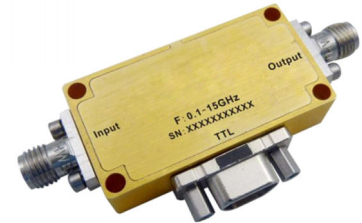




# Absorptive Digital Control Attenuator 0.1-15GHz

## Features

- Wide Band Operation 0.1-15GHz
- 0.5dB LSB Steps to 31.5dB



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1		5	5		15	GHz
Attenuation Range		31.5			31.5		dB
Attenuation Flatness: (Referenced to Insertion Loss)		±2.0			±2.0		dB
Control Bits			6			6	Bit
Control Step Size	0.5			0.5			dB
Insertion Loss		3.5	4.0		5.0	5.5	dB
Insertion Loss Temperature Coefficient		0.005			0.005		dB/ °C
Input VSWR (All States)		1.8	2.0		1.8	2.0	: 1
Output VSWR (All States)		1.8	2.0		1.8	2.0	: 1
Input 0.1 dB Compression Point (P0.1dB)		23			23		dBm
Input IP3		40			38		dBm
Switching Speed	100						ns
Weight	0.71						Ounces
Impedance	50						Ω
Bias Current (+5V)	40						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 ± 10%
TTL Control Voltage	0~0.8V/2.8~5V
RF Input Power	+23dBm

### Ordering Information

Part No.	Description
DBDA0600101500A	0.1-15GHz 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 features include:
 

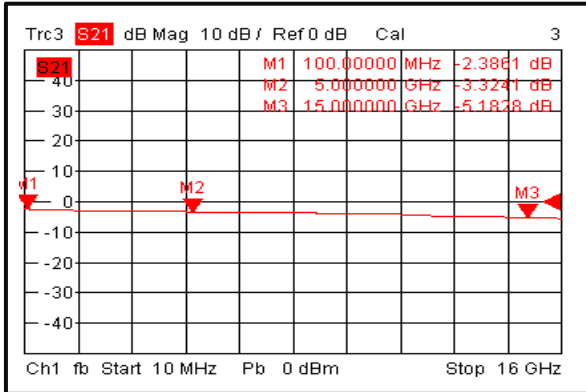
- Top view: Dimensions for the main body (38 [1.50] mm), control pins (34 [1.34] mm), and mounting holes (4.75 [0.19] mm).
- Side view: Shows the input and output connectors, with dimensions for the housing (20 [0.79] mm), control pins (16 [0.63] mm), and mounting holes (9.5 [0.37] mm).
- Pin view: Shows the 9-pin MICRO-D9 (Female) connector with dimensions for the pin pitch (1.27 [0.05] mm) and overall width (7.35 [0.29] mm).

**Truth Table**

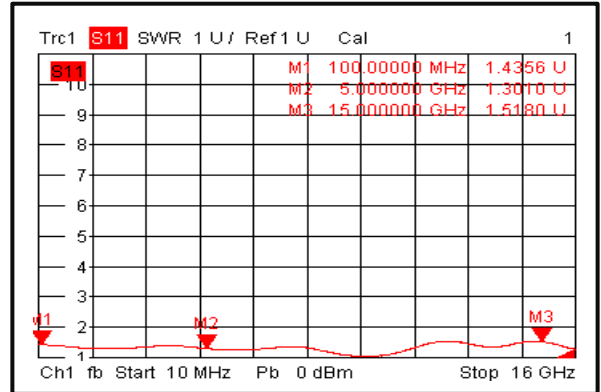
Control Voltage Input						Attenuation State
C6	C5	C4	C3	C2	C1	
0	0	0	0	0	0	Reference IL
0	0	0	0	0	1	0.5dB
0	0	0	0	1	0	1dB
0	0	0	1	0	0	2dB
0	0	1	0	0	0	4dB
0	1	0	0	0	0	8dB
1	0	0	0	0	0	16dB
1	1	1	1	1	1	31.5dB



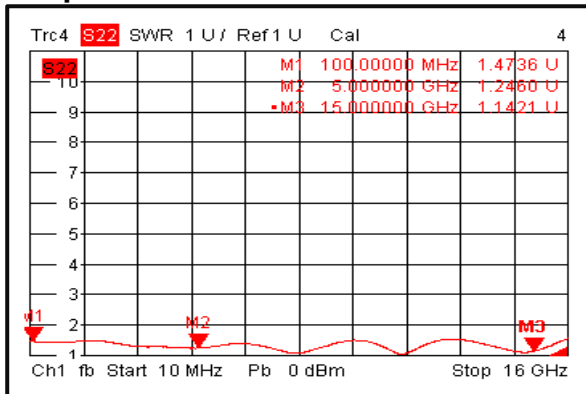
### Insertion Loss @+25°C



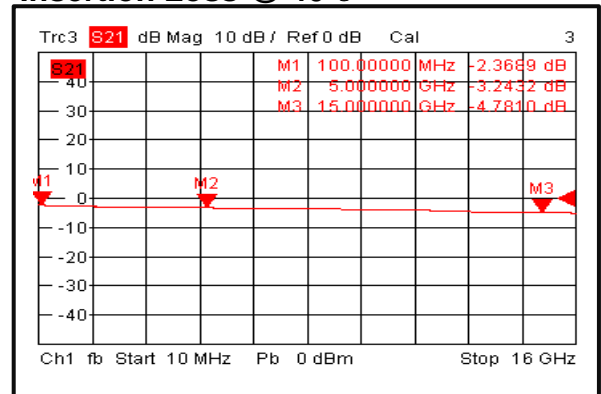
### Input VSWR @+25°C



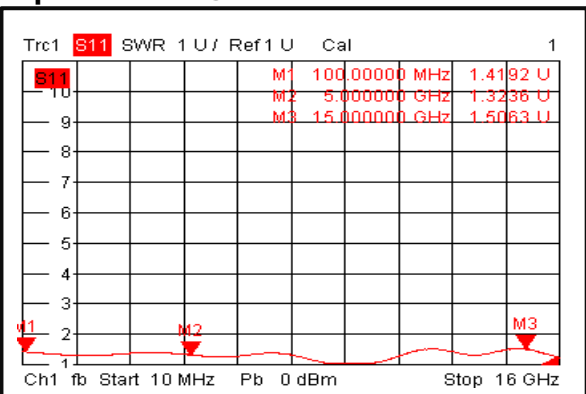
### Output VSWR @+25°C



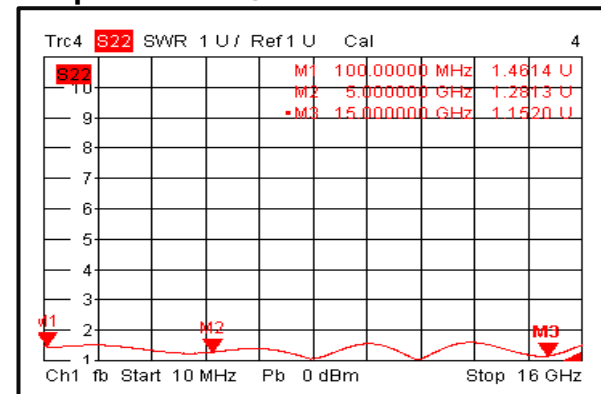
### Insertion Loss @-40°C



### Input VSWR @-40°C

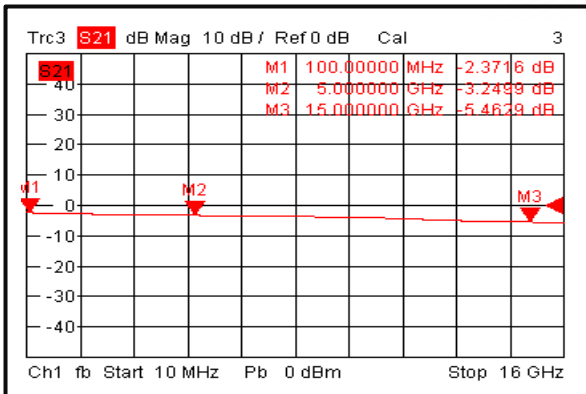


### Output VSWR @-40°C

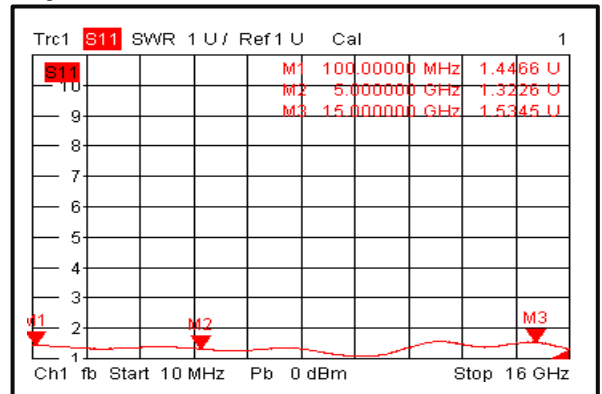




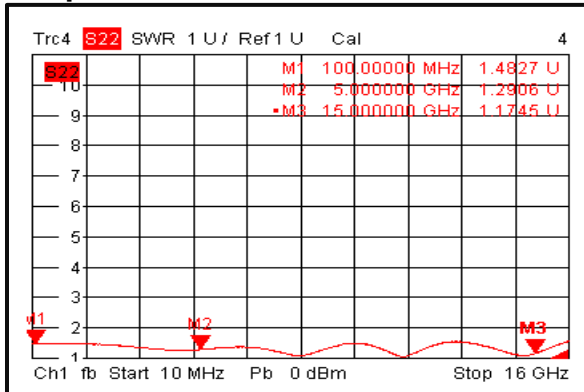
### Insertion Loss @+85°C



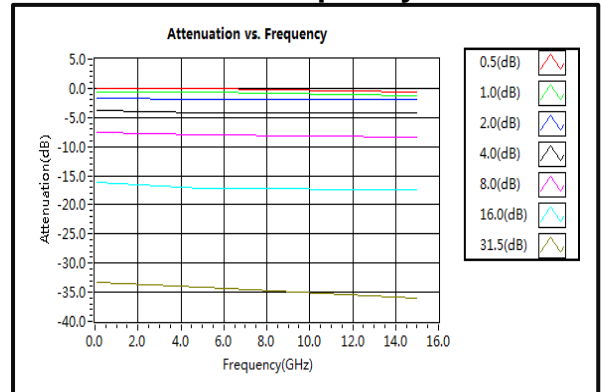
### Input VSWR @+85°C



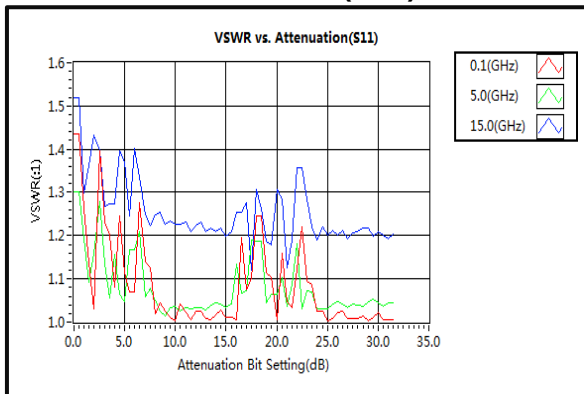
### Output VSWR @+85°C



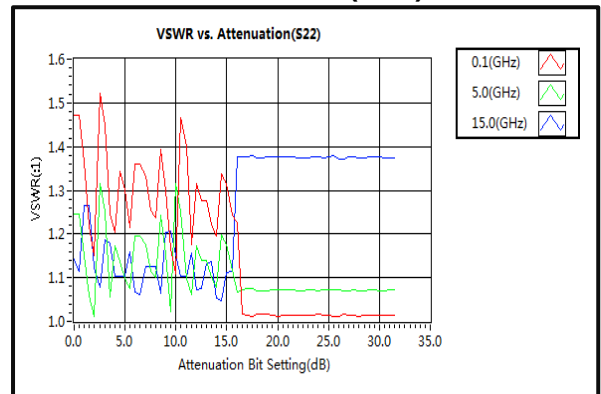
### Attenuation vs. Frequency



### VSWR vs. Attenuation(S11)

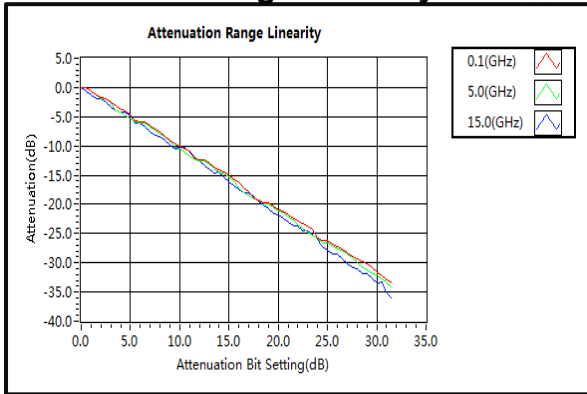


### VSWR vs. Attenuation(S22)

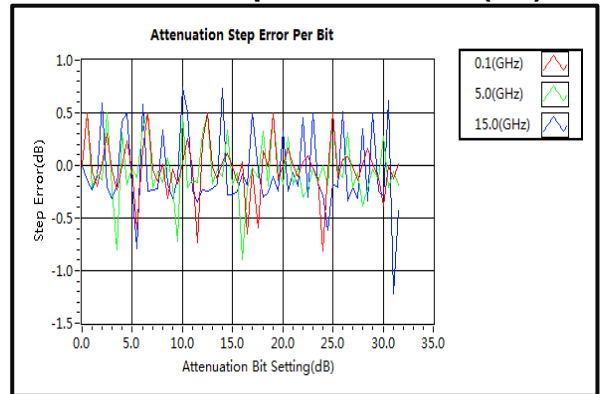




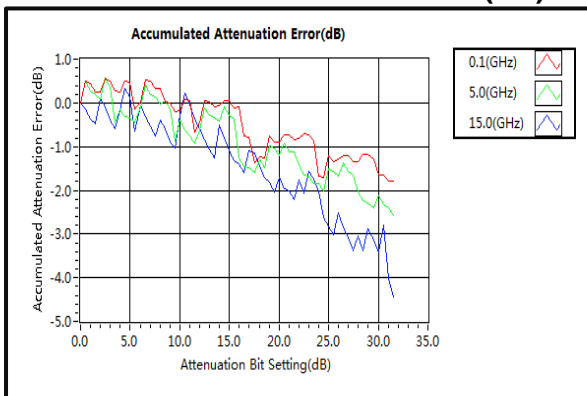
### Attenuation Range Linearity



### Attenuation Step Error Per Bit (dB)



### Accumulated Attenuation Error (dB)



### Relative Phase Shift

