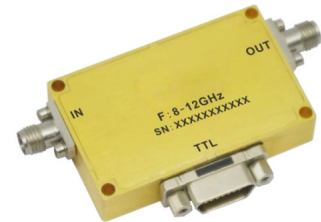




# Absorptive Digital Control Attenuator 8-12GHz

## Features

- Wide Band Operation 8-12GHz
- 0.5dB LSB Steps to 127dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min	Typ.	Max	Units
Frequency Range		8 - 12		GHz
Attenuation Range			127	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±3.0		dB
Control Bits			8	Bit
Control Step size		0.5		dB
Insertion Loss		6.8	7	dB
Insertion Loss Temperature Coefficient		0.01		dB/ °C
Input VSWR (All Atten. States)		1.5	1.7	: 1
Output VSWR (All Atten. States)		1.5	1.7	: 1
Input 0.1 dB Compression Point		25		dBm
IP3 Input		50		dBm
Switching Speed		100		ns
Weight		1.41		Ounces
Impedance		50		Ω
Bias Current ( +5V / -5V )		140 / 140		mA
Input / Output Connectors		SMA - Female		
Interface and Control Connector		MICRO- D15(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

### Ordering Information

Part No.	Description
DBDA0808001200B	8-12GHz 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. The top view includes dimensions for the control pins (1.27 mm), the main body (7.35 mm), and the input/output connectors (4.5 mm, 10 mm, 7 mm). The side view shows the height (20 mm) and the distance from the bottom to the control pins (26 mm). The pin configuration is detailed as follows:

- PIN1: +5V
- C5, C4, C3, C2, C1: Control pins
- 5V, GND: Power and ground pins
- GND, C8, C7, C6: Additional control and ground pins
- PIN15: Ground pin

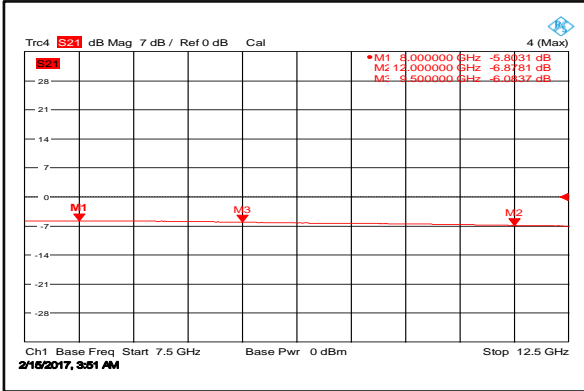
**MICRO-D15 (Female)**

**Truth Table**

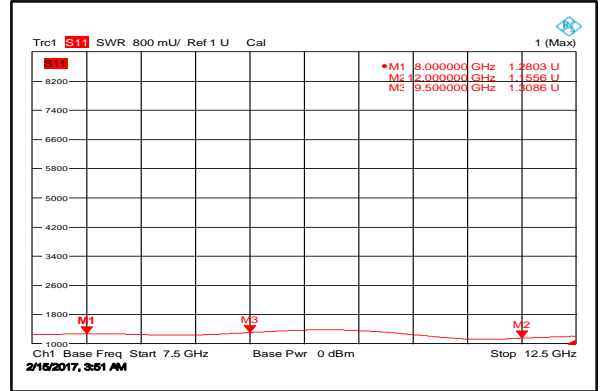
Control Voltage Input								Attenuation State
C8	C7	C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	1	1	Reference IL
1	1	1	1	1	1	1	0	0.5dB
1	1	1	1	1	1	0	1	1dB
1	1	1	1	1	0	1	1	2dB
1	1	1	1	0	1	1	1	4dB
1	1	1	0	1	1	1	1	8dB
1	1	0	1	1	1	1	1	16dB
1	0	1	1	1	1	1	1	32dB
0	1	1	1	1	1	1	1	64dB
0	0	0	0	0	0	0	0	127dB



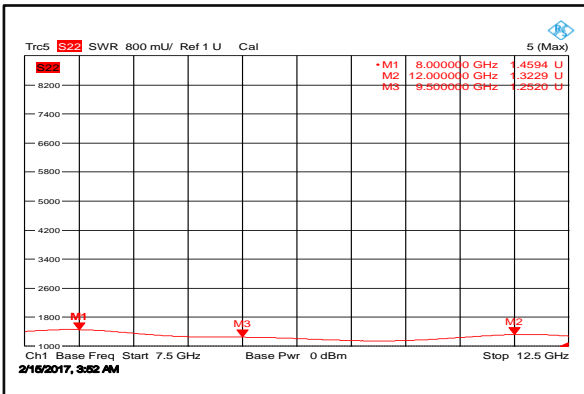
### Insertion Loss



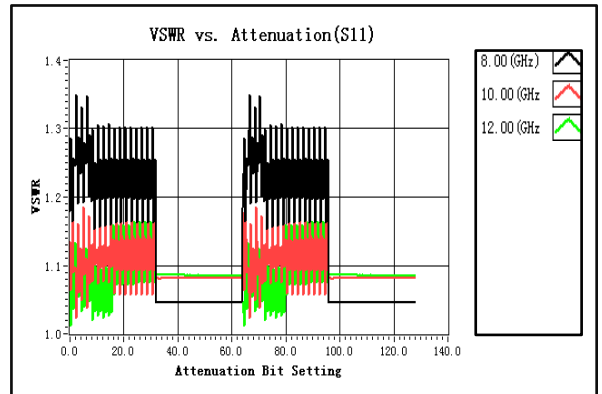
### Input VSWR



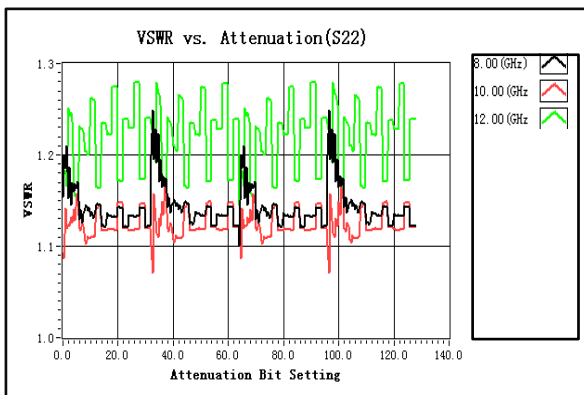
### Output VSWR



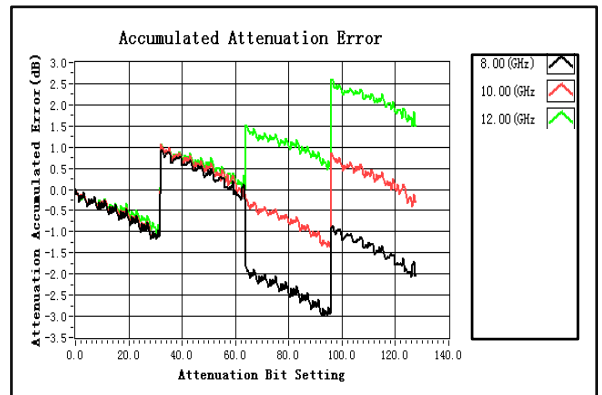
### VSWR vs. Attenuation



### VSWR vs. Attenuation

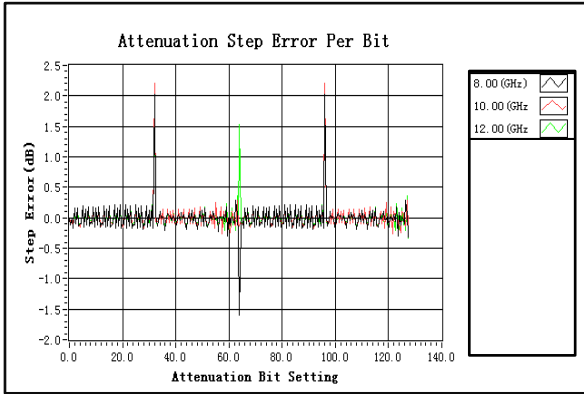


### Accumulated Attenuation Error (dB)

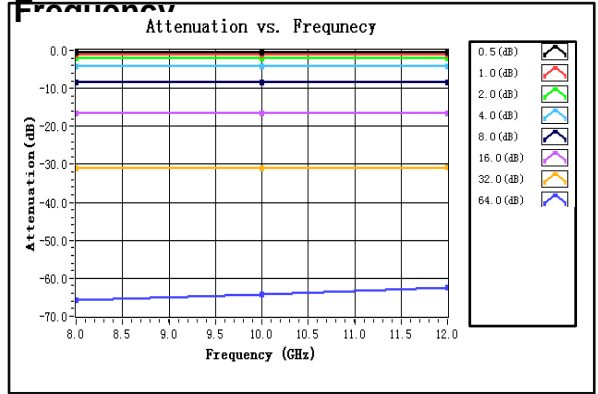




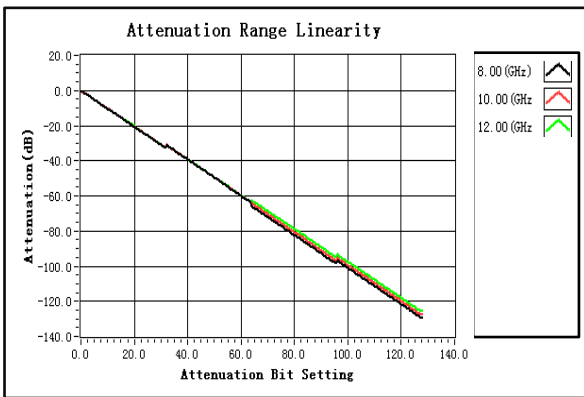
### Attenuation Step Error Per Bit (dB)



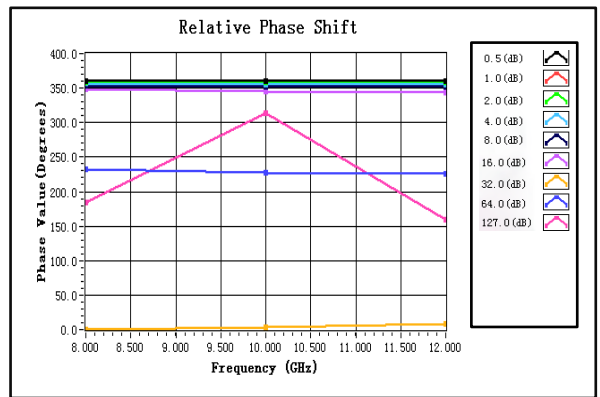
### Attenuation Flatness vs. Frequency



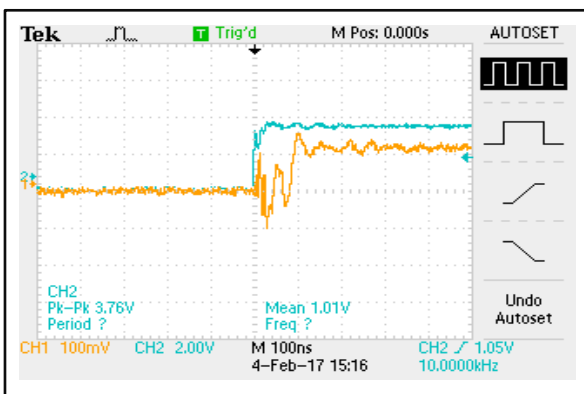
### Attenuation Range Linearity



### Relative Phase Shift



### Speed



### Speed

