

6-Bit Digital Attenuator

0.5dB LSB/6 Bit/0.1-18GHz

Model: TLDA0.1G18G-31.5-6

The TLDA0.1G18G-31.5-6 is an broadband digitally controlled electrical attenuator operating from 0.1 to 18 GHz. The attenuator exhibits 4 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 100 ns. The RF input and output ports are female SMA female coax connectors, and a male J30J-9ZKP port is employed for providing the control signal and DC bias.

Features:

- Frequency range: 0.1-18GHz
- 6-Bit, 0.5 dB LSB, 31.5 dB Range
- Low Insertion Loss
- High Attenuator Accuracy

Applications:

- Radar Systems
- Communication Systems
- Testing Equipment

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	0.1		18	GHz
Insertion Loss		4	5	dB
Attenuation Range	31.5			dB
Control Bit TTL	6			Bit
Attenuation Step	0.5			dB
Switch Speed		100		ns
Input VSWR			2.0	:1
Output VSWR			2.0	:1
Input Max Power	25			dBm
DC Voltage	+5			V DC
DC Supply Current		30		mA
Impedance	50			Ohms

Mechanical Specifications:

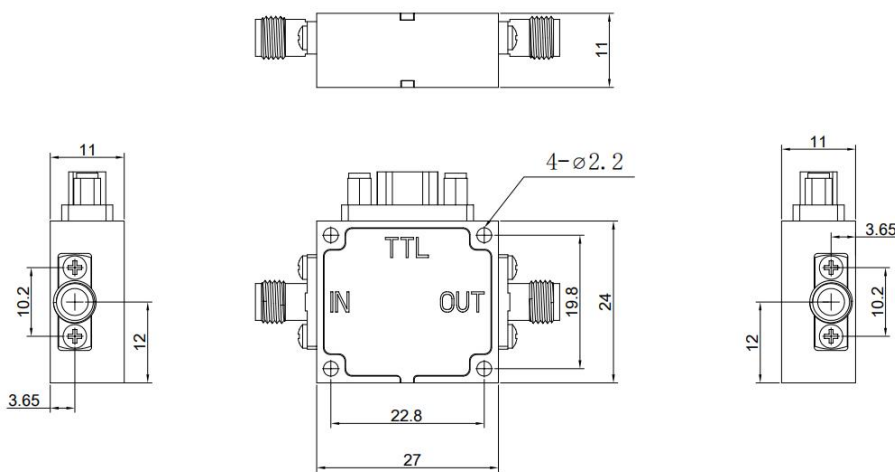
Description	Parameter	Units
Input /Output Connector	SMA Female/SMA Female	
DC control interface	J30J-9ZKP	
Size	27*24*11	mm

Absolute Maximum Ratings :

Description	Parameter	Units
Supply Bias Voltage	+5 (±5%)	V
RF Input Power	25	dBm
ESD sensitivity (HBm)	Class 0, passed 150V	

Outline Drawing:

Unit:mm; Tolerance:±0.1mm



Truth Table							
TTL Control Input						Signal Path State	
C1	C2	C3	C4	C5	C6		
0	0	0	0	0	0	Reference	
1	0	0	0	0	0	0.5	
0	1	0	0	0	0	1	
0	0	1	0	0	0	2	
0	0	0	1	0	0	4	
0	0	0	0	1	0	8	
0	0	0	0	0	1	16	
1	1	1	1	1	1	31.5	



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

Supply Conector(J30J-9ZKP):

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

Environmental Conditions:

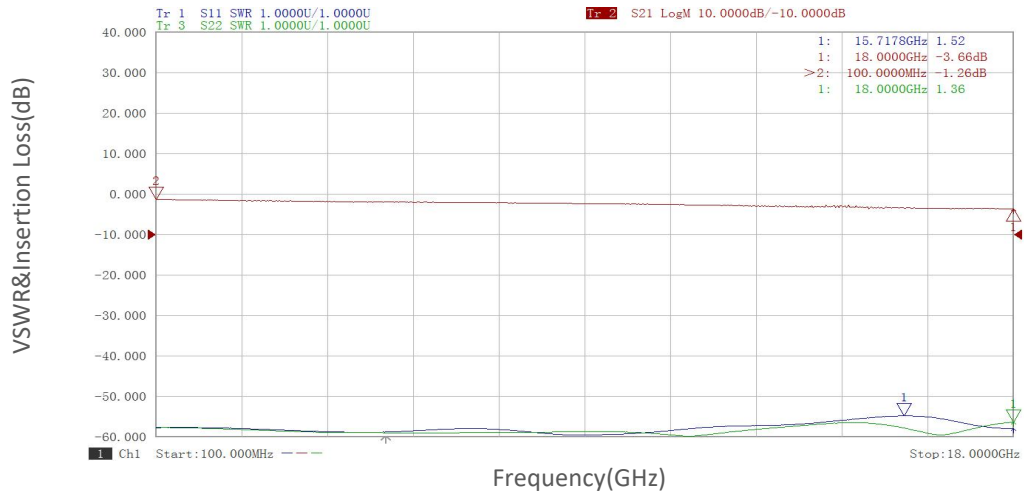
Parameter	Min	Typ	Max	Units
Operating Temperature	-45		+85	°C
Non-operating Temperature	-55		+125	°C
Relative humidity		95		%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

Ordering Information:

Base Number	Description	Revision
TLDA0.1G18G-31.5-6	6-Bit Digital Digital Attenuator,0.1-18GHz,SMA Female	Rev.1.0

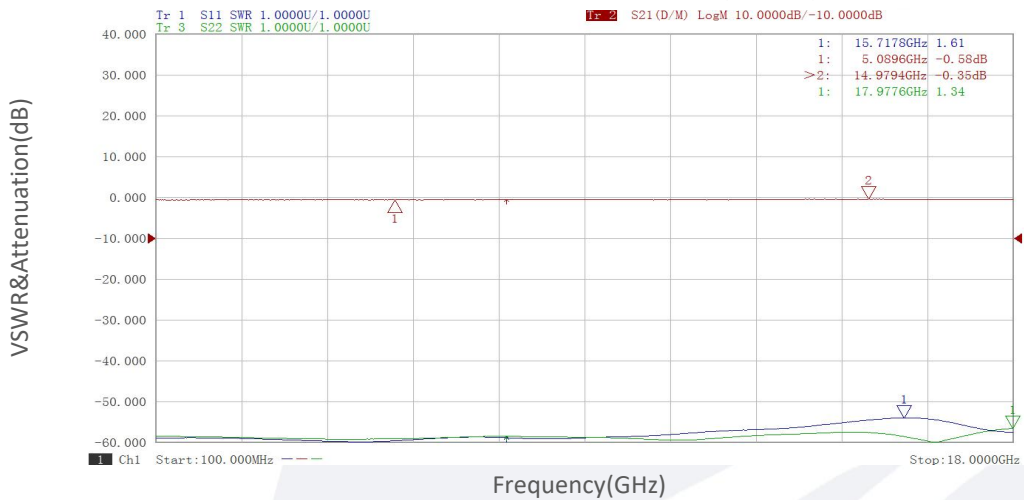
Typical Performance Data:

VSWR&Insertion Loss vs Frequency



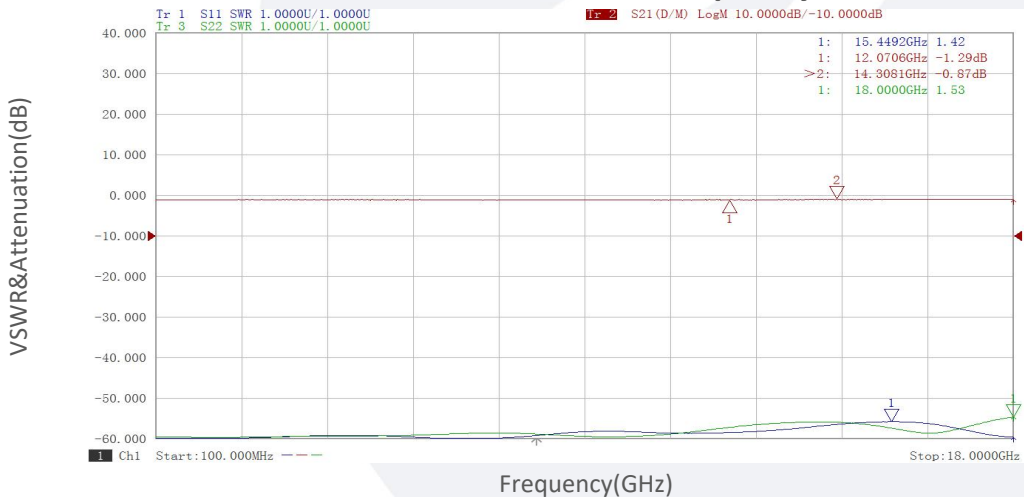
0.5dB:

VSWR&Attenuation vs Frequency



1dB:

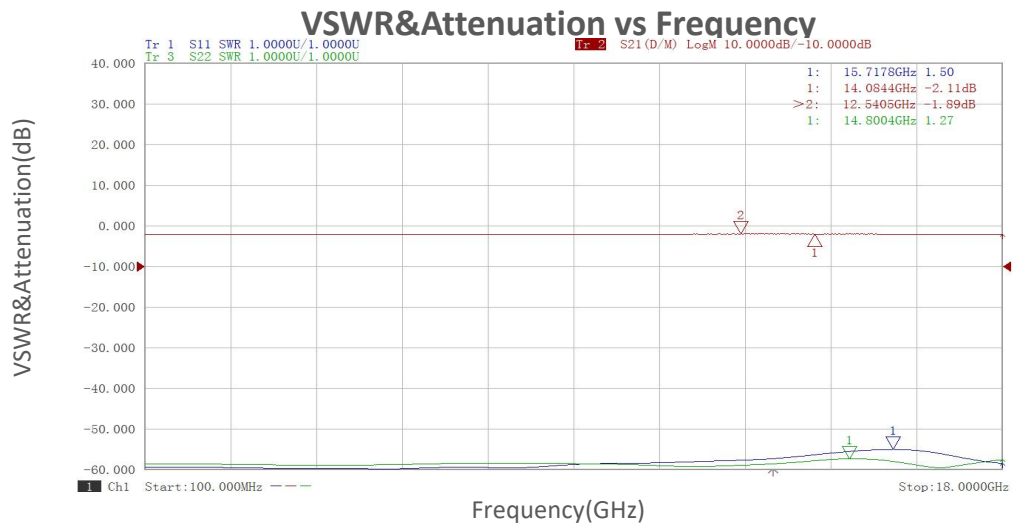
VSWR&Attenuation vs Frequency



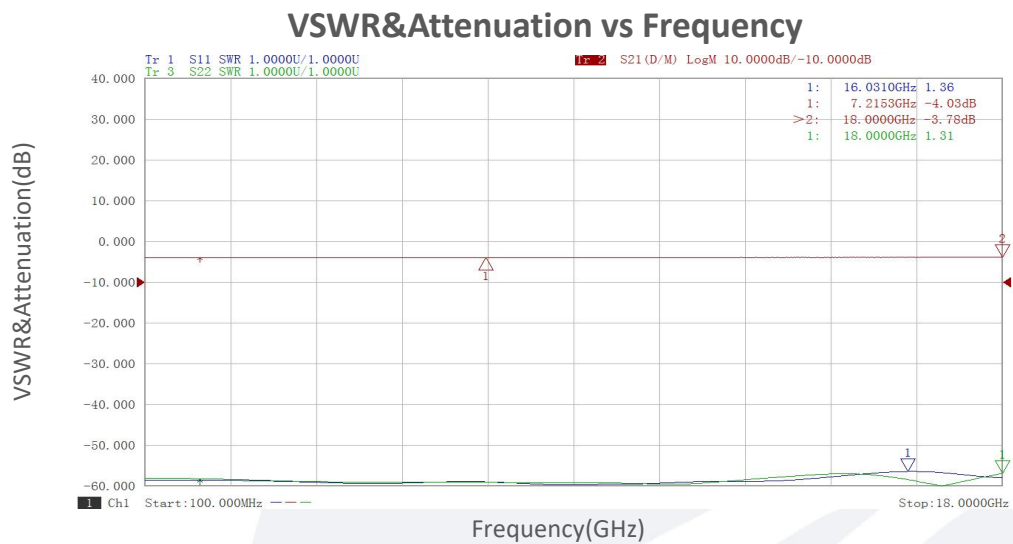
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

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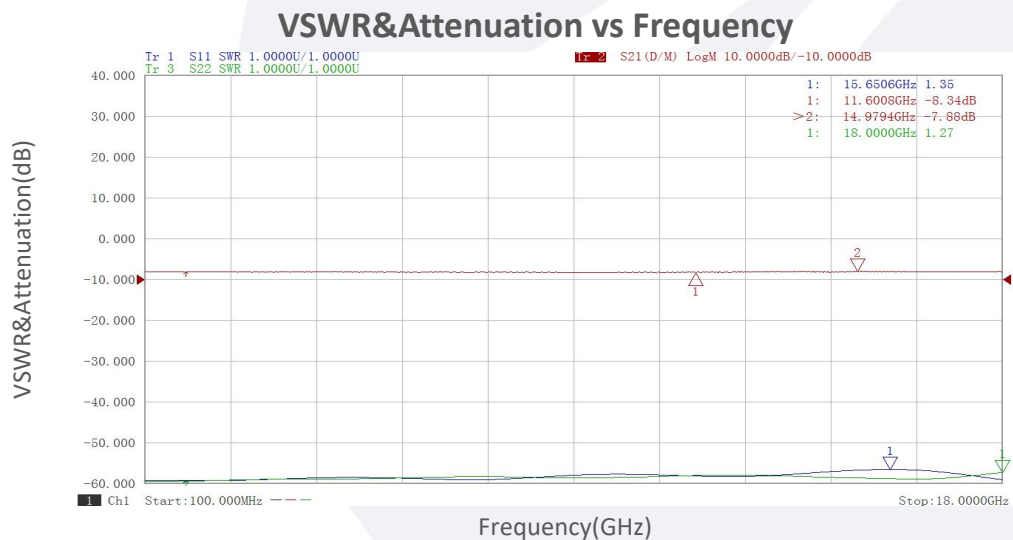
2dB:



4dB:



8dB:

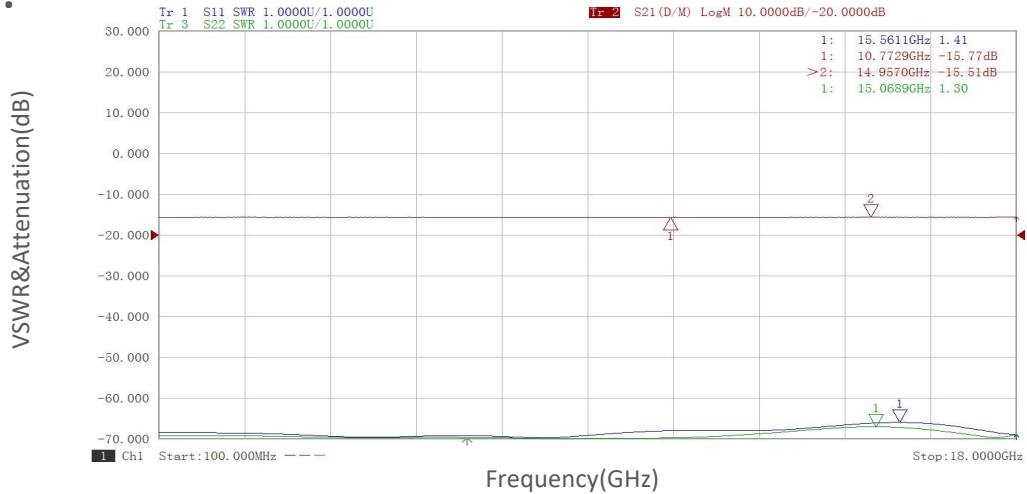


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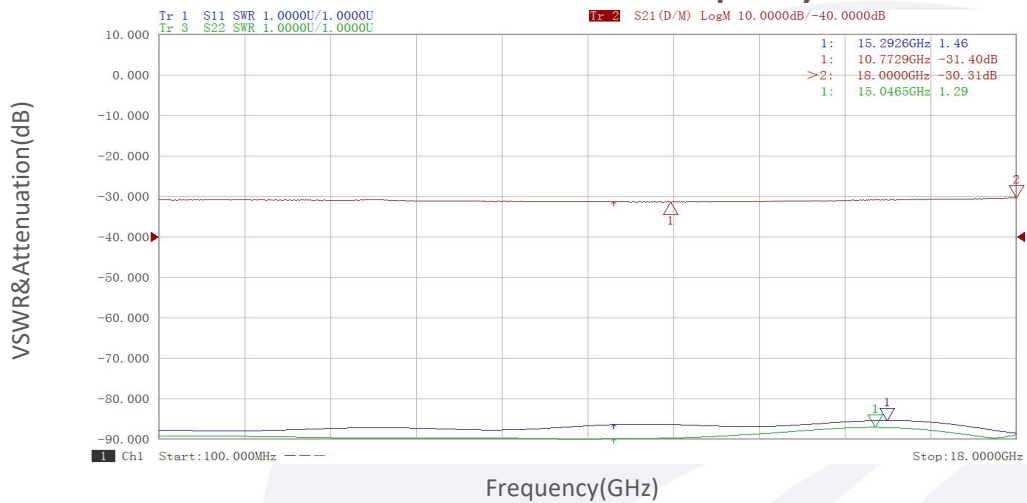
16dB:

VSWR&Attenuation vs Frequency



31.5dB:

VSWR&Attenuation vs Frequency



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