ALLISCOM
Step Power Attenuator
0.8-2.5GHz
Data Sheet

Model No. **SPA31**

Feature

- 5 Bits, 1 dB Steps
- Excellent Accuracy
- Single Positive Control (+3 V to +5 V)
- Lead-Free
- 400 - 2500 MHz

Description SPA31 is a 1 dB step attenuator with 31 dB attenuation range. It requires external DC blocking on the RF ports. The device is particularly suited where high attenuation accuracy, low insertion loss and low intermediation products are required. Typical applications include GPS/GLONASS repeater, WIFI repeater and wireless RF system.

1. Electrical Specifications (Z0=50Ω, Vdc=+5V)

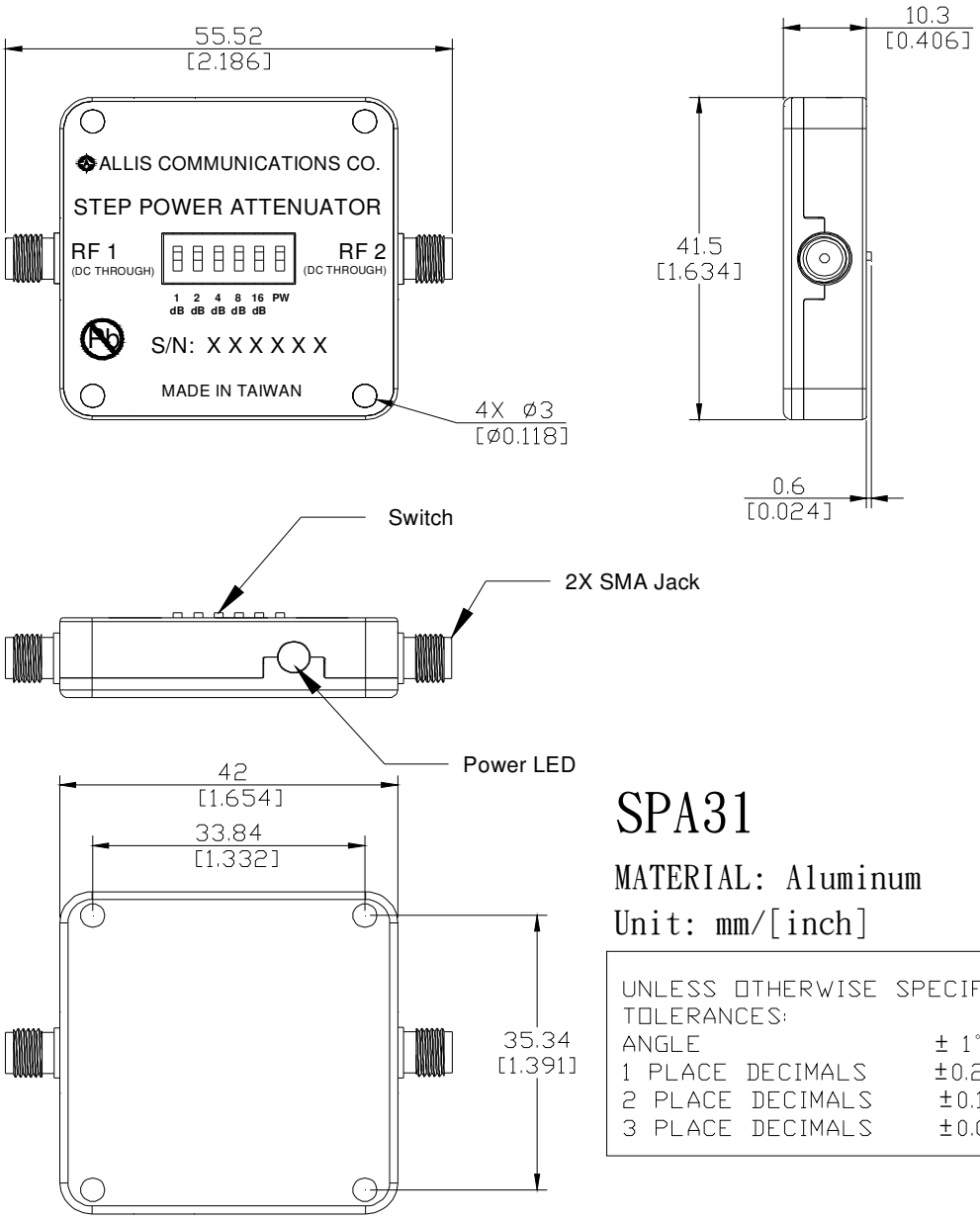
Insertion Loss (reference state)	0.8-1.5GHz	Typ. 1.7dB Max. 1.9dB
	1.5-2.0GHz	Typ. 2.3dB Max. 2.5dB
	2.0-2.5GHz	Typ. 3.5dB Max. 3.8dB
Accuracy	0.8-1.5GHz	±(0.3 + 6% of Attenuation)
	1.5-2.0GHz	±(0.3 + 6% of Attenuation)
	2.0-2.5GHz	±(0.4 + 6% of Attenuation)
Step Change	0.8-1.5GHz	Min. 0.4dB Typ. 1.0dB Max. 1.4dB
	1.5-2.0GHz	Min. 0.4dB Typ. 1.0dB Max. 1.6dB
	2.0-2.5GHz	Min. 0.4dB Typ. 1.0dB Max. 1.8dB
Attenuation Range	0.8-2.5GHz	Typ. 31dB
VSWR	0.8-2.5GHz	Max. 2.0 : 1
P1dB	0.8-2.5GHz	Min. 18dBm Typ. 27dBm
IP3	0.8-2.5GHz	Min. 43dBm
DC Voltage(Vdc)	--	Min. +5V Max. +12V
Current	Vdc=5V	Max. 9.5mA
Note: Specifications subject to change without notice.		

2. Mechanical Specification

2.1 Mechanical

Item	Specification
Weight	35grams Max.
Size	41.6X41.3X10.1mm
Connector type	SMA Jack
Housing material	Aluminum
Input Power	+34dBm
Working Temperature	-40℃ to +85℃
Storage Temperature	-65℃ to +125℃

2.2 Dimension



SPA31

MATERIAL: Aluminum

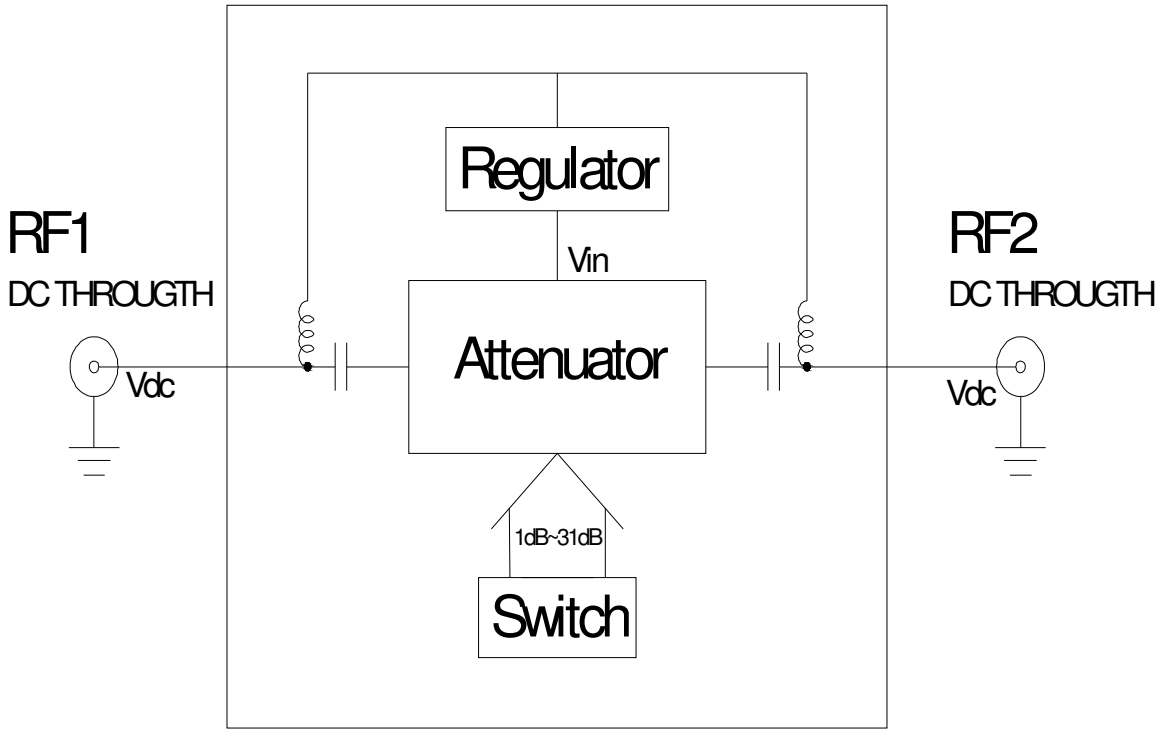
Unit: mm/[inch]

UNLESS OTHERWISE SPECIFIED TOLERANCES:	
ANGLE	± 1°
1 PLACE DECIMALS	±0.2
2 PLACE DECIMALS	±0.15
3 PLACE DECIMALS	±0.05

3. Switch Truth Table

Control Inputs					
1 (1dB)	2 (2dB)	3 (4dB)	4 (8dB)	5 (16dB)	Attenuation
OFF	OFF	OFF	OFF	OFF	Reference I.L.
ON	OFF	OFF	OFF	OFF	1 dB
OFF	ON	OFF	OFF	OFF	2 dB
OFF	OFF	ON	OFF	OFF	4 dB
OFF	OFF	OFF	ON	OFF	8 dB
OFF	OFF	OFF	OFF	ON	16 dB
ON	ON	ON	ON	ON	31 dB
Note: PW must be ON.					

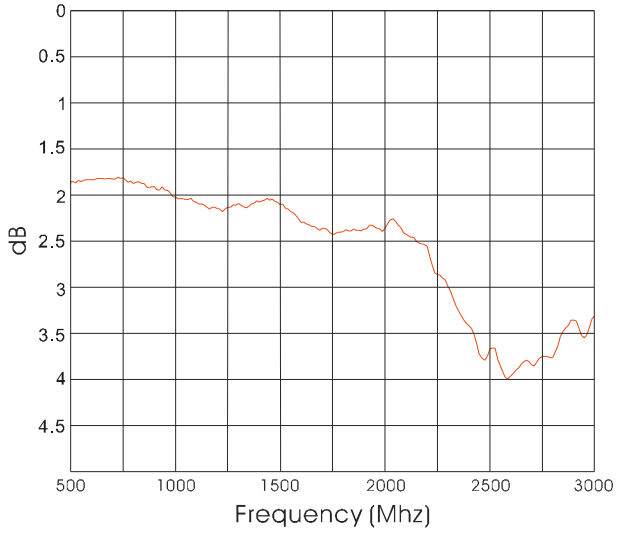
4. Functional Diagram



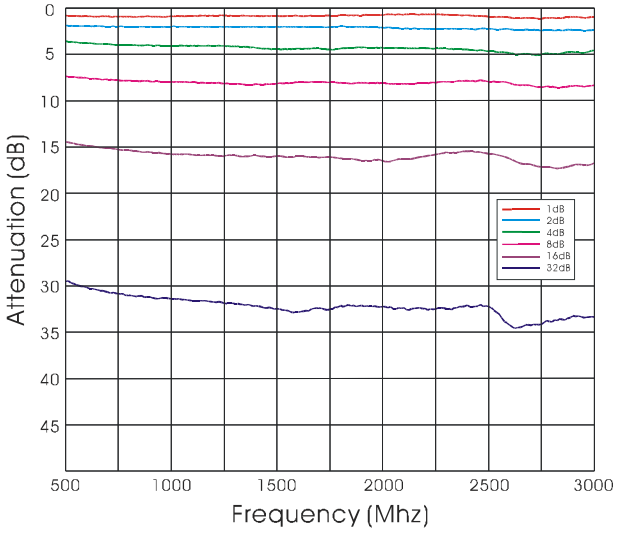
Note: 1. Do not connect DC Voltage to RF1 and RF2, in the same time.

5. Appendix (Vdc=5V)

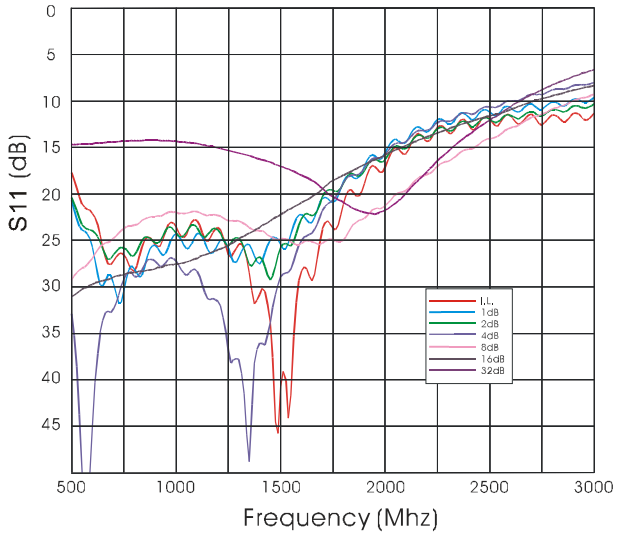
Insertion Loss



Attenuation (Reference: Insertion Loss)



RF1 Return Loss



RF2 Return Loss