

8-Bit Digital Attenuator

0.5dB LSB/8 Bit/ 0.1-3GHz

Model: TLDA0.1G3G-127-8

The TLDA0.1G3G-127-8 is an broadband digitally controlled electrical attenuator operating from 0.1 to 3 GHz. The attenuator exhibits 7 dB typical insertion loss and offers 127.5 dB nominal attenuation control range in 0.5 dB steps under a 8-bit digital control. The control speed of the attenuator is typically 50 ns. The RF input and output ports are female SMA female coax connectors, and a male J30J-15ZKP port is employed for providing the control signal and DC bias.

Features:

- Ultra Wide Band: 0.1-3GHz
- 8-Bit, 0.5 dB LSB, 127.5 dB Range
- Low Insertion Loss
- High Attenuator Accuracy

Applications:

- Radar Systems
- Communication Systems
- Testing Equipment

Electrical Characteristics:

Parameter	Min	Typ	Max	Units
Frequency range	0.1-3			GHz
Insertion Loss		7	8.5	dB
Attenuation Range	127.5			dB
Control Bit TTL	8			Bit
Attenuation Step	0.5			dB
Switch Speed		50		ns
Input VSWR		1.9		:1
Output VSWR		1.9		:1
Input Max Power	25			dBm
DC Voltage	+5			V DC
DC Supply Current			50	mA
Impedance	50			Ohms

Mechanical Specifications:

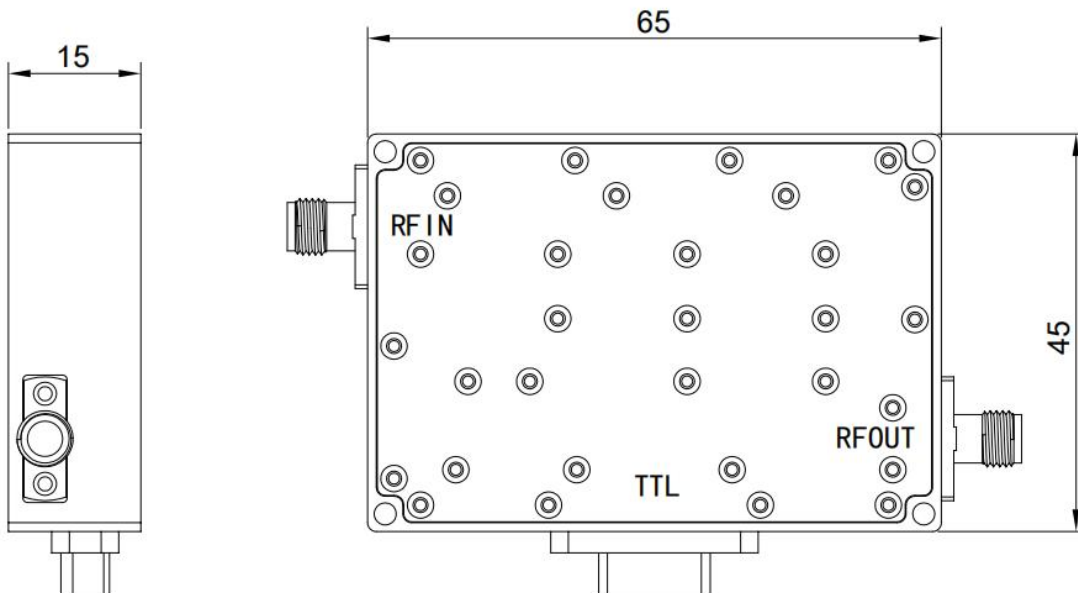
Description	Parameter	Units
Input /Output Connector	SMA Female/SMA Female	
DC control interface	J30J-15ZKP	
Size		mm
Weight	/	g

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



OBSERVE PRECAUTIONS
ELECTROSTATIC SENSITIVE
DEVICES

Supply Conector and Truth Table(J30J-15ZKP):

J30J-15ZKP			
Pin#	Function	Pin#	Function
1	+5V	9	GND
2	+5V	10	GND
3	GND	11	GND
4	C1	12	C5
5	C2	13	C6
6	C3	14	C7
7	C4	15	C8
8	GND		

Truth Table								
TTL Control Input								Signal Path State
C1	C2	C3	C4	C5	C6	C7	C8	
0	0	0	0	0	0	0	0	Reference
1	0	0	0	0	0	0	0	0.5
0	1	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	2
0	0	0	1	0	0	0	0	4
0	0	0	0	1	0	0	0	8
0	0	0	0	0	1	0	0	16
0	0	0	0	0	0	1	0	32
0	0	0	0	0	0	0	1	64
1	1	1	1	1	1	1	1	127.5

Environmental Conditions:

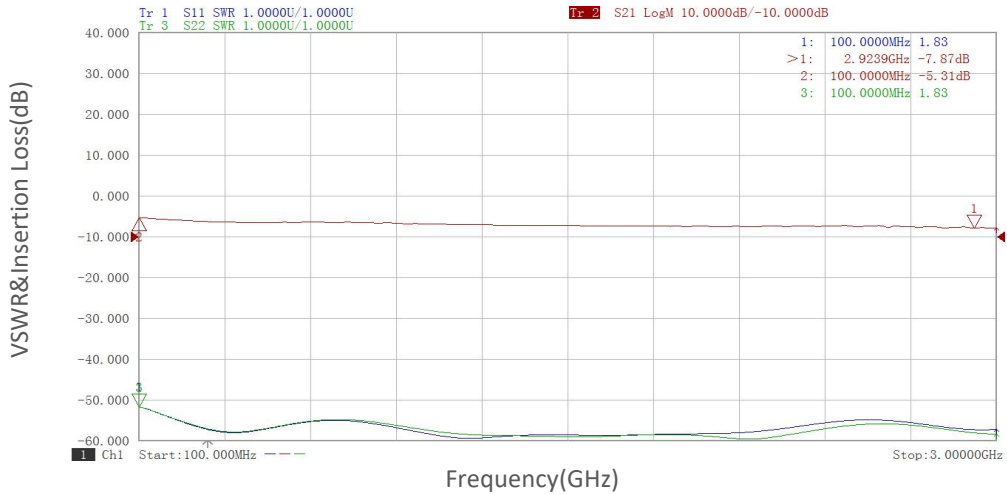
Parameter	Min	Typ	Max	Units
Operating Temperature	-10		+65	°C
Non-operating Temperature	-45		+85	°C
Relative humidity		95		%
Altitude	10,000			feet
Shock / Vibration(MIL-STD-810F)	25g rms (15 degree 2KHz) endurance, 1 hour per axis			
Shock(non operating)	20G for 11msc half sin wave,3 axis both directions			

Ordering Information:

Base Number	Description	Revision
TLDA0.1G3G127-8	8-Bit Digital Digital Attenuator,0.1-3GHz,SMA Female	Rev.1.0

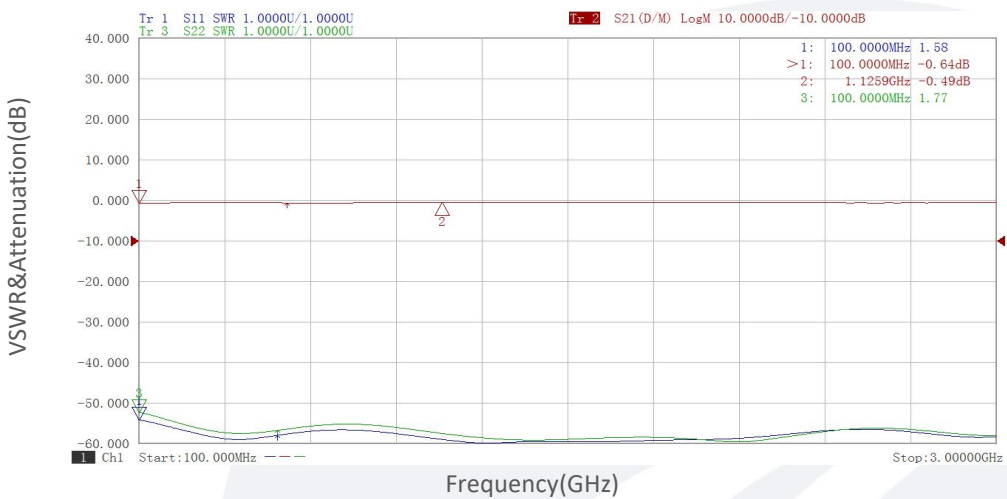
Typical Performance Data:

VSWR&Insertion Loss vs Frequency



0.5dB:

VSWR&Attenuation vs Frequency



1dB:

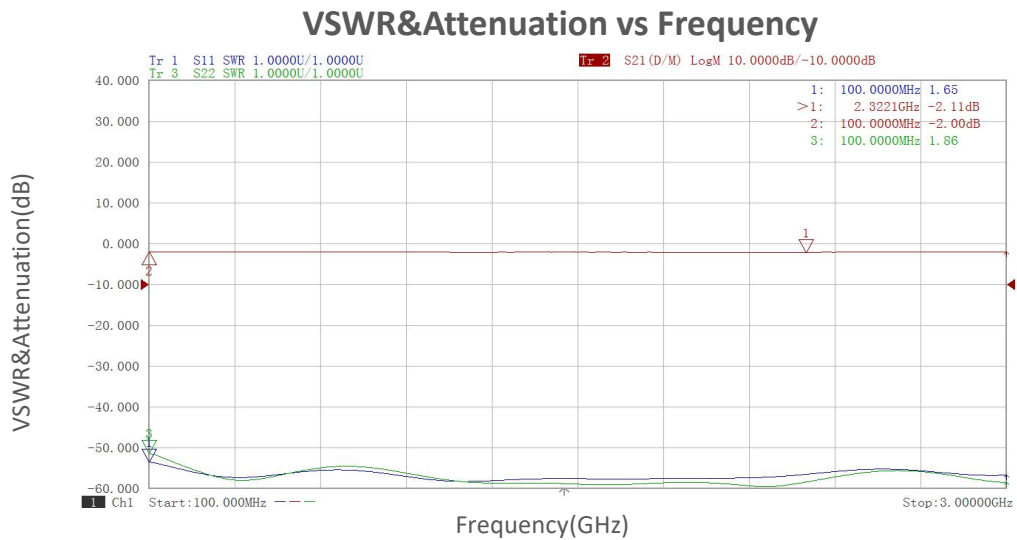
VSWR&Attenuation vs Frequency



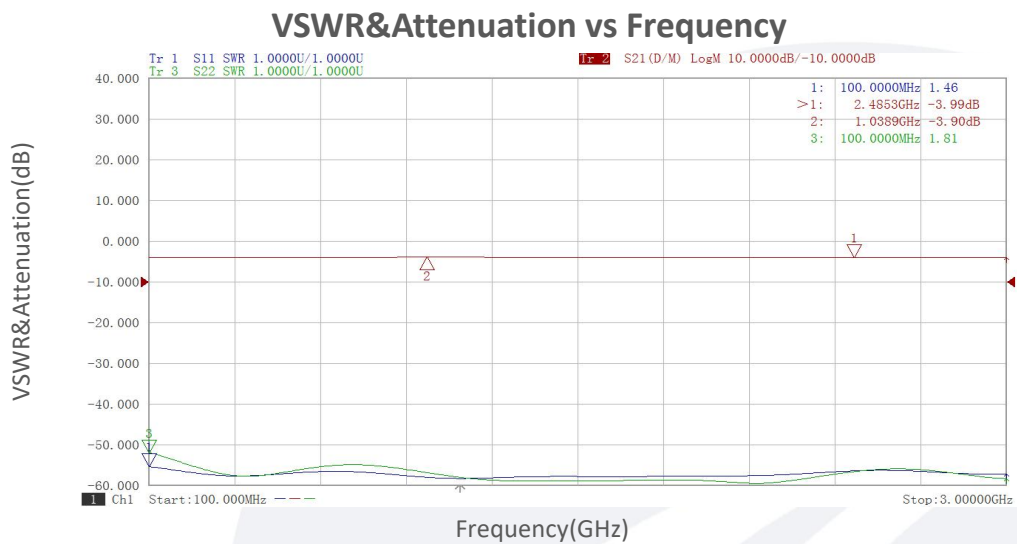
Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

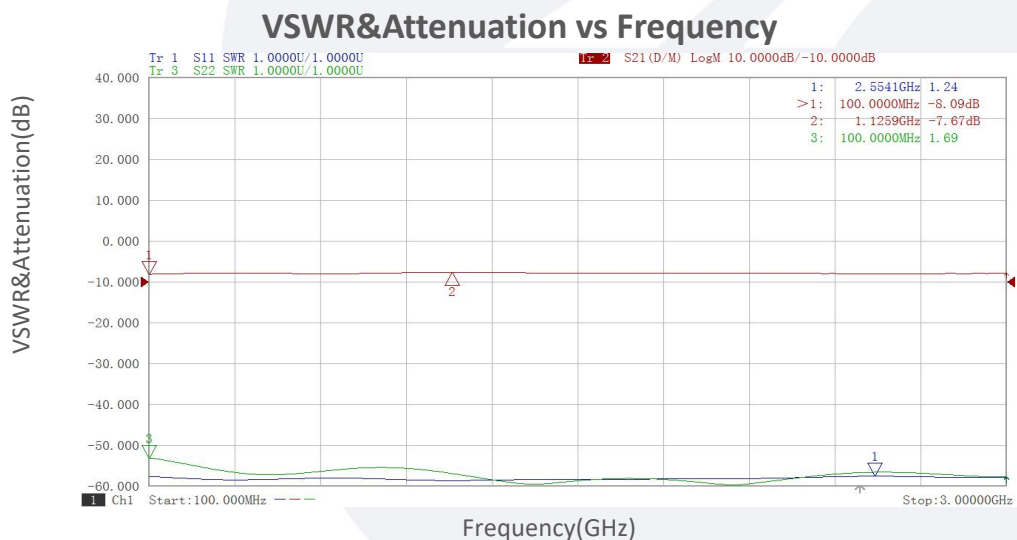
2dB:



4dB:



8dB:

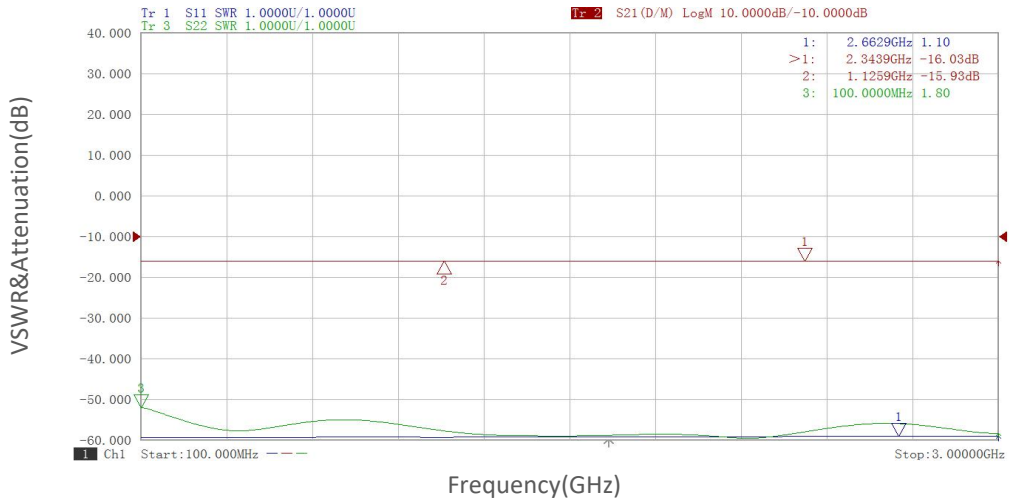


Note: Above data is for ref only, actual data may vary from unit to unit depending on operating environment and other factors like material lots etc.

Typical Performance Data:

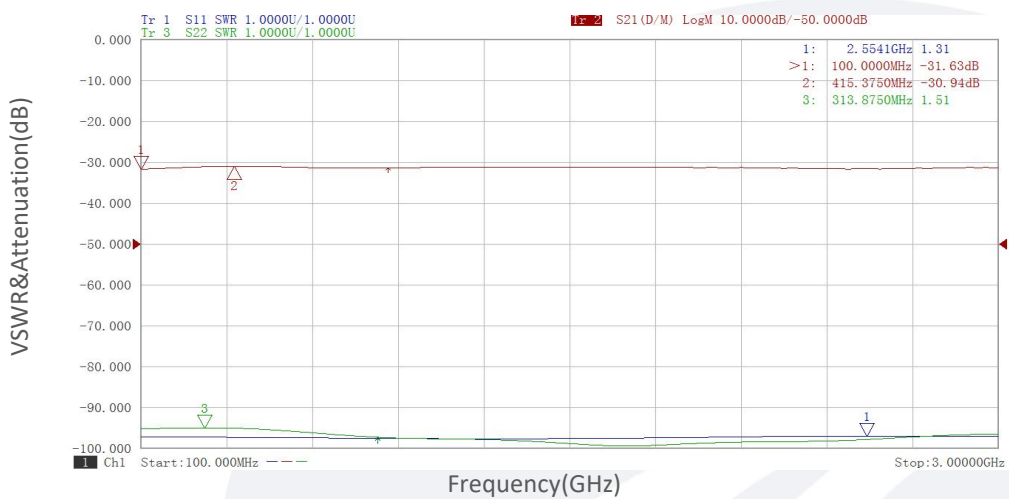
16dB:

VSWR&Attenuation vs Frequency



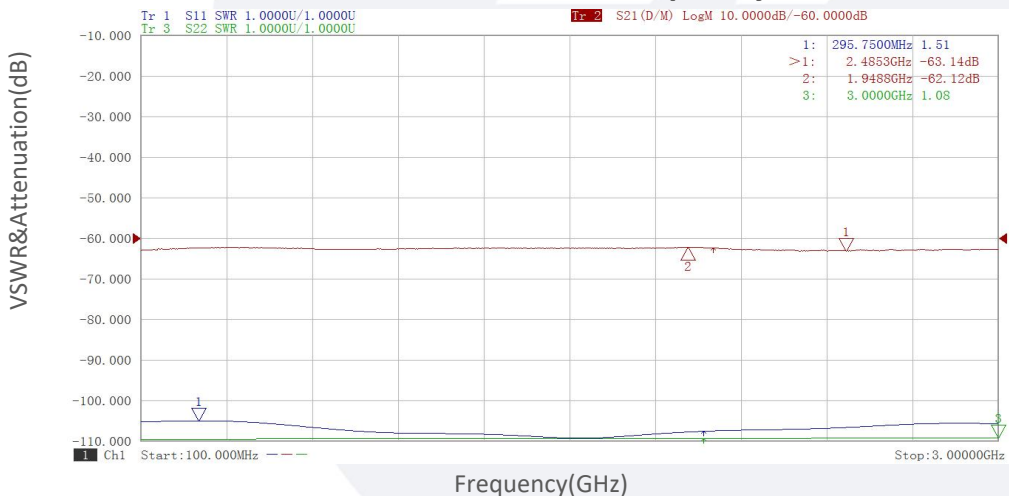
32dB:

VSWR&Attenuation vs Frequency



64dB:

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.