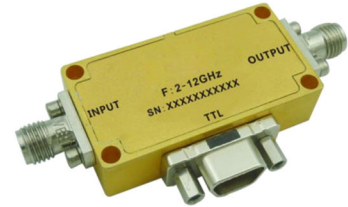




Absorptive Digital Control Attenuator 2 - 12GHz

Features

- Wide Band Operation 2-12GHz
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	2		4	4		8	8		12	GHz
Attenuation Range			63			63			63	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±2.0			±2.0			±2.0		dB
Control Bits			6			6			6	Bit
Control Step size	1			1			1			dB
Insertion Loss		4.5	5		4.5	5.8		5.5	7	dB
Insertion Loss Temperature Coefficient		0.005			0.005			0.005		dB/ °C
Input VSWR (All States)		1.7	2.2		1.6	2.2		1.5	1.8	: 1
Output VSWR (All States)		1.7	2.2		1.6	2.2		1.5	1.8	: 1
Input 0.1 dB Compression Point (P0.1dB)	27									dBm
Input IP3	45									dBm
Switching Speed	150									ns
Weight	0.71									Ounces
Impedance	50									Ω
Bias Current (+5V/-5V)	50/50									mA
Input / Output Connectors	SMA - Female									
Interface and Control Connector	MICRO-D9-Female									
Finish	Gold Plated									
Material	Aluminum									
Sealing	Hermetically Sealed (Optional)									



Absolute Maximum Ratings

Biasing	+5v / -5v ± 10%
TTL Control Voltage	0~0.8V/2.8~5V
RF Input Power	+27dBm

Ordering Information

Part No.	Description
DBDA0602001200A	2-12GHz Digital Control Attenuator

Environmental Specifications

Operational Temperature	-40°C~+85°C
Storage Temperature	-50°C~+105°C
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degrees 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35°C, 95%RH at 40°C
Shock	20G for 11msec half sine wave, 3 axis both directions

Outline Drawing:

All Dimensions in mm (inches)

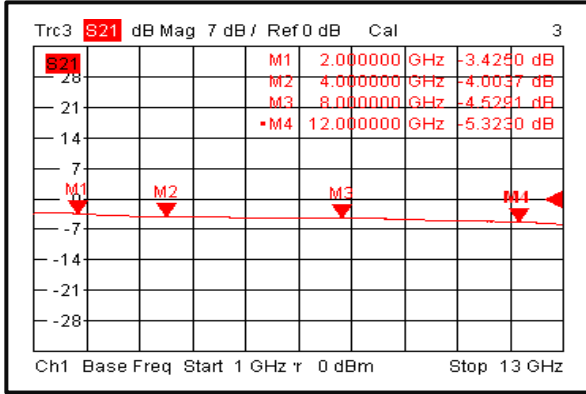
The drawing shows the physical dimensions of the attenuator. Key dimensions include: 2-56 THREAD mounting holes, 14.35 [0.56] distance between mounting holes, 3 [0.12] distance from mounting hole to edge, 9.5 [0.37] distance from input connector to center, 38 [1.50] and 34 [1.34] distances from center to output connector, 4.2 [0.17] distance from output connector to edge, 20 [0.79] and 16 [0.63] distances from input connector to edge, 19 [0.75] distance between TTL pins, and 4-Ø 2.8 [0.11] THRU holes. The top view shows a MICRO-D9(Female) connector with pins labeled PIN1 (pin 2), PIN6 (pin 9), and pins 1-9. Pin 1 is +5V, pin 2 is -5V, pin 3 is GND, pins 4-6 are C1-C3, and pins 7-9 are C4-C6.

MICRO-D9(Female)
Truth Table

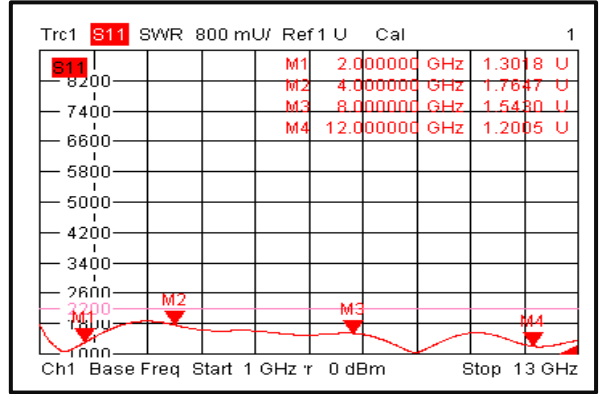
Control Voltage Input						Attenuation State
C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	Reference IL
1	1	1	1	1	0	1dB
1	1	1	1	0	1	2dB
1	1	1	0	1	1	4dB
1	1	0	1	1	1	8dB
1	0	1	1	1	1	16dB
0	1	1	1	1	1	32dB
0	0	0	0	0	0	63dB



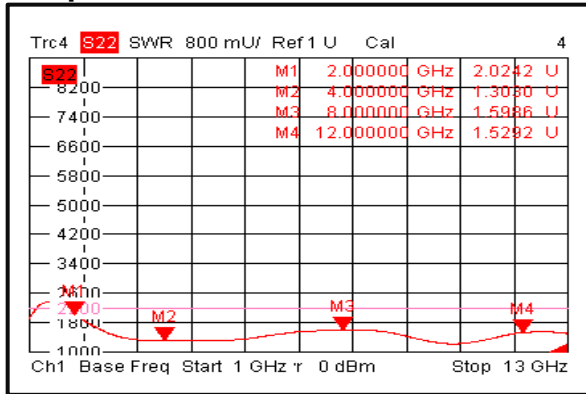
Insertion Loss @+25°C



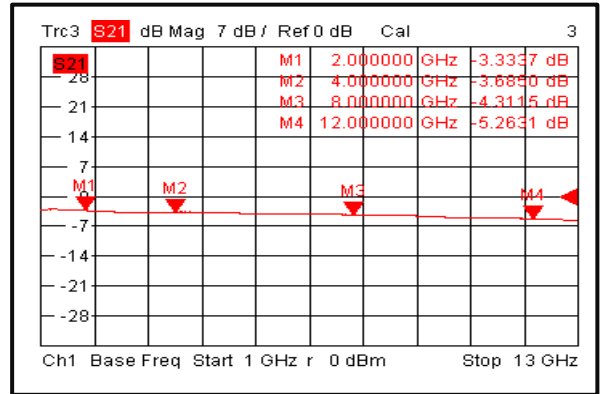
Input VSWR @+25°C



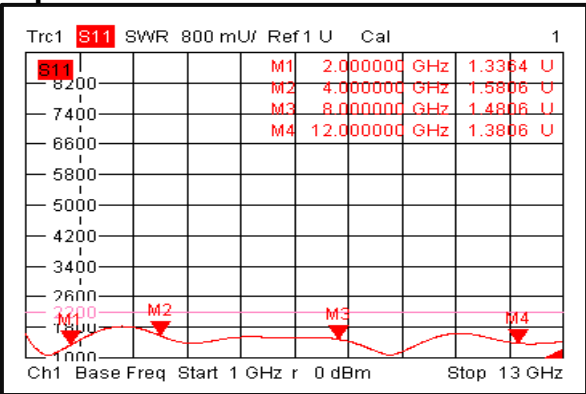
Output VSWR @+25°C



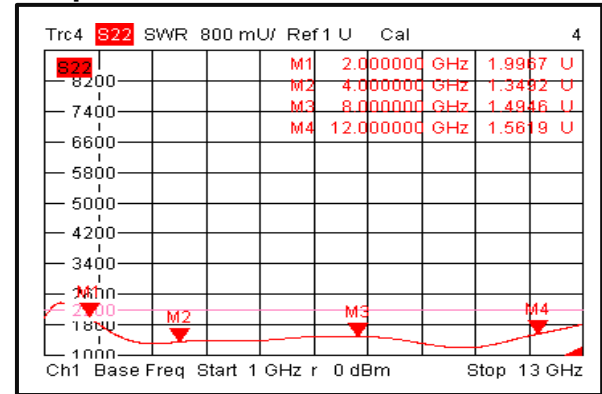
Insertion Loss @-40°C



Input VSWR @-40°C

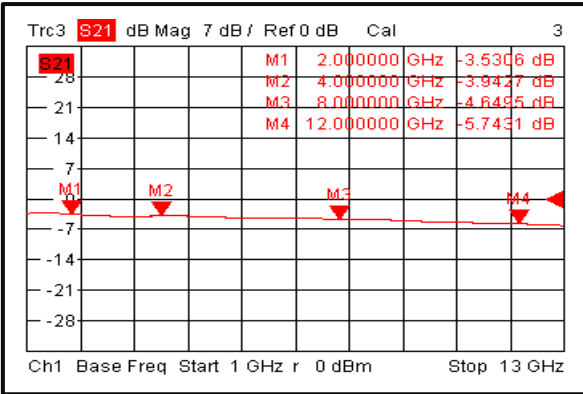


Output VSWR @-40°C

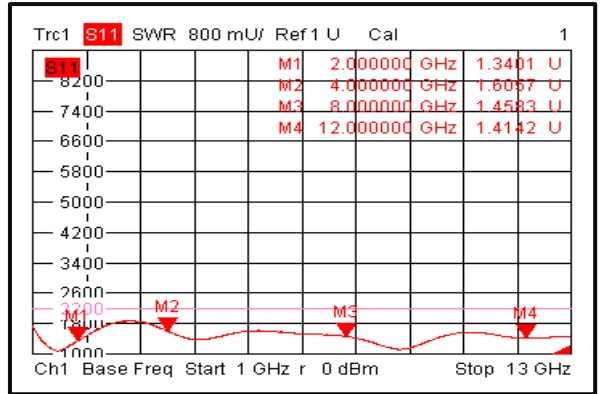




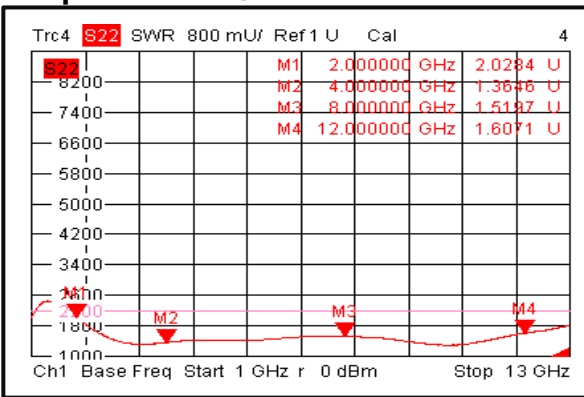
Insertion Loss @+85°C



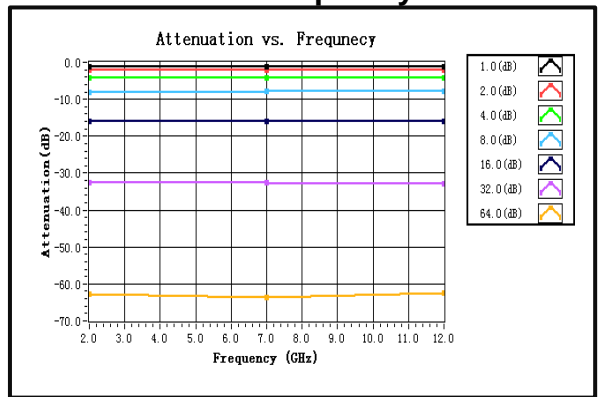
Input VSWR @+85°C



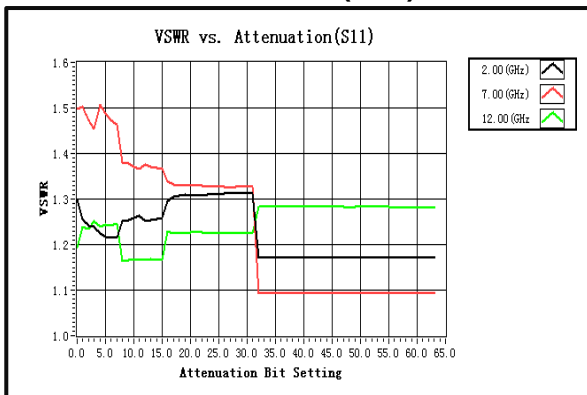
Output VSWR @+85°C



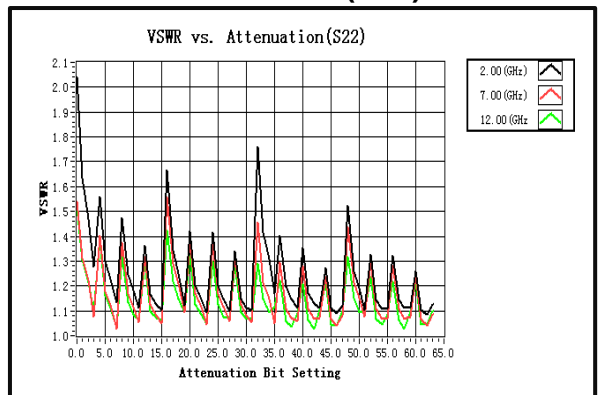
Attenuation vs. Frequency



VSWR vs. Attenuation(S11)

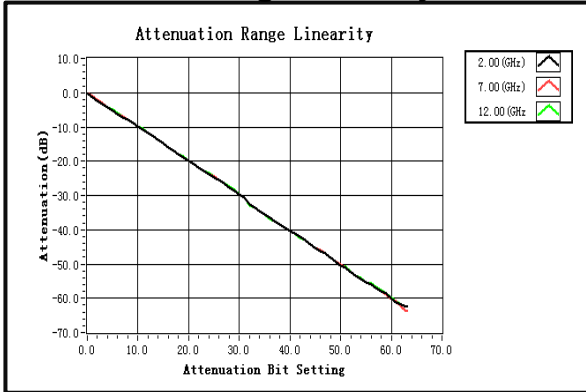


VSWR vs. Attenuation(S22)

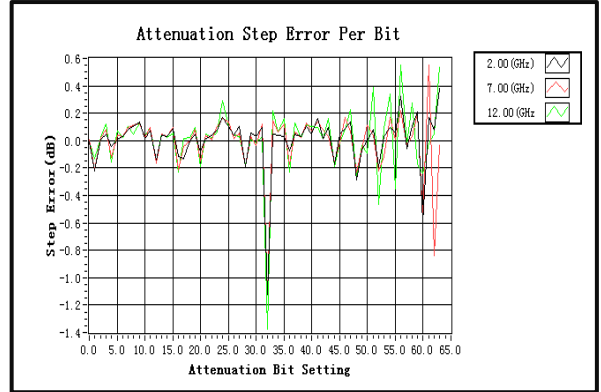




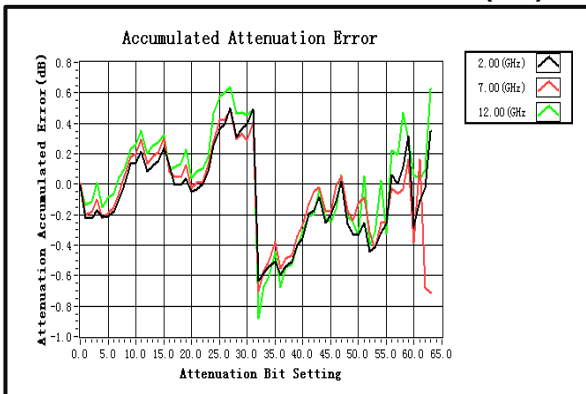
Attenuation Range Linearity



Attenuation Step Error Per Bit (dB)



Accumulated Attenuation Error (dB)



Relative Phase Shift

