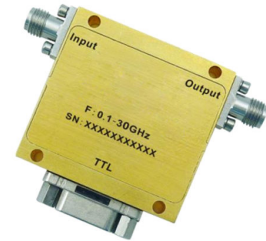




Absorptive Digital Control Attenuator 0.1-30GHz

Features

- Ultra Wide Band Operation 0.1-30GHz
- 0.5dB LSB Steps to 127.5dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1~6			6~18			18~30			GHz
Attenuation Range			127.5			127.5			127.5	dB
Insertion Loss		12	13		19.5	21.5		27	29	dB
Insertion Loss Temperature Coefficient		0.01			0.01			0.01		dB/ °C
Attenuation Flatness: (Referenced to Insertion Loss)	0.5-60dB <±3.0		<±4.0	0.5-60dB <±4.0		<±6.0	0.5-60dB <±4.0		<±10.0	dB
Control Bits			8			8			8	Bit
Control Step size	0.5			0.5			0.5			dB
Input VSWR(All Atten. States)		1.9	2.5		1.9	2.2		1.9	2.2	: 1
Output VSWR (All Atten. States)		1.9	2.5		1.9	2.2		1.9	2.2	: 1
Input 0.1 dB Compression Point (P0.1dB)		25			25			25		dBm
Input IP3		45			45			45		dBm
Switching Speed	200									ns
Weight	1.06									Ounces
Impedance	50									Ω
Bias Current (+5V / - 5V)	140/140									mA
Input / Output Connectors	2.92mm-Female									
Interface and control connertor	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
DBDA0800103000A	0.1-30GHz 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)

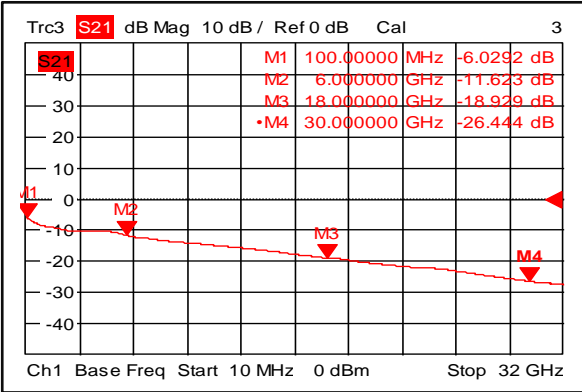
The drawing shows a top view of the attenuator with dimensions in mm [inches]. Key dimensions include: 18.2 [0.72] for the top width, 9.5 [0.37] and 3 [0.12] for the top-left section, 4.2 [0.17] for the top-right section, 38 [1.50] and 28.8 [1.13] for the main body width, 36 [1.42] and 32 [1.26] for the input/output section, 6.55 [0.26] for the bottom-right section, and 19 [0.75] for the bottom width. A 2-56THREAD hole is shown at the top. The bottom view shows a MICRO-D15(Female) connector with pins 1-15 and dimensions 7.35 [0.29] and 1.27 [0.05].

Truth Table

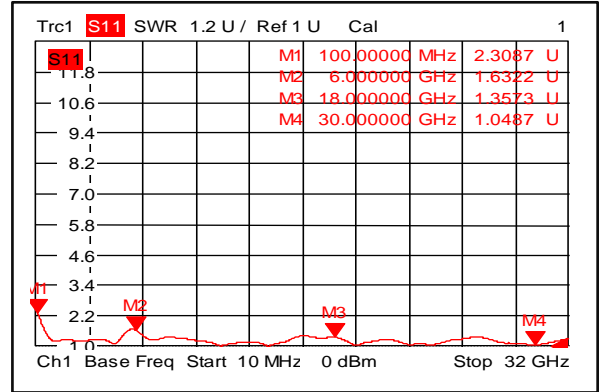
Control Voltage Input								Attenuation state
C8	C7	C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	1	1	Reference IL
1	1	1	1	1	1	1	0	0.5dB
1	1	1	1	1	1	0	1	1dB
1	1	1	1	1	0	1	1	2dB
1	1	1	1	0	1	1	1	4dB
1	1	1	0	1	1	1	1	8dB
1	1	0	1	1	1	1	1	16dB
1	0	1	1	1	1	1	1	32dB
0	1	1	1	1	1	1	1	64dB
0	0	0	0	0	0	0	0	127.5dB



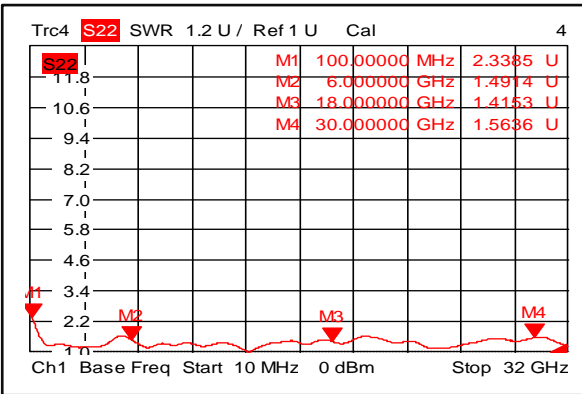
Insertion Loss @+25°C



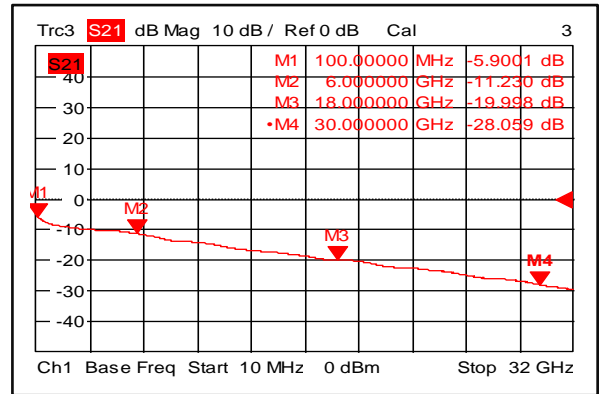
Input VSWR @+25°C



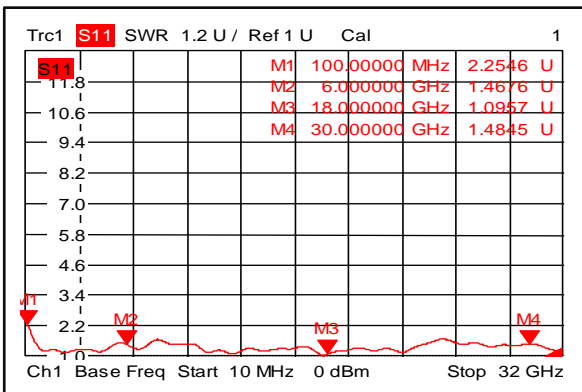
Output VSWR @+25°C



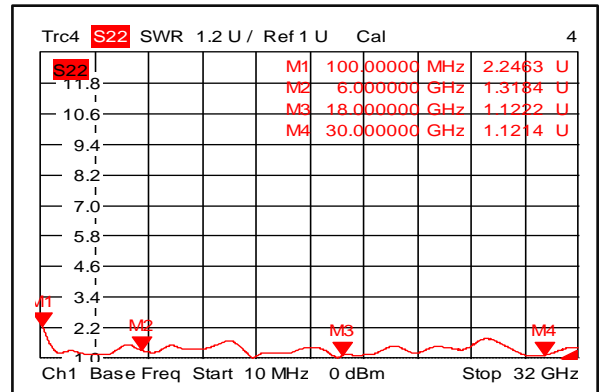
Insertion Loss @-40°C



Input VSWR @-40°C

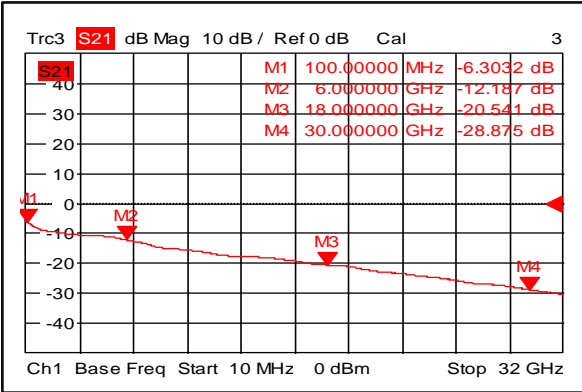


Output VSWR @-40°C

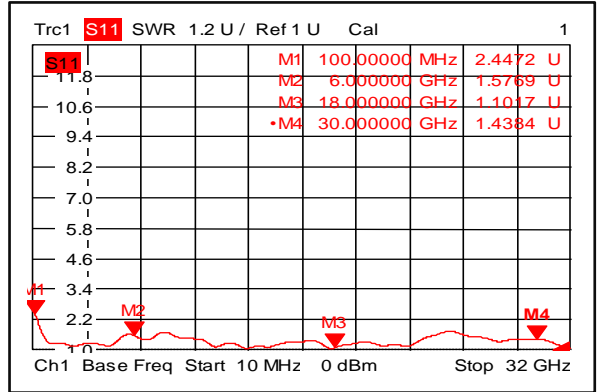




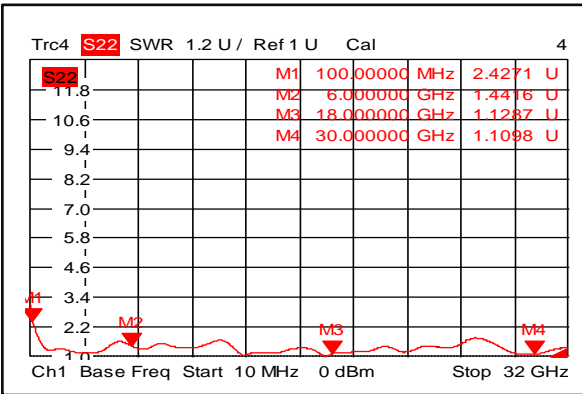
Insertion Loss @+85°C



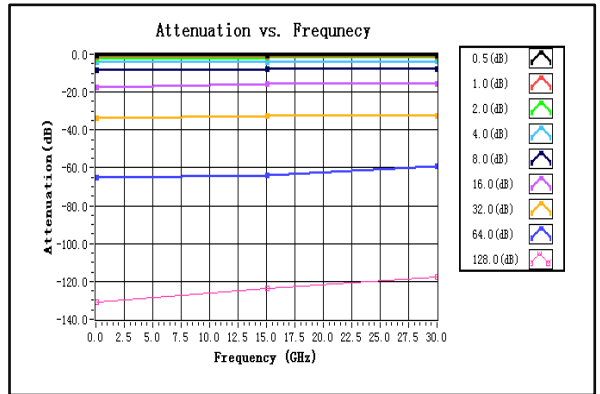
Input VSWR @+85°C



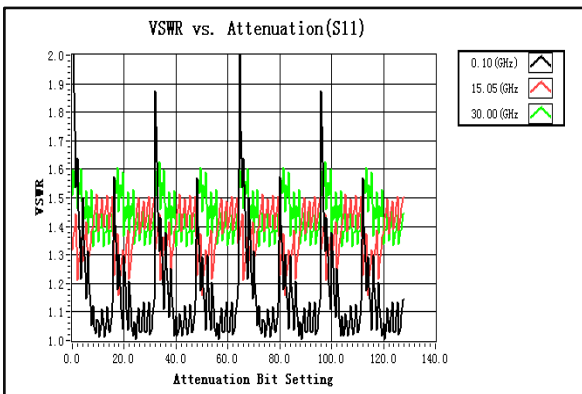
Output VSWR @+85°C



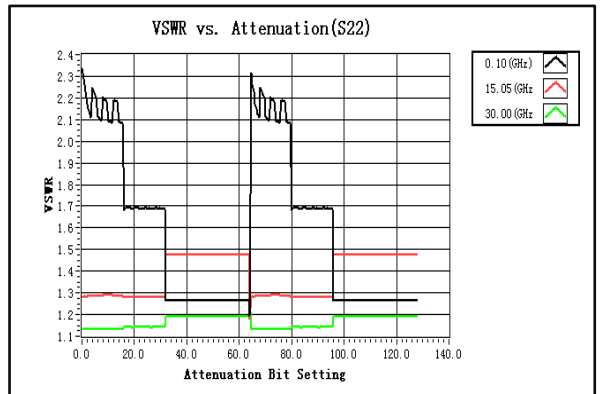
Attenuation vs. Frequency



VSWR vs. Attenuation(S11)

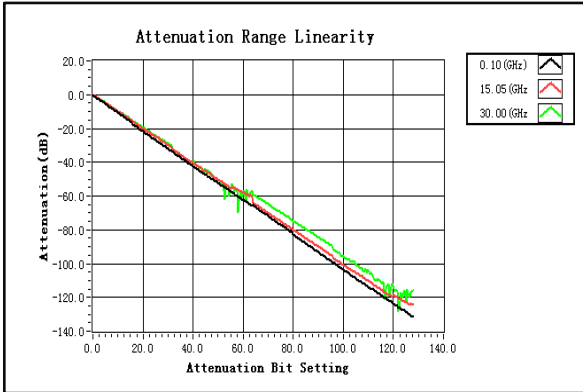


VSWR vs. Attenuation(S22)

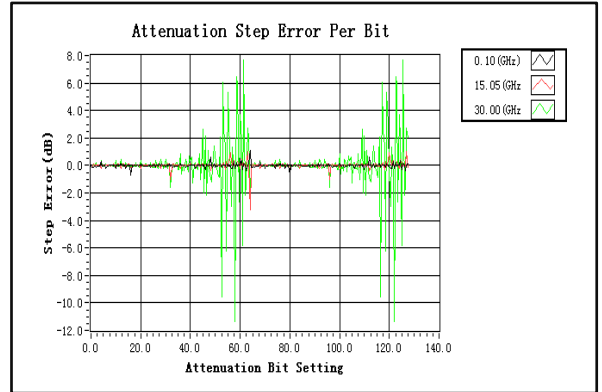




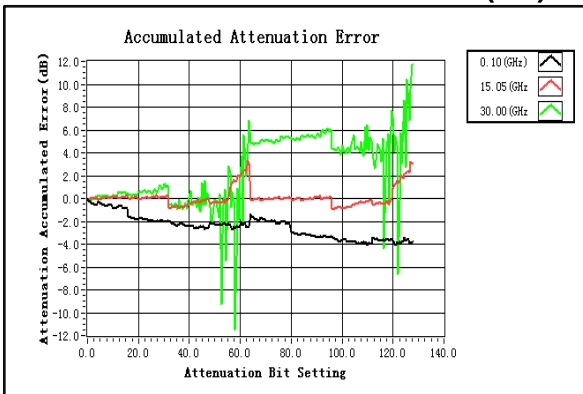
Attenuation Range Linearity



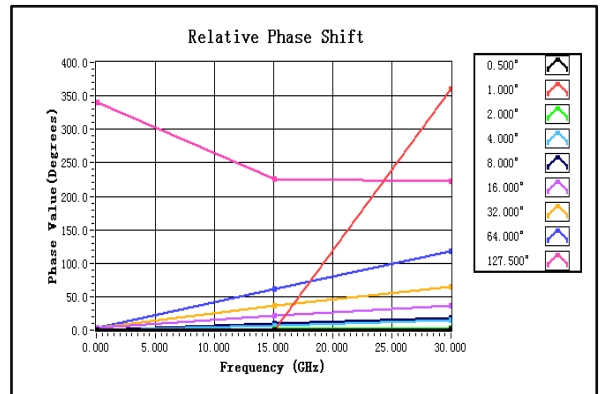
Attenuation Step Error Per Bit (dB)



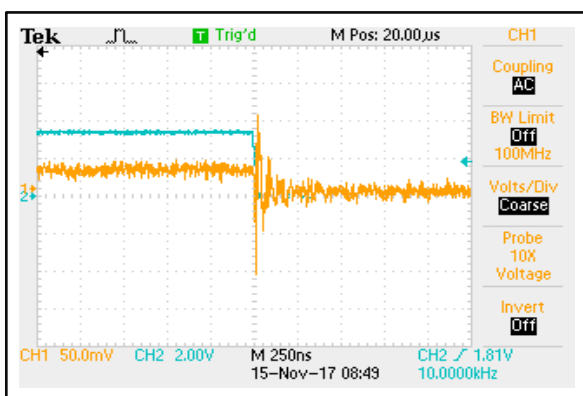
Accumulated Attenuation Error(dB)



Relative Phase Shift



Speed



Speed

