



## Absorptive Digital Control Attenuator 1 - 18GHz



### Features

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

Electrical Specifications,  $T_A = +25^\circ\text{C}$ ,  $V_{dd} = +5\text{V}$ ,  $V_{ss} = -5\text{V}$  &  $V_{CTL} = 0 / +5\text{V}$

Description	PN: RFDAT0812G6A			
	Absorptive Digital Attenuator			
Parameters	Min	Typ.	Max	Units
Frequency Range	1		18	GHz
Attenuation Range			63	dB
Attenuation Flatness: (Referenced to Insertion Loss)		$\pm 3.0$		dB
Control Bits			6	Bit
Control Step size	1			dB
Insertion Loss		7.3	7.8	dB
Insertion Loss Temperature Coefficient		0.005		dB/ $^\circ\text{C}$
Input VSWR (All Atten. States)		1.6	2.0	:1
Output VSWR (All Atten. States)		1.6	2.0	:1
Input 0.1 dB Compression Point ( $P_{o.1dB}$ )		30		dBm
IP3 Input		45		dBm
Switching Speed		150		ns
Weight		1.41		ounces
Impedance		50		$\Omega$
Bias Current (+5V/-5V)		130/130		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**

Biassing	+5V±10%/-5V±10%
TTL Control Voltage	0~0.8V / 2.8~5V

**Ordering Information**

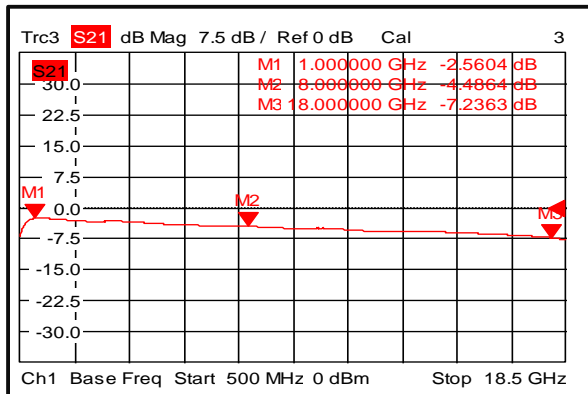
Part No.	ECCN	Description
RFDAT0118G6A	EAR99	1-18GHz Digital Control Attenuator

**Environmental Specifications**

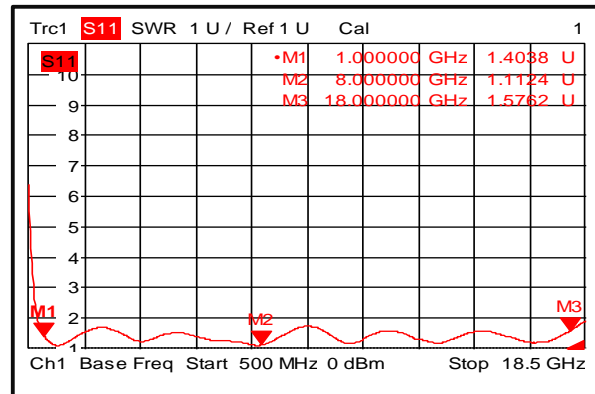
Operational Temperature (°C)	-45 ~ +85
Storage Temperature (°C)	-50 ~ +125
Altitude	30,000 ft. (Epoxy Sealed Controlled environment)
	60,000 ft. 1.0psi min (Hermetically Sealed Un-controlled environment) (Optional)
Vibration	25g RMS (15 degree 2KHz) endurance, 1 hour per axis
Humidity	100% RH at 35c, 95%RH at 40 deg c
Shock	20G for 11msec half sine wave, 3 axis both directions

**Typical Performance Plots**

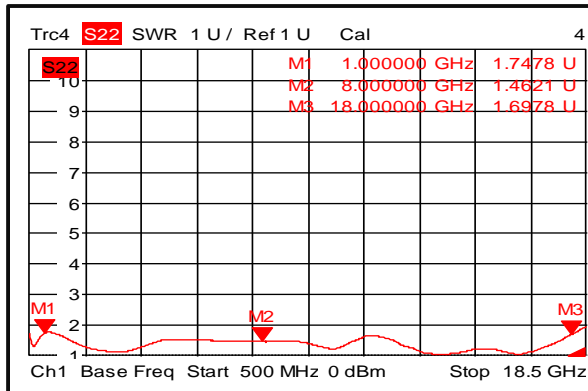
**Insertion Loss @+25°C**



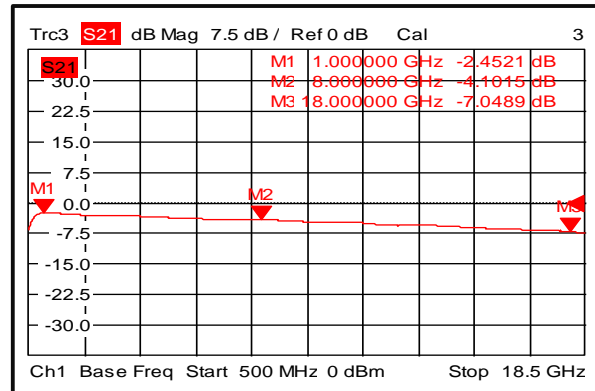
**Input VSWR @+25°C**



**Output VSWR @+25°C**

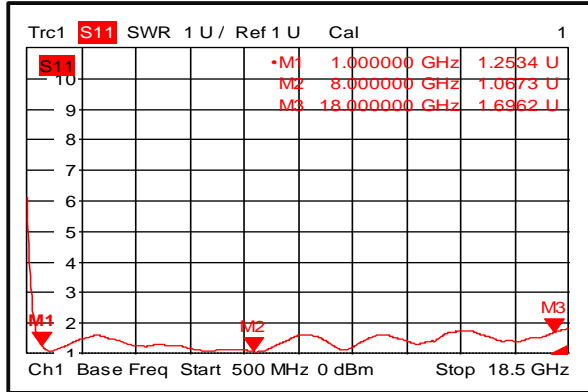


**Insertion Loss @-45°C**

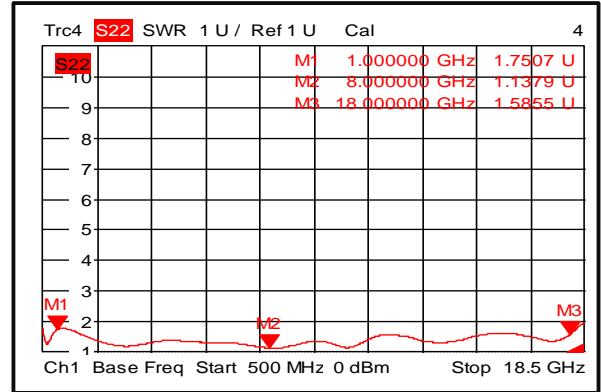




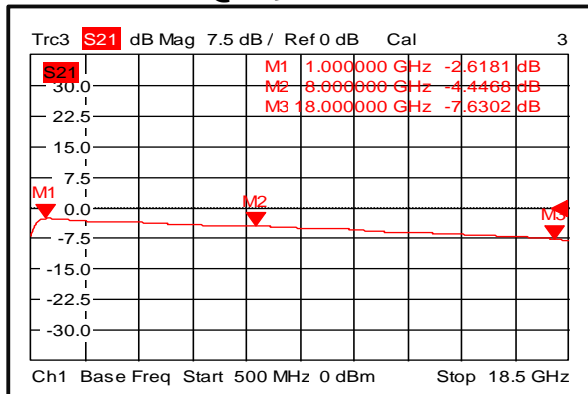
**Input VSWR @-45°C**



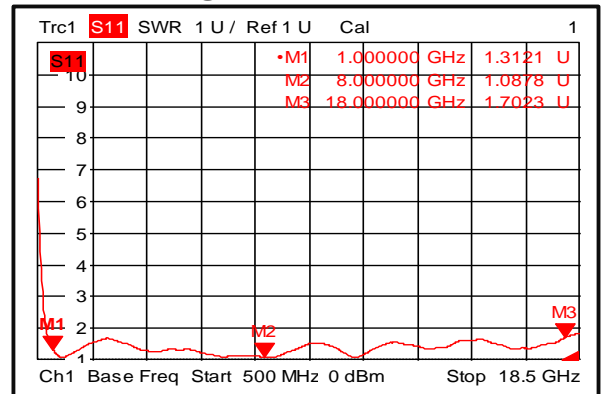
**Output VSWR @-45°C**



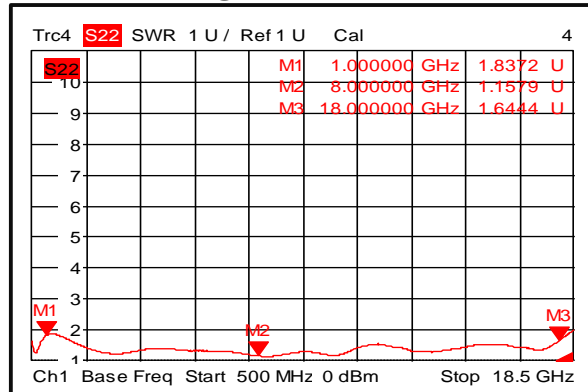
**Insertion Loss @+85°C**



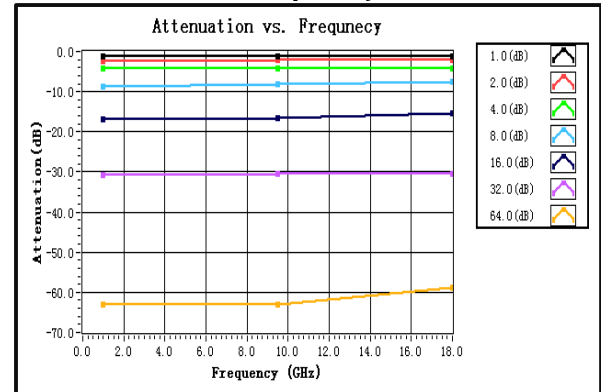
**Input VSWR @+85°C**



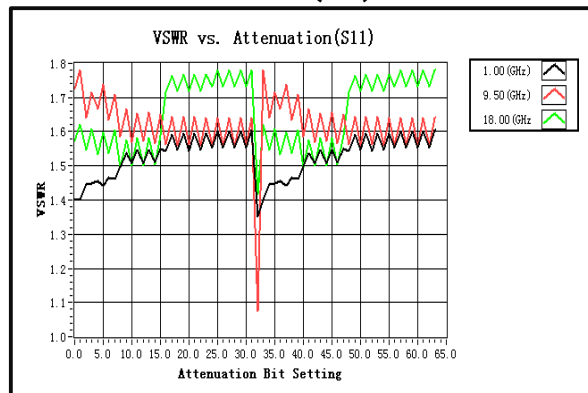
**Output VSWR @+85°C**



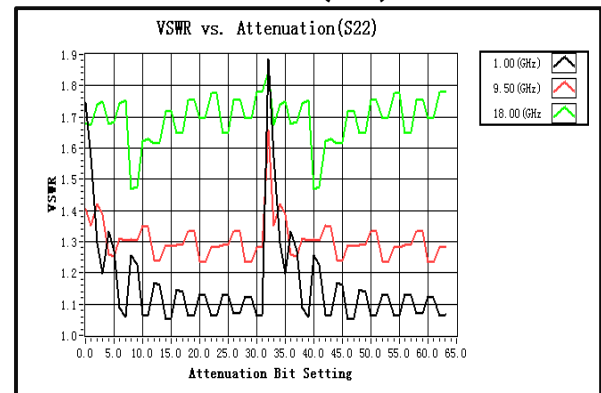
**Attenuation vs. Frequency**



**VSWR vs. Attenuation(S11)**



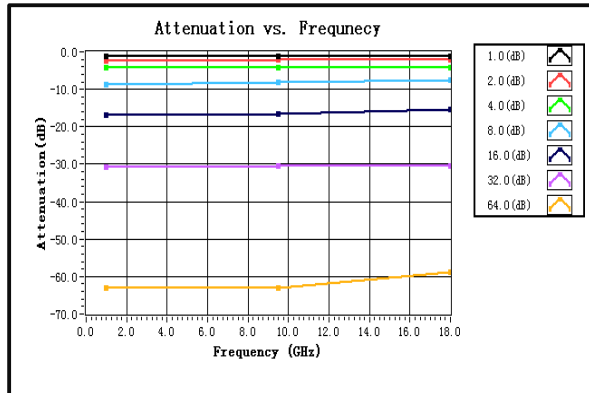
**VSWR vs. Attenuation(S22)**



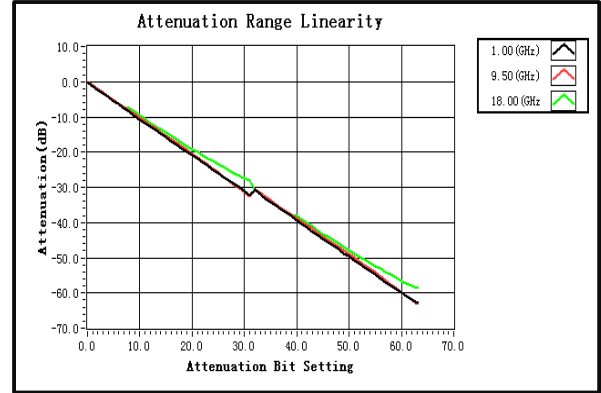
**Absorptive Digital Control Attenuator 1 - 18GHz**



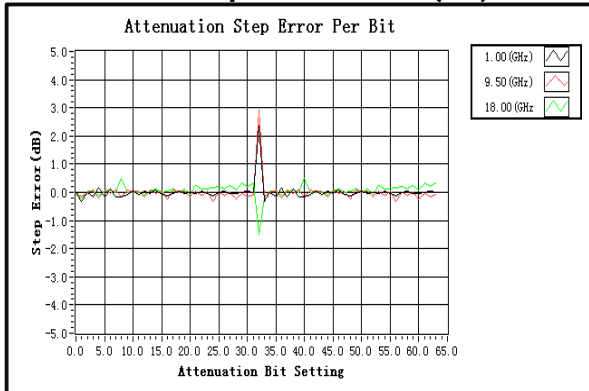
**Attenuation Flatness vs. Frequency**



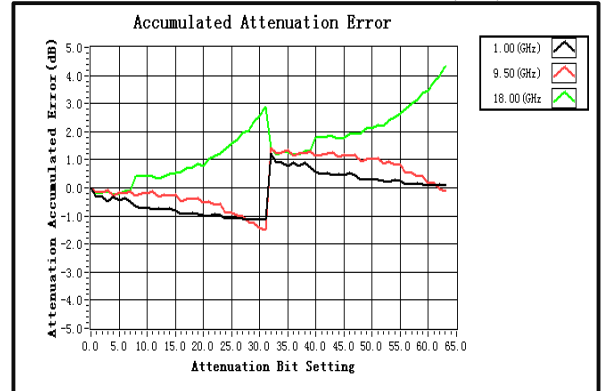
**Attenuation Range Linearity**



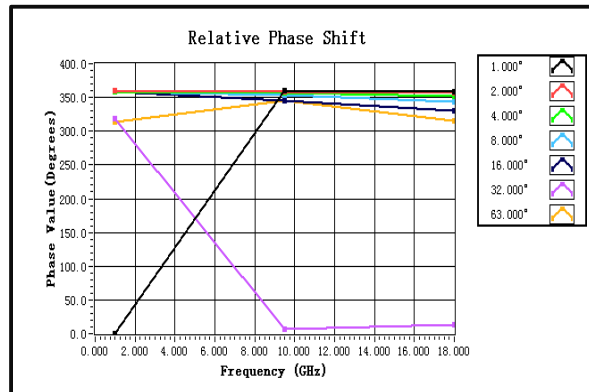
**Attenuation Step Error Per Bit (dB)**



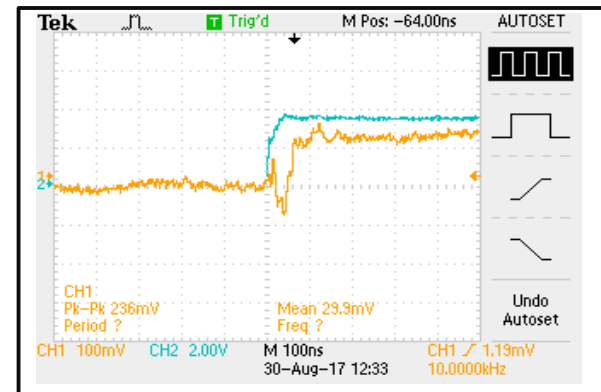
**Accumulated Attenuation Error (dB)**



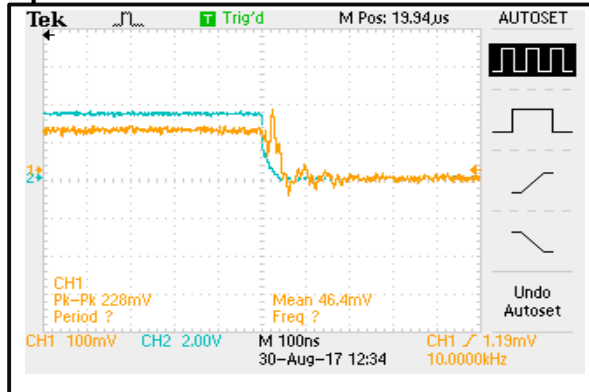
**Relative Phase Shift**



**Speed**



**Speed**

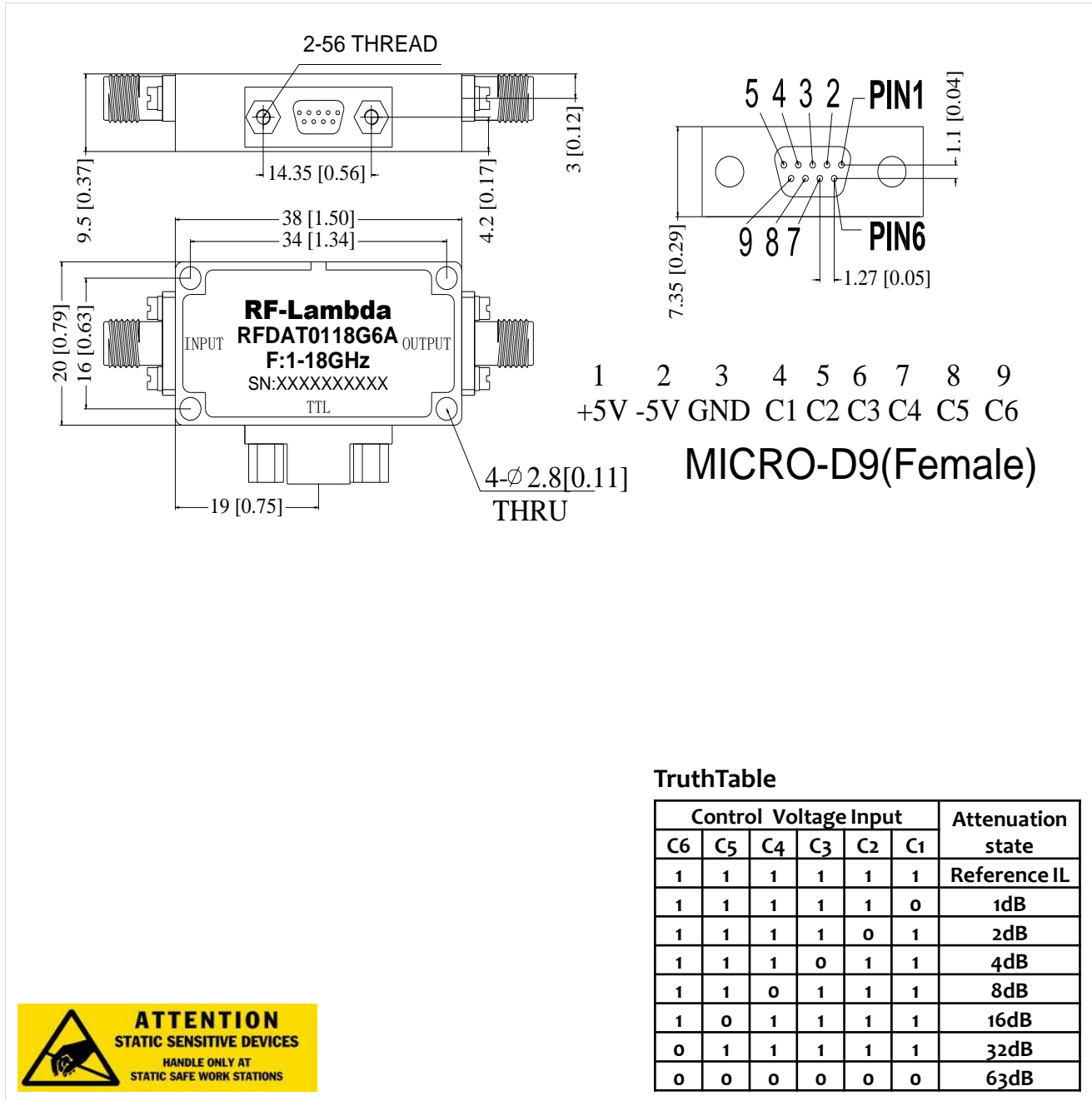


**Absorptive Digital Control Attenuator 1 - 18GHz**



**Outline Drawing:**

All Dimensions in mm [inches]



**Important Notice**

The information contained herein is believed to be reliable. RF-Lambda makes no warranties regarding the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for any of the information contained herein. RF-Lambda assumes no responsibility or liability whatsoever for the use of the information contained herein. The information contained herein is provided "AS IS, WHERE IS" and with all faults, and the entire risk associated with such information is entirely with the user. All information contained herein is subject to change without notice. Customers should obtain and verify the latest relevant information before placing orders for RF-Lambda products. The information contained herein or any use of such information does not grant, explicitly or implicitly, to any party any patent rights, licenses, or any other intellectual property rights, whether with regard to such information itself or anything described by such information. RF-Lambda products are not warranted or authorized for use as critical components in medical, life-saving, or life sustaining applications, or other applications where a failure would reasonably be expected to cause severe personal injury or death.