



# Absorptive Digital Control Attenuator 0.1-2.5GHz

## Features

- Wide Band Operation 0.1-2.5GHz
- 0.5dB LSB Steps to 127.5dB
- Single Positive Control Line Per Bit
- Customization available upon



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1-2.5		2.5-3.2				GHz
Attenuation Range			127.5			127.5	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±1.5			±1.5		dB
Control Bits			8			8	Bit
Control Step size	0.5			0.5			dB
Insertion Loss		7	7.5		7.8	8.5	dB
Insertion Loss Temperature Coefficient		0.005			0.005		dB/ °C
Input VSWR (All States)		1.5	1.9		1.5	1.8	: 1
Output VSWR (All States)		1.5	1.9		1.5	1.8	: 1
Input 0.1 dB Compression Point (P0.1dB)		30			30		dBm
Input IP3		50			48		dBm
Switching Speed	100						ns
Weight	1.76						ounces
Impedance	50						Ω
Bias Current (+5V)	50						mA
Input / Output Connectors	SMA - Female						
Interface and Control Connector	MICRO-D15(Female)						
Finish	Nickel Plated						
Material	Aluminum						
Sealing	Hermetically Sealed (Optional)						



### Absolute Maximum Ratings

Biasing	+5V±10%
TTL Control Voltage	0~0.8V / 2~5V
RF Input power	+28dBm

### Ordering Information

Part No.	Description
DBDA0800100250A	0.1-2.5GHz 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)

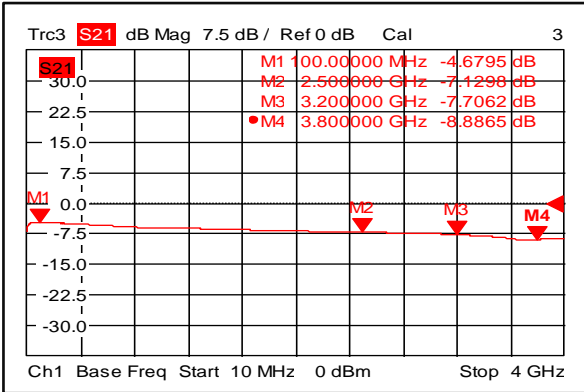
The drawing includes three views: a top view showing the IN, TTL, and OUT ports with dimensions like 63 [2.48] and 49 [1.93]; a side view showing the 2-56 THREAD and 4-Ø2.8 [0.11] THRU holes; and a pin configuration view for the MICRO-D15(Female) connector with pins labeled C8, C7, C6, C5, C4, C3, C2, C1, GND, +5V, PIN1, GND, C8, C7, C6, and PIN15, with a 1.27 [0.05] pitch.

### TruthTable

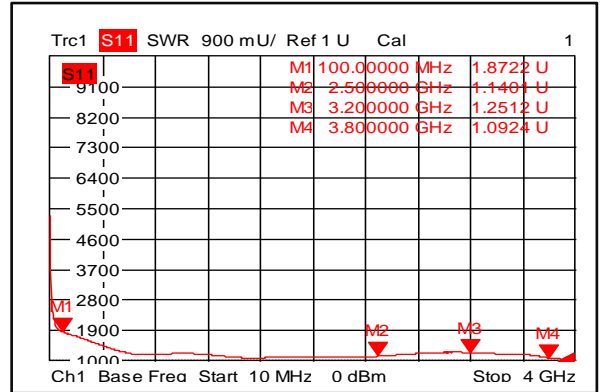
Control Voltage Input								Attenuation state
C8	C7	C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	1	1	Reference IL
1	1	1	1	1	1	1	0	0.5dB
1	1	1	1	1	1	0	1	1dB
1	1	1	1	1	0	1	1	2dB
1	1	1	1	0	1	1	1	4dB
1	1	1	0	1	1	1	1	8dB
1	1	0	1	1	1	1	1	16dB
1	0	1	1	1	1	1	1	32dB
0	1	1	1	1	1	1	1	64dB
0	0	0	0	0	0	0	0	127.5dB



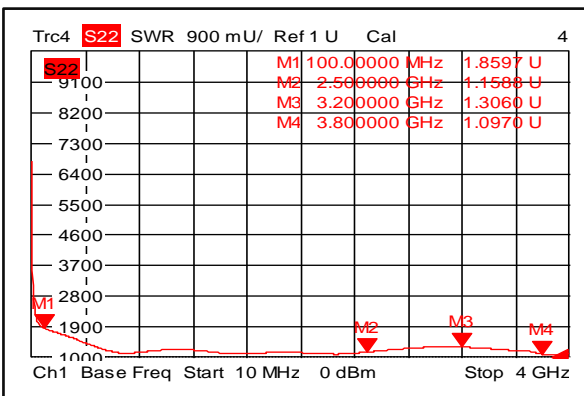
### Insertion Loss @+25°C



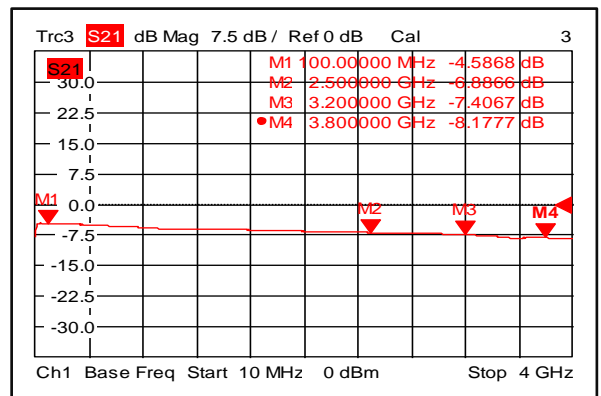
### Input VSWR @+25°C



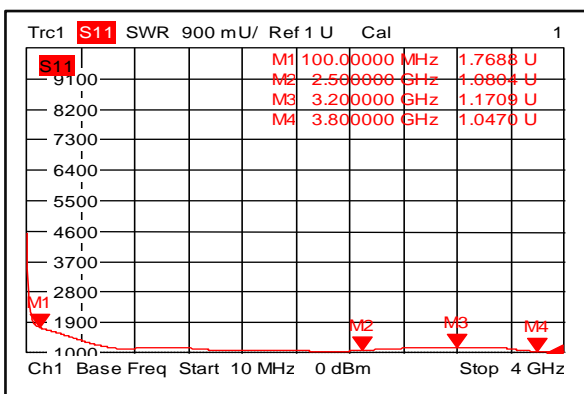
### Output VSWR @+25°C



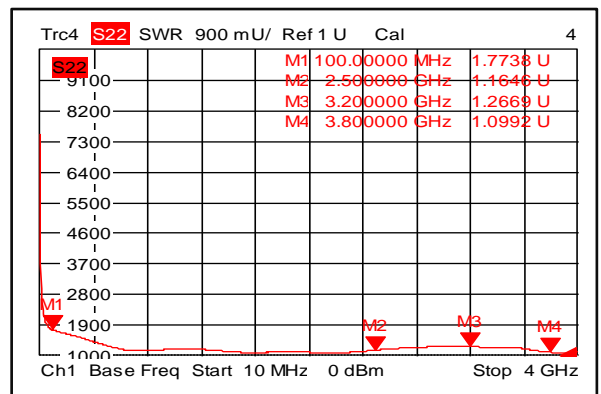
### Insertion Loss @-40°C



### Input VSWR @-40°C

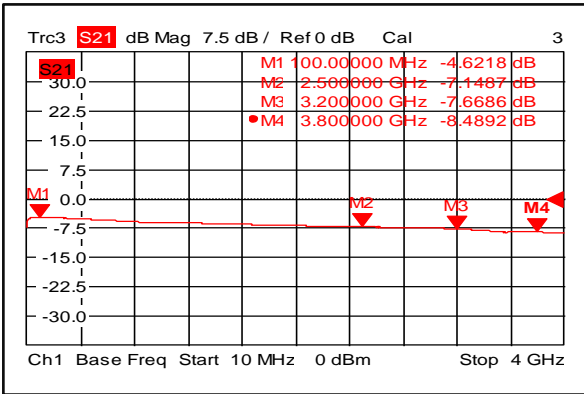


### Output VSWR @-40°C

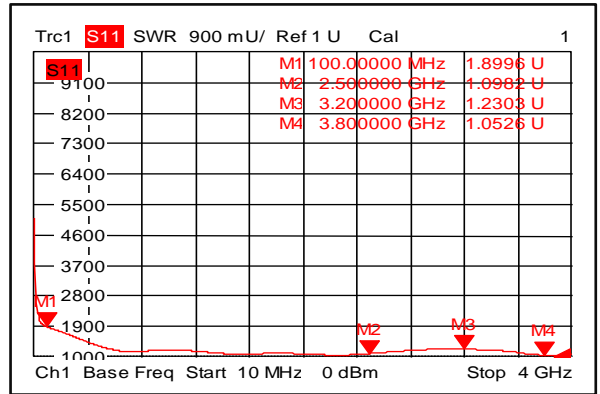




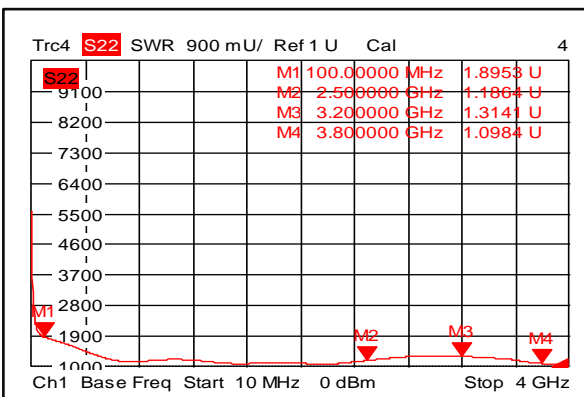
### Insertion Loss @+85°C



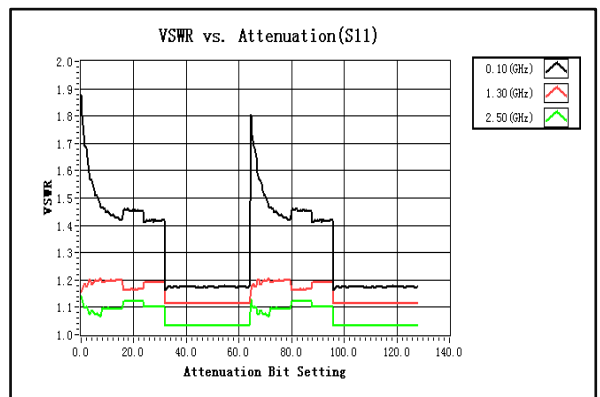
### Input VSWR @+85°C



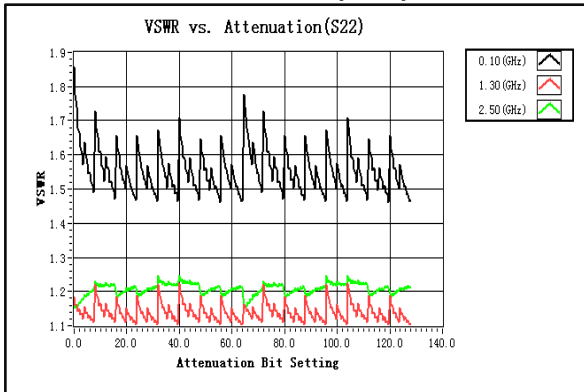
### Output VSWR @+85°C



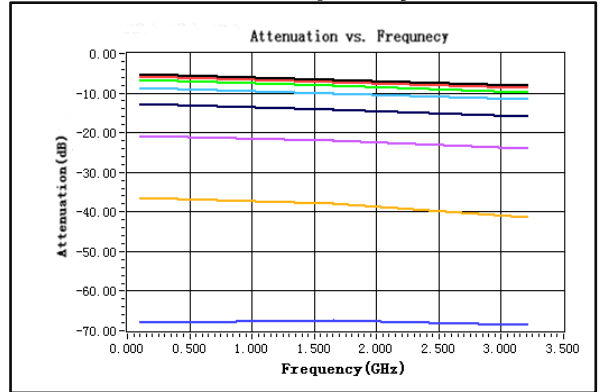
### VSWR vs. Attenuation(S11)



### VSWR vs. Attenuation(S22)

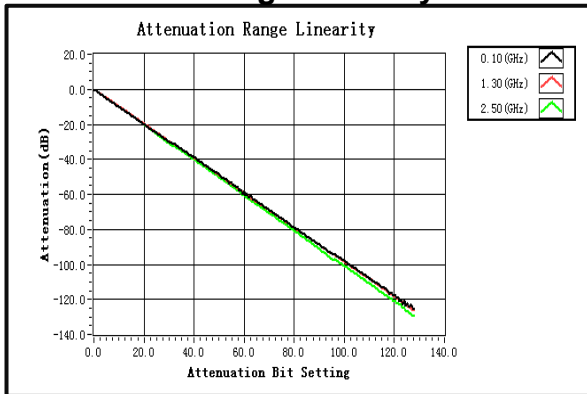


### Attenuation vs. Frequency

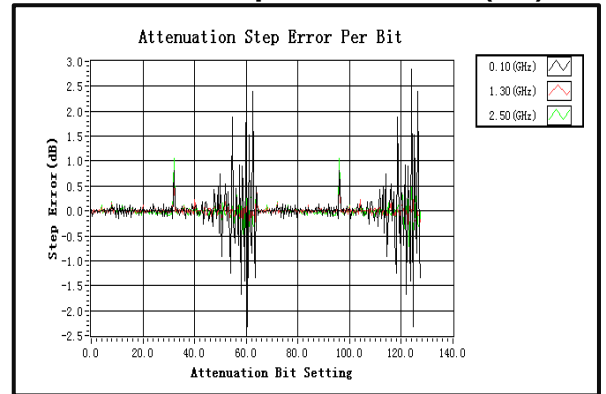




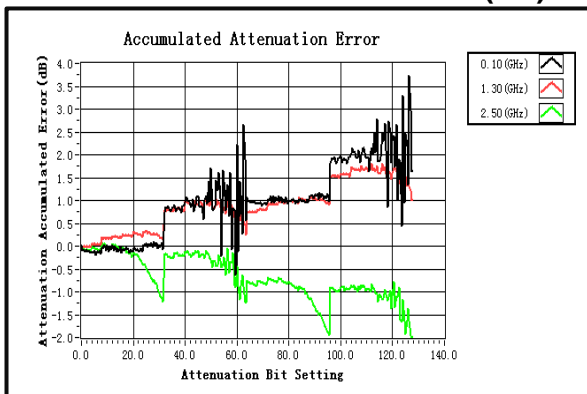
### Attenuation Range Linearity



### Attenuation Step Error Per Bit (dB)



### Accumulated Attenuation Error (dB)



### Relative Phase Shift

