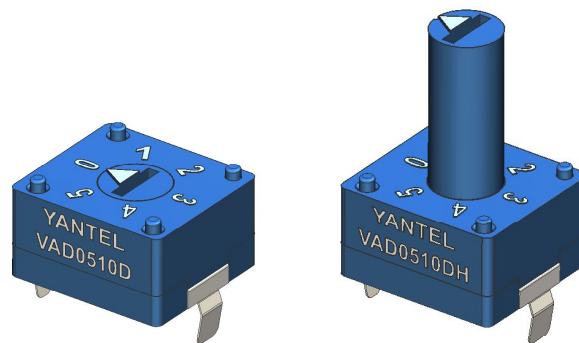


### Miniature Variable Attenuator VAD Series

- ◆ DC to 2.5GHz
- ◆ 0 to 5 dB in 1.0 dB Step
- ◆ 125 mW
- ◆ Resin DIP package



### Features

- SMD package, ultra-small size, able to be mounted or soldered on the PCB.
- Wide frequency range
- Low reflection coefficient
- Low insertion loss, high attenuation accuracy.
- Replaceable of digital attenuator, easier to fix and adjust
- At least 360 times (60 circles, 6 times as a circle) tuning operation
- Compared with digital attenuators, zero distortion, no extra IP3, lower noise, higher reliability
- High performance, competitive price.
- Customized attenuation values available.
- Wide attenuation range.
- Power handling: 125mW
- 1.0dB step
- 6 attenuation values

### Specifications

Frequency Range	DC to 2.5GHz
Attenuation	0 to 5.0 dB
Step Value	1.0 dB
Insertion loss at 0dB	DC to 2GHz 0.5dB 2GHz to 2.5GHz 1.0dB
Nominal Impedance	50 Ohm
Average Power	125 mW
Operating Temperature	-40°C to +105°C

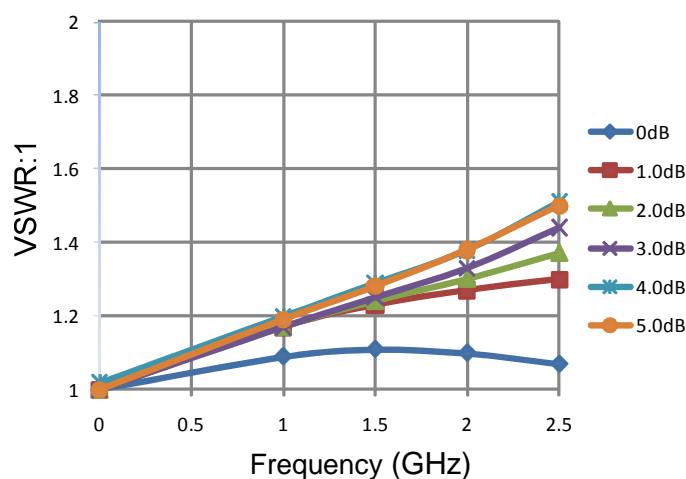
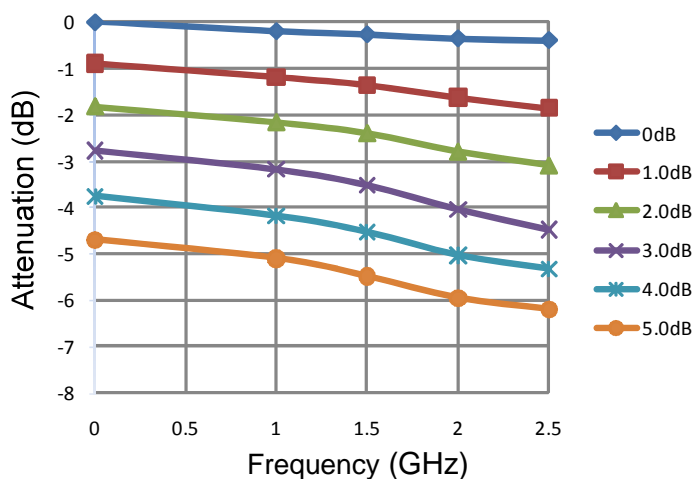
FREQ. RANGE (GHz)	Attenuation Accuracy(dB)
DC to 2	1.3
2 to 2.5	1.8

FREQ. RANGE (GHz)	VSWR:1
DC to 2	1.45
2 to 2.5	1.65

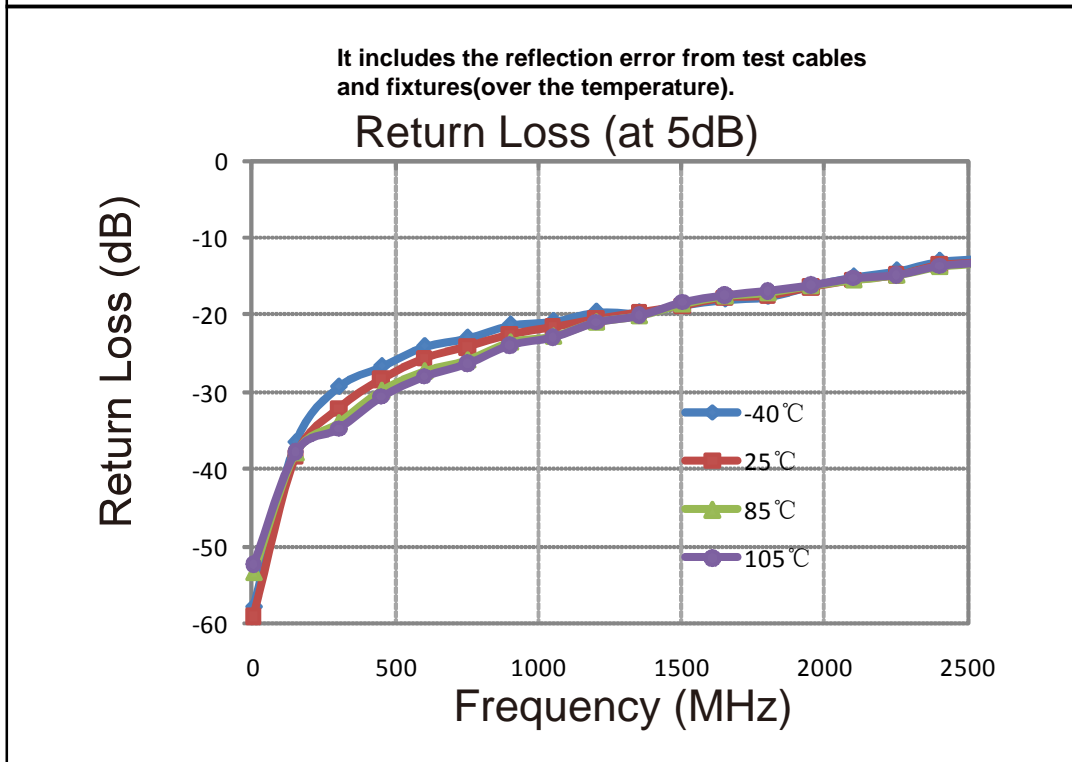
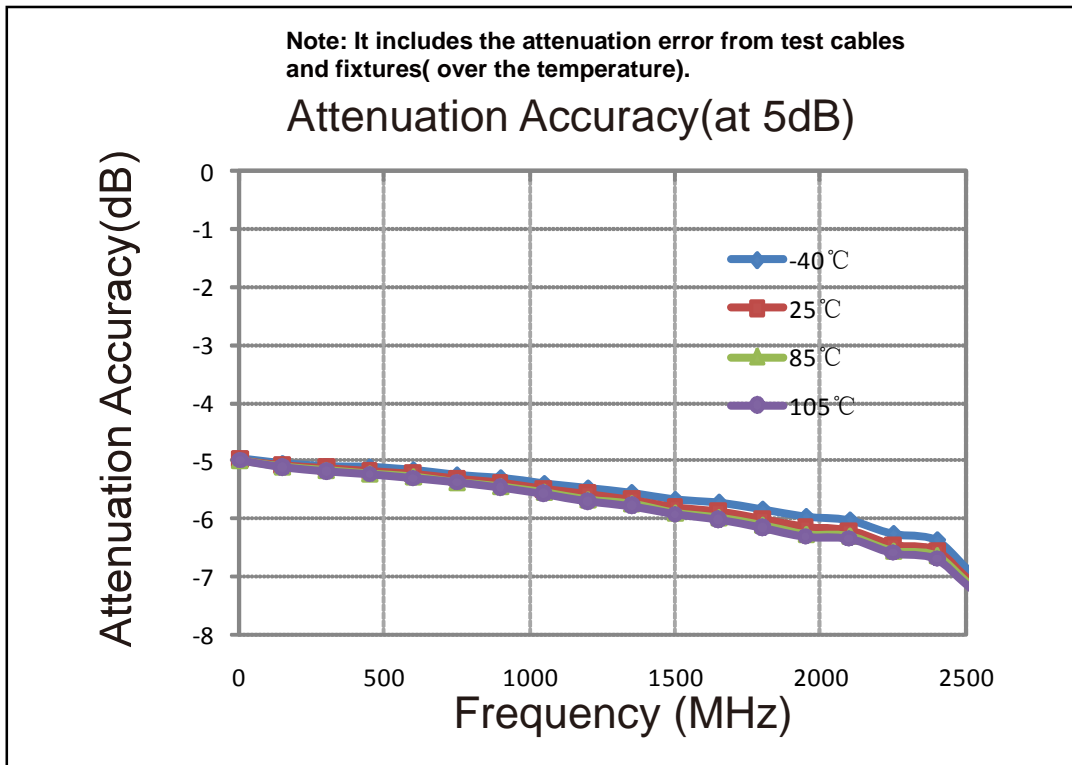
Note: This product cannot withstand high temperature over 200°C, therefore lead free or lead reflow soldering is not suitable. Otherwise, its performance and reliability would be greatly damaged. Wave soldering should be adopted for this product. Please click the link below to obtain the wave soldering profile for reference:  
[http://www.yantel-corp.com/asp\\_bin/download/201511/Wave%20Soldering%20Profile.pdf](http://www.yantel-corp.com/asp_bin/download/201511/Wave%20Soldering%20Profile.pdf)

### Characteristic

The testing curves of VAD0510



Yantel Corporation

**Typical Performance (-40°C, 25°C, 85°C, 105°C: DC-2.5 GHz)**


## Model Description

VAD                                                                                                                
                          Attenuation Range    Step value            Impedance            Package                shaft

e.g.: VAD0102

**Attenuation Range:** 01 represent 0 ~ 1dB

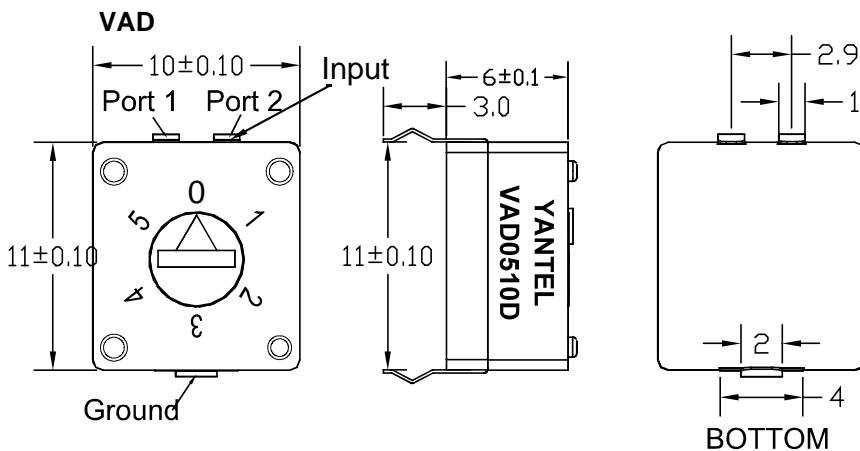
**Step value:** 02 represent step value 0.2 dB,

**Impedance:** (-B) represents 75Ω impedance, (no code) represents 50Ω impedance.

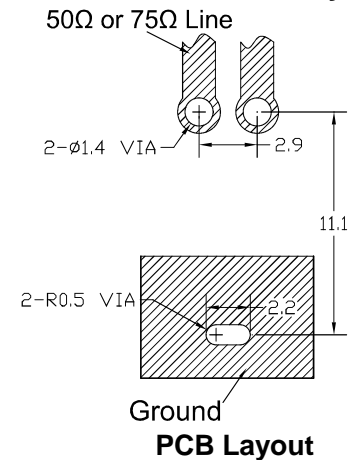
**Package:** (-D) represents DIP package.

**shaft:** (-H) represents a handling shaft, (no code) represents without handling shaft.

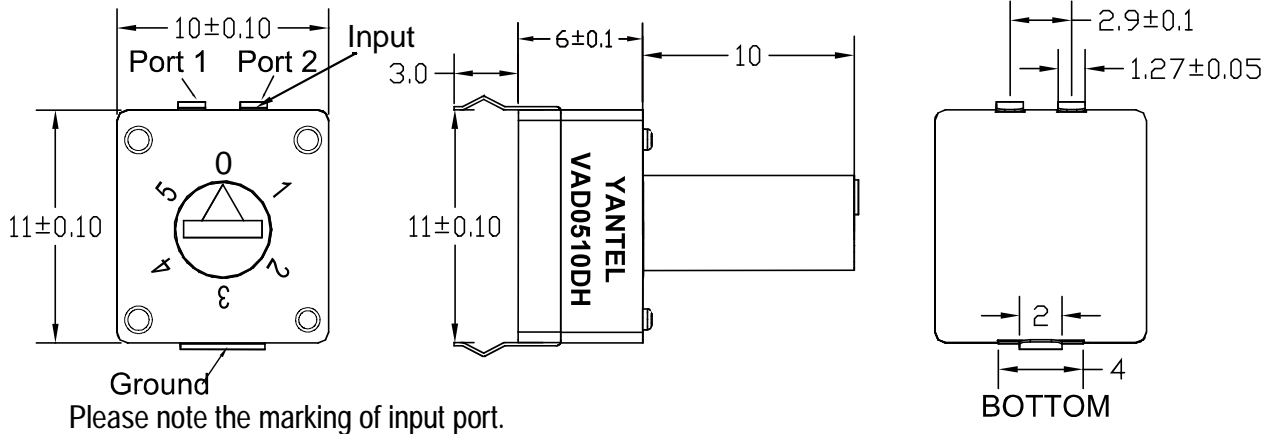
## Package Outlines(mm)



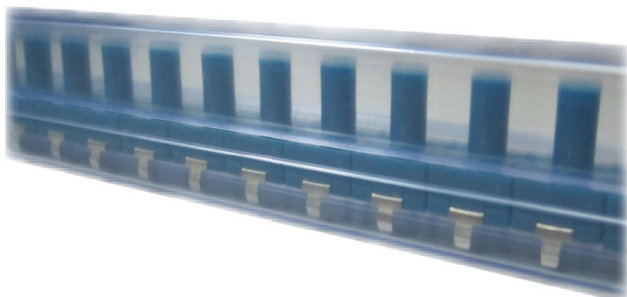
## Recommended PCB Layout



## VAD-with handling shaft



## Tape and Reel Drawing



### Application Note:

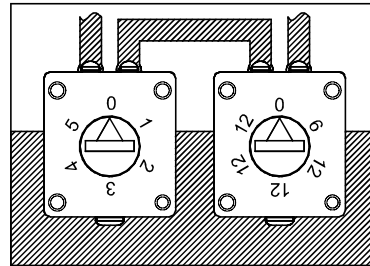
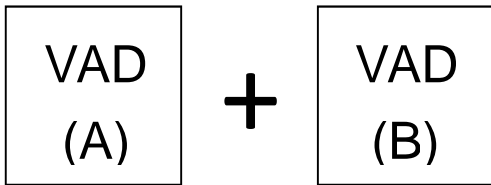
0~XXdB (>5dB) 1dB/step

2 pieces of VAD

The total attenuation range can meet XXdB(such as 17 dB or 20dB)

#### Example 1:

You need 2 sets(pieces) of VAD,it can meet the attenuation range:0 to 17 dB by 1dB/step



VAD(A): 0,1,2,3,4,5dB;

VAD(B): 0, 6,12,12,12,12dB;

You can get the attenuation value are:A+B=M dB

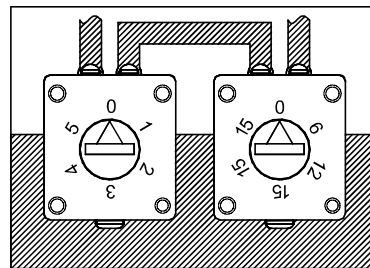
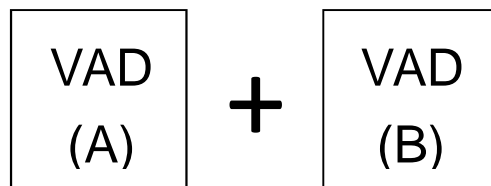
Application 1: When A=0, 1, 2, 3, 4, or 5dB, B=0dB, then M=A+B=0, 1, 2, 3, 4 or 5dB;

Application 2: When A=0, 1, 2, 3, 4, or 5dB, B=6dB, then M=A+B=6, 7, 8, 9, 10 or 11dB;

Application 3: When A=0, 1, 2, 3, 4, or 5dB, B=12dB, then M=A+B=12, 13, 14, 15, 16 or 17dB;

#### Example 2:

You need 2 sets(pieces) of VAD,it can meet the attenuation range:0 to 20 dB by 1dB/step



VAD(A): 0,1,2,3,4,5dB;

VAD(B): 0, 6,12,15,15,15dB;

You can get the attenuation value are:A+B=M dB

Application 1: When A=0, 1, 2, 3, 4, or 5dB, B=0dB, then M=A+B=0, 1, 2, 3, 4 or 5dB;

Application 2: When A=0, 1, 2, 3, 4, or 5dB, B=6dB, then M=A+B=6, 7, 8, 9, 10 or 11dB;

Application 3: When A=0, 1, 2, 3, 4, or 5dB, B=12dB, then M=A+B=12, 13, 14, 15, 16 or 17dB;

Application 4: When A=0, 1, 2, 3, 4, or 5dB, B=15dB, then M=A+B=15, 16, 17, 18, 19 or 20dB;

### Recommended PCB Layout

