Qualwave

Digital Controlled Attenuator

# QDA-0-20000-31.75-0.25

DC~20GHz, 31.75dB, 0.25dB

Features:
* Broadband
* High Dynamic Range

Applications:
* Laboratory Test
* Telecommunication
* Wireless
* Instrumentation

## Electrical

| | |
|---|---|
| Frequency: | DC~20GHz |
| Insertion Loss: | 4dB typ. |
| Step: | 0.25dB |
| Attenuation Range: | 0~31.75dB |
| Attenuation Accuracy: | ±0.8dB typ. |
| Phase Shift: | ±5° typ. |
| VSWR: | 1.8 typ. |
| Voltage/Current: | -5V @10mA typ. |
| Switching Time: | 20ns typ. |
| Logic Input: | On: 1( +2.3~+5V)<br>Off: 0( 0~+0.8V) |

## Absolute Maximum Ratings*1

| | |
|---|---|
| Input Power: | +24dBm |
| Voltage: | +6V |

[1] Permanent damage may occur if any of these limits are exceeded.

## Mechanical

| | |
|---|---|
| Size*2: | 30*24*12mm<br>1.181*0.945*0.472in |
| RF Connectors: | SMA Female (Removable) |
| Power Supply & Control Interface Connectors: | J30J-9ZKP |
| Mounting: | 4-Φ2.8mm through-hole |

[2] Exclude connectors.

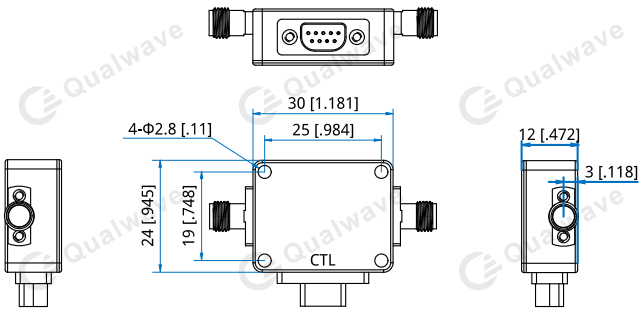
## Pin Numbering

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | C1:-0.25dB | 6 | C6:-8dB |
| 2 | C2:-0.5dB | 7 | C7:-16dB |
| 3 | C3:-1dB | 8 | VEE |
| 4 | C4:-2dB | 9 | GND |
| 5 | C5:-4dB | | |

## Environmental

| | |
|---|---|
| Operating Temperature: | -45~+85℃ |
| Non-operating Temperature: | -55~+125℃ |

## Outline Drawings



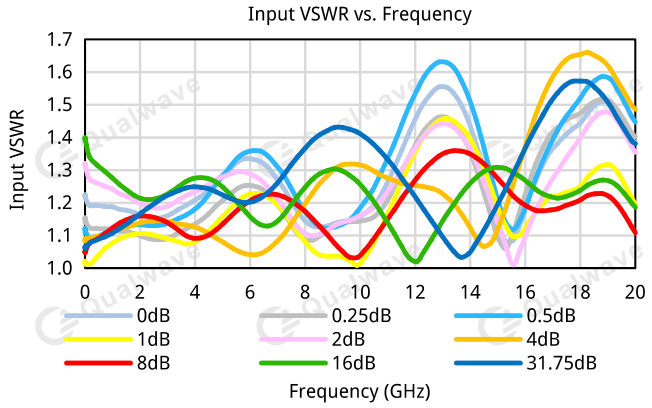
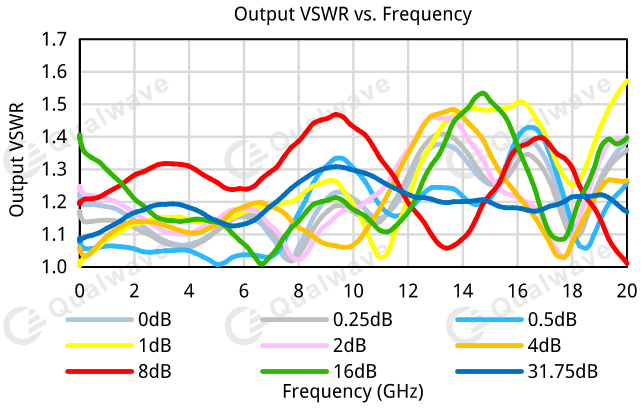
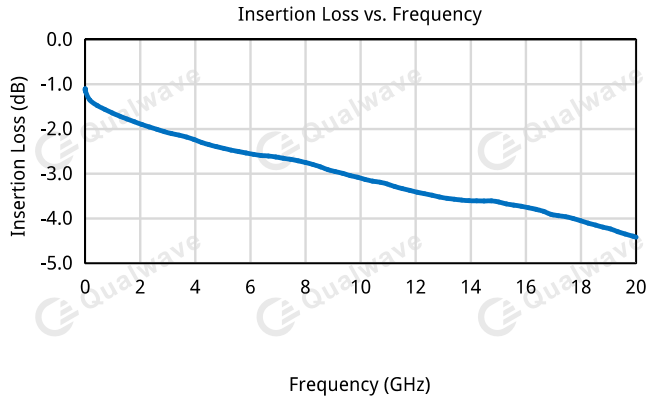
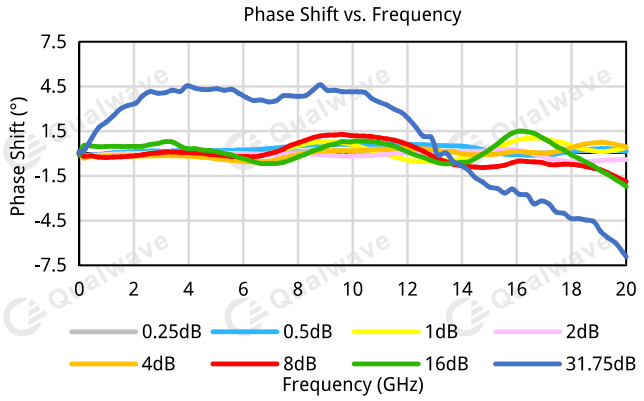
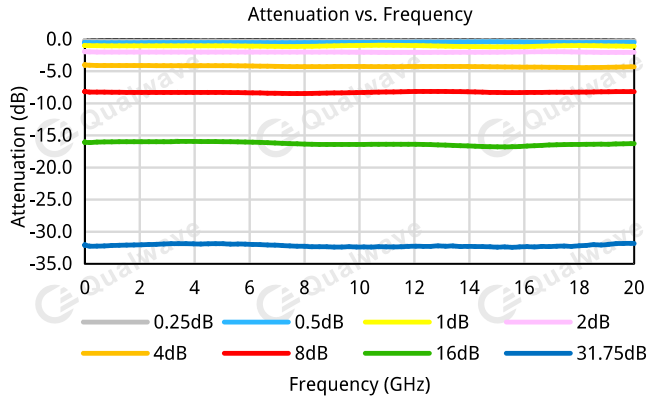
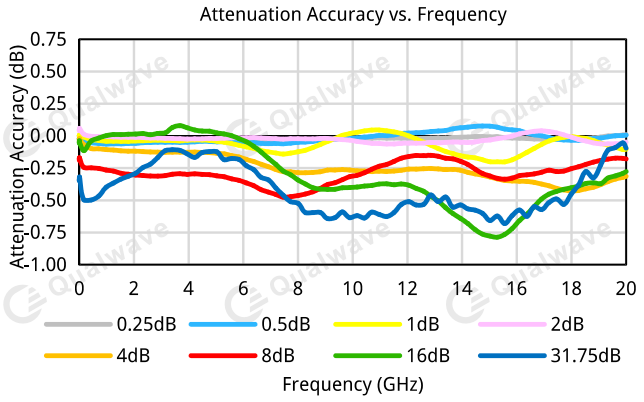

Unit: mm [in]
Tolerance: ±0.5mm [±0.02in]

## Logic Table

| State | C1 | C2 | C3 | C4 | C5 | C6 | C7 | VEE | Attenuation State |
|---|---|---|---|---|---|---|---|---|---|
| - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | -5V | Reference IL |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | -5V | 0.25dB |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | -5V | 0.5dB |
| 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | -5V | 1dB |
| 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | -5V | 2dB |
| 5 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | -5V | 4dB |
| 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | -5V | 8dB |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | -5V | 16dB |
| 8 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | -5V | 31.75dB |

## How To Order

QDA-0-20000-31.75-0.25

Customization is available upon request.

## Typical Performance Curves