

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

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	0.1-18			GHz
Insertion Loss		4.5		dB
Attenuation Range	63			dB
Control Bit TTL	7			Bit
Attenuation Step	0.5			dB
Switch Speed		50		ns
Input VSWR		2.2		:1
Output VSWR		2.2		:1
Input Max Power	24			dBm
DC Voltage	5			V DC
DC Supply Current		20		mA
Impedance	50			Ohms

Mechanical Specifications:

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

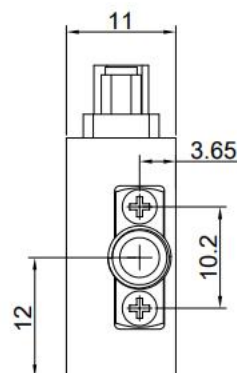
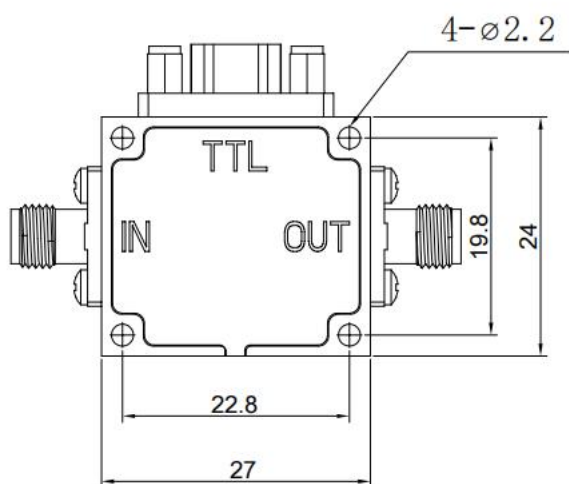
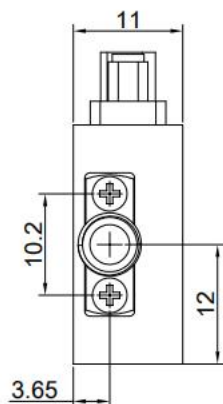
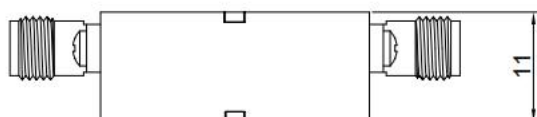
Absolute Maximum Ratings :

Description	Parameter	Units
Supply Bias Voltage	±5 （+5%）	V
RF Input Power	24	dBm
ESD sensitivity (HBM)	Class 0, passed 150V	

Outline Drawing:

Unit:mm

Regulatory Compliance:



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

Truth Table:

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
1	1	1	1	1	1	0	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

Supply Conector(J30J-9ZKP):

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

Environmental Conditions:

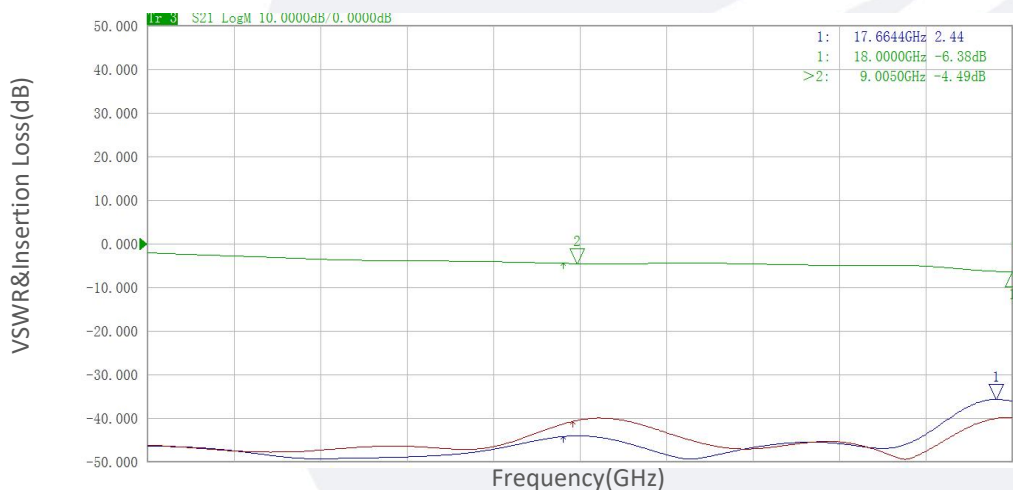
Parameter	Min	Typ	Max	Units
Operating Temperature	-10		+65	°C
Non-operating Temperature	-45		+85	°C
Relative humidity		95		%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

Ordering Information:

Base Number	Description	Revision
TLDA0.1G18G-63-7	7-Bit Digital Step Attenuator,0.1-18GHz,SMA Female	Rev.1.1

Typical Performance Data:

VSWR&Insertion Loss vs Frequency

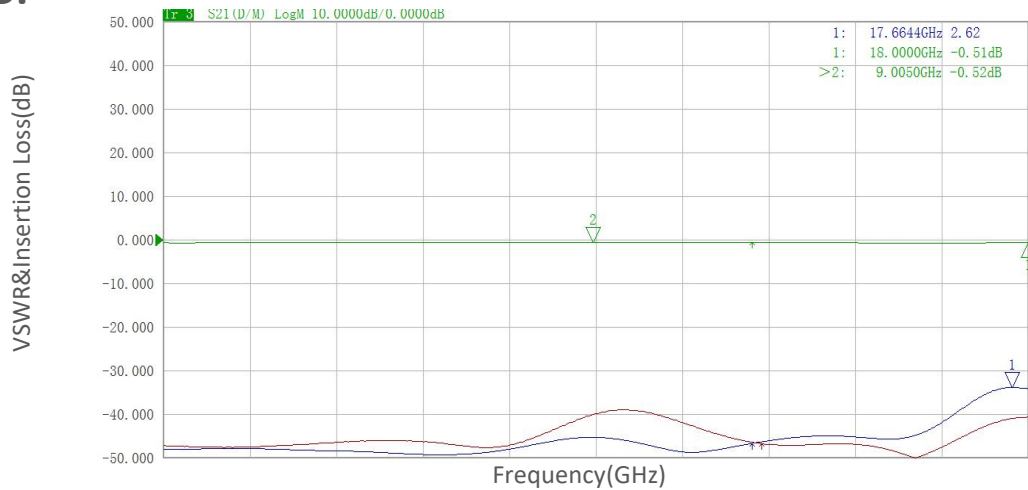


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

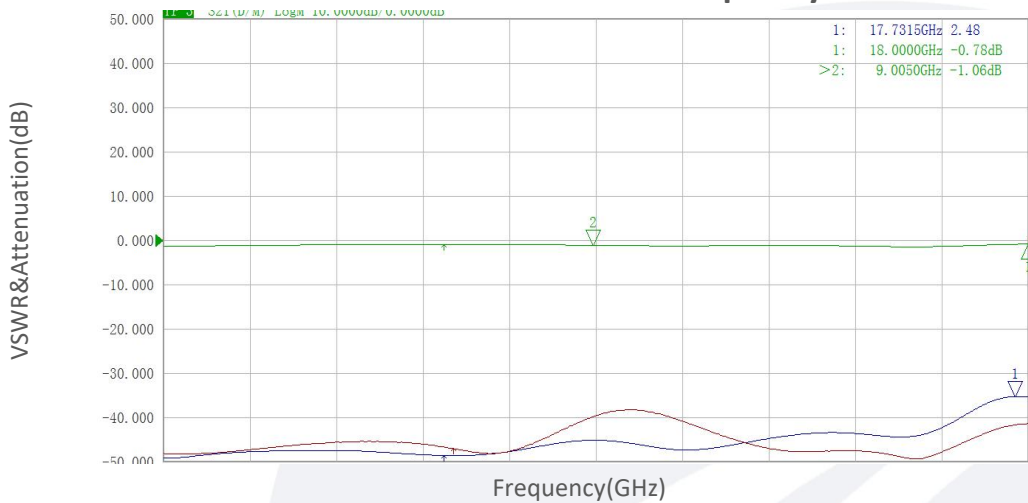
0.5dB:

VSWR&Attenuation vs Frequency



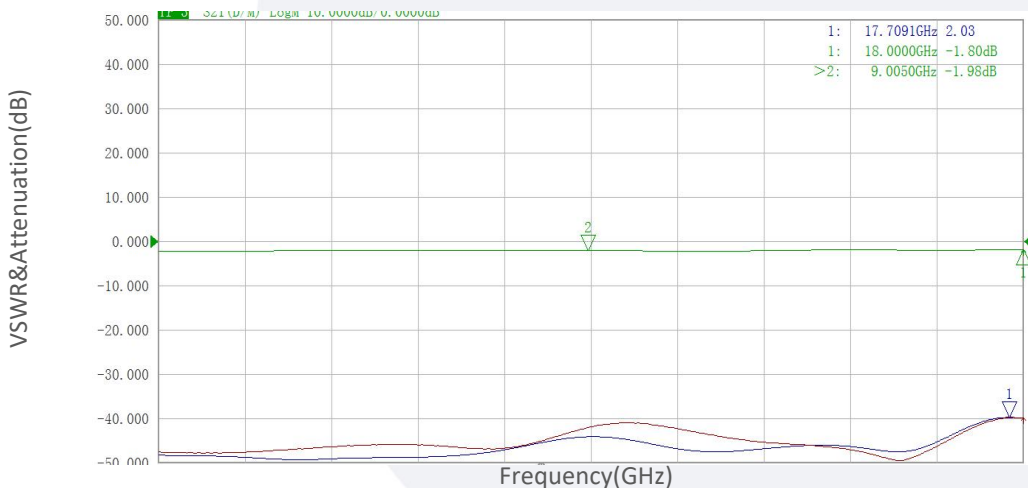
1dB:

VSWR&Attenuation vs Frequency



2dB:

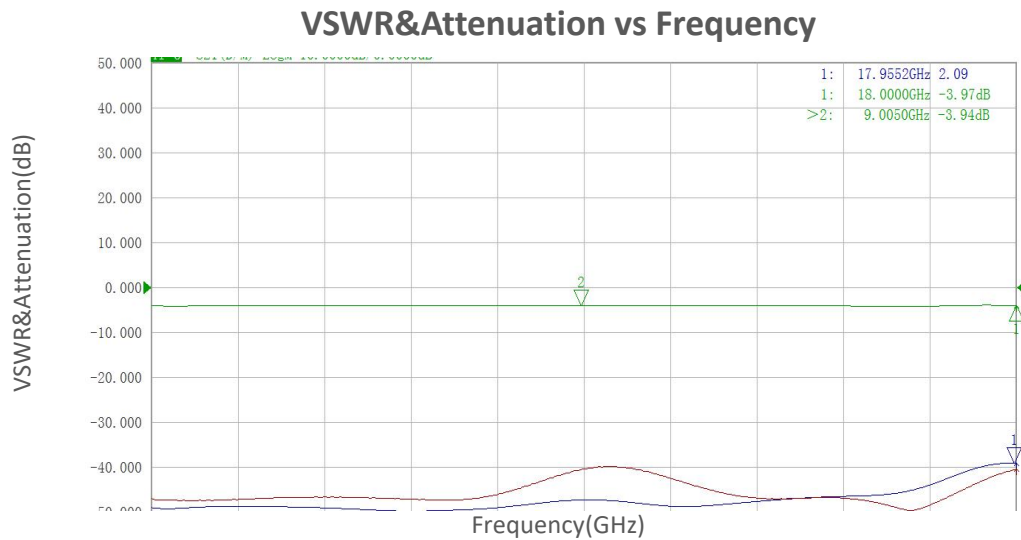
VSWR&Attenuation vs Frequency



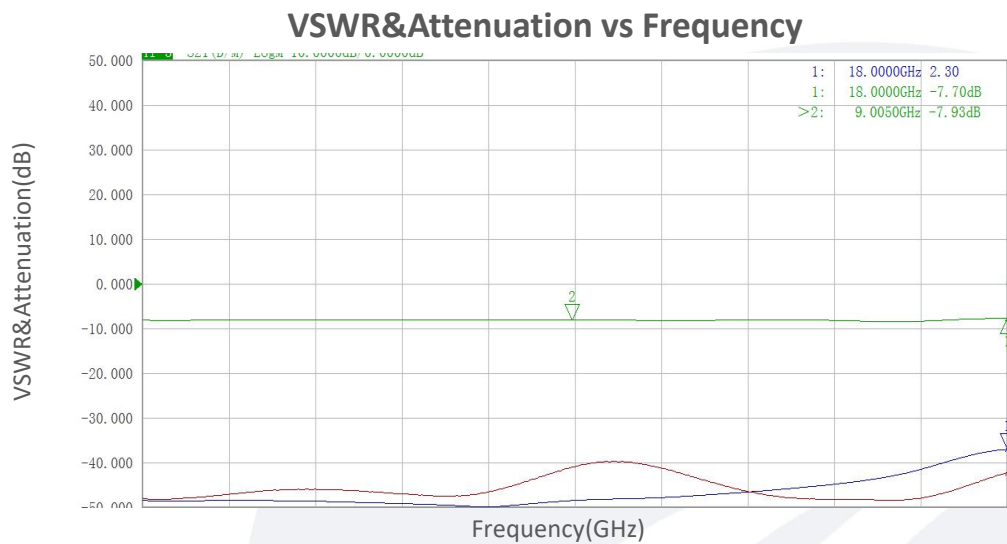
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Typical Performance Data:

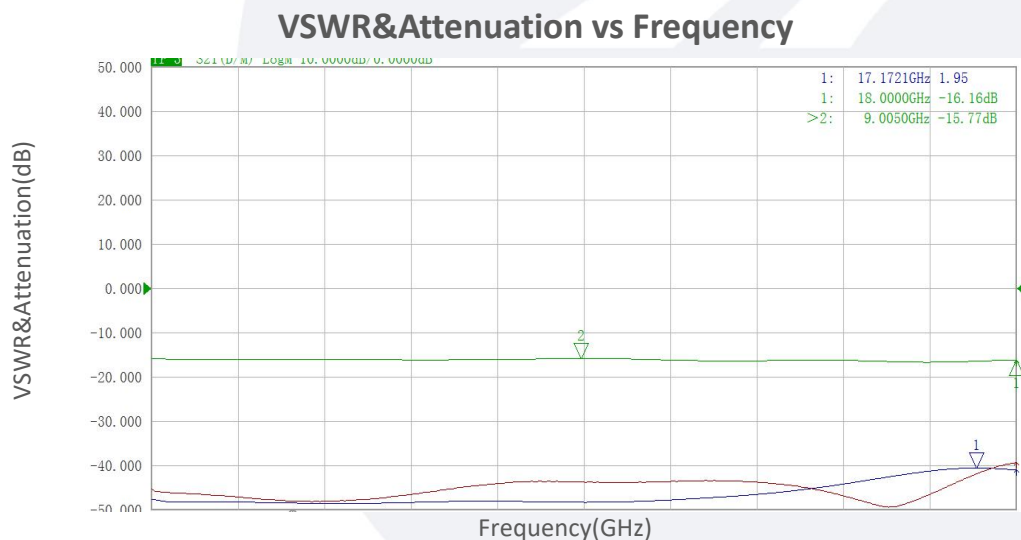
4dB:



8dB:



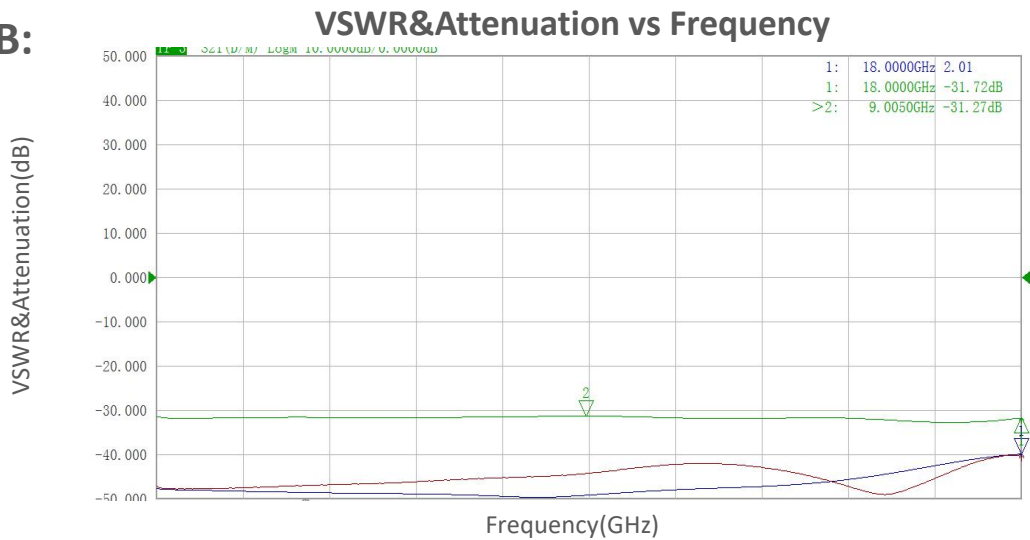
16dB:



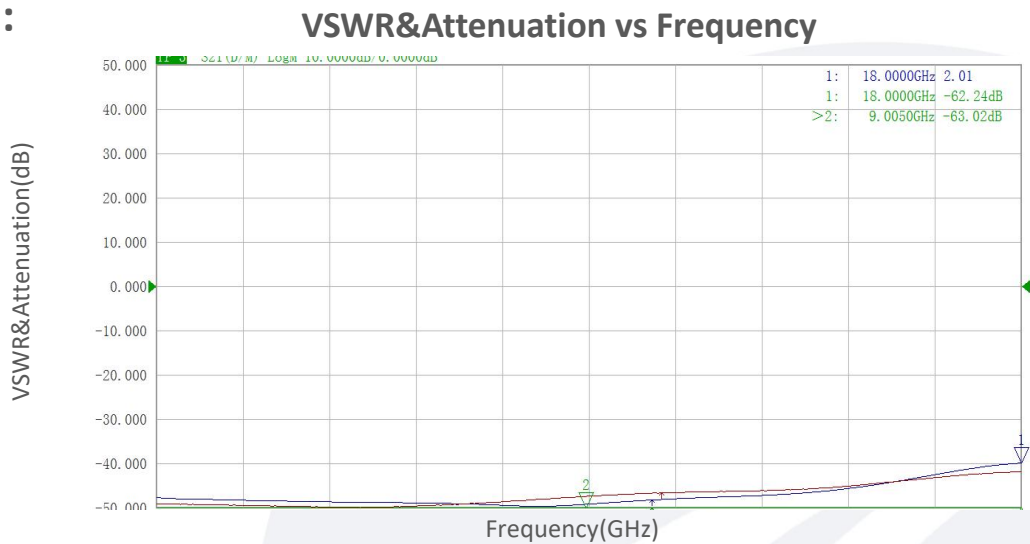
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Typical Performance Data:

31.5dB:



63dB:



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