Qualwave

Digitally Controlled Delay Line

# QDDL-100-18000-78.75-1.25

0.1~18GHz, 78.75ps, 1.25ps

Features:
* Programmable
* High Precision
* Low Jitter

Applications:
* Radar
* Communication System
* Laboratory Test

## Electrical

| | |
|---|---|
| Frequency: | 0.1~18GHz |
| Insertion Loss: | 10dB typ. |
| Step: | 1.25ps |
| Delay Range: | 1.25~78.75ps |
| Delay Accuracy: | ±4ps typ. |
| Input Power (P1dB): | 24dBm typ. |
| Input VSWR: | 1.8 typ. |
| Switching Time: | 25ns typ. |
| Voltage/Current: | -5V @6mA typ. |
| Logic Input: | On: 1( +2.3~+5V) |
| | Off: 0( 0~+0.8V) |

## Absolute Maximum Ratings*1

| | |
|---|---|
| Input Power: | +25dBm |
| Supply Voltage: | -5.3V |

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

## Mechanical

| | |
|---|---|
| Size*2: | 26*26*12mm |
| | 1.024*1.024*0.472in |
| RF Connectors: | SMA Female |
| Power Supply & Control Interface Connectors: | J30J-9ZKP |
| Mounting: | 4-Φ2.8mm through-hole |

[2] Exclude connectors.

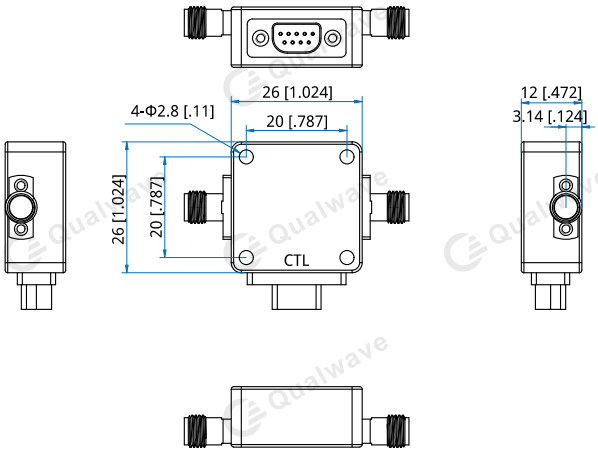
## Pin Numbering

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | C1: 1.25ps | 6 | C6: 40ps |
| 2 | C2: 2.5ps | 7 | NC |
| 3 | C3: 5ps | 8 | VEE |
| 4 | C4: 10ps | 9 | GND |
| 5 | C5: 20ps | | |

## Environmental

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

## Outline Drawings




Unit: mm [in]
Tolerance: ±0.2mm [±0.008in]

## Logic Table

| State | C1 | C2 | C3 | C4 | C5 | C6 | VEE | Attenuation State |
|---|---|---|---|---|---|---|---|---|
| - | 0 | 0 | 0 | 0 | 0 | 0 | -5V | Reference IL |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | -5V | 1.25ps |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | -5V | 2.5ps |
| 3 | 0 | 0 | 1 | 0 | 0 | 0 | -5V | 5ps |
| 4 | 0 | 0 | 0 | 1 | 0 | 0 | -5V | 10ps |
| 5 | 0 | 0 | 0 | 0 | 1 | 0 | -5V | 20ps |
| 6 | 0 | 0 | 0 | 0 | 0 | 1 | -5V | 40ps |
| 7 | 1 | 1 | 1 | 1 | 1 | 1 | -5V | 78.75ps |

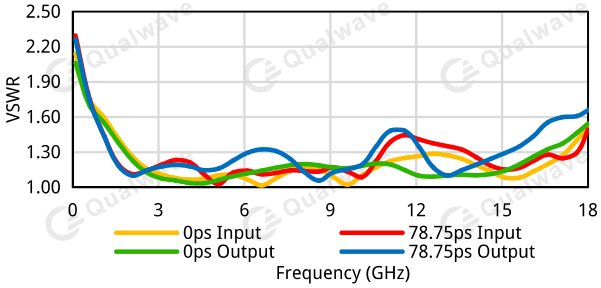
## How To Order

QDDL-100-18000-78.75-1.25

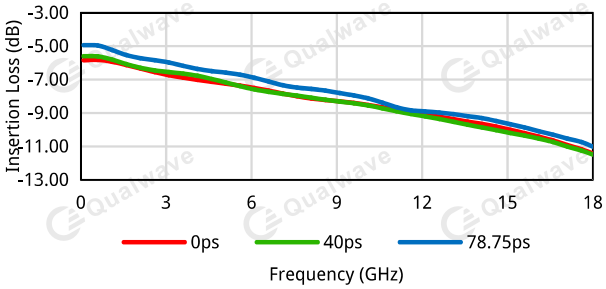
Customization is available upon request.

## Typical Performance Curves

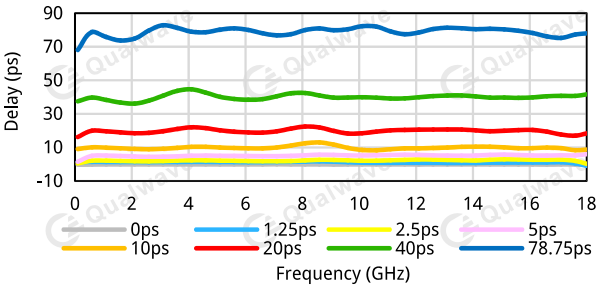
VSWR vs. Frequency



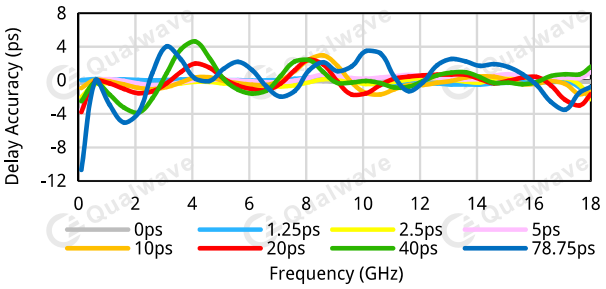

Insertion Loss vs. Frequency



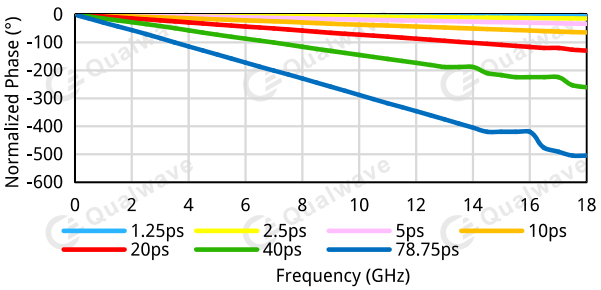

Delay vs. Frequency




Delay Accuracy vs. Frequency




Normalized Phase vs. Frequency




Normalized Loss vs. Frequency