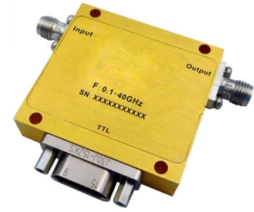




Absorptive Digital Control Attenuator 0.1-40GHz

Features

- Ultra Wide Band Operation 0.1-40GHz
- 1dB LSB Steps to 63dB
- Single Positive Control Line Per Bit
- Customization available upon request



Parameters	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Frequency Range	0.1~18			18~30			30~40			GHz
Attenuation Range		63			62			61		dB
Insertion Loss		10.0	11.0		12.0	13.0		14.0	15.0	dB
Insertion Loss Temperature Coefficient		0.01			0.01			0.01		dB/ °C
Attenuation Flatness: (Referenced to Insertion Loss)		±4.0			±5.0			±6.0		dB
Control Bits			6			6			6	Bit
Control Step size	1			1			1			dB
Input VSWR (All Atten. States)		1.8	2.1		1.9	2.0		1.9	2.0	: 1
Output VSWR (All Atten. States)		1.8	2.1		1.9	2.0		1.9	2.0	: 1
Input 0.1 dB Compression Point (P0.1dB)		25			25			25		dBm
Input IP3		45			45			45		dBm
Switching Speed	200 Max.									ns
Weight	1.05 Max.									Ounces
Impedance	50									Ω
Bias Current (+5V / - 5V)	140/50 Max.									mA
Input / Output Connectors	2.92mm-Female									
Interface and Control Connector	MICRO-D15 (Female)									
Finish	Gold Plated									
Material	Aluminum									
Sealing	Hermetically Sealed (Optional)									



Absolute Maximum Ratings

Biassing	+5V±10%/-5V±10% @ 25°C
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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
DBDA0600104000A	0.1-40GHz Digital Control Attenuator

Outline Drawing:

All Dimensions in mm (inches)

The drawing shows a rectangular component with dimensions: 36 [1.42] mm height, 18.2 [0.72] mm width, and 1.27 [0.05] mm thickness. It features a 2-56THREAD DP3.5 [0.138] connector on top, a MICRO-D15(Female) connector on the bottom, and IN/OUT ports on the sides. The component is labeled 'RFecho F:0.1-40GHz SN:XXXXXXXXXX TTL'. Dimensions include 9.5 [0.37] mm, 3 [0.12] mm, 4.2 [0.17] mm, 38 [1.50] mm, 28.8 [1.13] mm, 6.55 [0.26] mm, 4-Ø2.8 [0.11] THRU, and 1.1 [0.04] mm.

MICRO-D15(Female)

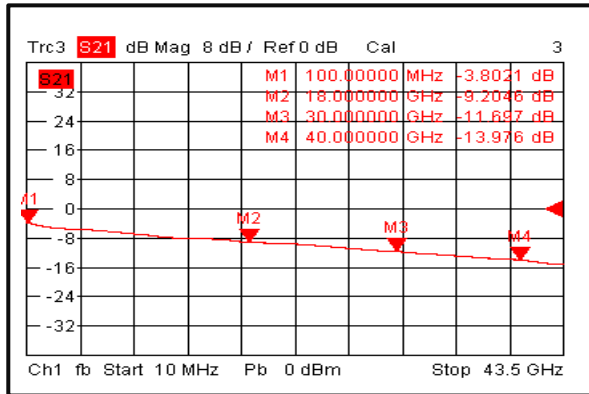
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
+5V	GND	-5V	C1	C2	C3	C4	C5	C6	NC	NC	GND	GND	GND	GND

Truth Table

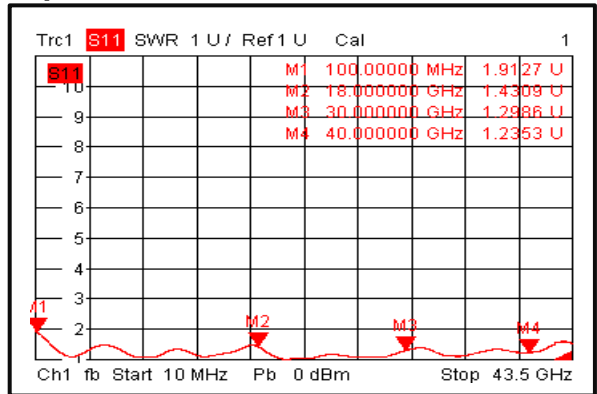
TTL Control Voltage						Low(0)=0~0.8V
						High(1)=2.8~5V
Control Voltage Input						Attenuation state
C6	C5	C4	C3	C2	C1	
1	1	1	1	1	1	Reference IL
1	1	1	1	1	0	1dB
1	1	1	1	0	1	2dB
1	1	1	0	1	1	4dB
1	1	0	1	1	1	8dB
1	0	1	1	1	1	16dB
0	1	1	1	1	1	32dB
0	0	0	0	0	0	63dB



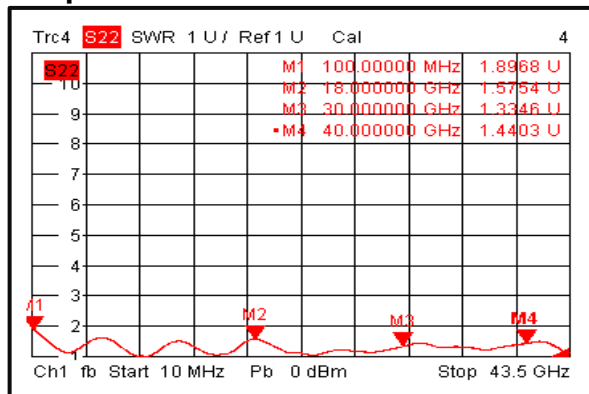
Insertion Loss @+25°C



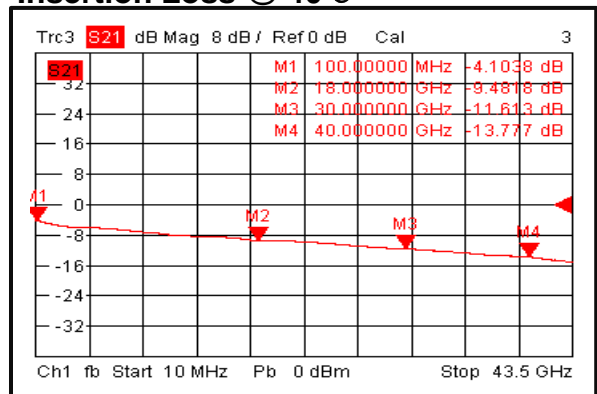
Input VSWR @+25°C



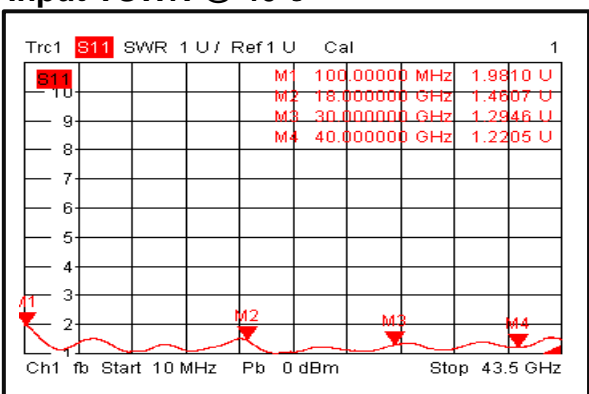
Output VSWR @+25°C



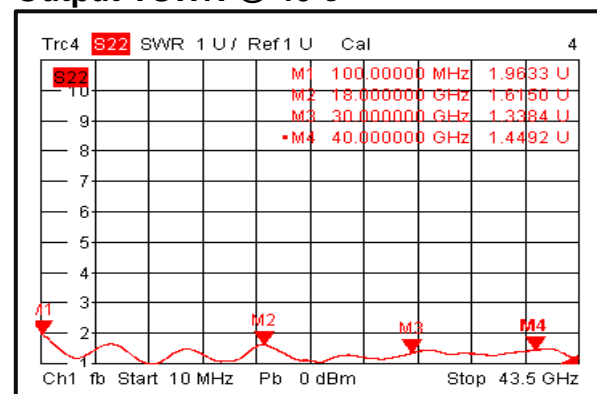
Insertion Loss @-40°C



Input VSWR @-40°C

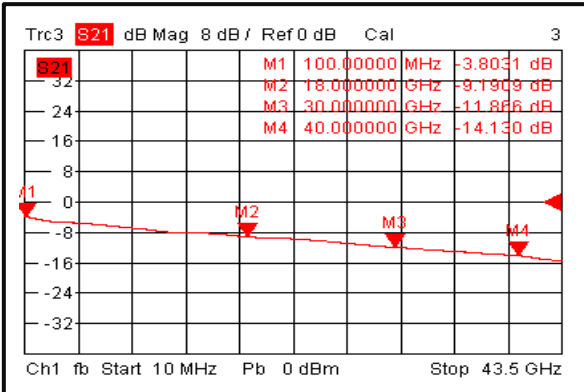


Output VSWR @-40°C

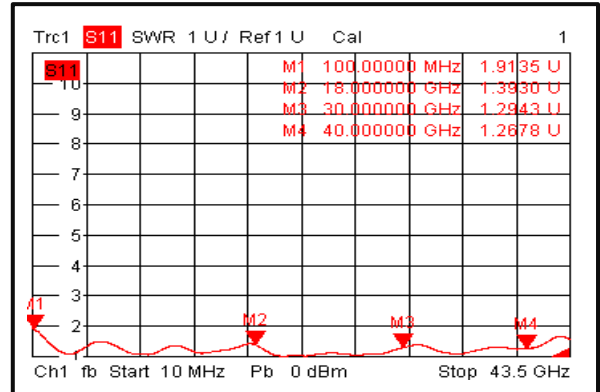




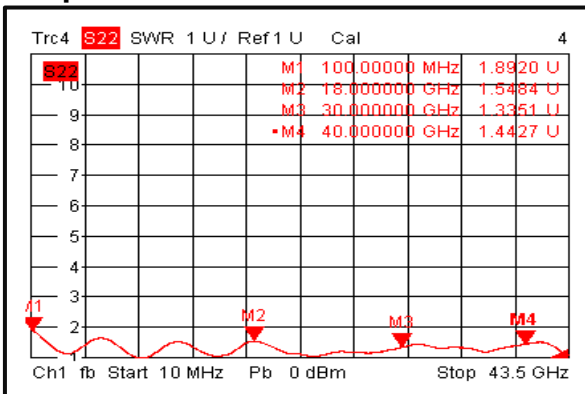
Insertion Loss @+85°C



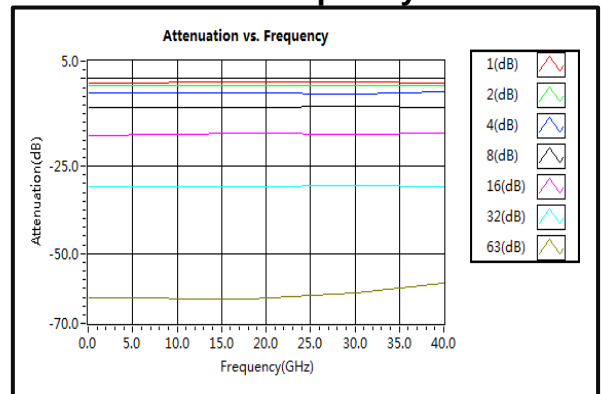
Input VSWR @+85°C



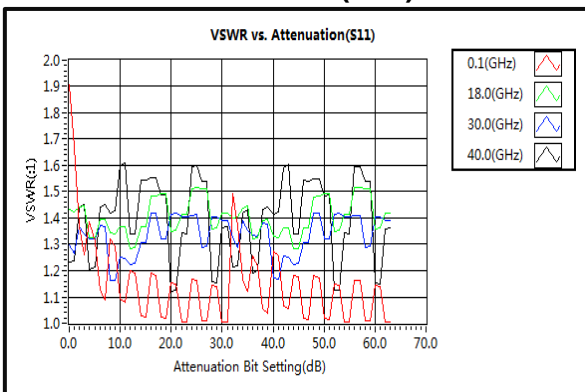
Output VSWR @+85°C



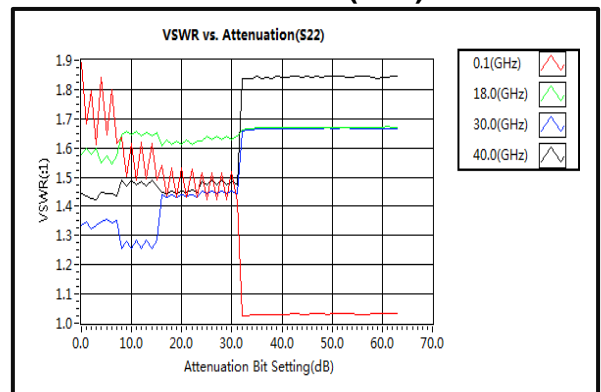
Attenuation vs. Frequency



VSWR vs. Attenuation(S11)

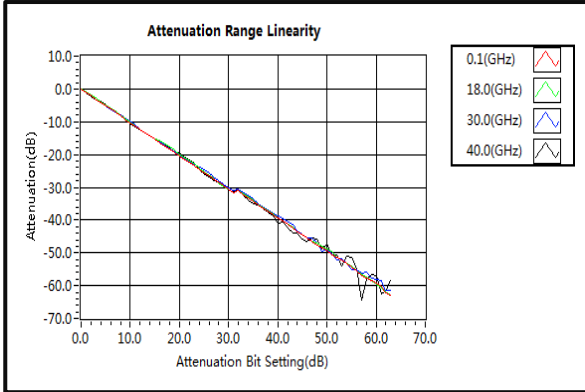


VSWR vs. Attenuation(S22)

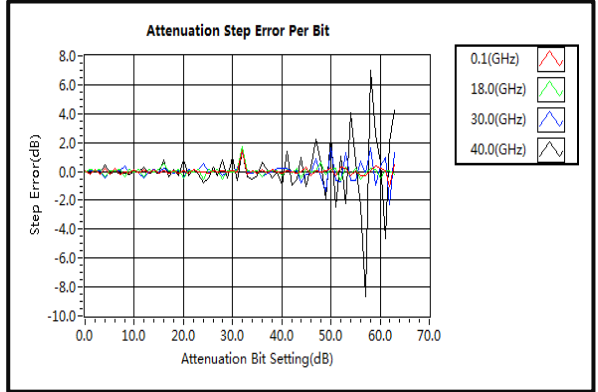




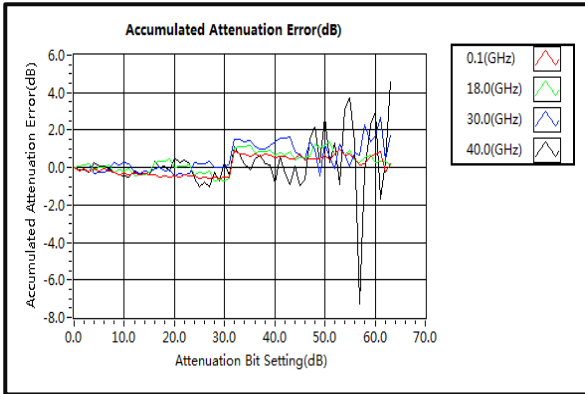
Attenuation Range Linearity



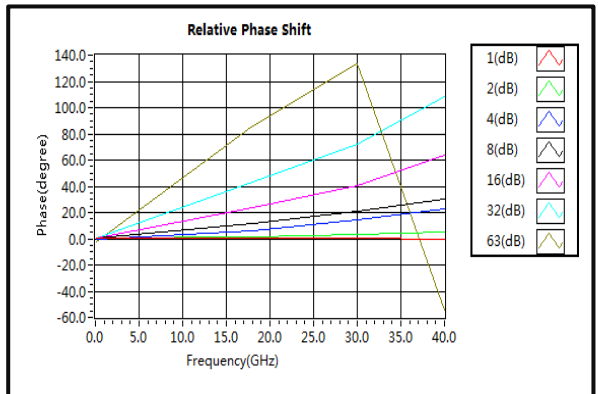
Attenuation Step Error Per Bit (dB)



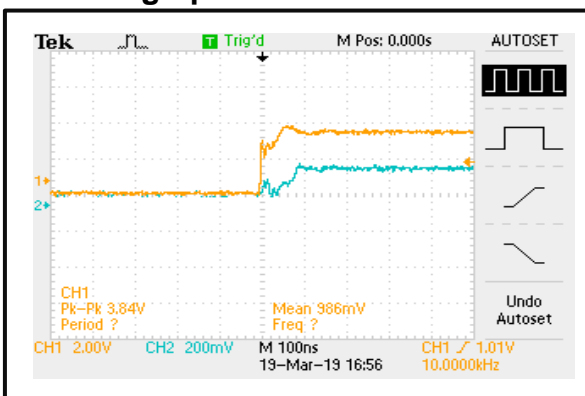
Accumulated Attenuation Error (dB)



Relative Phase Shift



Switching Speed



Switching Speed

