



Absorptive Digital Control Attenuator 6-18GHz

Features

- Wide Band Operation 6-18GHz
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	6		12	12		18	GHz
Attenuation Range			63			63	dB
Attenuation Flatness: (Referenced to Insertion Loss)		±1.5	±2.5		±2.0	±3.0	dB
Control Bits			6			6	Bit
Control Step size		1			1		dB
Insertion Loss		5.5	6.0		6.5	7.5	dB
Insertion Loss Temperature Coefficient		0.005			0.005		dB/ °C
Input Return Loss(All Atten. States)		13			14		dB
Output Return Loss (All Atten. States)		15			15		dB
Input Power for 0.1 dB Compression			30			30	dBm
IP3 Input		50			50		dBm
Switching Speed			100			100	ns
Weight	1.41						ounces
Impedance	50						Ω
Biasing (+5v/-5v)	130/130						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

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

Ordering Information

Part No.	Description
DBDA0606001800B	6-18GHz Digital Control Attenuator

Outline Drawing: All Dimensions in mm (inches)

The drawing shows a top view of the attenuator with dimensions in mm [inches]. Key features include:

- IN and OUT SMA connectors with dimensions: 20 [0.79] and 16 [0.63] for the IN connector, and 4.2 [0.17] for the OUT connector.
- Mounting holes with 2-56 THREAD and a diameter of 3 [0.12].
- Internal dimensions: 14.35 [0.56] between mounting holes, 38 [1.50] and 34 [1.34] for the main body.
- Micro-D9 (Female) connector with pins 1-9. Pin 1 is labeled PIN1 and Pin 6 is labeled PIN6. Dimensions include 7.35 [0.29] for the connector length and 1.27 [0.05] for the pin pitch.
- Bottom view shows 4-Ø2.8 [0.11] THRU holes.

Pin Configuration:

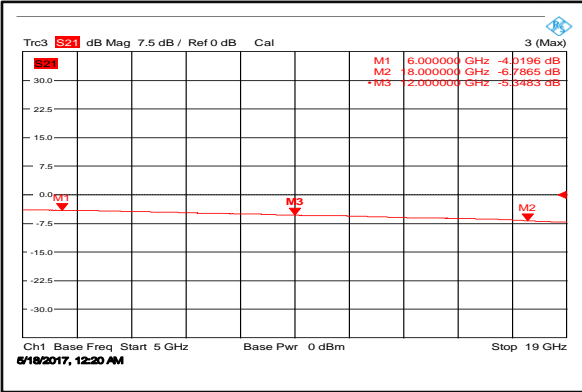
1	2	3	4	5	6	7	8	9
+5V	-5V	GND	C1	C2	C3	C4	C5	C6

Truth Table

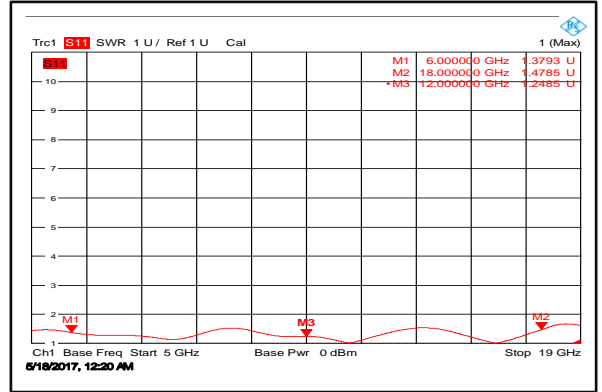
Control Voltage Input						Attenuation state
C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	Reference IL
1	1	1	1	1	0	1dB
1	1	1	1	0	1	2dB
1	1	1	0	1	1	4dB
1	1	0	1	1	1	8dB
1	0	1	1	1	1	16dB
0	1	1	1	1	1	32dB
0	0	0	0	0	0	63dB



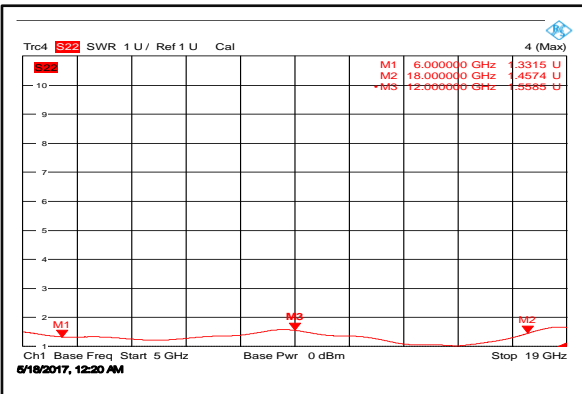
Insertion Loss @+25°C



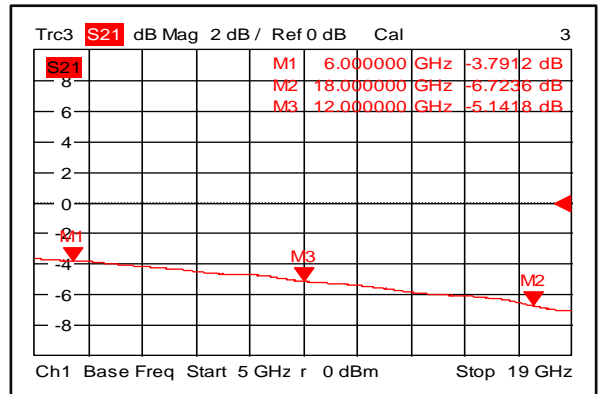
Input VSWR @+25°C



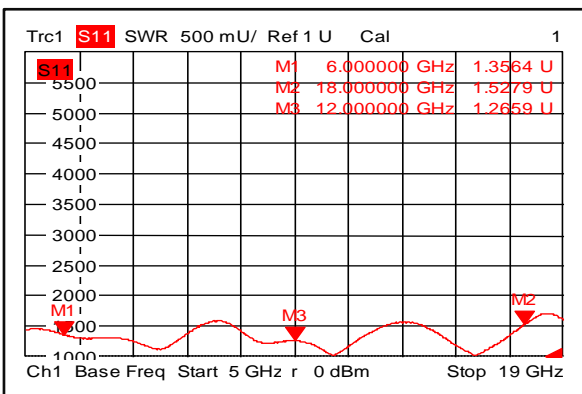
Output VSWR @+25°C



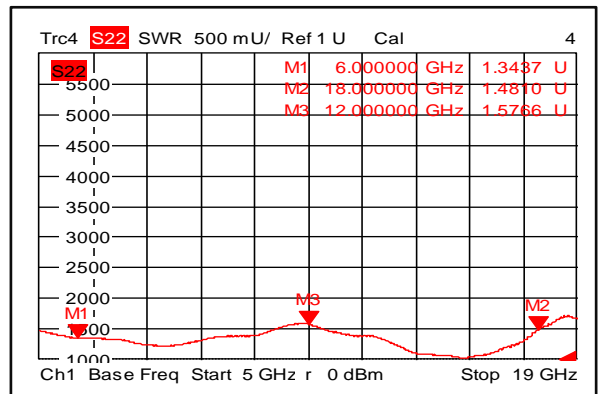
Insertion Loss @-40°C



Input VSWR @-40°C

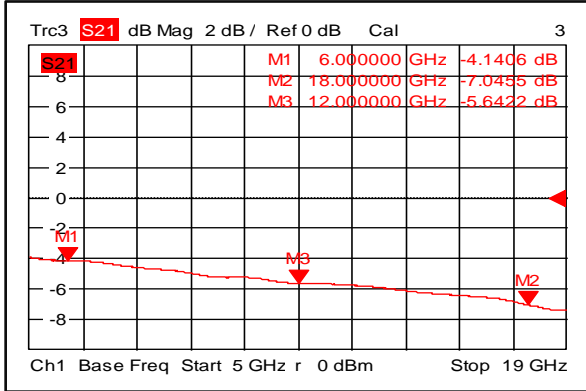


Output VSWR @-40°C

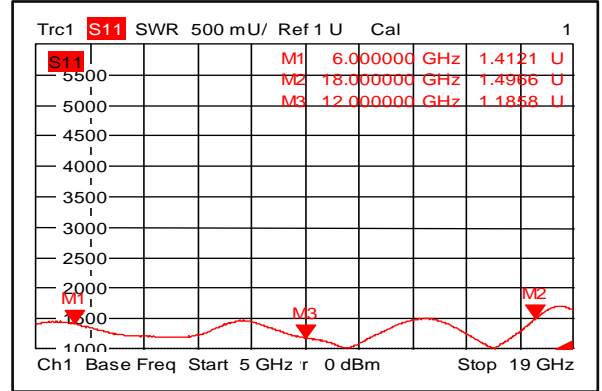




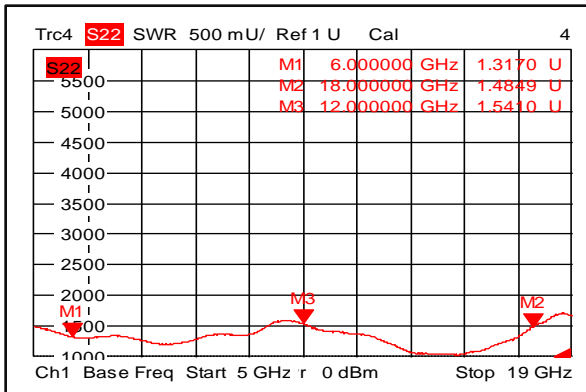
Insertion Loss @+85°C



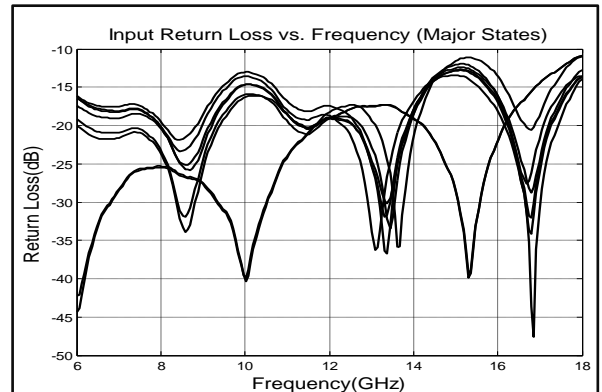
Input VSWR @+85°C



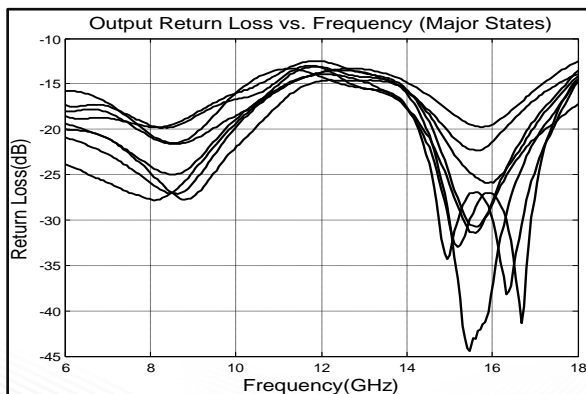
Output VSWR @+85°C



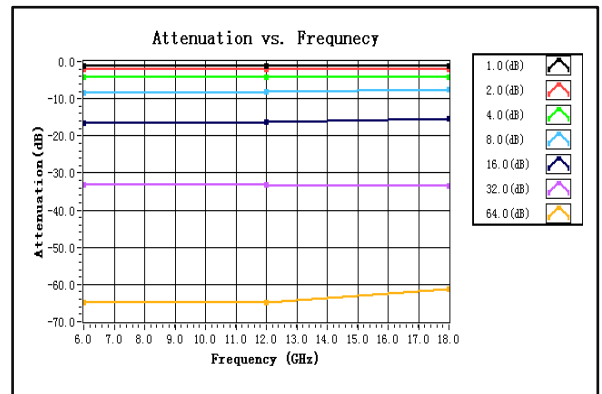
Input Return Loss vs. Frequency



Output Return Loss vs. Frequency

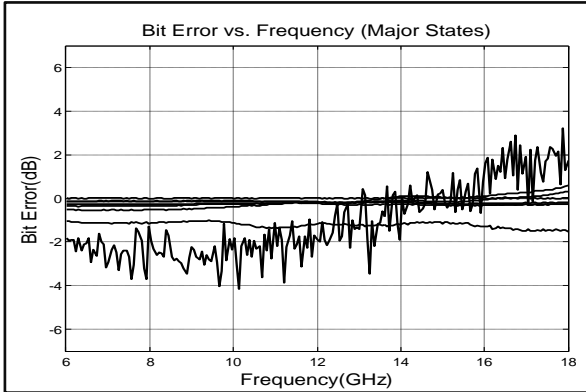


Attenuation vs. Frequency

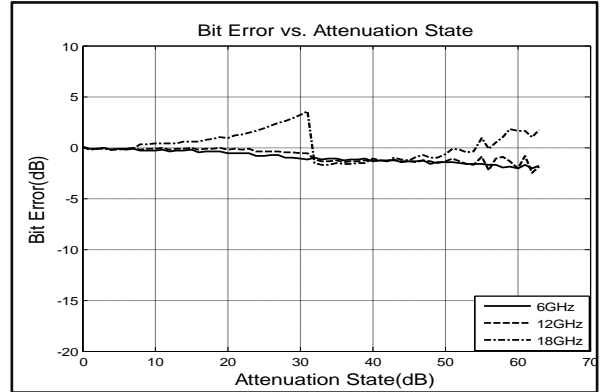




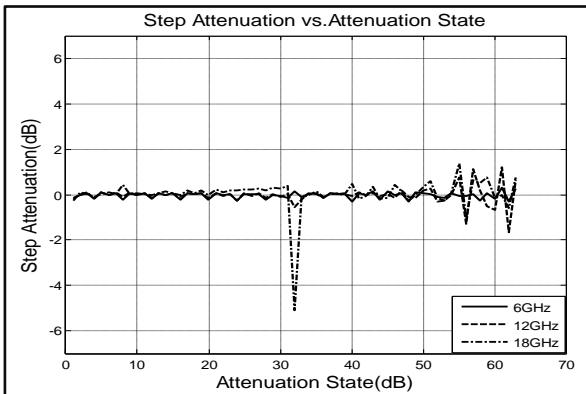
Bit Error vs. Frequency



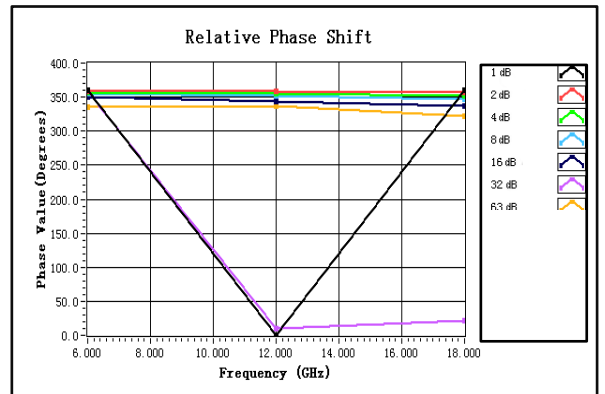
Bit Error vs. Attenuation State



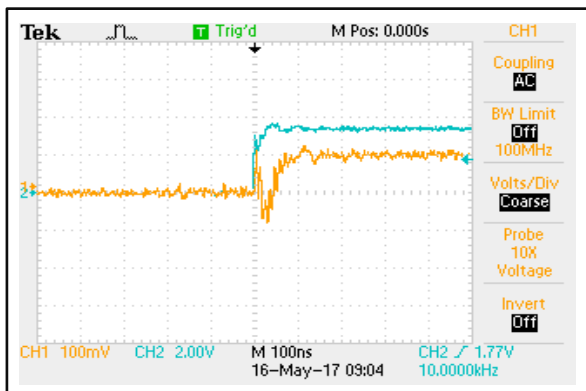
Step Attenuation vs. Attenuation State



Relative Phase Shift vs. Frequency



Speed



Speed

