



RF-LAMBDA

LEADER OF RF BROADBAND SOLUTIONS

RFDAT0204G6B

Absorptive Digital Control Attenuator 2-4GHz



Features

- Wide Band Operation 2-4GHz
- 0.5dB LSB Steps to 63dB
- Single Positive Control Line Per Bit

Typical Applications

- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement

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

Description	PN:RFDAT0204G6B			
	Absorptive Digital Attenuator			
Parameters	Min	Typ	Max	Units
Frequency Range	2		4	GHz
Attenuation Range		63		dB
Attenuation Flatness: (Referenced to Insertion Loss)		± 0.5		dB
Control Bits			6	Bit
Control Step size		1		dB
Insertion Loss		3.0	3.6	dB
Insertion Loss Temperature Coefficient		0.01		dB/ $^{\circ}\text{C}$
Input VSWR (All States)		1.4	1.5	: 1
Output VSWR (All States)		1.4	1.5	: 1
Input 0.1 dB Compression Point		30		dBm
IP3 Input		54		dBm
Switching Speed 50% CTRL* to 90% or 10%	100			ns
Weight	0.71			ounces
Impedance	50			Ω
Bias Current (+5V/-5V)	60/40			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±10%/-5V±10%
TTL Control Voltage	0~0.8V / 2.8~5V
RF Input Power	+30dBm

Ordering Information

Part No.	ECCN	Description
RFDAT0204G6B	EAR99	0.1-4GHz Digital Control Attenuator

Environmental Specifications and Test Standards

Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-40°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	MIL-STD-883	Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)
Hermetically Sealed (Optional)		MIL-STD-883 (For Hermetically Sealed Units)

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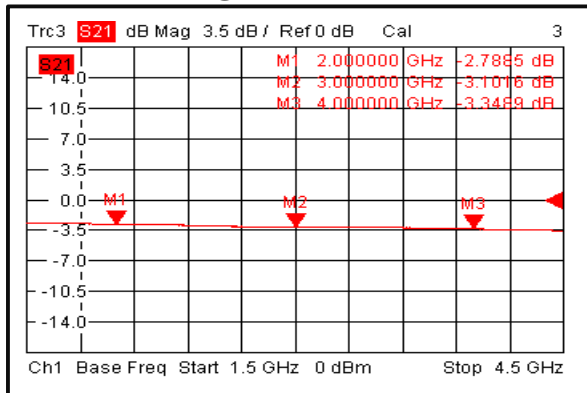
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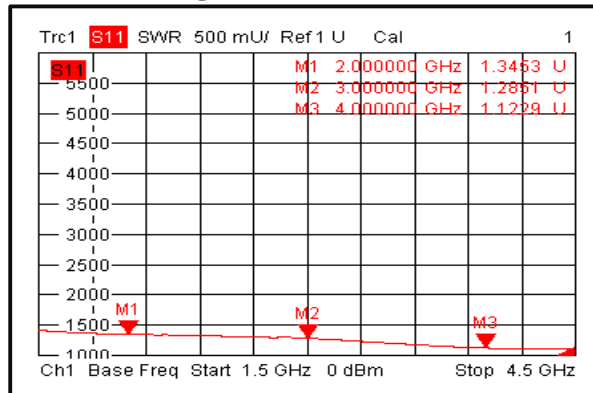
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Typical Performance Plots

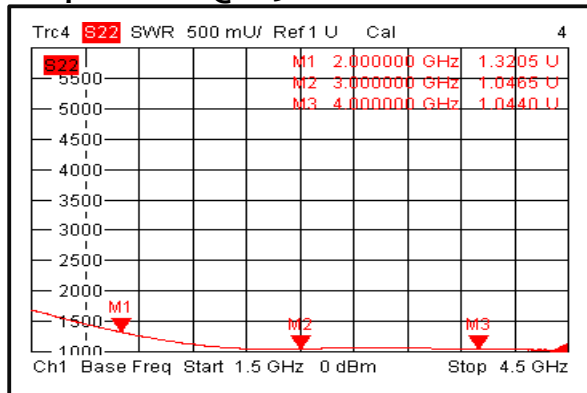
Insertion Loss @+25°C



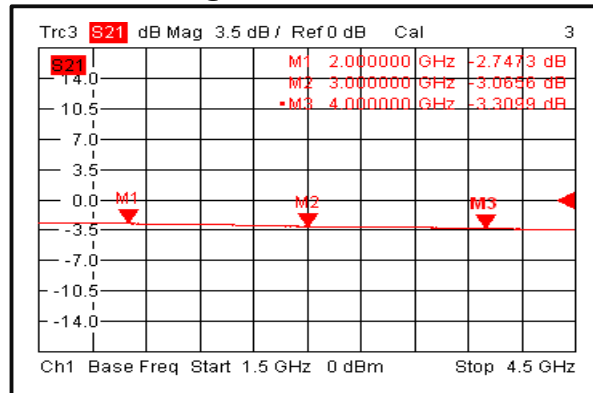
Input VSWR @+25°C



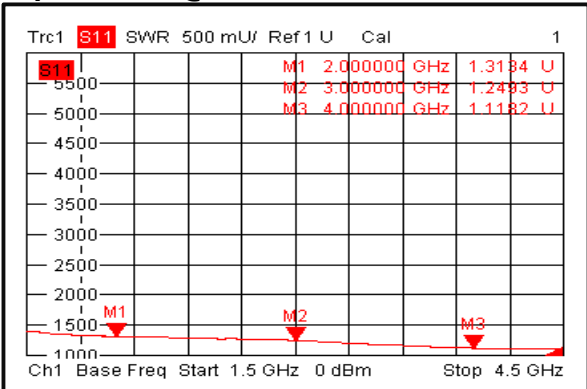
Output VSWR @+25°C



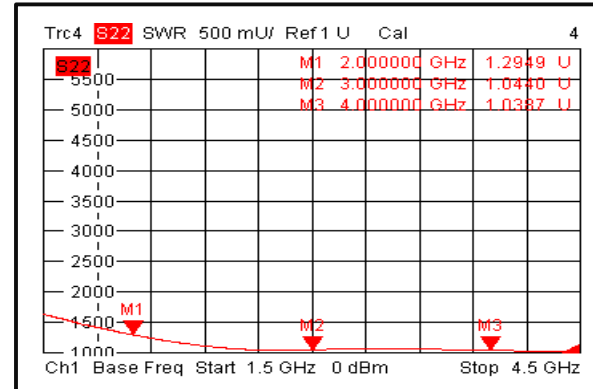
Insertion Loss @-45°C



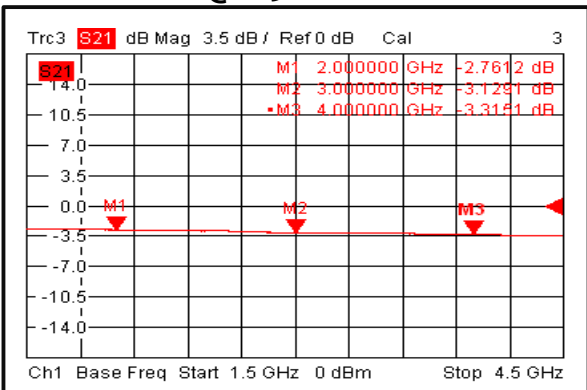
Input VSWR @-45°C



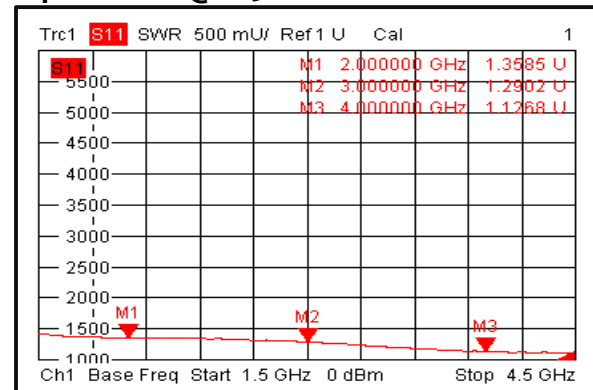
Output VSWR @-45°C



Insertion Loss @+85°C



Input VSWR @+85°C



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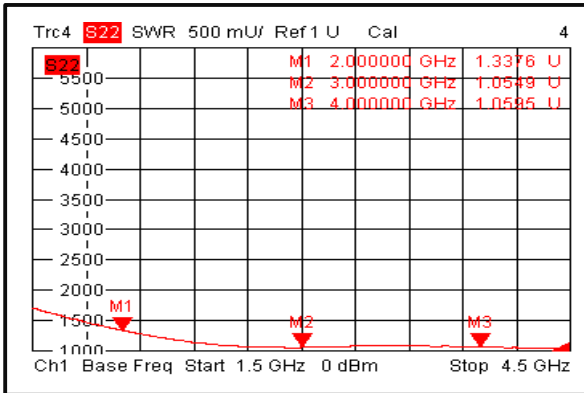
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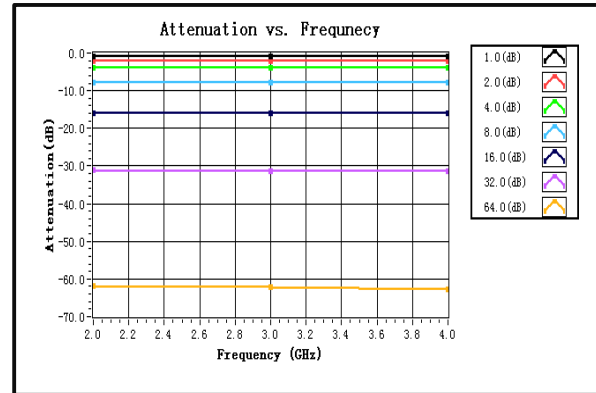
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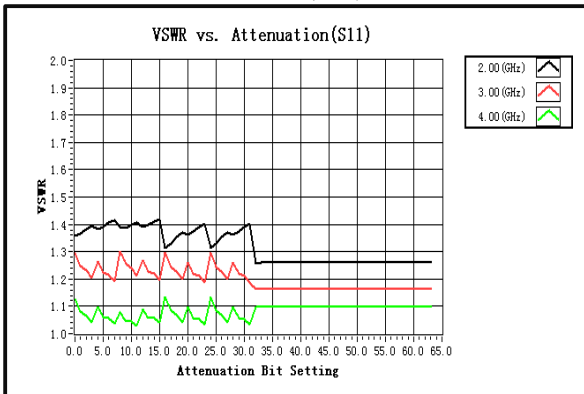
Output VSWR @+85°C



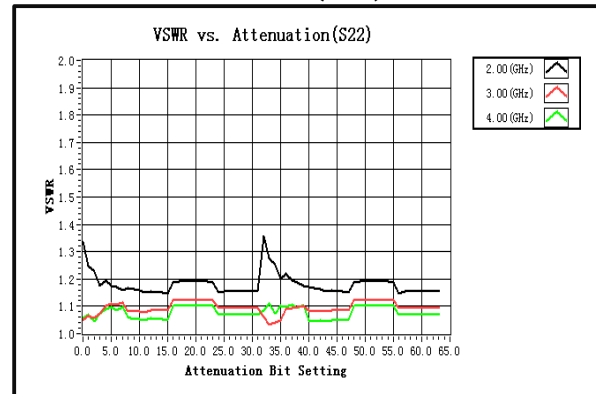
Attenuation vs. Frequency



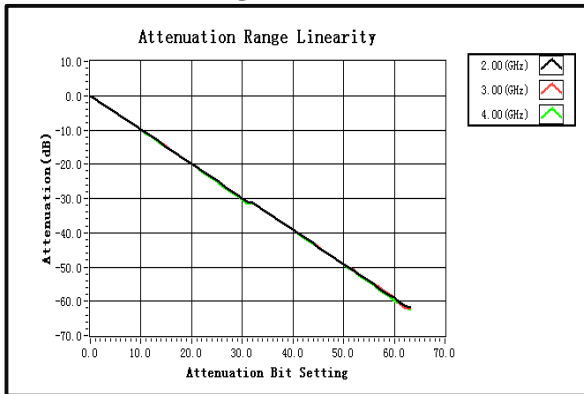
VSWR vs. Attenuation(S11)



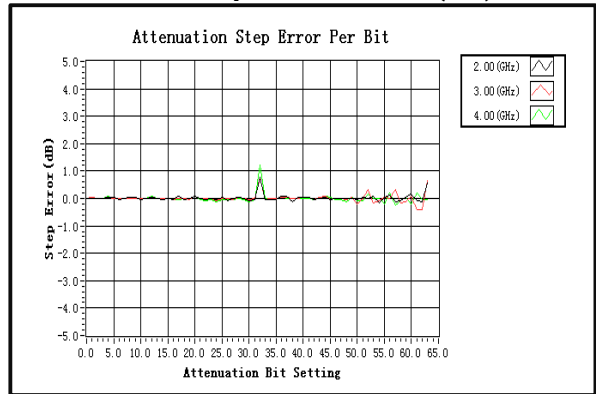
VSWR vs. Attenuation(S22)



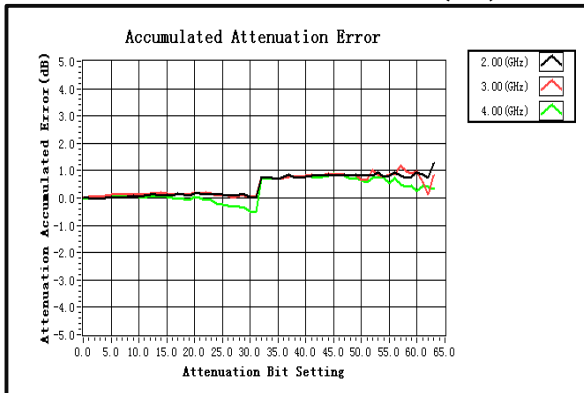
Attenuation Range Linearity



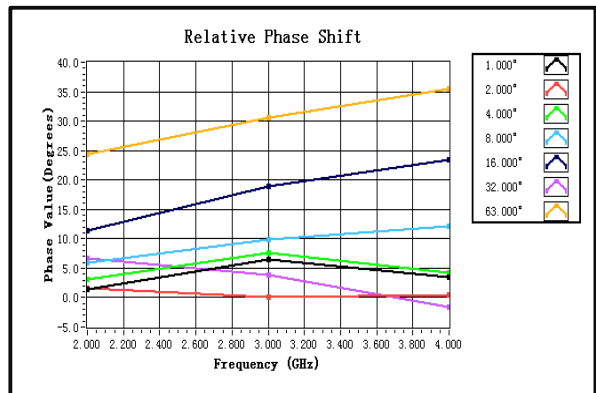
Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error(dB)



Relative Phase Shift



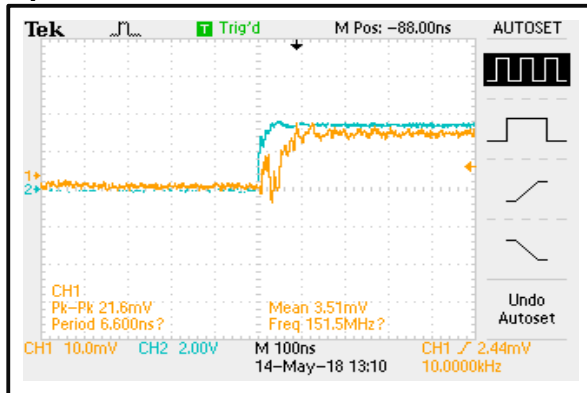


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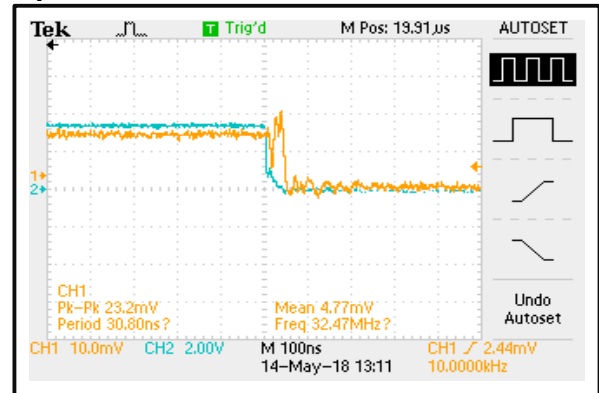
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Speed

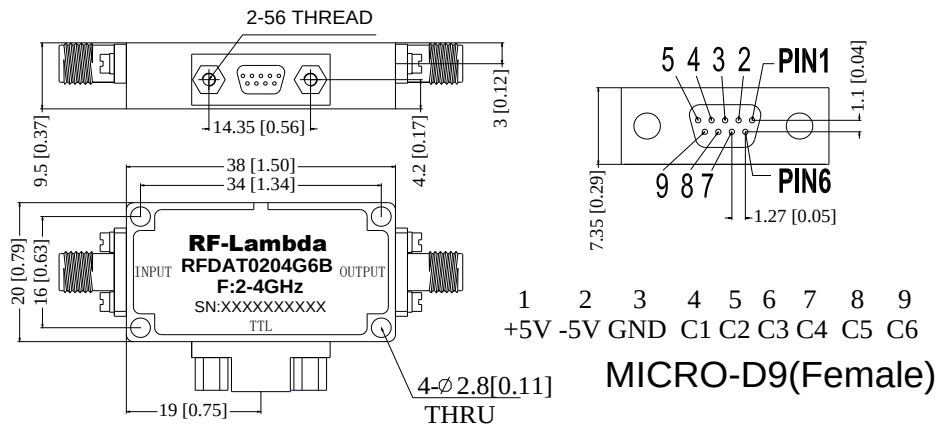


Speed



Outline Drawing:

All Dimensions in mm [inches]



Truth Table

Control Voltage Input						Attenuation State
C6	C5	C4	C3	C2	C1	Reference IL
1	1	1	1	1	1	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



ATTENTION
STATIC SENSITIVE DEVICES
HANDLE ONLY AT
STATIC SAFE WORK STATIONS

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