Absorptive Digital Control Attenuator
1 - 2GHz

RoHS Compliant

Features

- Wide Band Operation 1-2GHz
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit
- Customization available upon request

Typical Applications

- Wireless Infrastructure
- Military & Aerospace
- Test & Measurement

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

Description	PN: RFDAT0102G6A Absorptive Digital Attenuator			
Parameters	Min	Typ.	Max	Units
Frequency Range	1		2	GHz
Attenuation Range		63		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±1.0	±2.0	dB
Control Bits			6	Bit
Control Step size	1			dB
Insertion Loss		2	2.5	dB
Insertion Loss Temperature Coefficient		0.003		dB/°C
Input VSWR (All Atten. States)			1.5	: 1
Output VSWR (All Atten. States)			1.5	: 1
Input 0.1 dB Compression Point (P0.1dB)	27			dBm
IP3 Input	45			dBm
Switching Speed	100			ns
Weight	0.71			ounces
Impedance	50			Ω
Bias Current (+5V/-5V)	150/80			mA
Input /Output Connectors	SMA-Female			
Interface and control connertor	MICRO-D9 (Female)			
Finish	Gold Plated			
Material	Aluminum			
Sealing	Hermetically Sealed (Optional)			

Absolute Maximum Ratings

Biasing	+5V±10%/-5V±10%
TTL Control Voltage	0~0.8V/2~5V
RF Input Power	+27dBm

Ordering Information

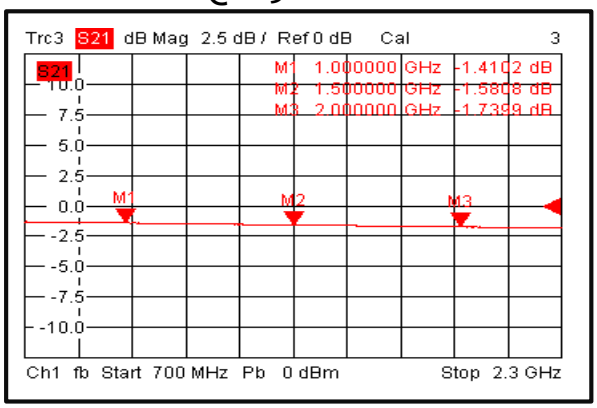
Part No.	ECCN	Description
RFDAT0102G6A	EAR99	1-2GHz Digital Control Attenuator

Environmental Specifications and Test Standards

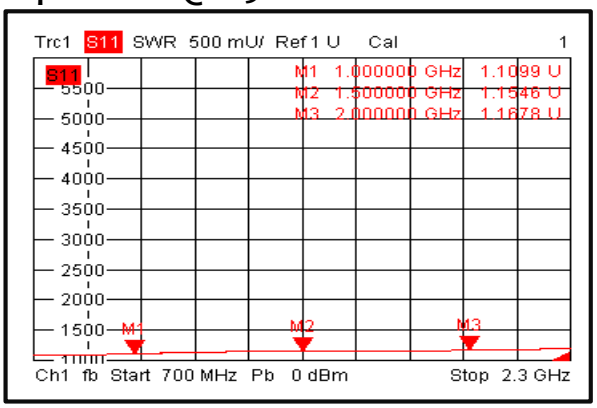
Parameter	Standard	Description
Operational Temperature	MIL-STD-39016	-45℃~+85℃
Storage Temperature		-55℃~+125℃
Thermal Shock		1 Hour@ -45℃ → 1 Hour @ +85℃ (5 Cycles)
Random Vibration		Acceleration Spectral Density 6 (m/s) Total 92.6 RMS
Electrical & Temperature Burn In		Temperature +85℃ for 72 Hours
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)

Typical Performance Plots

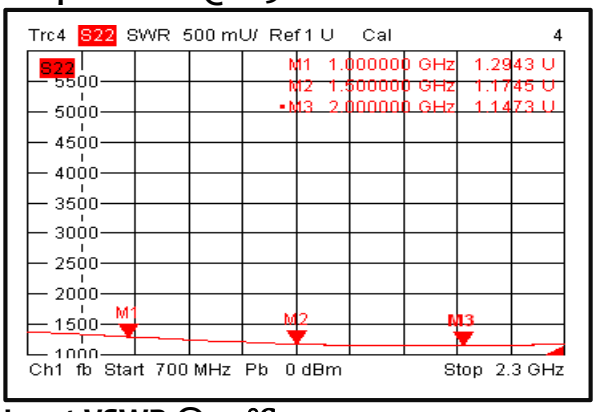
Insertion Loss @+25℃



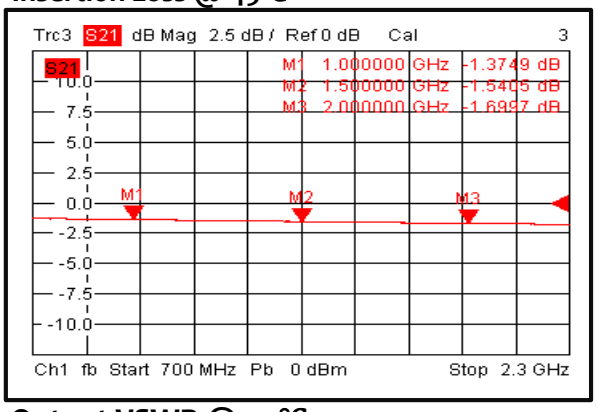
Input VSWR @+25℃



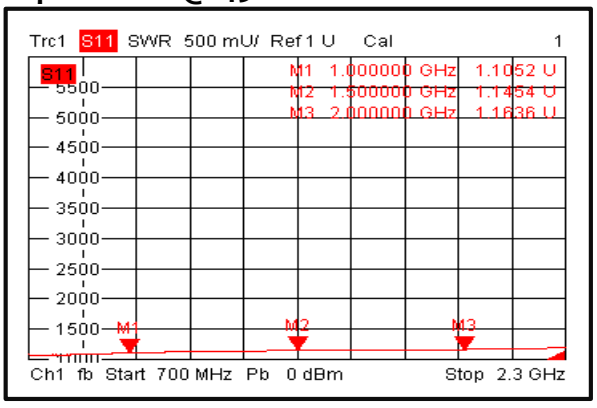
Output VSWR @+25℃



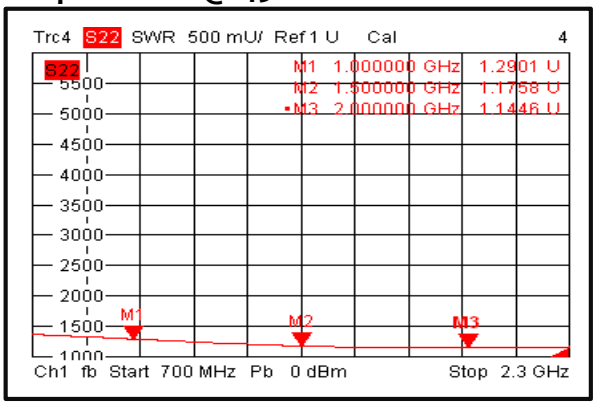
Insertion Loss @-45℃



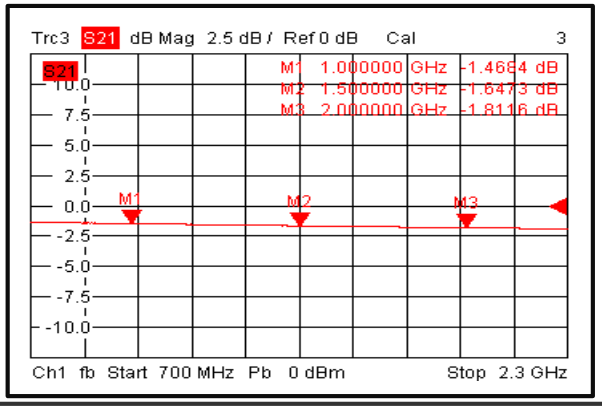
Input VSWR @-45℃



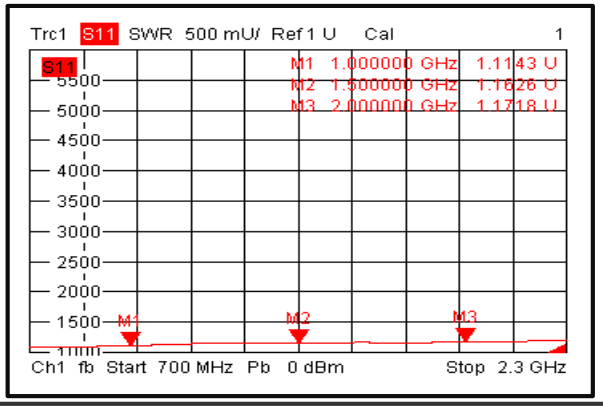
Output VSWR @-45℃



Insertion Loss @+85℃



Input VSWR @+85℃



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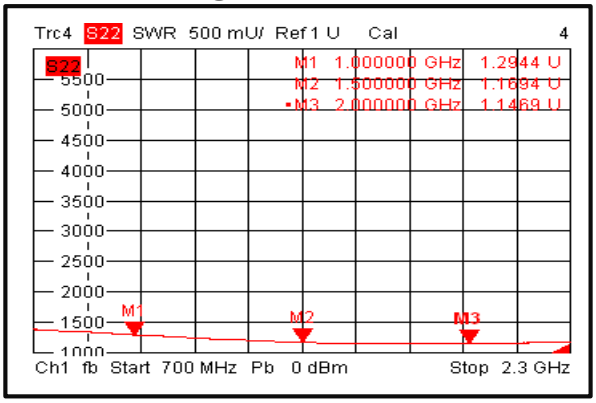
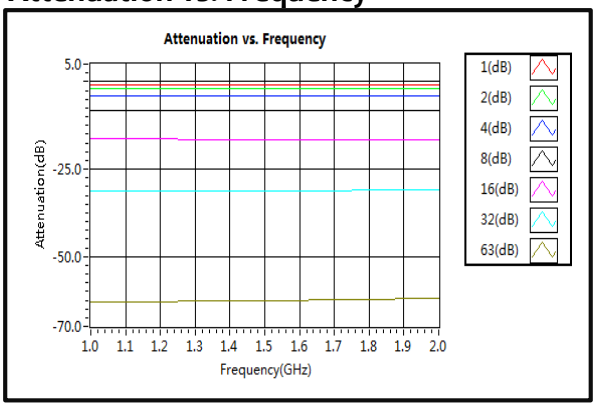
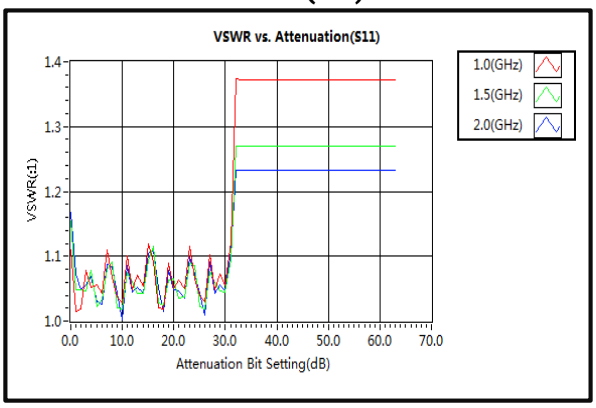
Output VSWR @+85℃



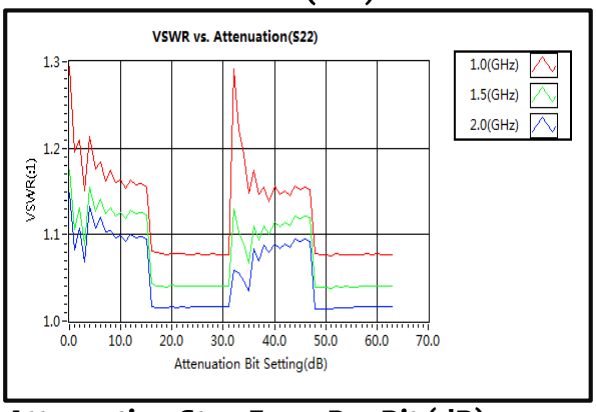
Attenuation vs. Frequency



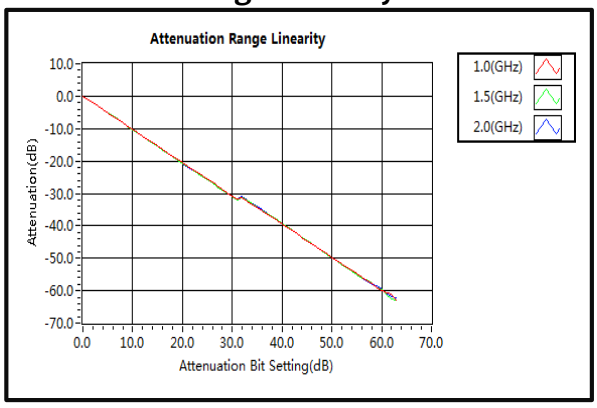
VSWR vs. Attenuation(S11)



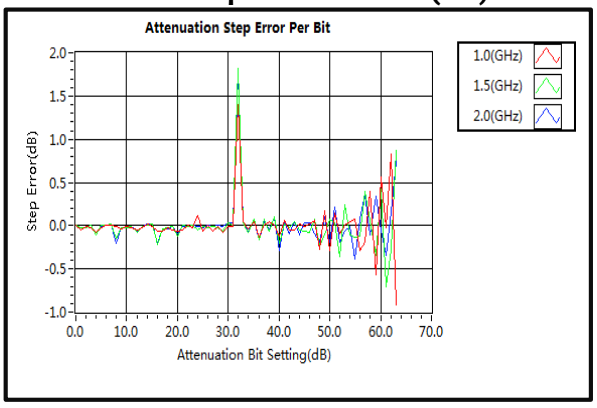
VSWR vs. Attenuation(S22)



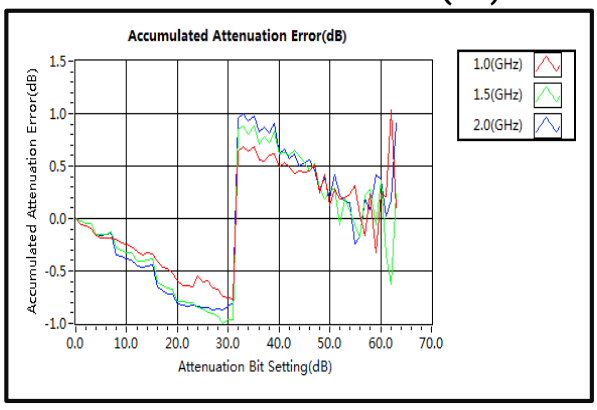
Attenuation Range Linearity



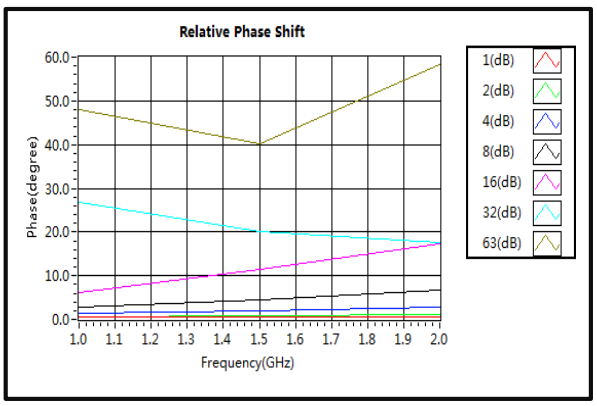
Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error(dB)



Relative Phase Shift



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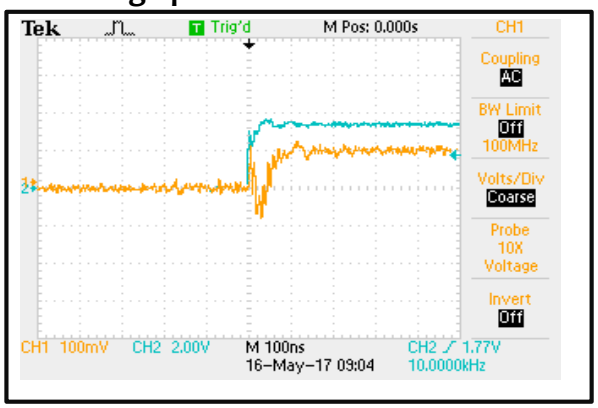
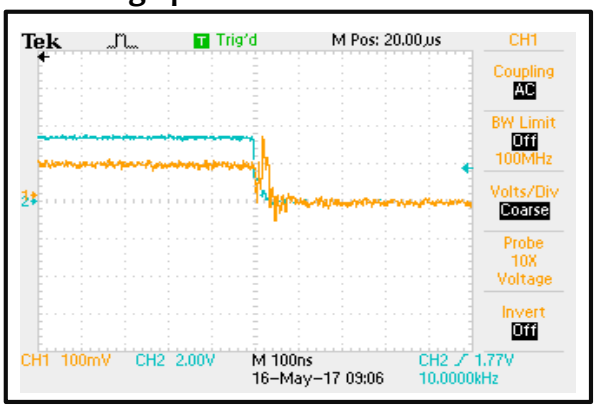
Switching Speed

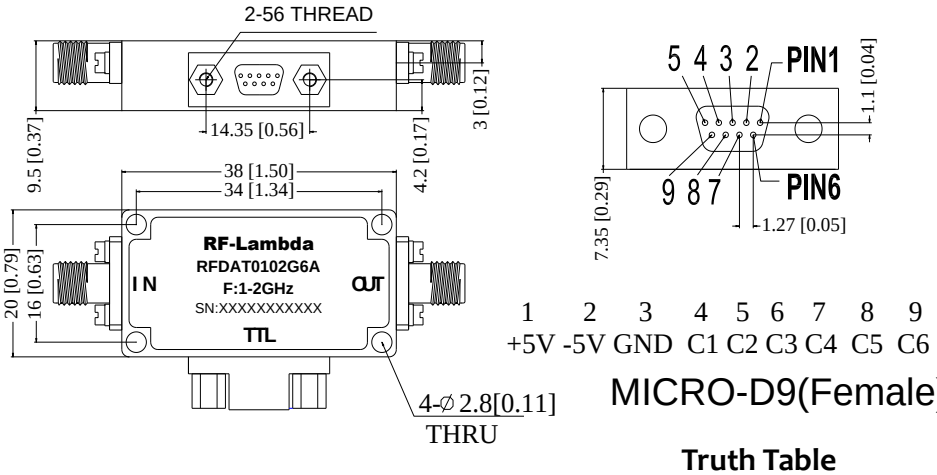


Switching Speed



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	1dB
0	0	0	0	1	0	2dB
0	0	0	1	0	0	4dB
0	0	1	0	0	0	8dB
0	1	0	0	0	0	16dB
1	0	0	0	0	0	32dB
1	1	1	1	1	1	63dB