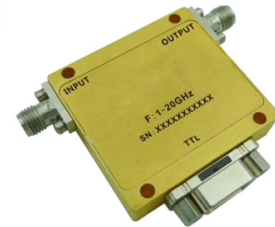




# Absorptive Digital Control Attenuator 1 - 20GHz

## Features

- Ultra Wide Band Operation 1-20GHz
- 0.5dB LSB Steps to 127.5dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	1~10		10~20				GHz
Attenuation Range			127.5			127.5	dB
Attenuation Flatness: (Referenced to Insertion Loss)			±3.0			±5.0	dB
Control Bits			8			8	Bit
Control Step size	0.5			0.5			dB
Insertion Loss		9.0	10		13.5	15	dB
Insertion Loss Temperature Coefficient		0.01			0.01		dB/ °C
Input VSWR( All Atten. States)		1.7	2		1.7	2	:1
Output VSWR ( All Atten. States)		1.7	2		1.7	2	:1
Input 0.1 dB Compression Point (P0.1dB)		25			25		dBm
Input IP3		45			×		dBm
Switching Speed			200				ns
Weight			1.06				ounces
Impedance			50				Ω
Bias Current (+5V/-5V)			250/130				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/2.8~5V

### Ordering Information

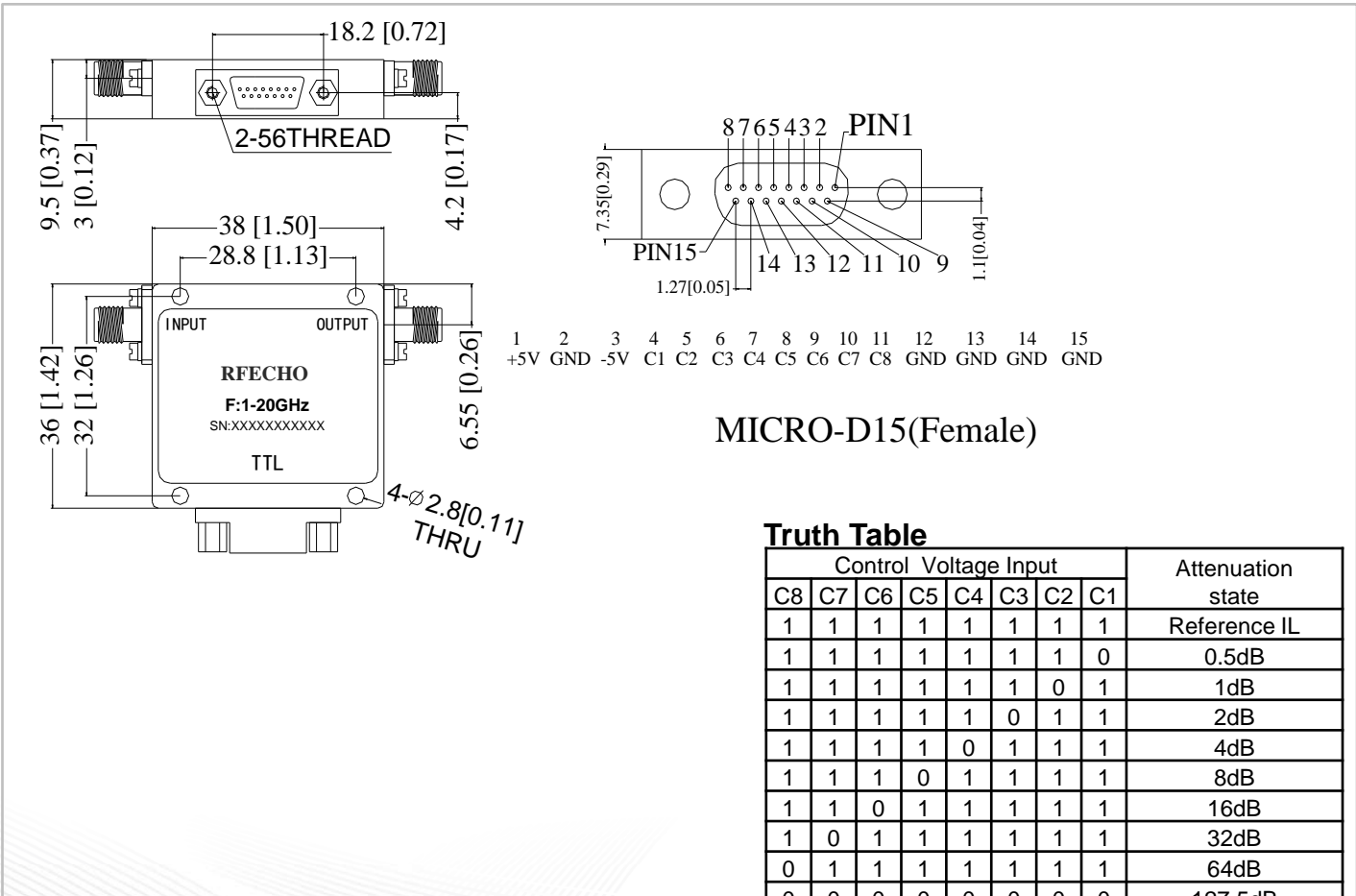
Part No.	Description
DBDA0801002000A	1- 20GHz Digital Control Attenuator

### 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)

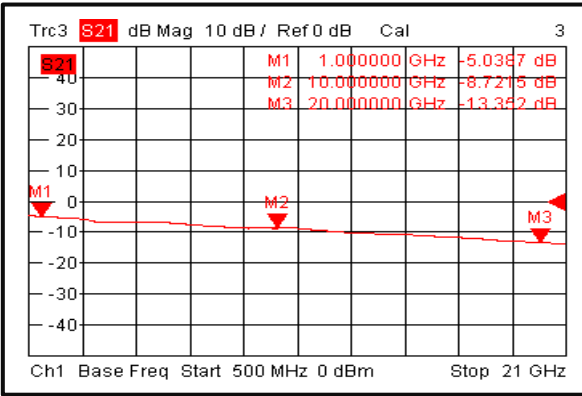


### Truth Table

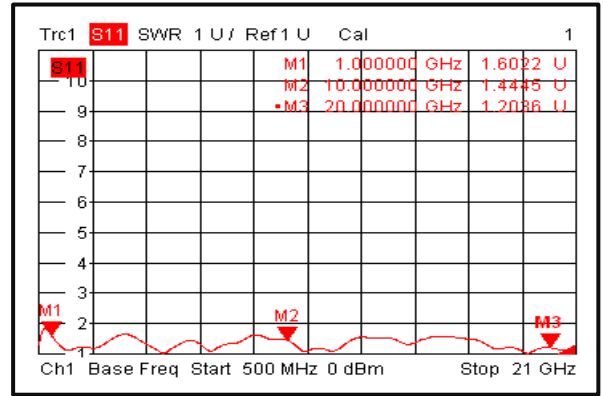
Control Voltage Input								Attenuation state
C8	C7	C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	1	1	Reference IL
1	1	1	1	1	1	1	0	0.5dB
1	1	1	1	1	1	0	1	1dB
1	1	1	1	1	0	1	1	2dB
1	1	1	1	0	1	1	1	4dB
1	1	1	0	1	1	1	1	8dB
1	1	0	1	1	1	1	1	16dB
1	0	1	1	1	1	1	1	32dB
0	1	1	1	1	1	1	1	64dB
0	0	0	0	0	0	0	0	127.5dB



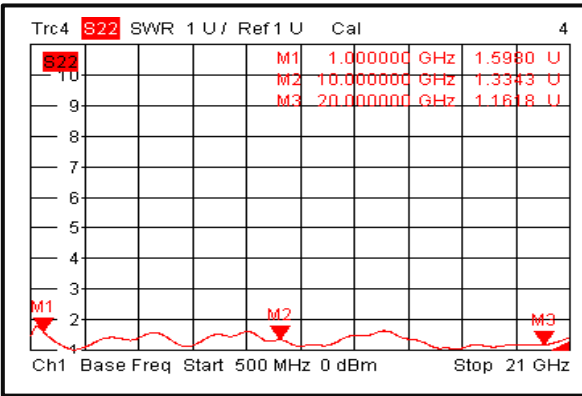
### Insertion Loss @+25°C



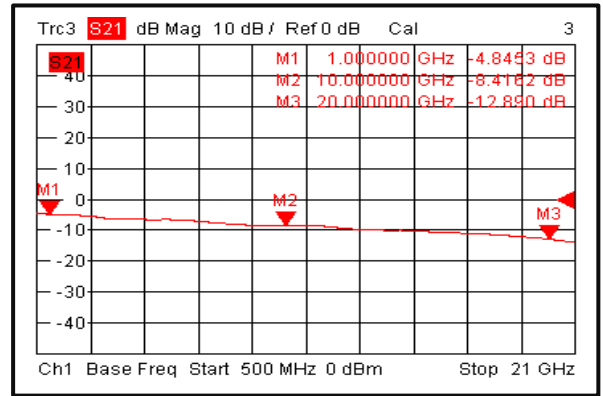
### Input VSWR @+25°C



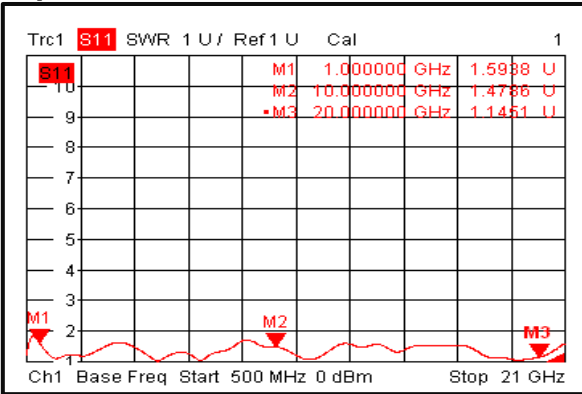
### Output VSWR @+25°C



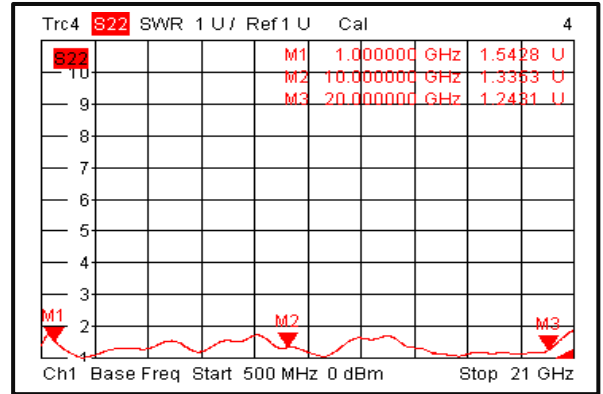
### Insertion Loss @-40°C



### Input VSWR @-40°C

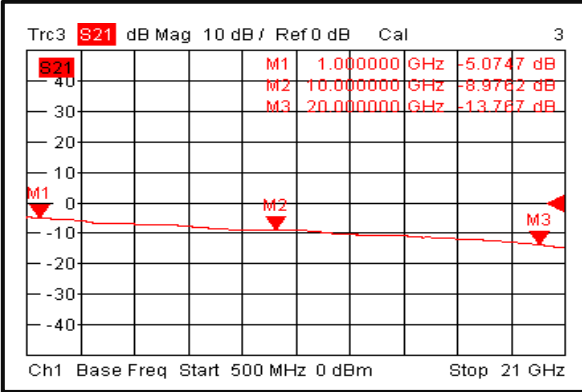


### Output VSWR @-40°C

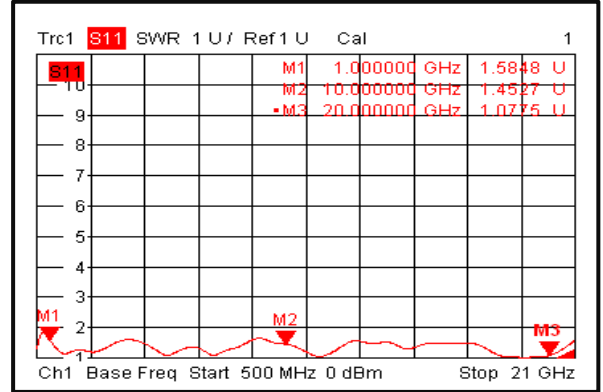




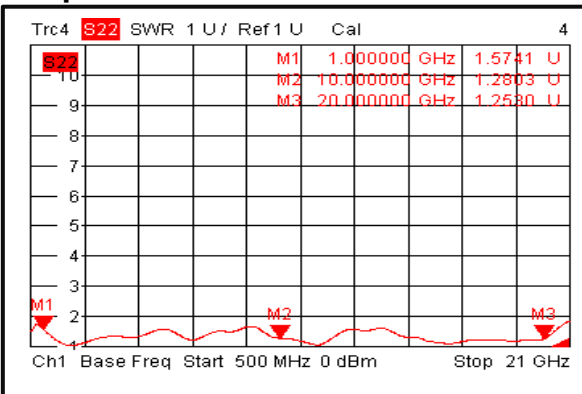
### Insertion Loss @+85°C



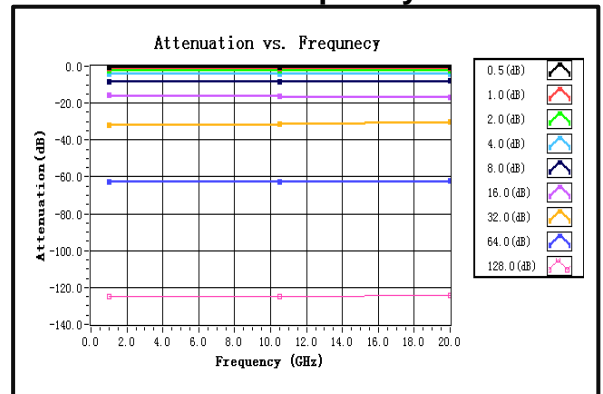
### Input VSWR @+85°C



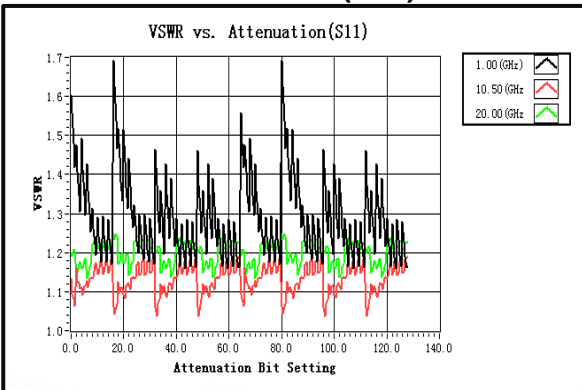
### Output VSWR @+85°C



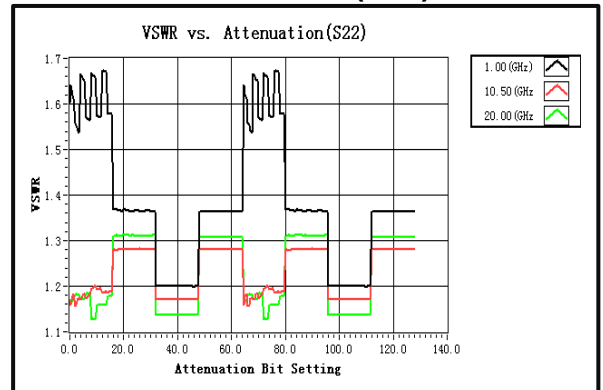
### Attenuation vs. Frequency



### VSWR vs. Attenuation(S11)

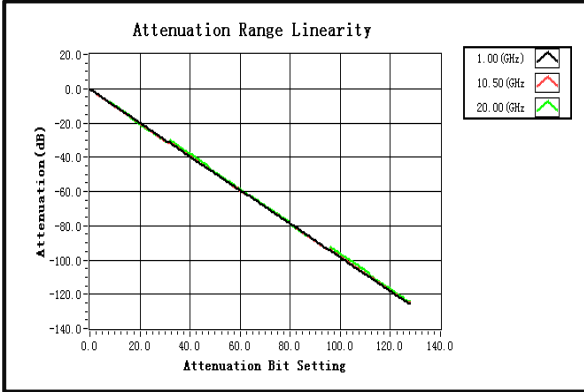


### VSWR vs. Attenuation(S22)

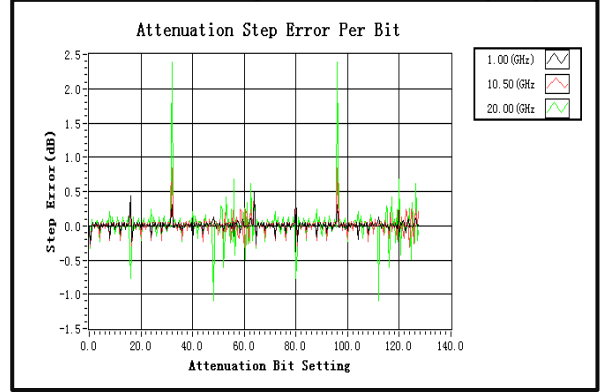




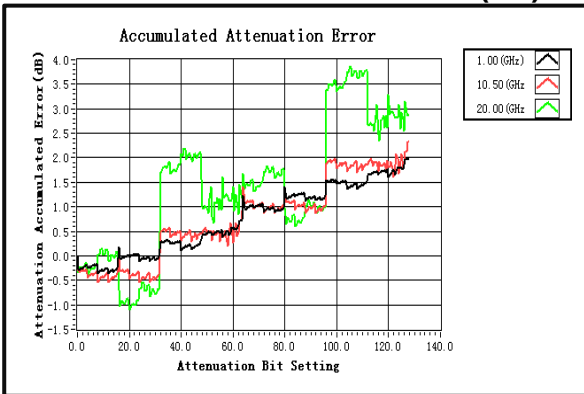
### Attenuation Range Linearity



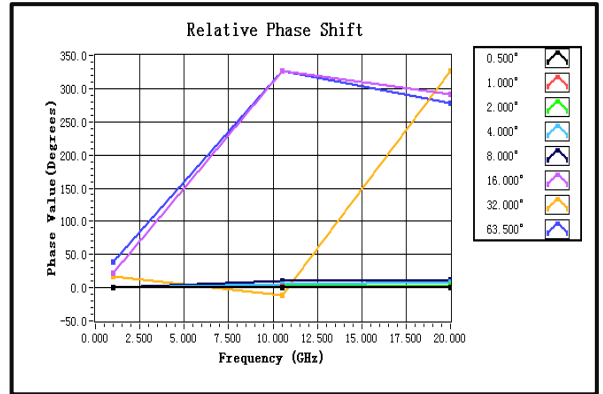
### Attenuation Step Error Per Bit (dB)



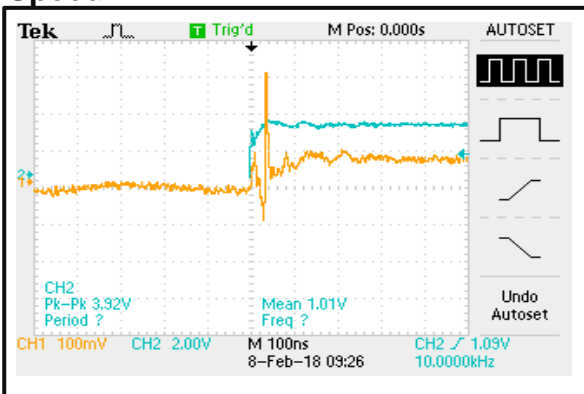
### Accumulated Attenuation Error (dB)



### Relative Phase Shift



### Speed



### Speed

