



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0015G6R

Absorptive Digital Control Attenuator 0.1 - 15GHz



Features

- Wide Band Operation 0.1-15GHz
- 0.5dB LSB Steps to 31.5dB

Typical Applications

- Wireless Infrastructure
- Test and Measurement
- Military and Aerospace

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

Description	PN: RFDAT0015G6R						
	Absorptive Digital Attenuator						
Parameter	Min	Typ	Max	Min	Typ	Max	Units
Frequency Range	0.1		5	5		15	GHz
Attenuation Range		31.5			31.5		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±2.0			±2.0		dB
Control Bits			6			6	Bit
Control Step Size	0.5			0.5			dB
Insertion Loss		3.5	4.0		5.0	5.5	dB
Insertion Loss Temperature Coefficient		0.005			0.005		dB/°C
Input VSWR (All States)		1.8	2.0		1.8	2.0	: 1
Output VSWR (All States)		1.8	2.0		1.8	2.0	: 1
Input 0.1dB Compression Point (Po.1dB)		23			23		dBm
Input IP3		40			38		dBm
Switching Speed	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						
Sealing	Hermetically Sealed (Optional)						

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Absolute Maximum Ratings

Biasing	+5V $\pm$ 10%
TTL Control Voltage	0~0.8V/2.8~5V
RF Input Power	+23dBm

Ordering Information

Part No.	ECCN	Description
RFDAT0015G6R	EAR99	0.1-15GHz 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 $\rightarrow$ 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)



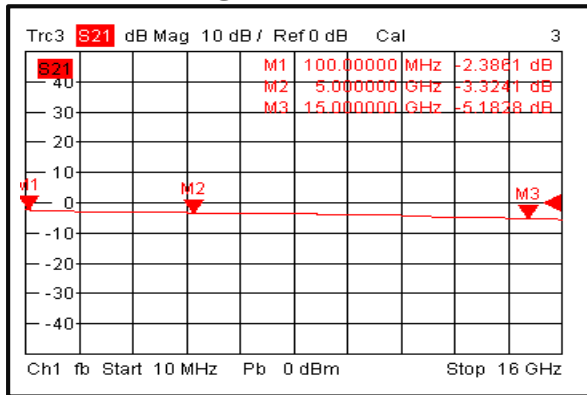
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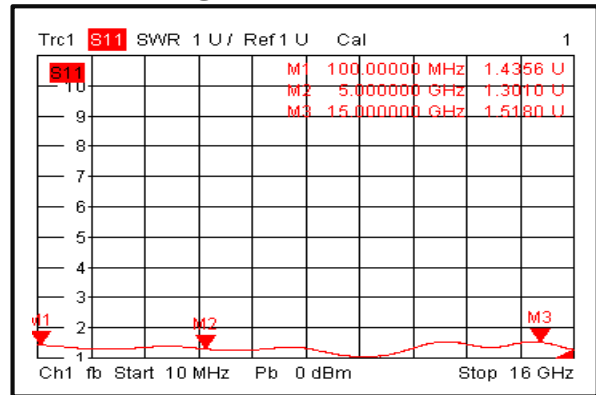
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Typical Performance Plots

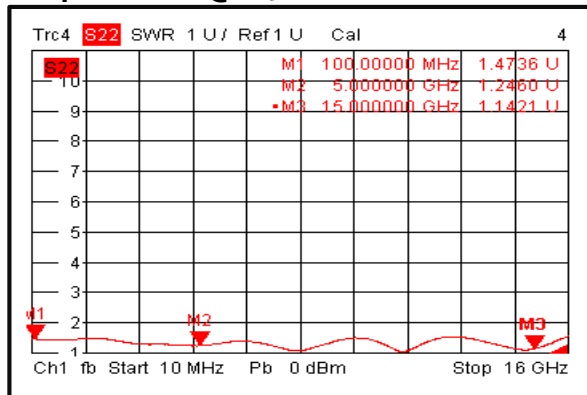
Insertion Loss @+25°C



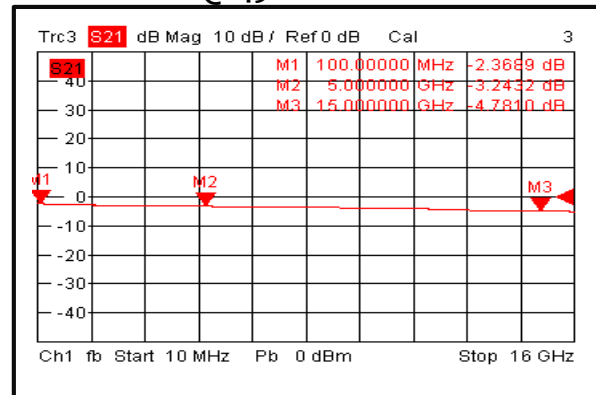
Input VSWR @+25°C



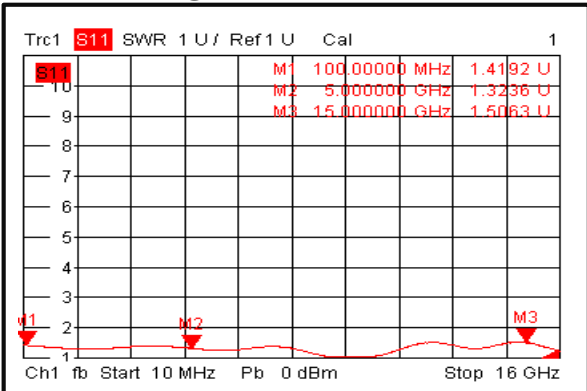
Output VSWR @+25°C



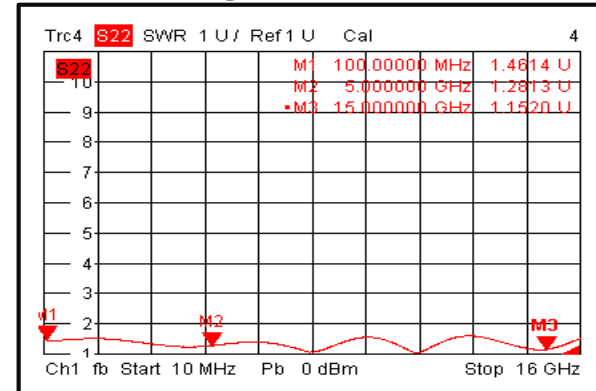
Insertion Loss @-45°C



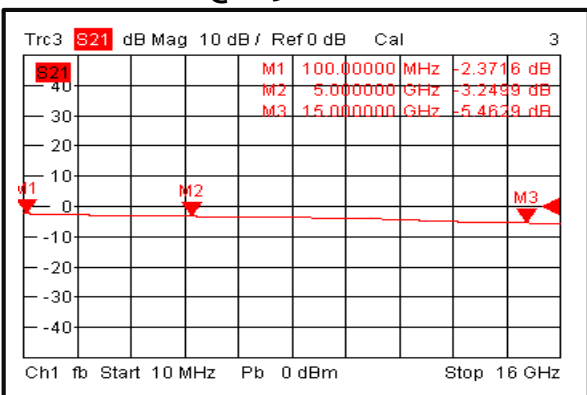
Input VSWR @-45°C



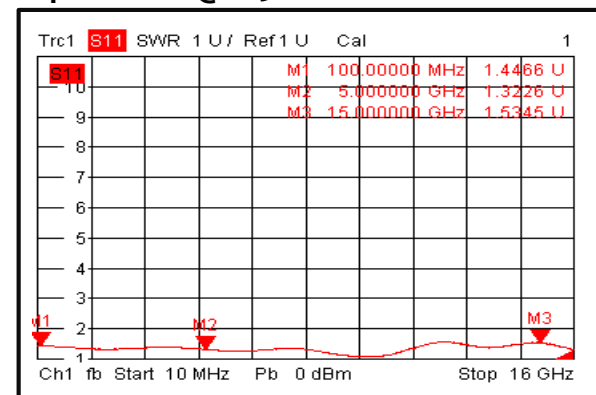
Output VSWR @-45°C



Insertion Loss @+85°C



Input VSWR @+85°C



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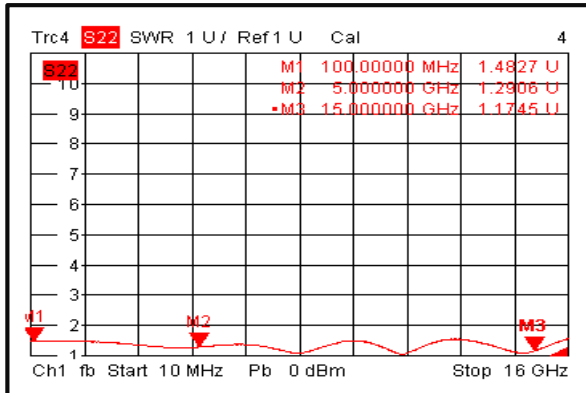


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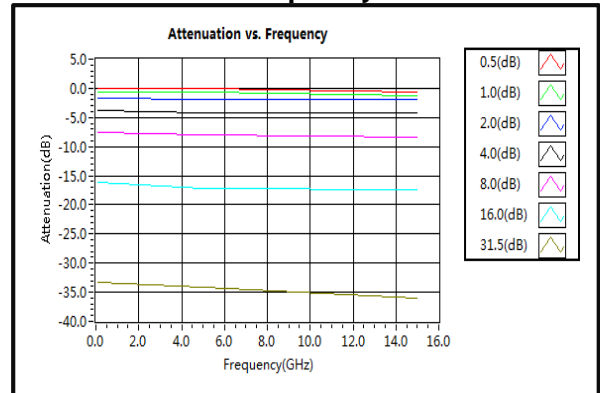
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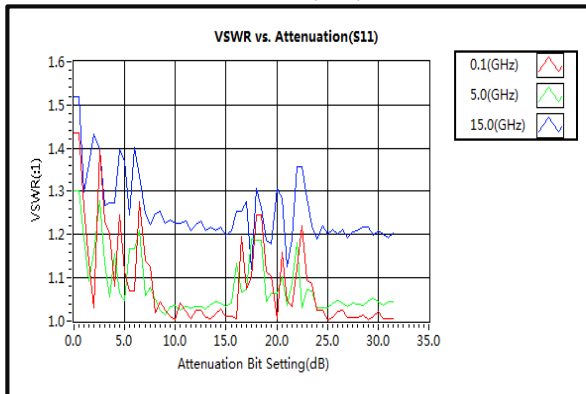
Output VSWR @+85°C



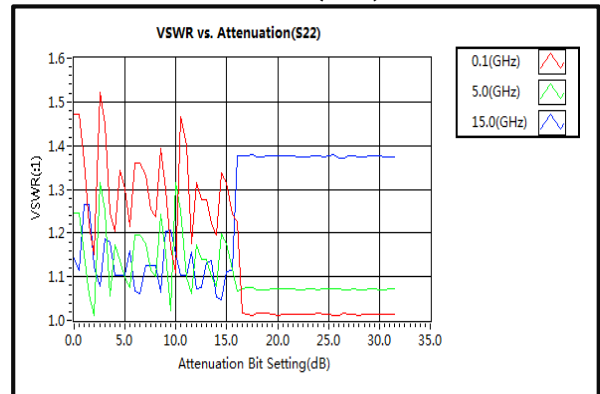
Attenuation vs. Frequency



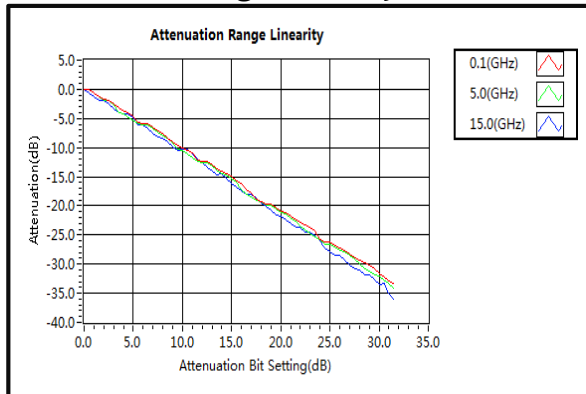
VSWR vs. Attenuation(S11)



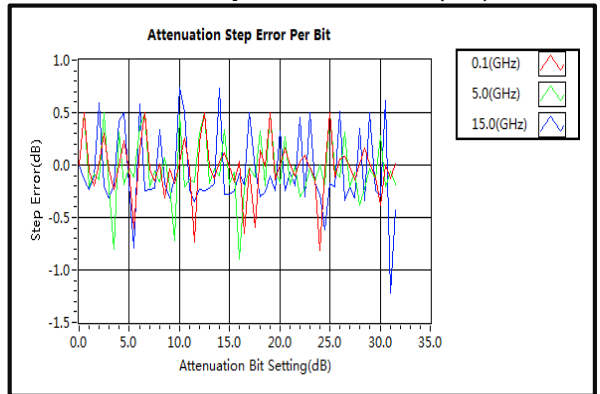
VSWR vs. Attenuation(S22)



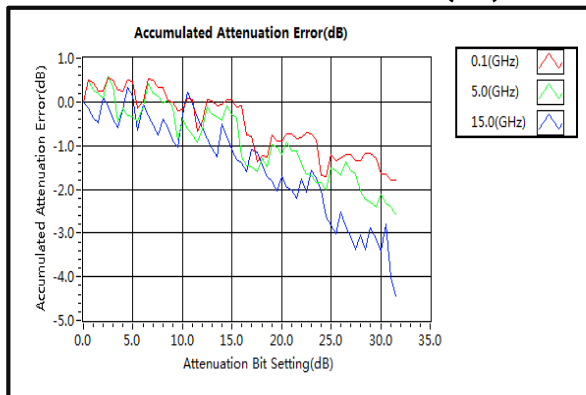
Attenuation Range Linearity



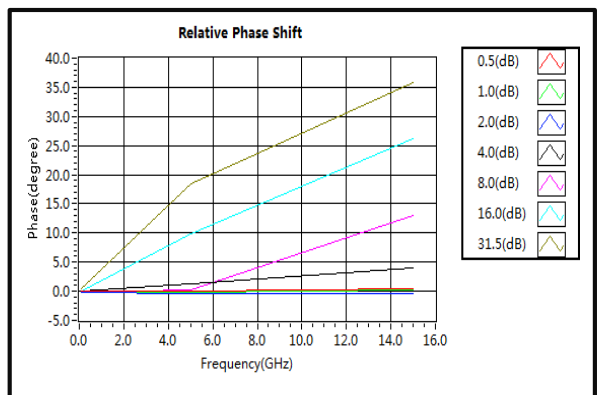
Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error(dB)



Relative Phase Shift

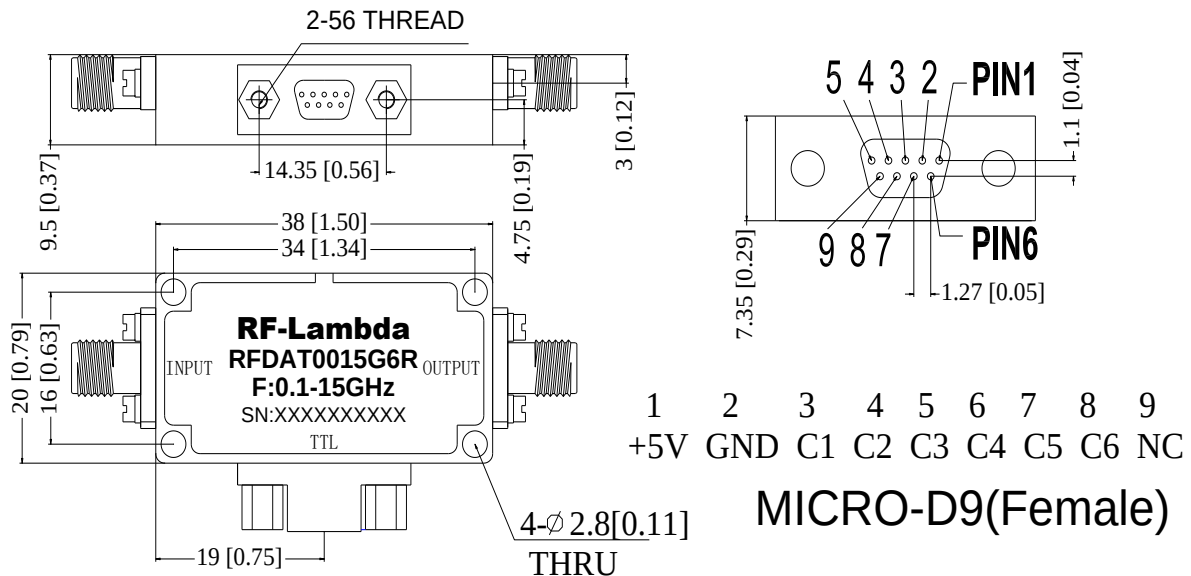


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Outline Drawing:

All Dimensions in mm [inches]



Truth Table

Control Voltage Input						Attenuation State
C6	C5	C4	C3	C2	C1	
0	0	0	0	0	0	Reference IL
0	0	0	0	0	1	0.5dB
0	0	0	0	1	0	1dB
0	0	0	1	0	0	2dB
0	0	1	0	0	0	4dB
0	1	0	0	0	0	8dB
1	0	0	0	0	0	16dB
1	1	1	1	1	1	31.5dB

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