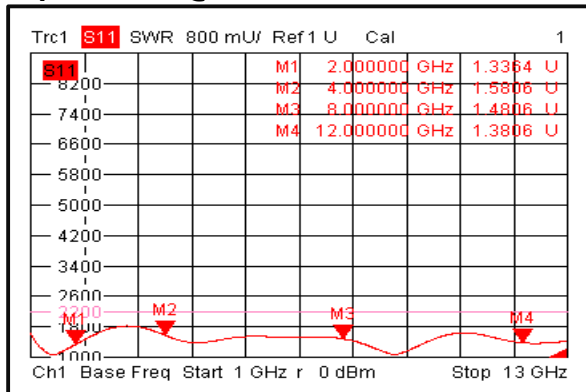
Output VSWR @+25°C



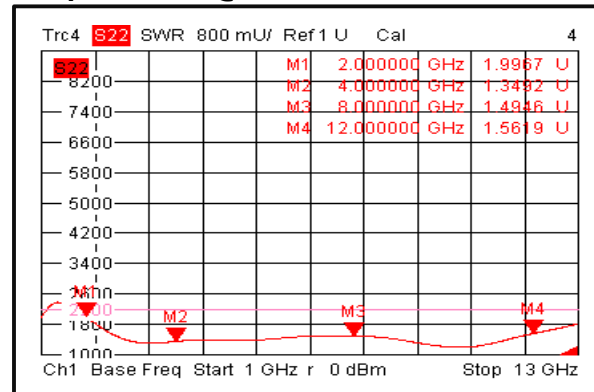
Insertion Loss @-45°C



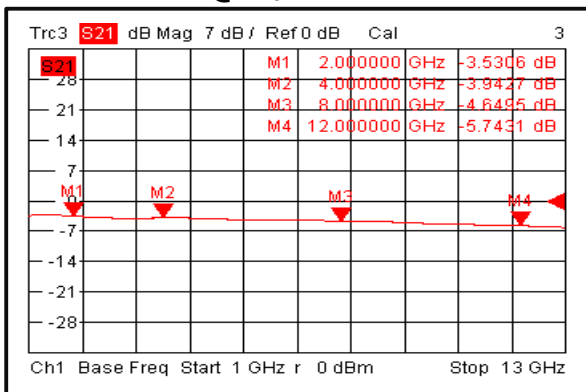
Input VSWR @-45°C



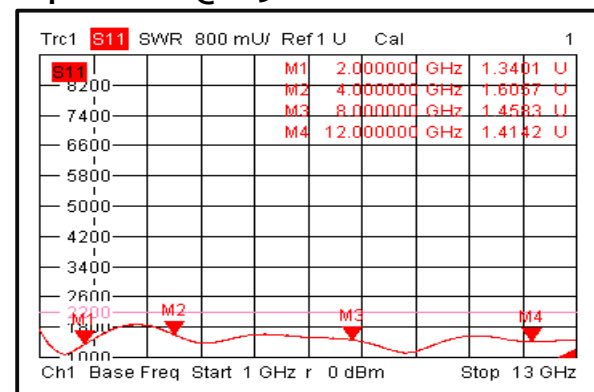
Output VSWR @-45°C



Insertion Loss @+85°C



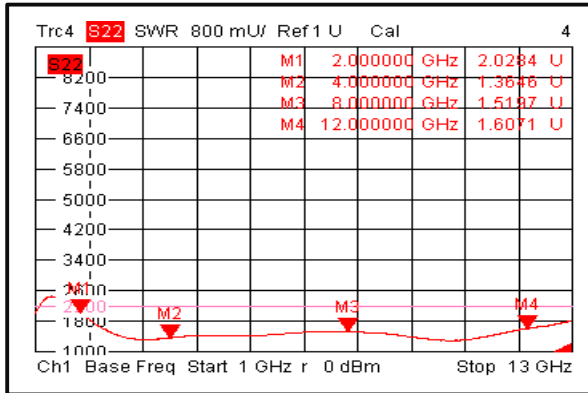
Input VSWR @+85°C



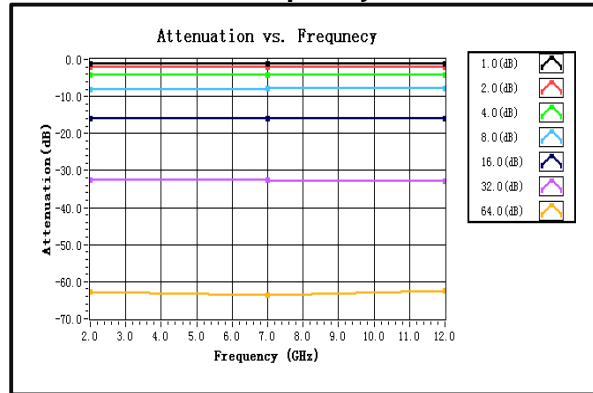
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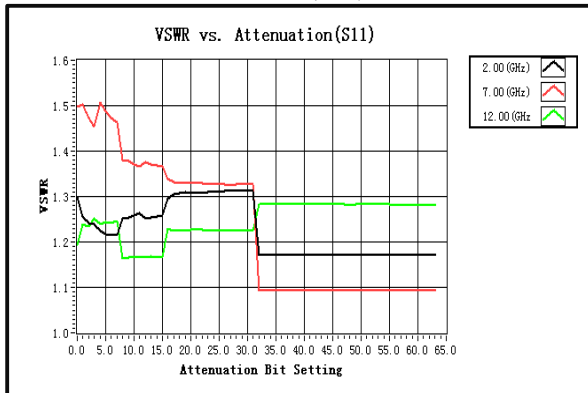
Output VSWR @+85°C



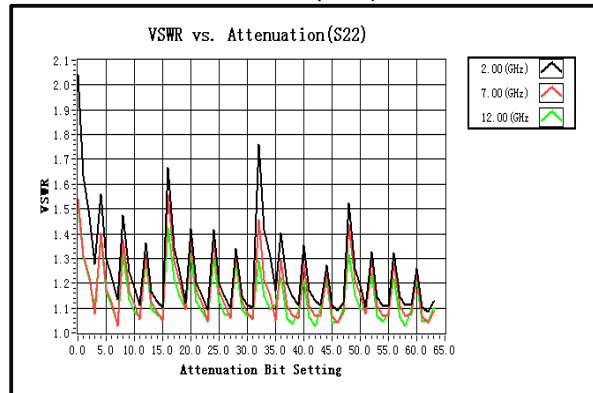
Attenuation vs. Frequency



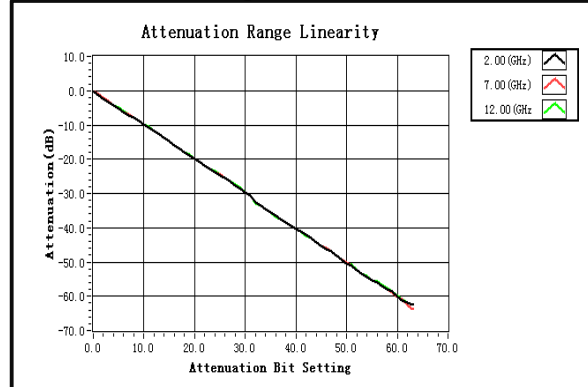
VSWR vs. Attenuation(S11)



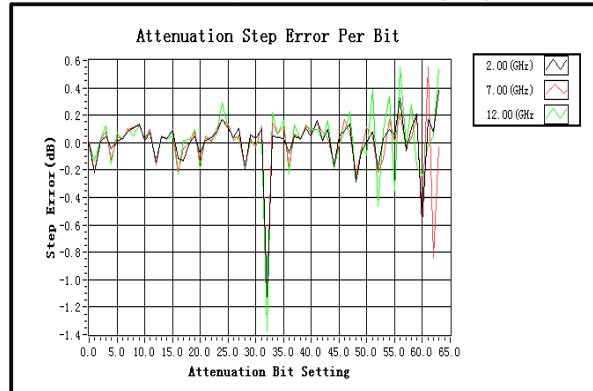
VSWR vs. Attenuation(S22)



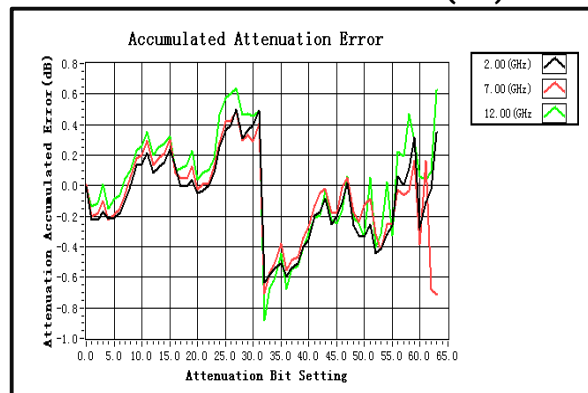
Attenuation Range Linearity



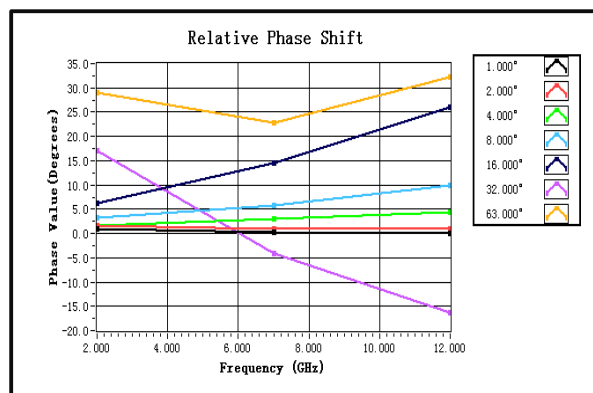
Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error(dB)



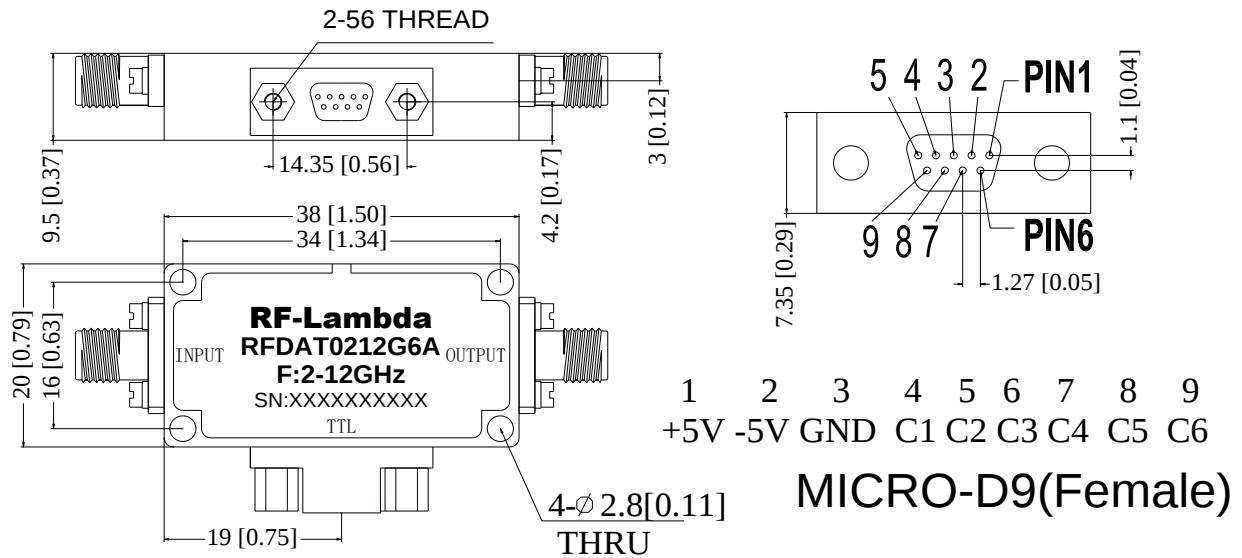
Relative Phase Shift





Outline Drawing:

All Dimensions in mm [inches]



Truth Table

Control Voltage Input						Attenuation State
C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	Reference IL
1	1	1	1	1	0	1dB
1	1	1	1	0	1	2dB
1	1	1	0	1	1	4dB
1	1	0	1	1	1	8dB
1	0	1	1	1	1	16dB
0	1	1	1	1	1	32dB
0	0	0	0	0	0	63dB



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