

7-Bit Digital Step Attenuator

0.5dB LSB/7 Bit/0.1-18GHz

Model: TLDA0.1G18G-63-7

The TLDA0.1G18G-63-7 is an broadband digitally controlled electrical attenuator operating from 0.1 to 18 GHz. The attenuator exhibits 4.5 dB typical insertion loss and offers 63 dB nominal attenuation control range in 0.5 dB steps under a 7-bit digital control. The control speed of the attenuator is typically 50 ns. The RF input and output ports are female SMA coax connectors, and a male J30J-9ZKP port is employed for providing the control signal and DC bias.

Features:

- Frequency range: 0.1-18GHz
- 7-Bit, 0.5 dB LSB, 63dB Range
- Low Insertion Loss
- High Attenuator Accuracy

Applications:

- Radar Systems
- Communication Systems
- Testing Equipment

电气特性 Electrical Characteristics:

参数 Parameter	Min	Typ	Max	单位 Units
频率范围 Frequency range	0.1-18			GHz
插损 Insertion Loss		4.5		dB
衰减范围 Attenuation Range	63			dB
控制位数 Control Bit TTL	7			Bit
衰减步进 Attenuation Step	0.5			dB
切换速度 Switch Speed		50		ns
输入驻波 Input VSWR		2.2		:1
输出驻波 Output VSWR		2.2		:1
最大输入功率 Input Max Power	24			dBm
直流电压 DC Voltage	5			V DC
直流电流 DC Supply Current		20		mA
阻抗 Impedance	50			Ohms

机械特性 Mechanical Specifications:

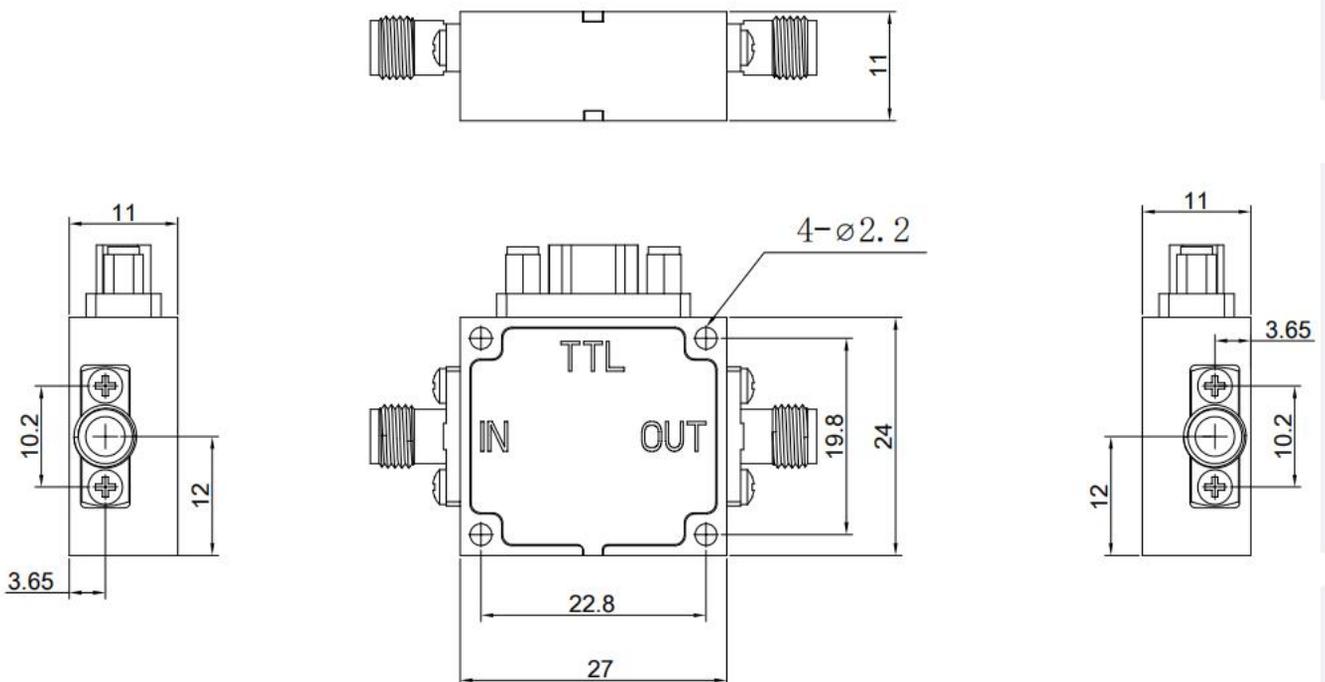
描述 Description	参数 Parameter	单位 Units
输入/输出接口 Input /Output Connector	SMA Female/SMA Female	
DC控制接口 DC control Connector	J30J-9ZKP	
尺寸 Size	27*24*11	mm

绝对最大值 Absolute Maximum Ratings :

描述 Description	参数 Parameter	单位 Units
供电偏置电压 Supply Bias Voltage	+5(+5%)	V
射频输入功率 RF Input Power	24	dBm
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V	

外形图 Outline Drawing:

Unit:mm



ESD Protection: Strictly adhere to ESD precautions to prevent electrostatic damage.

真值表 Truth Table:

真值表 Truth Table							
TTL Control Input							Signal Path State
Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	Bit7	
0	0	0	0	0	0	0	0dB
1	0	0	0	0	0	0	0.5dB
0	1	0	0	0	0	0	1dB
0	0	1	0	0	0	0	2dB
0	0	0	1	0	0	0	4dB
0	0	0	0	1	0	0	8dB
0	0	0	0	0	1	0	16dB
0	0	0	0	0	0	1	31.5dB
1	1	1	1	1	1	1	63dB

TTL Control Voltages & VDD	
Stage	Bias Condition
Control	0/+5V
Low (0)	0 to 0.8Vdc
High (1)	2.0 to +5.0Vdc

加电接口 Supply Conector(J30J-9ZKP):

J30J-15ZKP	
引脚Pin#	功能Function
1	V1
2	V2
3	V3
4	V4
5	V5
6	V6
7	V7
8	+5V
9	GND

温度环境 Environmental Conditions:

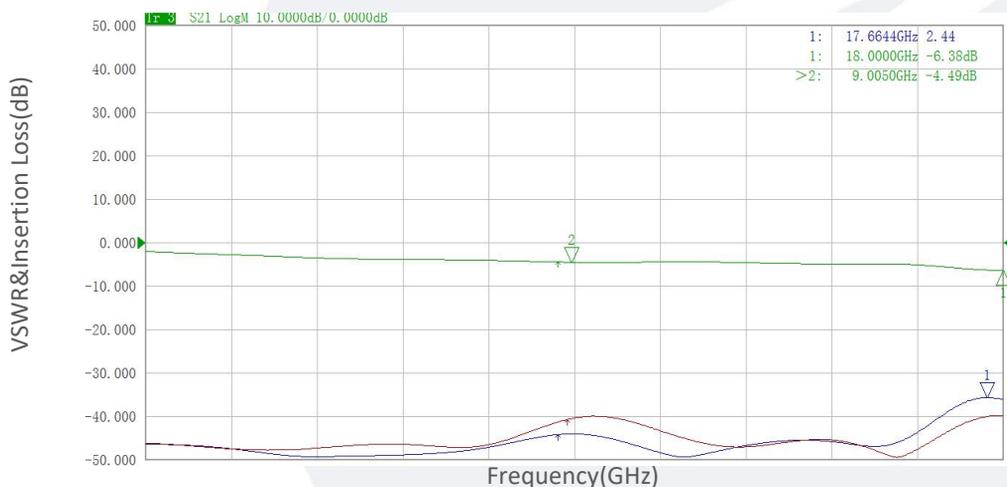
参数 Parameter	Min	Typ	Max	单位 Units
操作温度 Operating Temperature	-10		+65	°C
存储温度 Non-operating Temperature	-45		+85	°C
相对湿度 Relative humidity		95		%
海拔 Altitude	10,000			feet
震动 Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
冲击 Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 Revision
TLDA0.1G18G-63-7	7-Bit Digital Step Attenuator,0.1-18GHz,SMA Female	Rev.1.1

典型曲线 Typical Performance Data:

VSWR&Insertion Loss vs Frequency

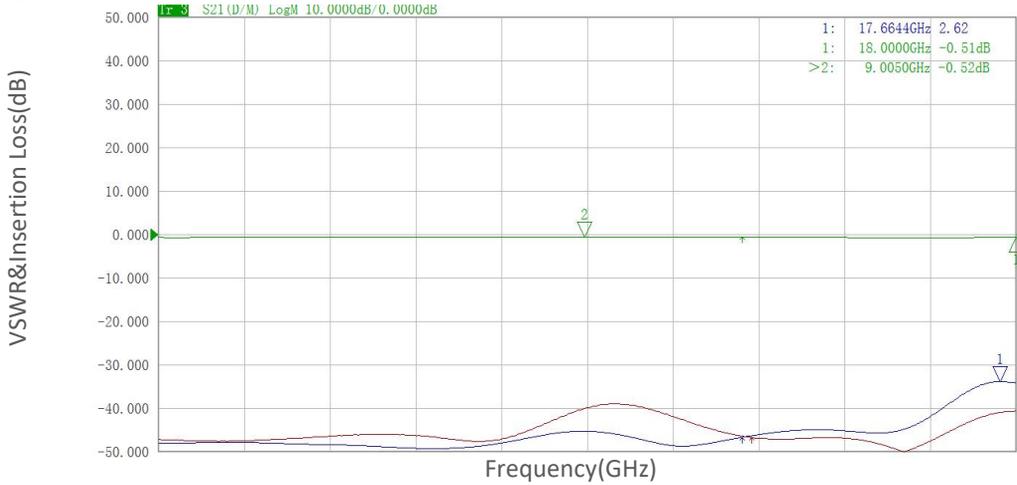


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

典型曲线 Typical Performance Data:

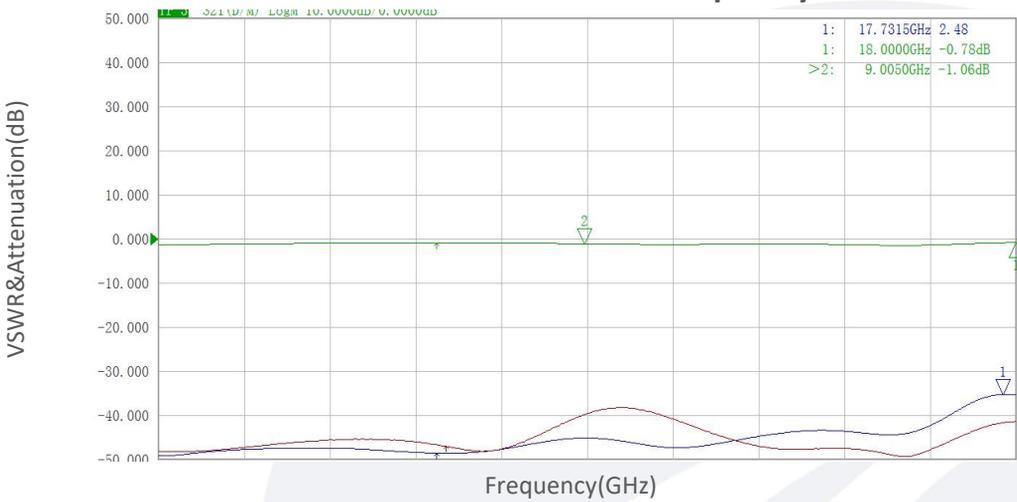
0.5dB:

VSWR&Attenuation vs Frequency



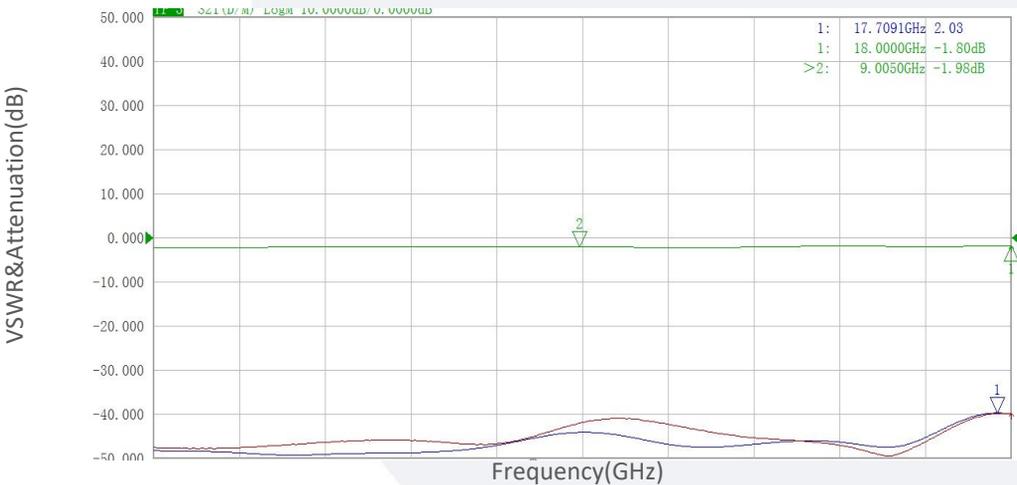
1dB:

VSWR&Attenuation vs Frequency



2dB:

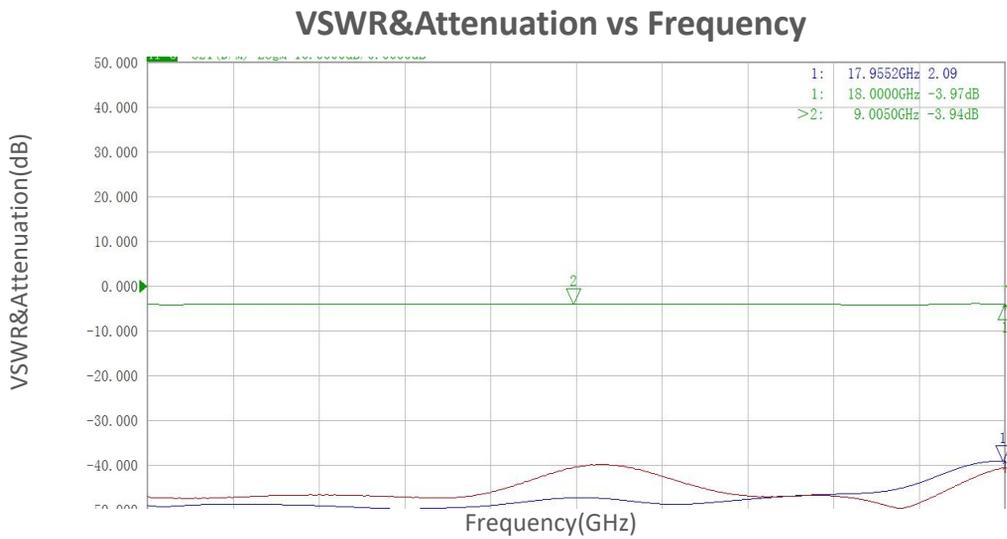
VSWR&Attenuation vs Frequency



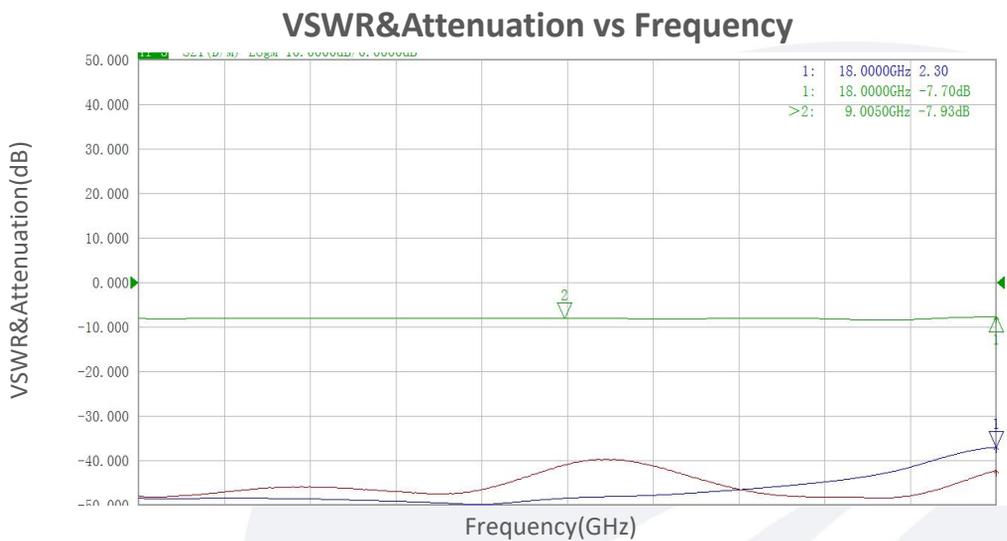
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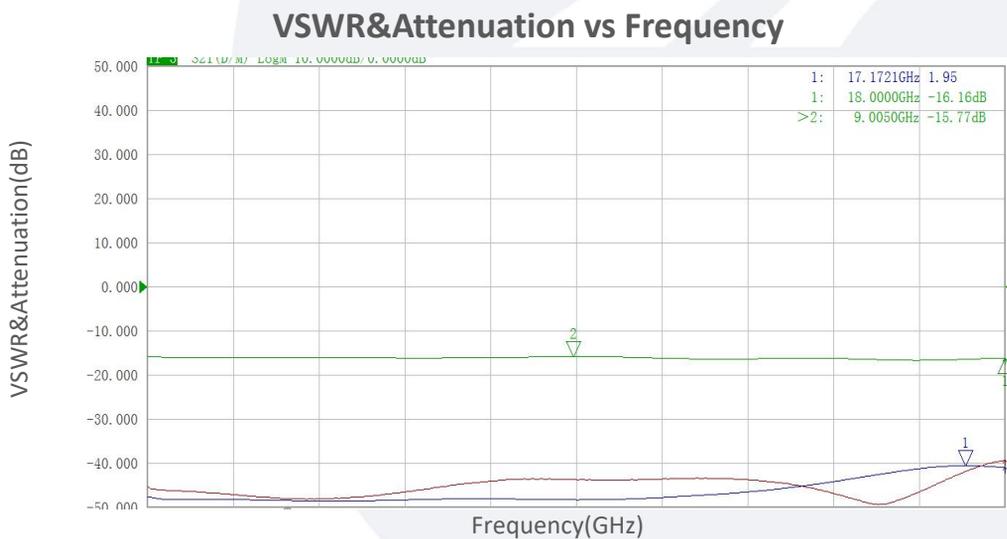
4dB:



8dB:



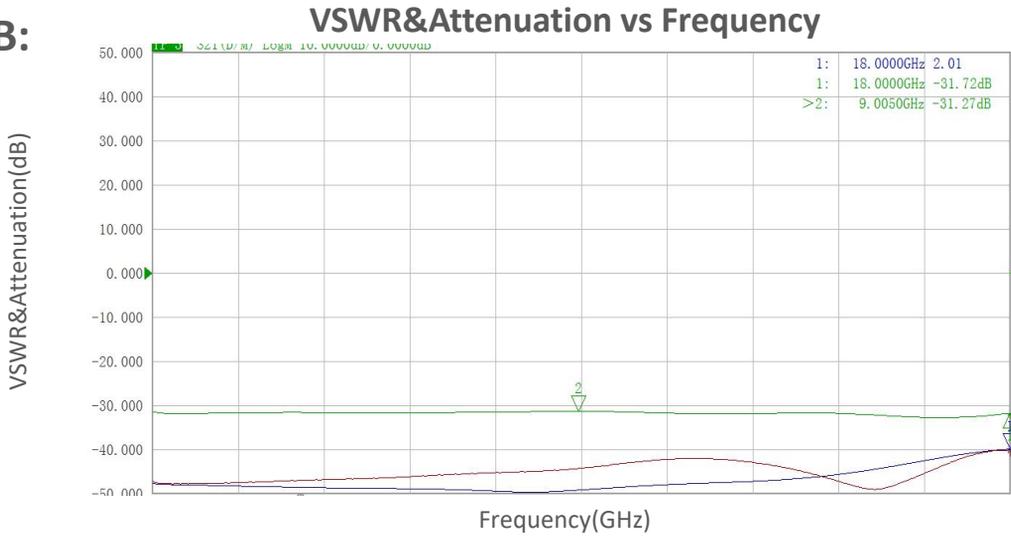
16dB:



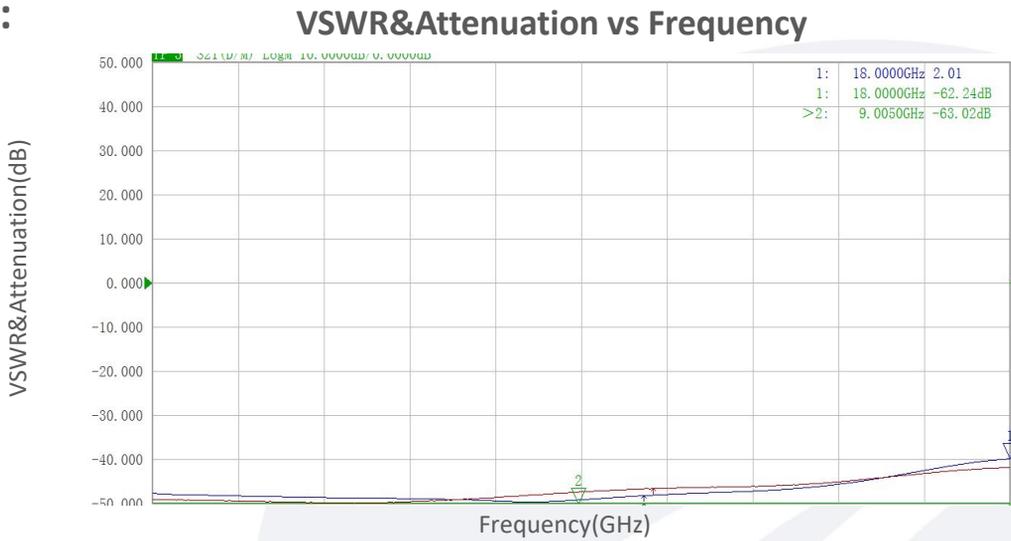
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典型曲线 Typical Performance Data:

31.5dB:



63dB:



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