



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0622G5A

Absorptive Digital Control Attenuator 6 – 22GHz



Features

- Wide Band Operation 6-22GHz
- 0.75dB LSB Steps to 23.25dB
- Single Positive Control Line Per Bit

Typical Applications

- Wireless Infrastructure
- Test and Measurement
- Fibre Optics

Electrical Specifications, TA = +25 °C, Vdd = +5V & VCTL = 0/ +5V

Description	PN:RFDAT0622G5A						
	Absorptive Digital Attenuator						
Parameters	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	6-8			8-22			GHz
Attenuation Range			23.25			23.25	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±3			±1.5		dB
Control Bits			5			5	Bit
Control Step size	0.75			0.75			dB
Insertion Loss		13	15		7.2	8	dB
Insertion Loss Temperature Coefficient		0.003			0.003		dB/°C
Input VSWR(All Atten. States)		3.5	4.5		2.0	2.5	: 1
Output VSWR (All Atten. States)		3.5	4.5		2.0	2.5	: 1
Input 0.1 dB Compression Point (Po.1dB)			35			35	dBm
IIP3		36			36		dBm
Switching Speed		100			100		ns
Weight	0.71						ounces
Impedance	50						Ω
Bias Current (+5V)	40						mA
Input / Output Connectors	SMA-Female						
Interface and Control Connector	MICRO-D9 (Female)						
Finish	Gold Plated						
Material	Aluminum						
Seal	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Biasing	+5V±10%
TTL Control Voltage	0~0.8V / 2.8~5V

Ordering Information

Part No.	ECCN	Description
RFDAT0622G5A	EAR99	6-22GHz 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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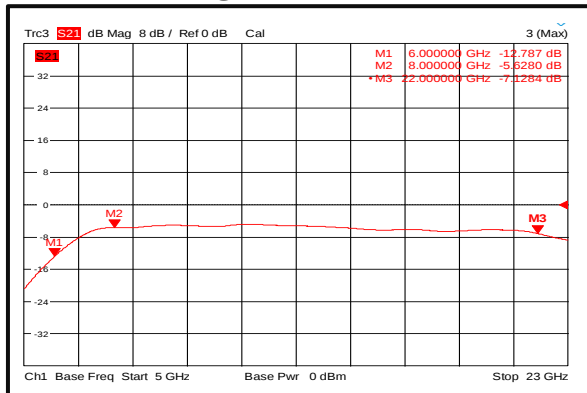
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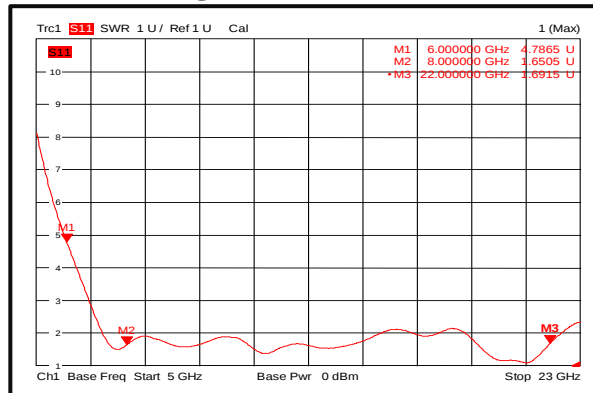
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Typical Performance Plots

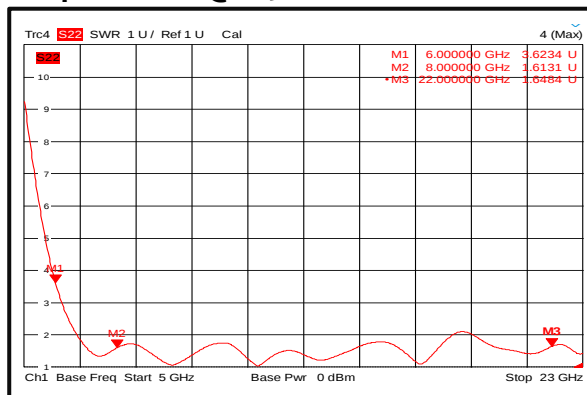
Insertion Loss @+25°C



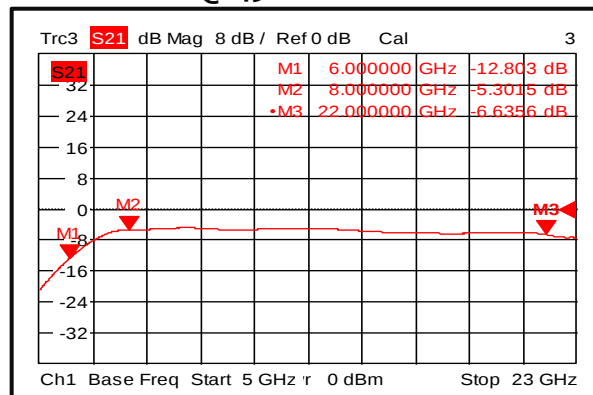
Input VSWR @+25°C



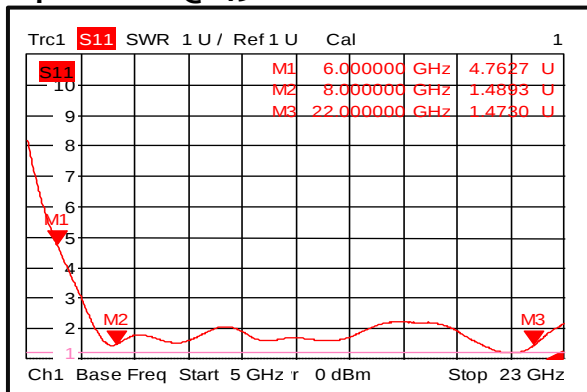
Output VSWR @+25°C



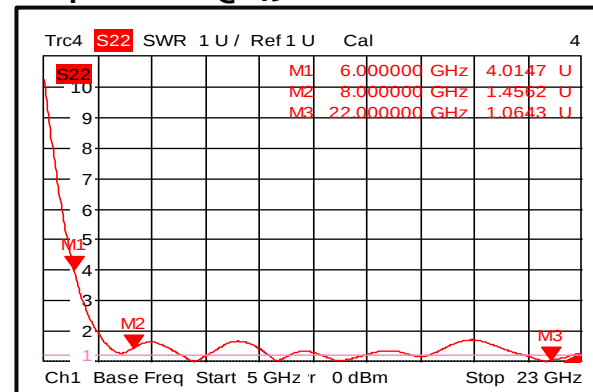
Insertion Loss @-45°C



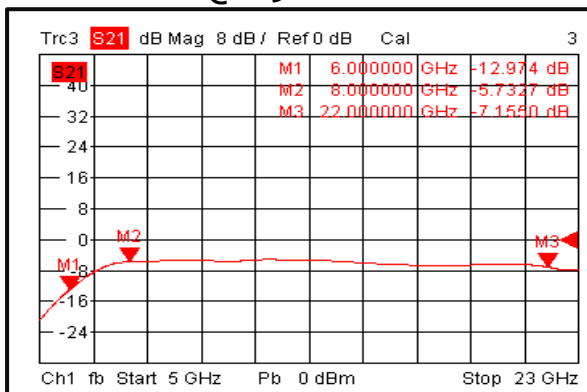
Input VSWR @-45°C



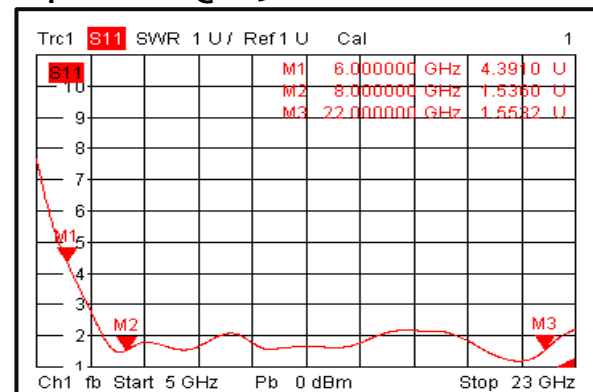
Output VSWR @-45°C



Insertion Loss @+85°C



Input VSWR @+85°C



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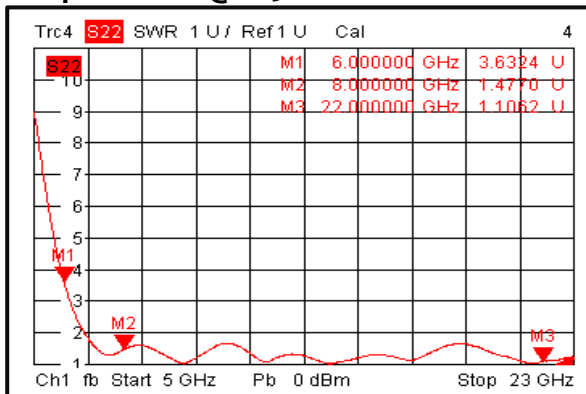


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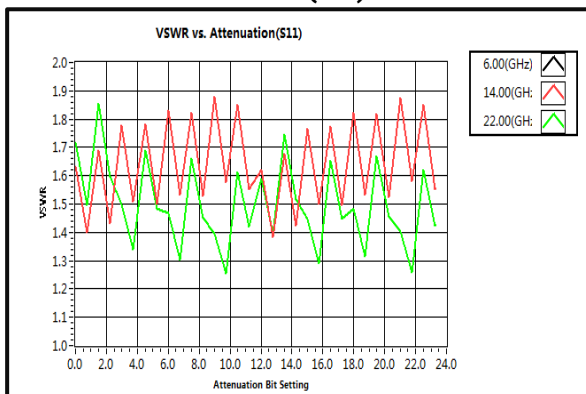
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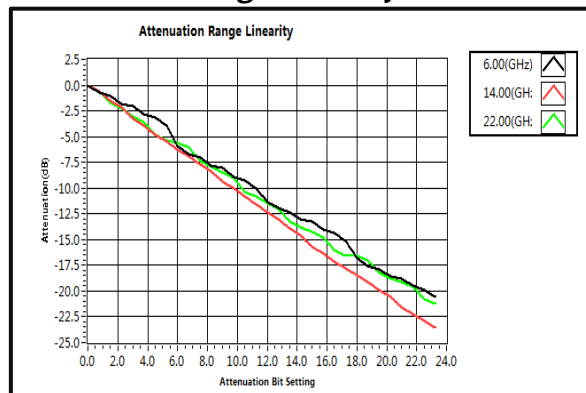
Output VSWR @+85°C



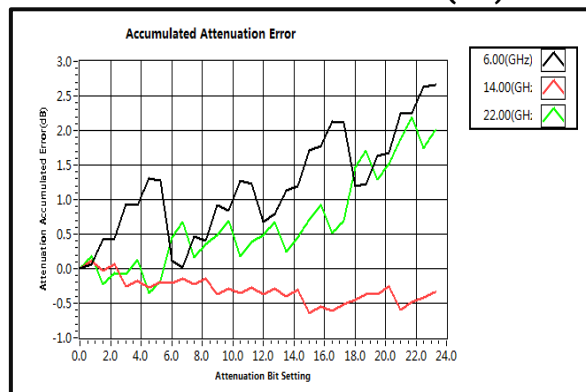
VSWR vs. Attenuation(S11)



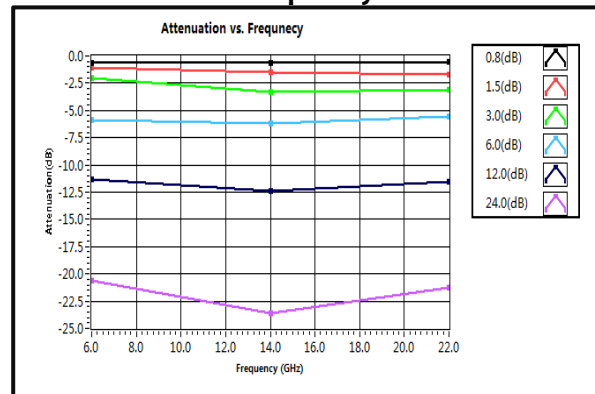
Attenuation Range Linearity



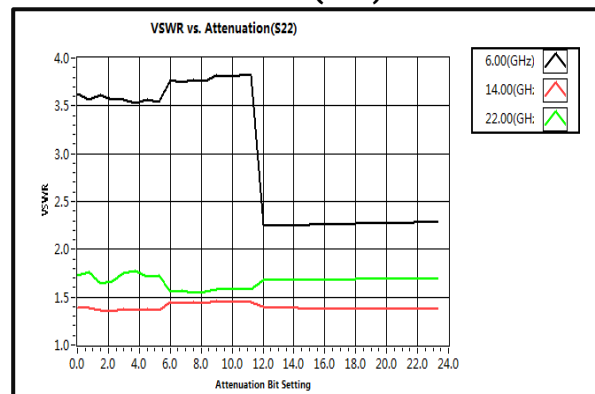
Accumulated Attenuation Error(dB)



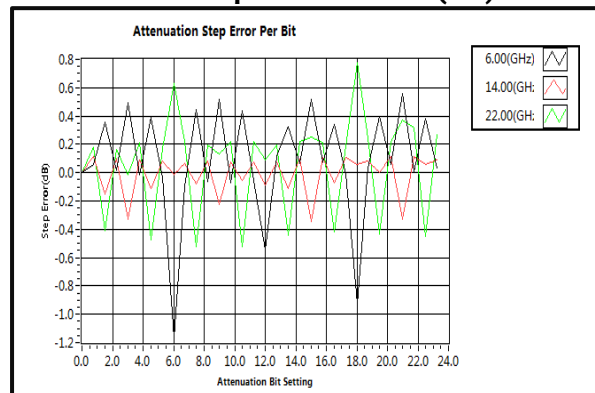
Attenuation vs. Frequency



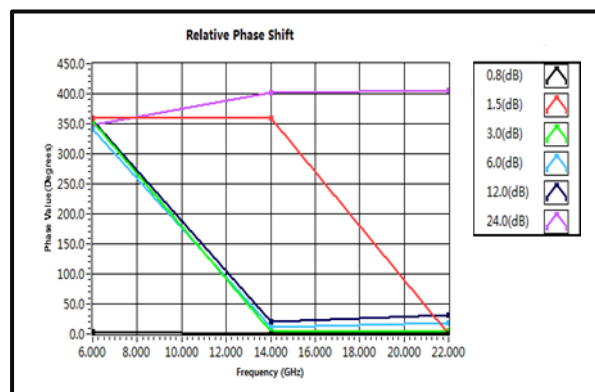
VSWR vs. Attenuation(S22)



Attenuation Step Error Per Bit (dB)



Relative Phase Shift



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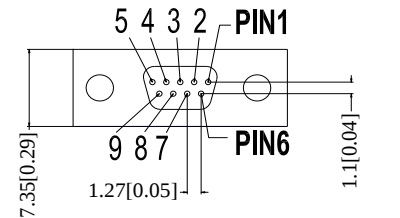
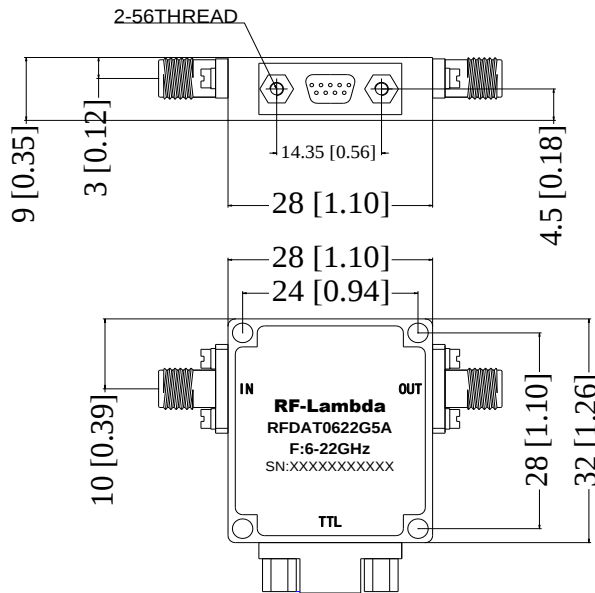
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Outline Drawing:

All Dimensions in mm [inches]



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

Truth Table

Control Voltage Input					Attenuation State
C5	C4	C3	C2	C1	
0	0	0	0	0	Reference IL
0	0	0	0	1	0.75dB
0	0	0	1	0	1.5dB
0	0	1	0	0	3dB
0	1	0	0	0	6dB
1	0	0	0	0	12dB
1	1	1	1	1	23.25dB



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