



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0408G6A

Absorptive Digital Control Attenuator 4-8GHz



Features

- Wide Band Operation 4-8GHz
- 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: RFDAT0408G6A			
	Absorptive Digital Attenuator			
Parameters	Min	Typ.	Max	Units
Frequency Range	4-8			GHz
Attenuation Range			63	dB
Insertion Loss		7	8	dB
Insertion Loss Temperature Coefficient		0.005		dB/°C
Attenuation Flatness: (Referenced to Insertion Loss)		±0.5	±1.0	dB
Control Bits			6	Bit
Control Step Size		1		dB
Input VSWR (All Atten. States)		1.4	1.5	:1
Output VSWR (All Atten. States)		1.4	1.5	:1
Input 0.1 dB Compression Point (Po.1dB)		30		dBm
Input IP3		50		dBm
Switching Speed	100			ns
Weight	1.76			Ounces
Impedance	50			Ω
Bias Current (+5V / - 5V)	130/130			mA
Input / Output Connectors	SMA-Female			
Interface and control connertor	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	+30dBm

Ordering Information

Part No.	ECCN	Description
RFDAT0408G6A	EAR99	4-8GHz Digital Control Attenuator

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45°C~+85°C
Storage Temperature		-50°C~+125°C
Thermal Shock		1 Hour@ -45°C $\rightarrow$ 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)



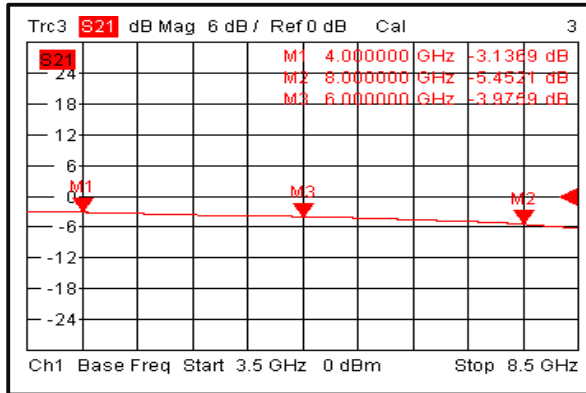
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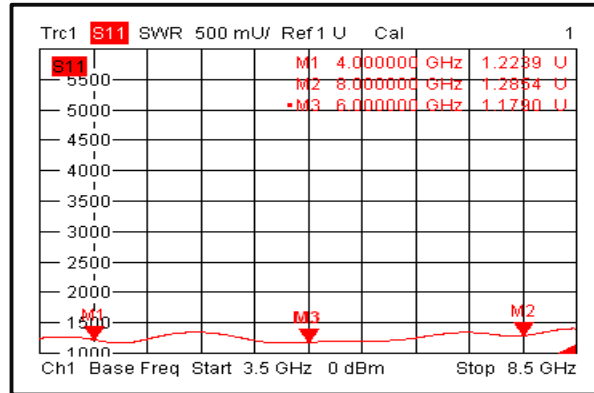
RFDAT0408G6A

Typical Performance Plots

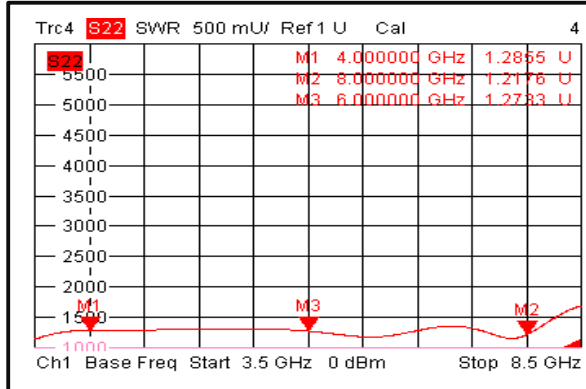
Insertion Loss @+25°C



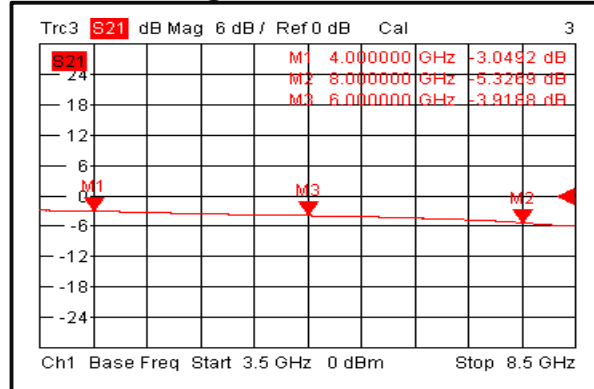
Input VSWR @+25°C



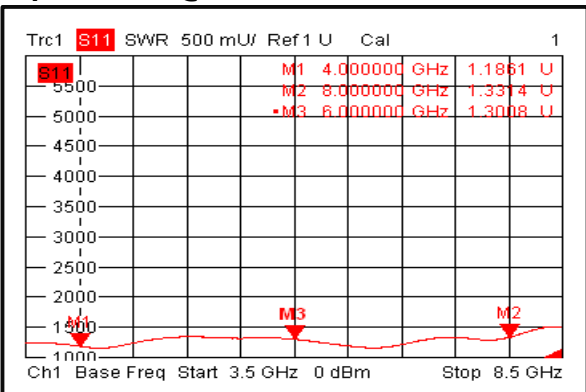
Output VSWR @+25°C



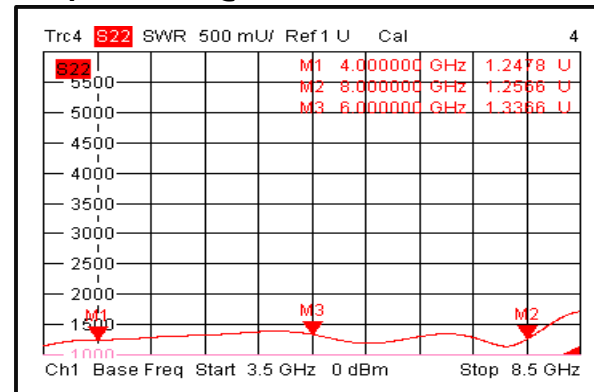
Insertion Loss @-45°C



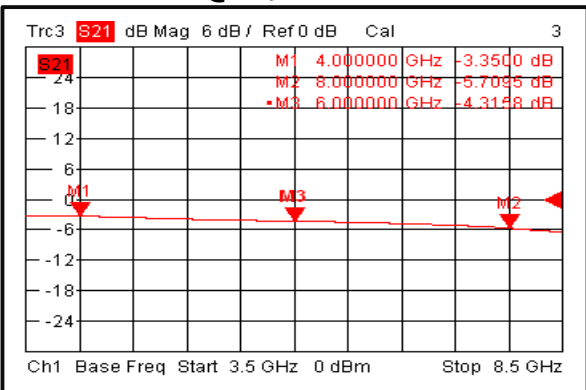
Input VSWR @-45°C



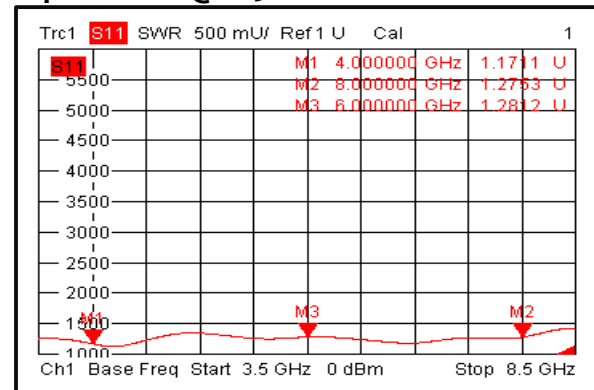
Output VSWR @-45°C



Insertion Loss @+85°C



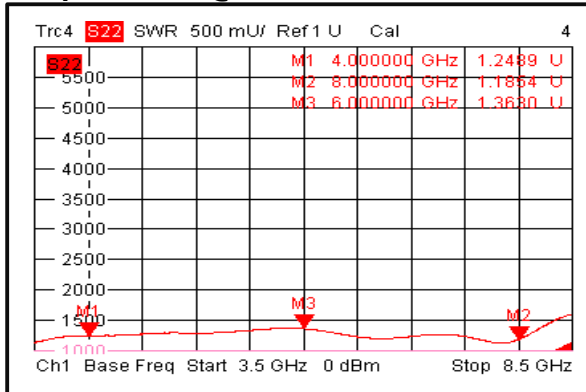
Input VSWR @+85°C



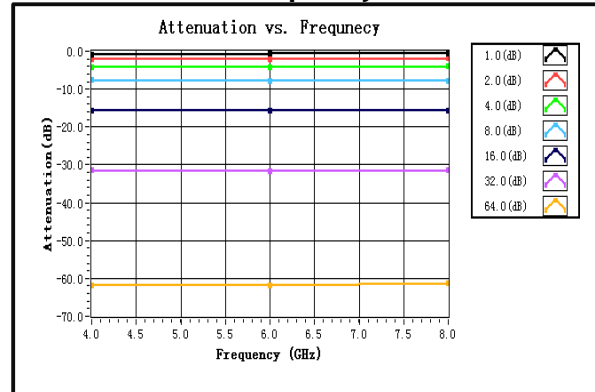
Absorptive Digital Control Attenuator 4 - 8GHz



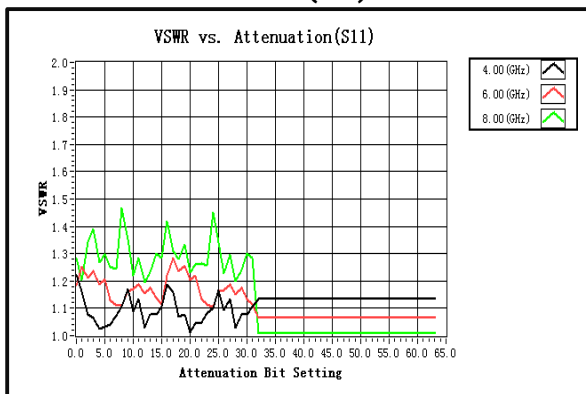
Output VSWR @+85°C



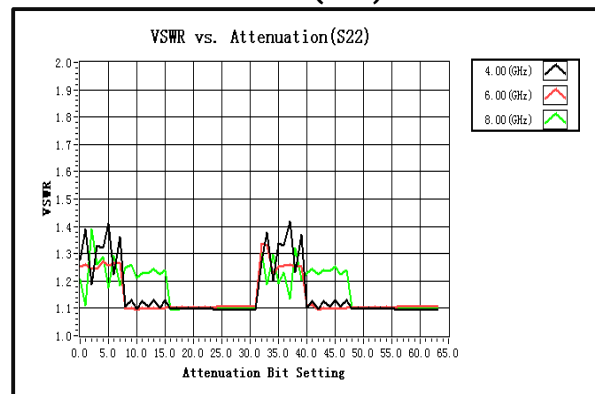
Attenuation vs. Frequency



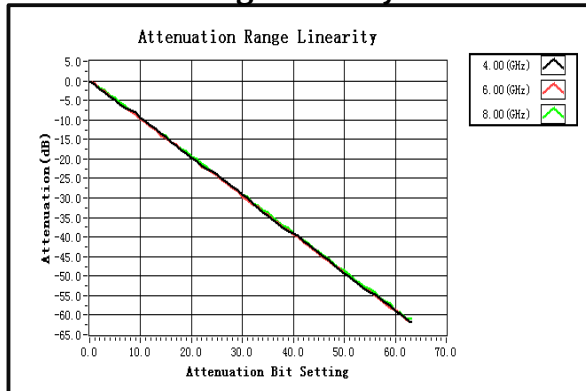
VSWR vs. Attenuation(S11)



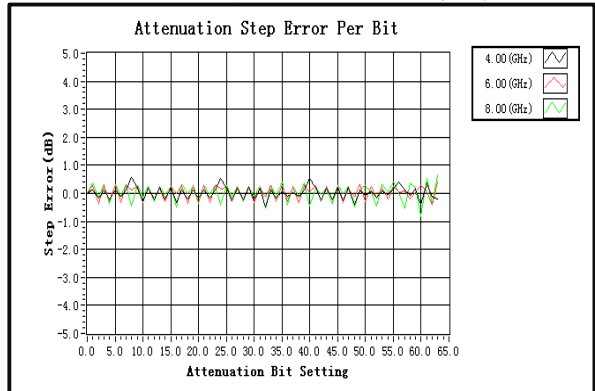
VSWR vs. Attenuation(S22)



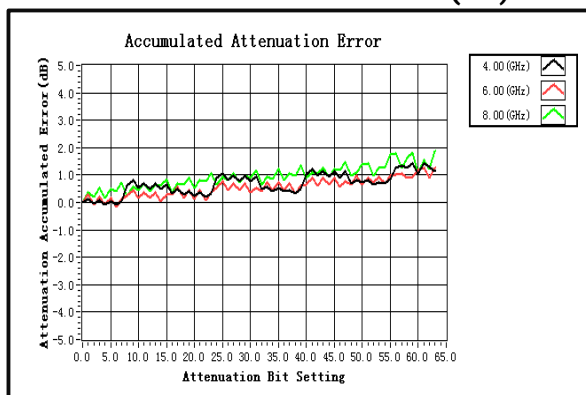
Attenuation Range Linearity



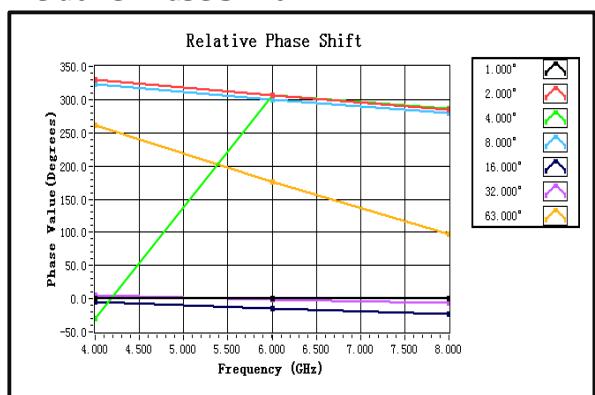
Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error (dB)



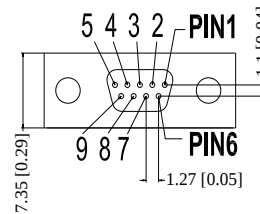
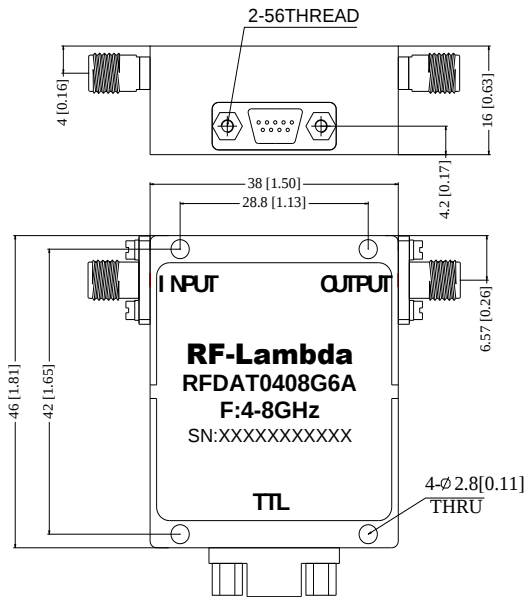
Relative Phase Shift





Outline Drawing:

All Dimensions in mm [inches]



1 2 3 4 5 6 7 8 9
+5V -5V GND C1 C2 C3 C4 C5 C6
MICRO-D9(Female)

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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