

WS1044NKU is an absorptive **SP10T RF switch module** that supports a frequency range from 10 MHz to 44 GHz. It delivers high isolation, low insertion loss and fast switching time, making this device ideal for RF signal routing in wireless infrastructure and wireless applications up to 44 GHz.

External connectors include 2.92mm-vertical launch connector for all RF port.

WS1044NKU is powered and controlled through **USB3.0 connector**.



■ Features

- CMOS SOI technology enhanced
 - Broadband 10 MHz~44 GHz
 - Fast settling time
- High power handling of 24 dBm THRU path
- Insertion loss
 - RF05, RF06 path : 5.8 dB @ 44 GHz
 - Other RF path : 9.5 dB @ 44 GHz
- High isolation
 - 38 dB up to 44 GHz

■ Applications

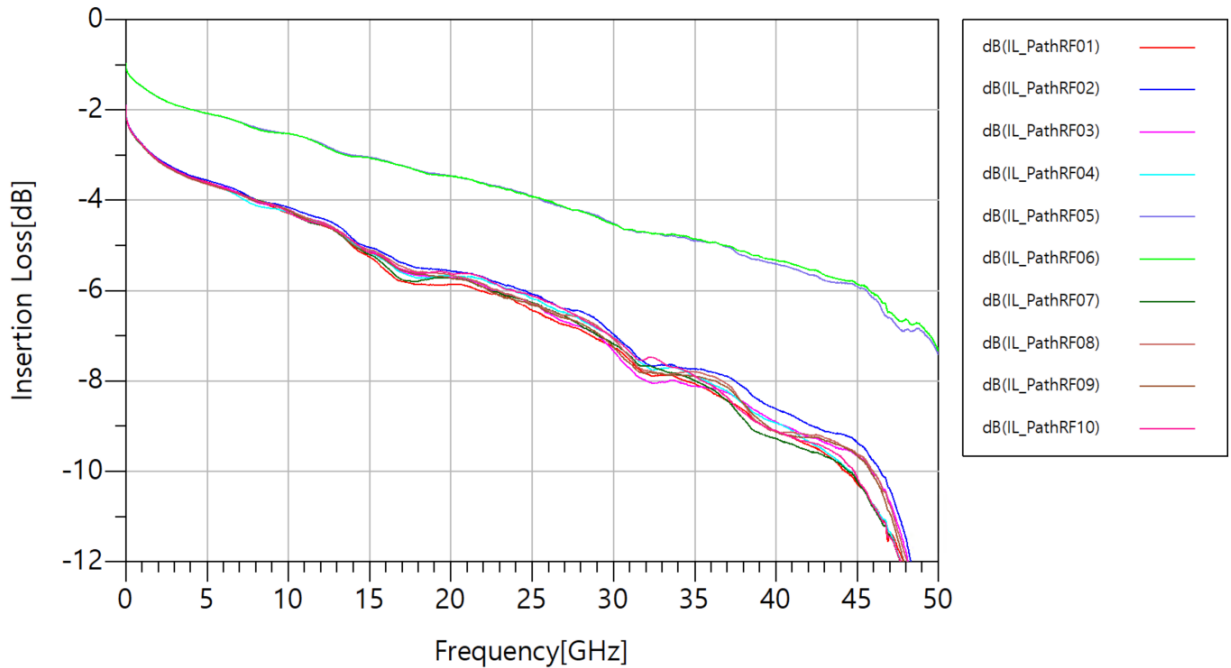
- Test & Measurement
- 5G Wireless Communication
- Commercial Communication
- RF signal routing

Electrical Specifications

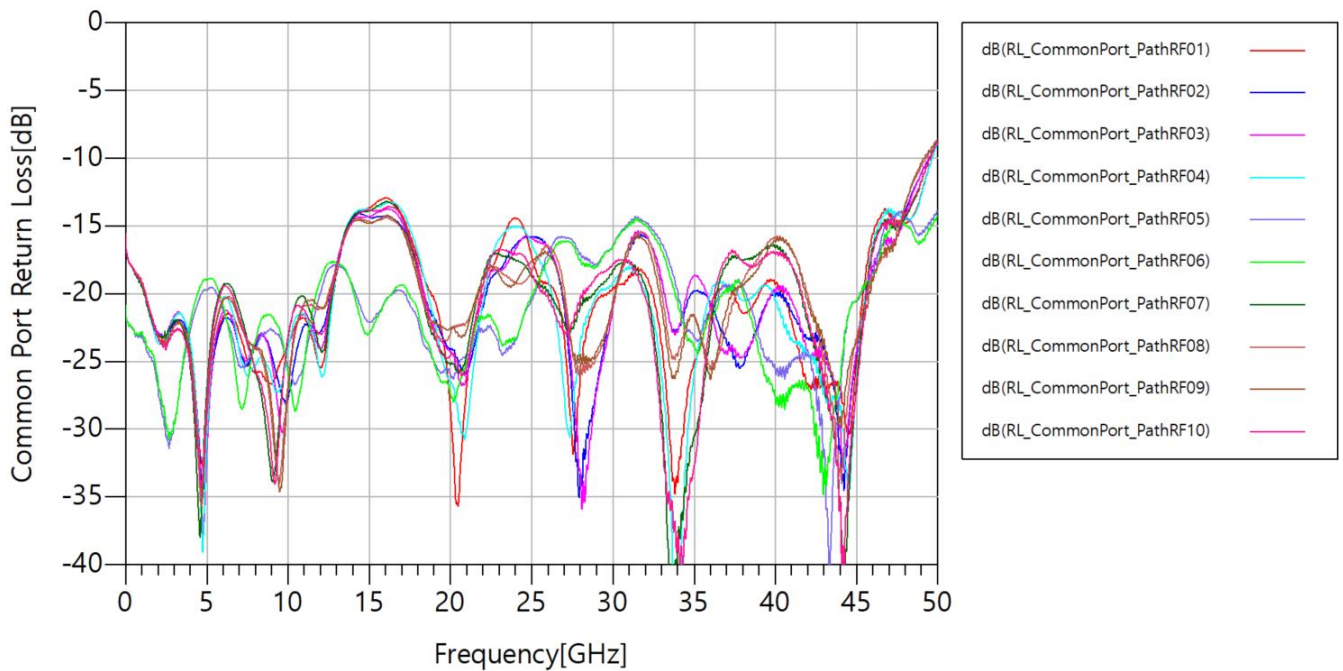
| Parameter | Path | Condition | Min | Typ | Max | Unit |
|-----------------------------|------------|---|--------|--------|--------|------|
| Operation Frequency | | | 10 MHz | | 44 GHz | |
| Insertion loss | RF05, RF06 | 10 MHz ~ 44 GHz | | 5.8 | | dB |
| | Other path | 10 MHz ~ 44 GHz | | 9.5 | | |
| Return loss (common port) | All path | 10 MHz ~ 44 GHz | 12.0 | 13.0 | | dB |
| Return loss (active port) | All path | 10 MHz ~ 44 GHz | 12.0 | 13.0 | | dB |
| Return loss (isolated port) | All path | 10 MHz ~ 44 GHz | 11.5 | 13.0 | | dB |
| Isolation | All path | 10 MHz ~ 26 GHz | | 45.0 | | dB |
| | | 26 GHz ~ 44 GHz | 36.0 | 38.0 | | |
| RF Input Power | All path | | | 24.0 | | dBm |
| 0.1 dB Power Compression | All path | f = 500 MHz to 40 GHz | | 26.0 | | dBm |
| Input IP3 | All path | Two-tone input power = 15 dBm f = 500 MHz to 40 GHz, $\Delta f = 1$ MHz | | 47.0 | | dBm |
| Current consumption | | USB3.0 | | 14.0 | | mA |
| Power Supply | | USB3.0 | | 5.0 | | V |
| Baud Rate | | USB COM port | | 115200 | | bps |
| RF Connectors | | 2.92mm-female | | | | |
| ESD HBM | | RF port | | 375 | | V |
| | | USB port | | 16k | | |
| Operating Temperature | | | -40 | | 105 | °C |

■ Typical Performance Data

< Insertion Loss >

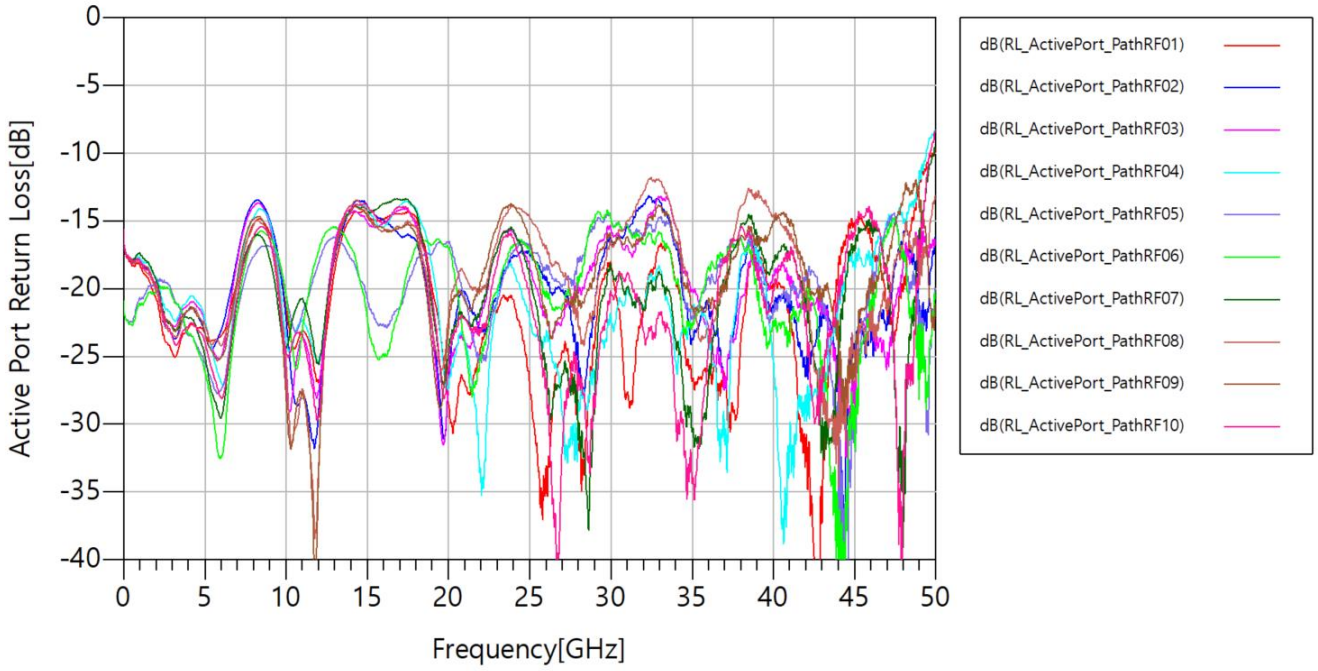


< Common Port Return Loss >

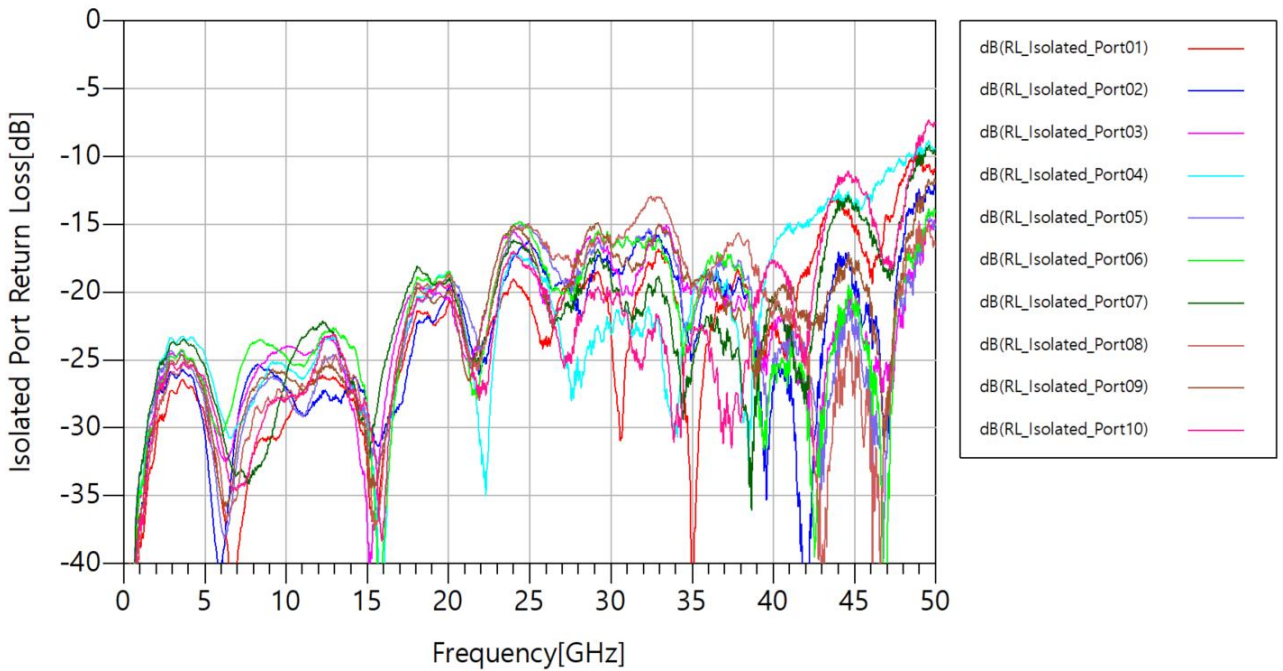


■ **Typical Performance Data**

< Active Port Return Loss >

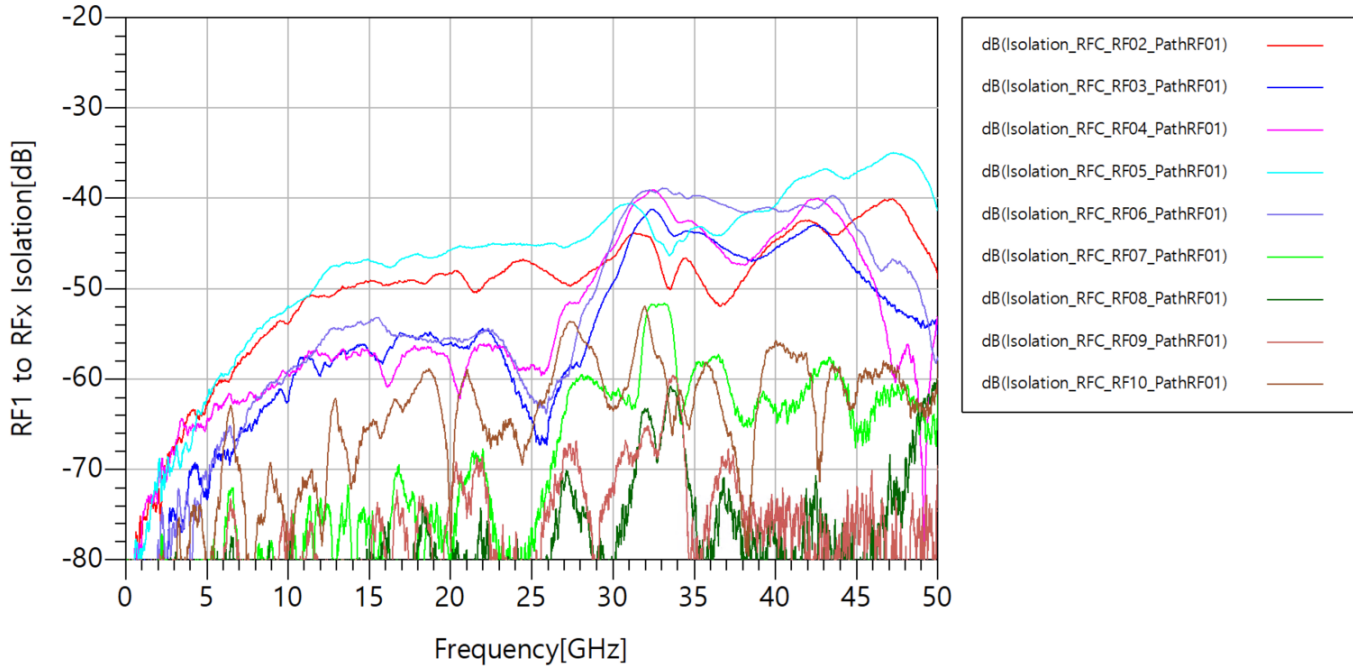


< Isolated Port Return Loss >

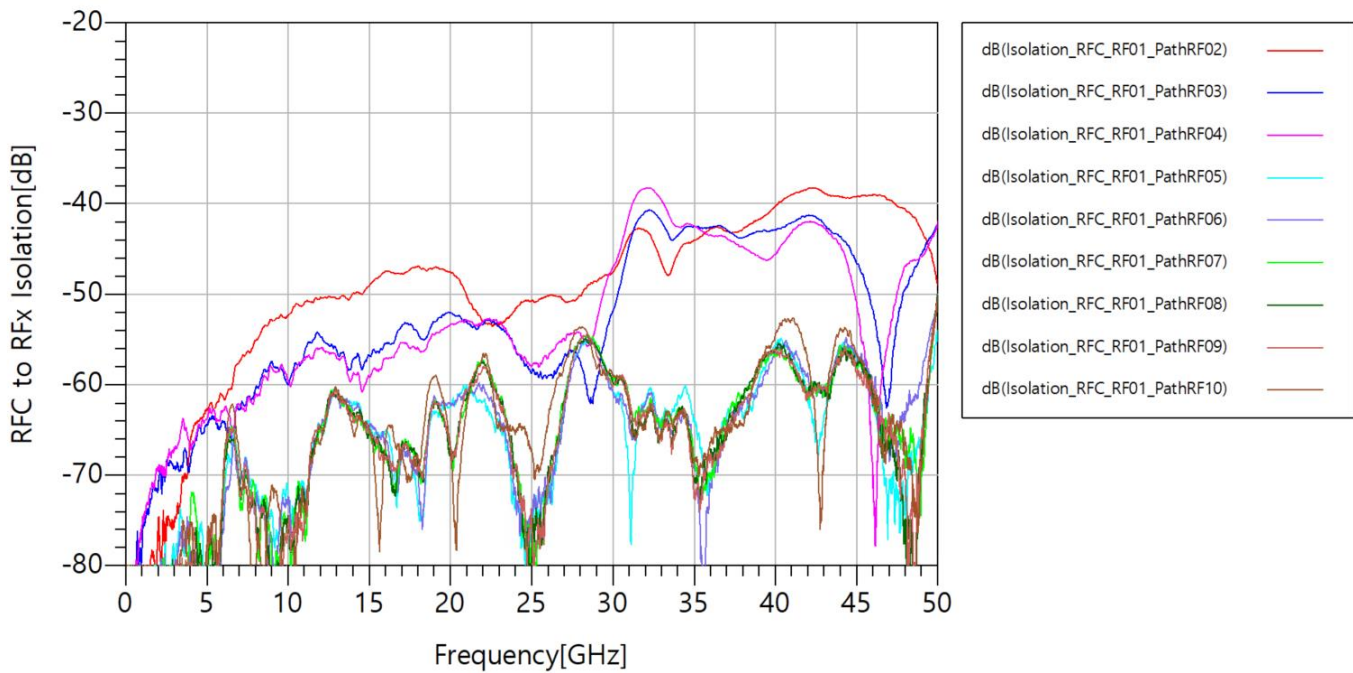


■ Typical Performance Data

< RFC to RFx Isolation @ PathRF01 >

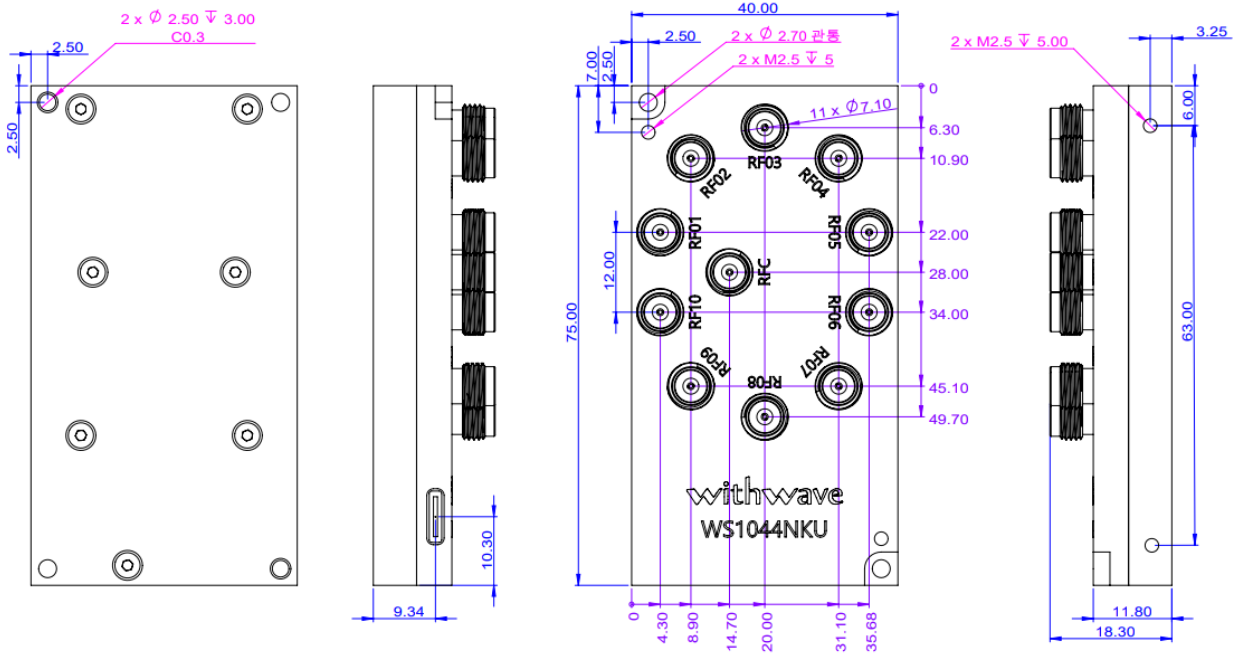


< RFC to RF01 Isolation @ PathRFx >



Dimension

Unit : mm



Control Description

| Command Format | COM port configuration |
|---|---|
| All commands must end with a semicolon. All commands are capitalized only. Port number should be 2-digit decimal. | Baud Rate :115200 Data bits : 8 Parity : None Stop bits : 1 Flow Type :None |

Command Specification

| Index | Command | Description | Return | Example |
|-------|---------|---|---------------------------------------|------------------------------------|
| 1 | *IDN?; | Query product information | Product PN ,Manufacturer , SW version | WS1244NKU, Withwave co, Ltd., V1.0 |
| 2 | RESET; | Reset the product | RESET; | RESET; |
| 3 | Pxx; | Switching to RFC to RFxx Port number should be 2-digit decimal | Pxx; | P02; |
| 4 | OFF; | All off state | OFF; | OFF; |

Error Code

| Index | Return | Description |
|-------|--------|--------------------|
| 1 | E1; | Semicolon missing |
| 2 | E2; | Incorrect commands |

■ **Revision History**

| Revision | Date | Changes |
|----------|------------|--------------|
| Ver 1.0 | 2022-06-02 | Initial work |