

6-Bit Digital Attenuator

1dB LSB/6 Bit/ 0.5-6GHz

Model: TLDA0.5G6G-63-6

The TLDA0.5G6G-63-6 is an broadband digitally controlled electrical attenuator operating from 0.5 to 6 GHz. The attenuator exhibits 3.5 dB typical insertion loss and offers 63 dB nominal attenuation control range in 1 dB steps under a 6-bit digital control. The control speed of the attenuator is typically 1 μ s. 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: 0.5-6GHz
- 6-Bit, 1 dB LSB, 63 dB Range
- Low Insertion Loss
- High Attenuator Accuracy

Applications:

- Radar Systems
- Communication Systems
- Testing Equipment

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	0.5-6			GHz
Insertion Loss		3.5	5	dB
Attenuation Range	63			dB
Control Bit TTL	6			Bit
Attenuation Step	1			dB
Switch Speed		1		μ s
Input VSWR		1.5	1.8	:1
Output VSWR		1.5	1.8	:1
Input Max Power	25			dBm
DC Voltage	+5			V DC
DC Supply Current		50		mA
Impedance	50			Ohms
Logic:0	0-0.8			V
Logic:1	3.3-5			V

Mechanical Specifications:

Description	Parameter	Units
Input /Output Connector	SMA Female/SMA Female	
DC control interface	J30J-9ZKP	
Size	54*39*14.5	mm

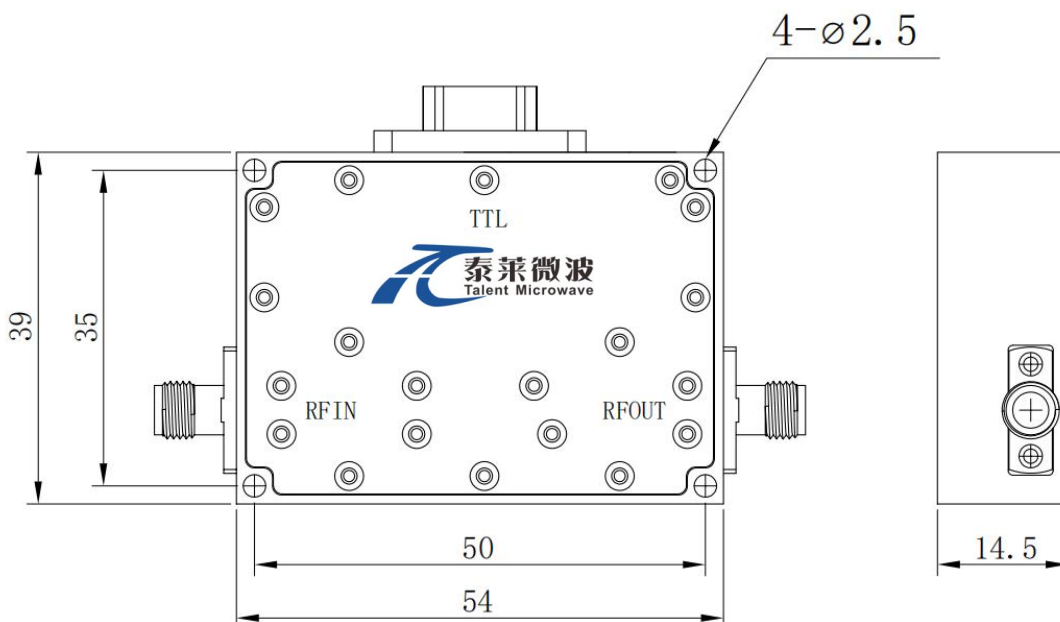
Absolute Maximum Ratings :

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

Regulatory Compliance:



OBSERVE PRECAUTIONS
ELECTROSTATIC SENSITIVE
DEVICES

Supply Conector and Truth Table(J30J-9ZKP):

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

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	1
0	1	0	0	0	0	2
0	0	1	0	0	0	4
0	0	0	1	0	0	8
0	0	0	0	1	0	16
0	0	0	0	0	1	32
1	1	1	1	1	1	63

Environmental Conditions:

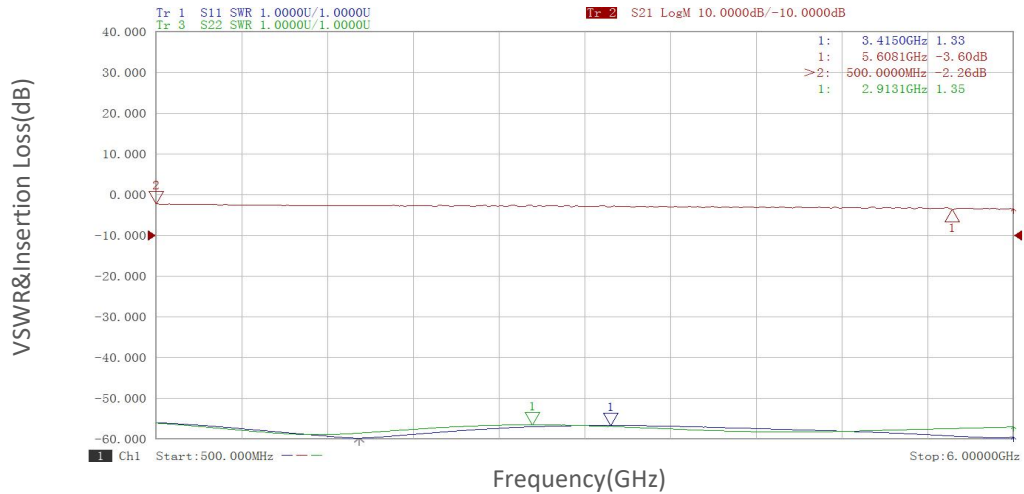
Parameter	Min	Typ	Max	Units
Operating Temperature	-10		+65	°C
Non-operating Temperature	-45		+85	°C
Relative humidity		95		%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

Ordering Information:

Base Number	Description	Revision
TLDA0.5G6G-63-6	6-Bit Digital Digital Attenuator,0.5-6GHz,SMA Female	Rev.1.1

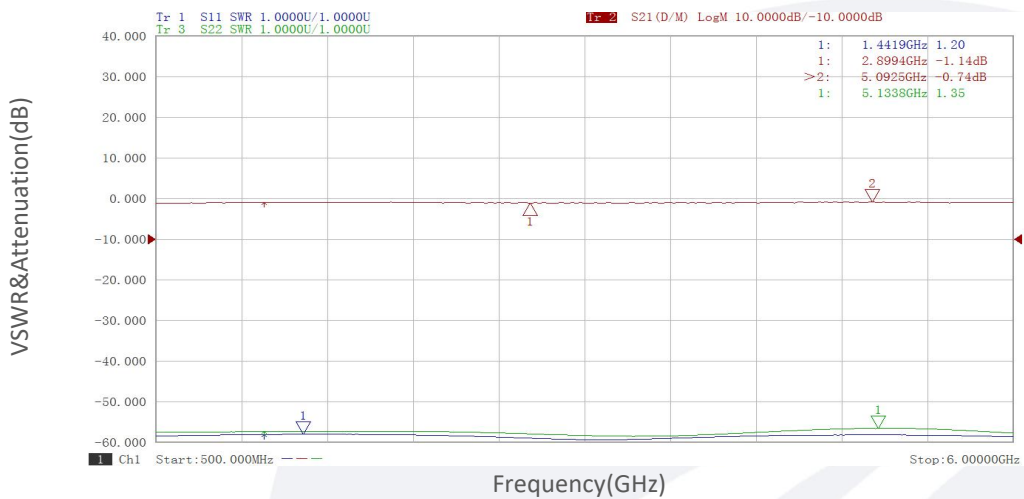
Typical Performance Data:

VSWR&Insertion Loss vs Frequency



1dB:

VSWR&Attenuation vs Frequency



2dB:

VSWR&Attenuation vs Frequency

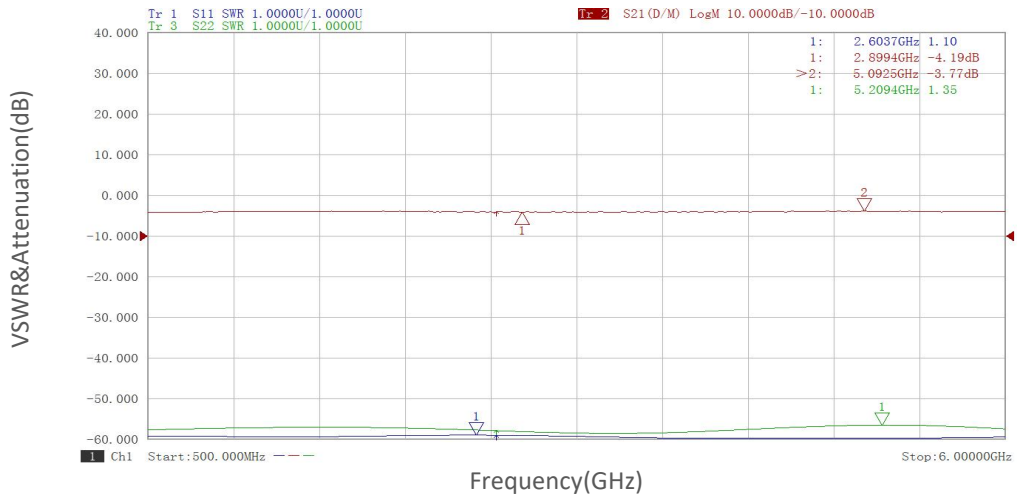


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

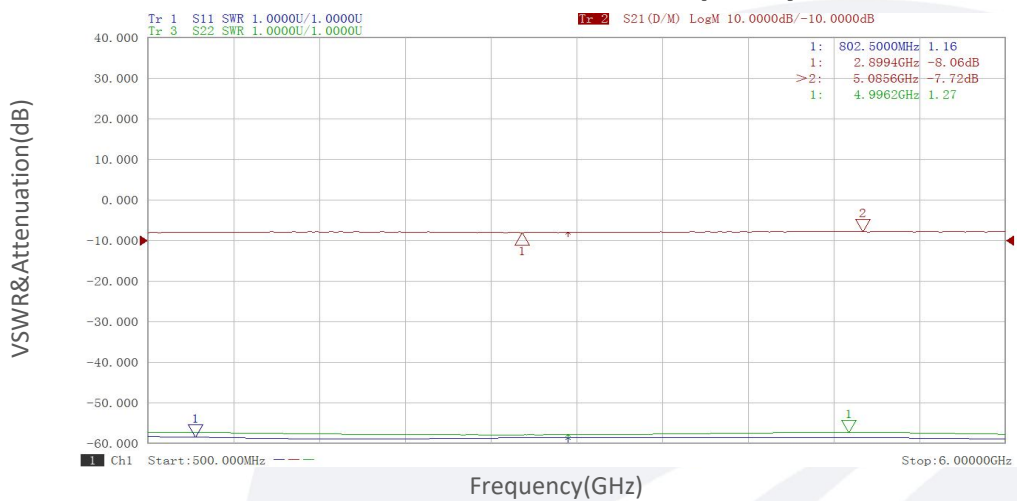
4dB:

VSWR&Attenuation vs Frequency



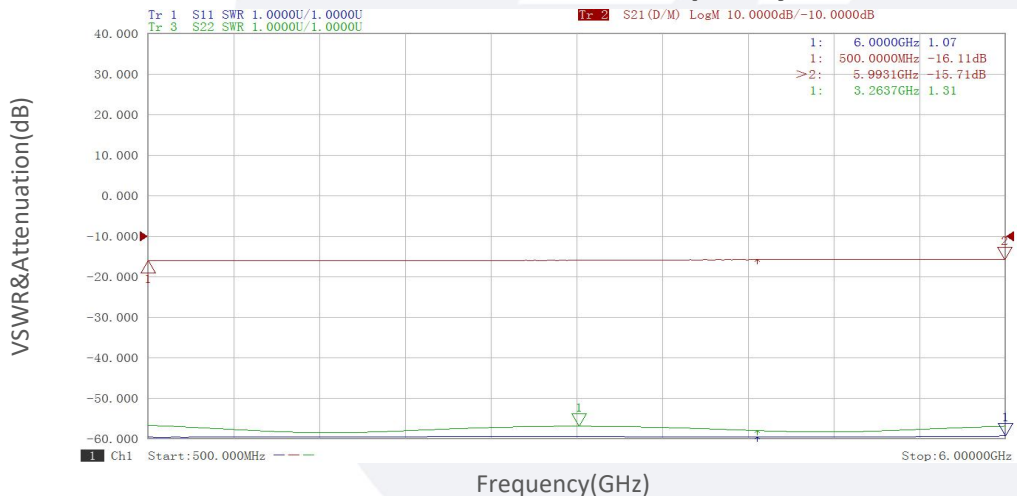
8dB:

VSWR&Attenuation vs Frequency



16dB:

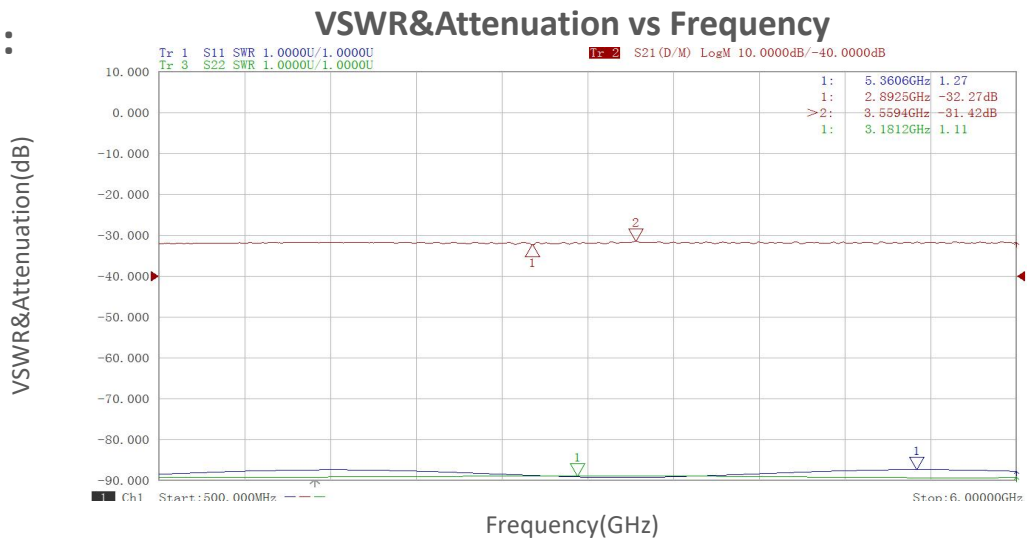
VSWR&Attenuation vs Frequency



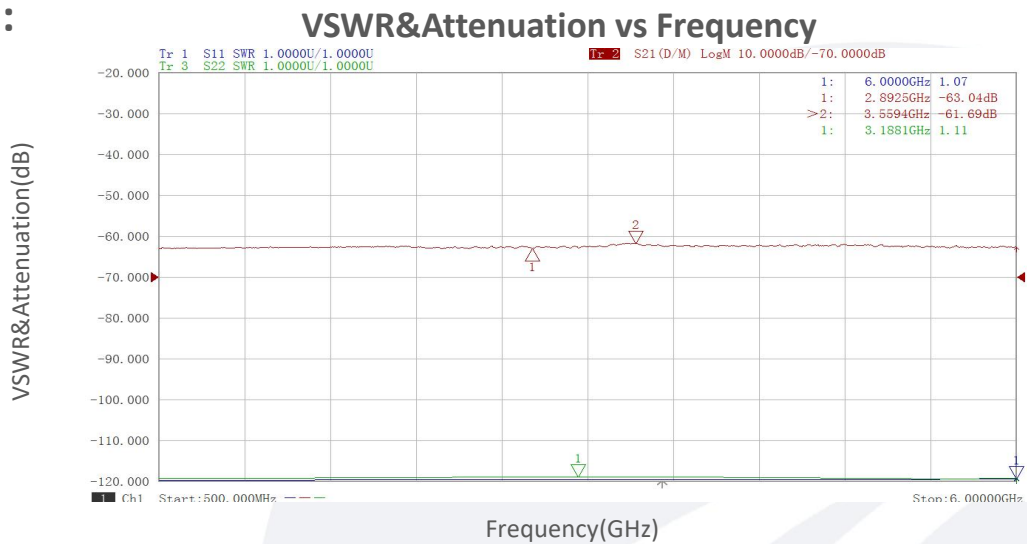
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

32dB:



63dB:



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.