

6-Bit Digital Attenuator

0.5dB LSB/6 Bit/ 4-12GHz

Model: TLDA4G12G-32-6

The TLDA4G12G-32-6 is an broadband digitally controlled electrical attenuator operating from 4 to 12 GHz. The attenuator exhibits 5 dB typical insertion loss and offers 31.5 dB nominal attenuation control range in 0.5 dB steps under a 6-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:

- Ultra Wide Band: 4-12GHz
- 6-Bit, 0.5 dB LSB, 31.5 dB 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	4-12			GHz
插损 Insertion Loss		5	6	dB
衰减范围 Attenuation Range	31.5			dB
控制位数 Control Bit TTL	6			Bit
衰减步进 Attenuation Step	0.5			dB
切换速度 Switch Speed		50		ns
输入驻波 Input VSWR		1.5	2.0	:1
输出驻波 Output VSWR		1.5	2.0	:1
最大输入功率 Input Max Power	23			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:

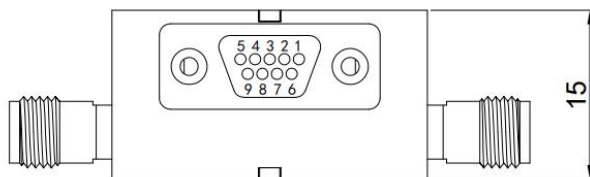
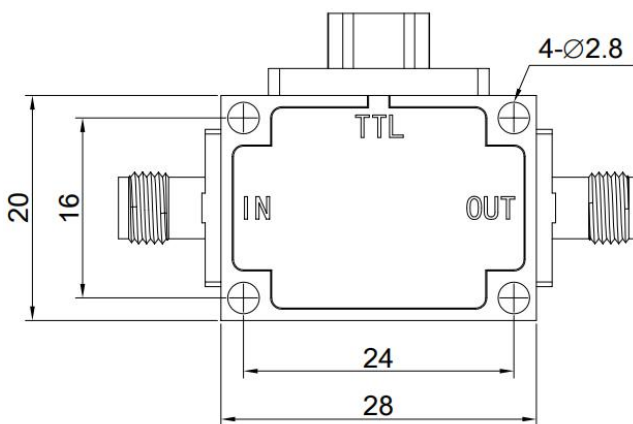
描述 Description	参数 Parameter	单位 Units
输入/输出接口 Input /Output Connector	SMA Female/SMA Female	
DC控制接口 DC control interface	J30J-9ZKP	
尺寸 Size	28*20*15	mm

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	23	dBm
ESD灵敏度 ESD sensitivity (HBm)	Class 0, passed 150V	

外形图 Outline Drawing:

Unit:mm



真值表 Truth Table

TTL Control Input						Signal Path State
Bit1	Bit2	Bit3	Bit4	Bit5	Bit6	
1	1	1	1	1	1	Reference
0	1	1	1	1	1	0.5dB
1	0	1	1	1	1	1dB
1	1	0	1	1	1	2dB
1	1	1	0	1	1	4dB
1	1	1	1	0	1	8dB
1	1	1	1	1	0	16dB
0	0	0	0	0	0	31dB



OBSERVE PRECAUTIONS
ELECTROSTATIC SENSITIVE
DEVICES

加电接口 Supply Conector(J30J-9ZKP):

J30J-9ZKP	
引脚Pin#	功能Function
1	+5V
2	NC
3	GND
4	C1
5	C2
6	C3
7	C4
8	C5
9	C6

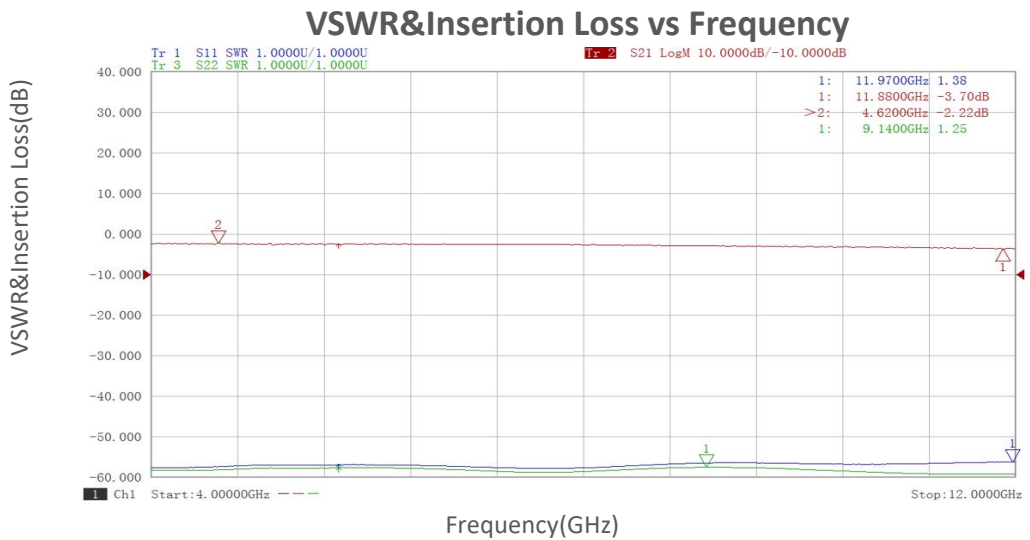
温度环境 Environmental Conditions:

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			

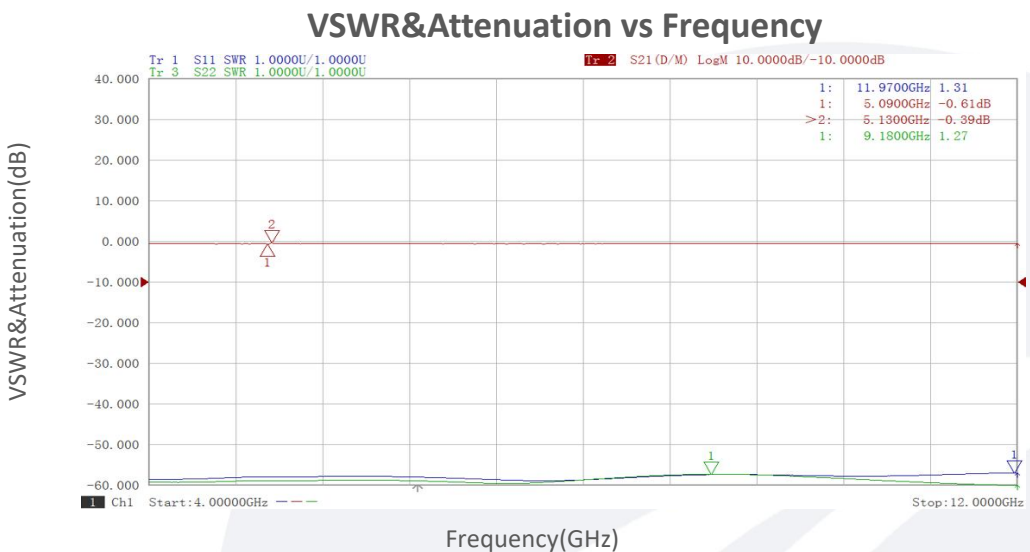
订货信息 Ordering Information:

标准型号 Base Number	描述 Description	版本号 Revision
TLDA4G12G-32-6	6-Bit Digital Digital Attenuator,4-12GHz,SMA Female	Rev.1.1

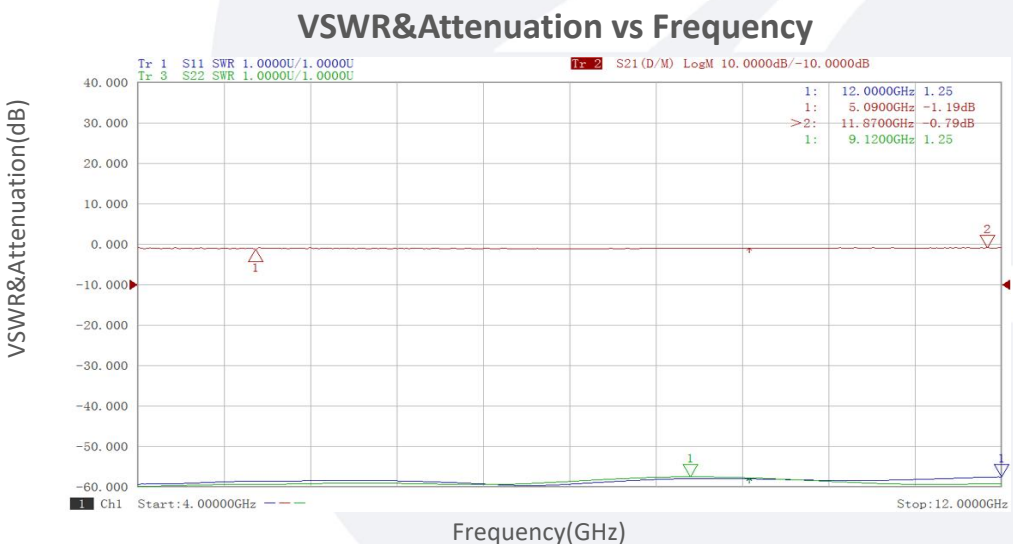
典型曲线 Typical Performance Data:



0.5dB:



1dB:

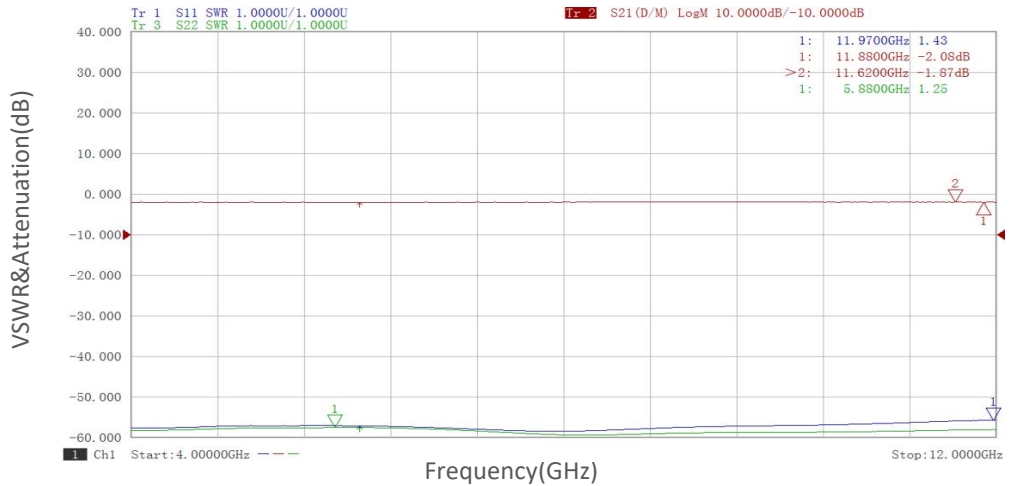


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

典型曲线 Typical Performance Data:

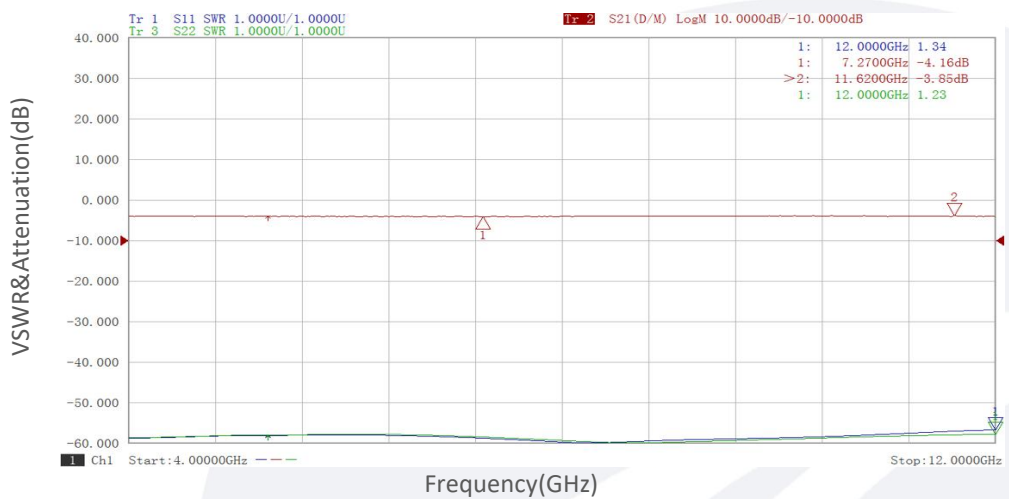
2dB:

VSWR&Attenuation vs Frequency



4dB:

VSWR&Attenuation vs Frequency



8dB:

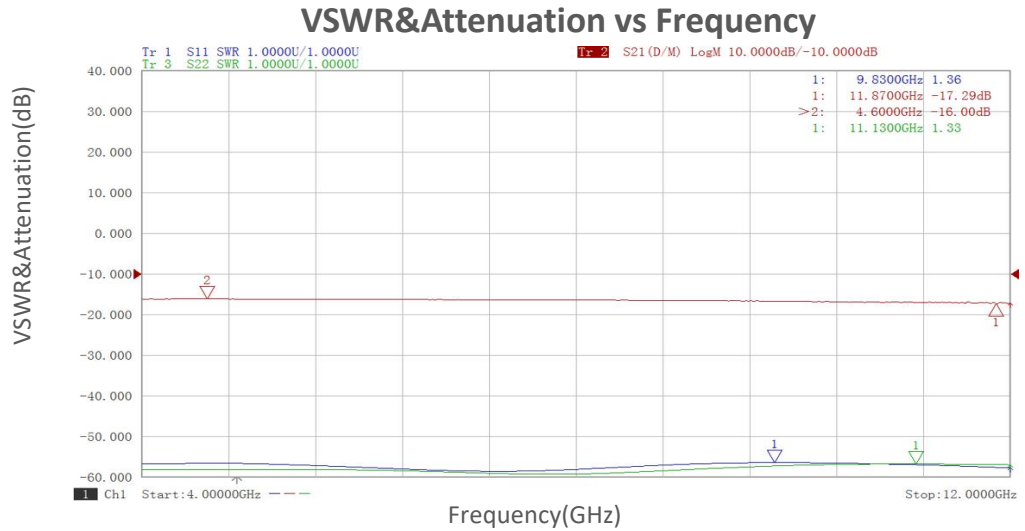
VSWR&Attenuation vs Frequency



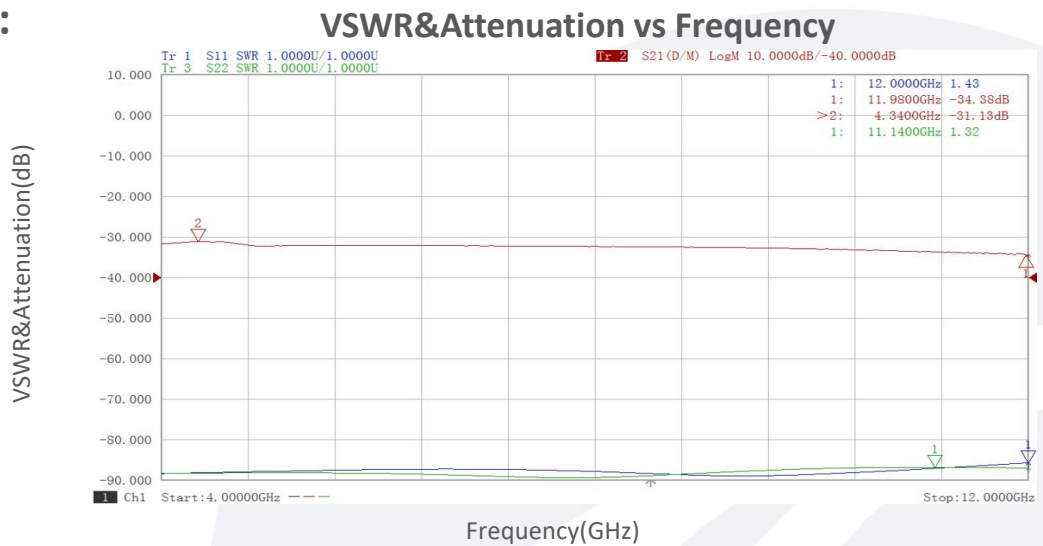
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典型曲线 Typical Performance Data:

16dB:



31.5dB:



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