

**WS808NKU** is an absorptive SP8T RF switch module that supports a frequency range from 10 MHz to 8 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 8 GHz. External connectors include 2.92mm-vertical launch connector for all RF port.

**WS808NKU** is powered and controlled through USB type-C connector.



## ■ Features

- CMOS SOI technology enhanced
  - Broadband 10 MHz~8 GHz
  - Fast settling time
- High power handling of 33 dBm THRU path
- Insertion loss
  - 3.0 dB @ 8 GHz
- High isolation
  - 32 dB up to 8 GHz

## ■ Applications

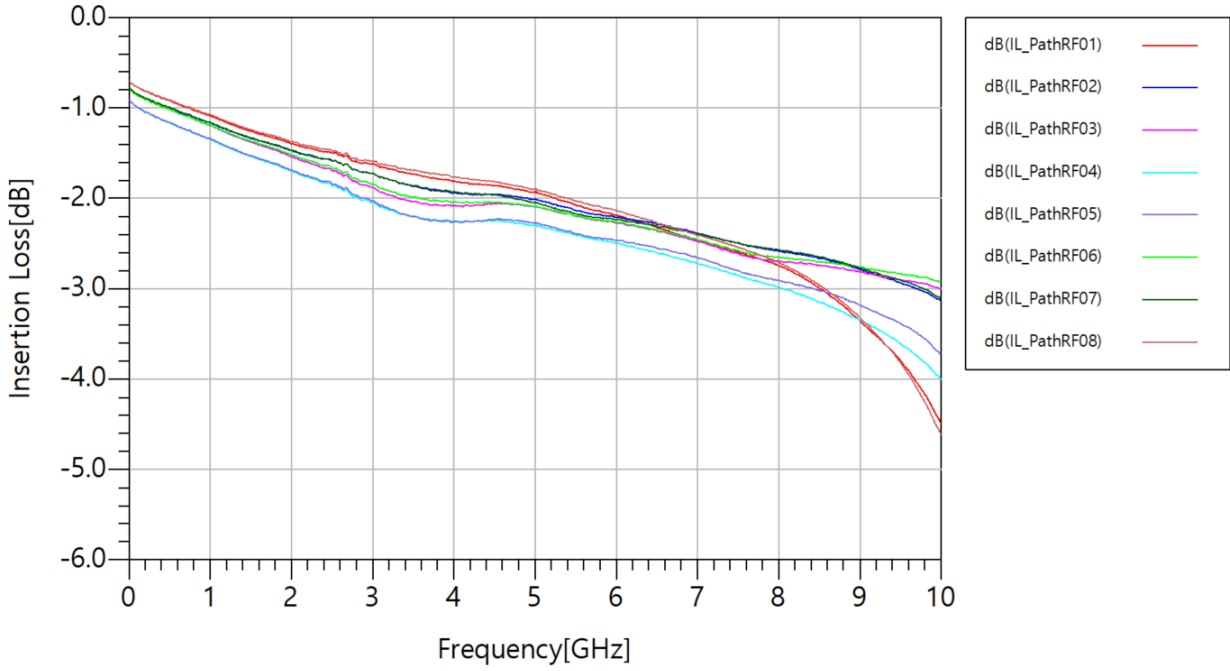
- Test & Measurement
- 5G Wireless Communication
- Commercial Communication
- RF signal routing

**Electrical Specifications**

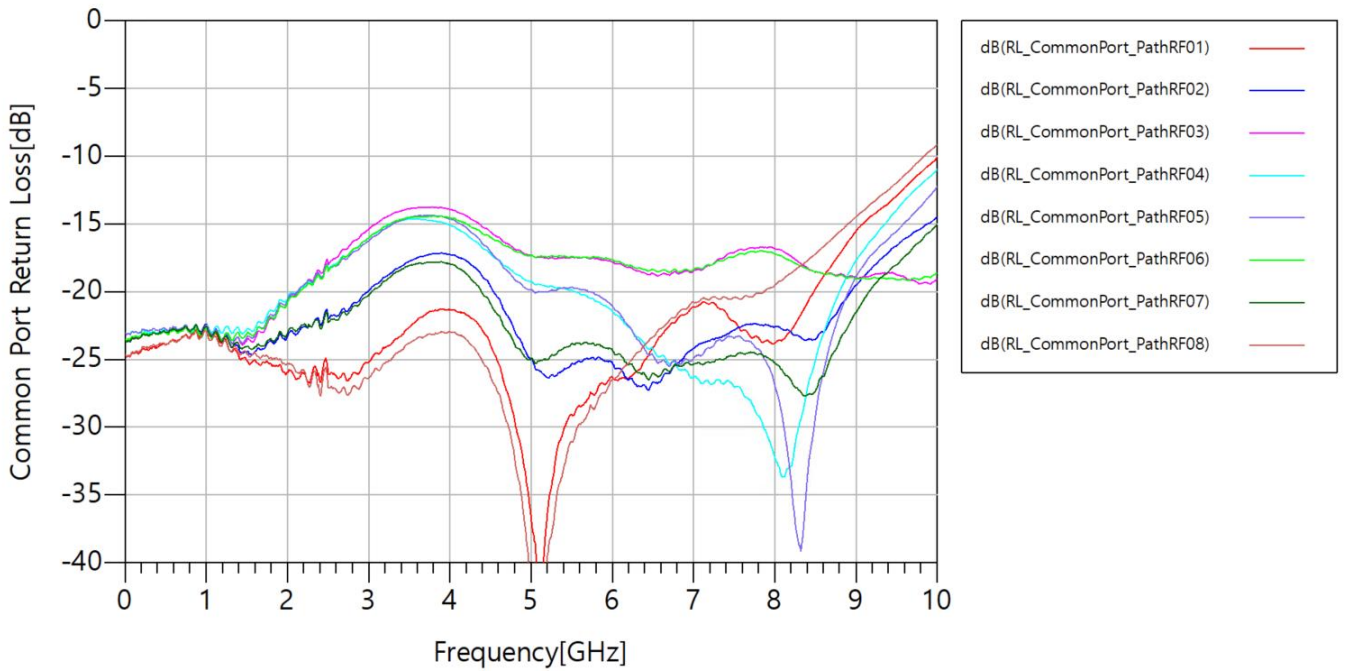
| Parameter                   | Path     | Condition                       | Min    | Typ         | Max   | Unit |
|-----------------------------|----------|---------------------------------|--------|-------------|-------|------|
| Operation Frequency         |          |                                 | 10 MHz |             | 8 GHz |      |
| Insertion loss              | All path | 10 MHz ~ 8 GHz                  |        | 3.0         |       | dB   |
| Return loss (common port)   | All path | 10 MHz ~ 8 GHz                  | 12.5   | 13.5        |       | dB   |
| Return loss (active port)   | All path | 10 MHz ~ 8 GHz                  | 12.5   | 13.5        |       | dB   |
| Return loss (isolated port) | All path | 10 MHz ~ 8 GHz                  | 13.0   | 14.0        |       | dB   |
| Isolation                   | All path | 10 MHz ~ 8 GHz                  | 30.0   | 32.0        |       | dB   |
| RF Input Power              | All path | 10 MHz ~ 8 GHz                  |        | 33.0        |       | dBm  |
| 0.1 dB Power Compression    | All path | f = 100 MHz to 8 GHz            |        | 35.0        |       | dBm  |
| Input IP3                   | All path | 100 MHz ~ 8 GHz                 |        | 60.0        |       | dBm  |
| Switching Time              |          | COM port control time @Window10 |        | 200         |       | us   |
| Current consumption         |          | USB type-C                      |        | 14.0        |       | mA   |
| Power Supply                |          | USB type-C                      |        | 5.0         |       | V    |
| Baud Rate                   |          | USB COM port                    |        | 115200      |       | bps  |
| RF Connectors               |          | 2.92mm-female                   |        |             |       |      |
| ESD HBM                     |          | RF port<br>USB port             |        | 1.0k<br>16k |       | V    |
| Operating Temperature       |          |                                 | -40    |             | 105   | °C   |

■ Typical Performance Data

< Insertion Loss >

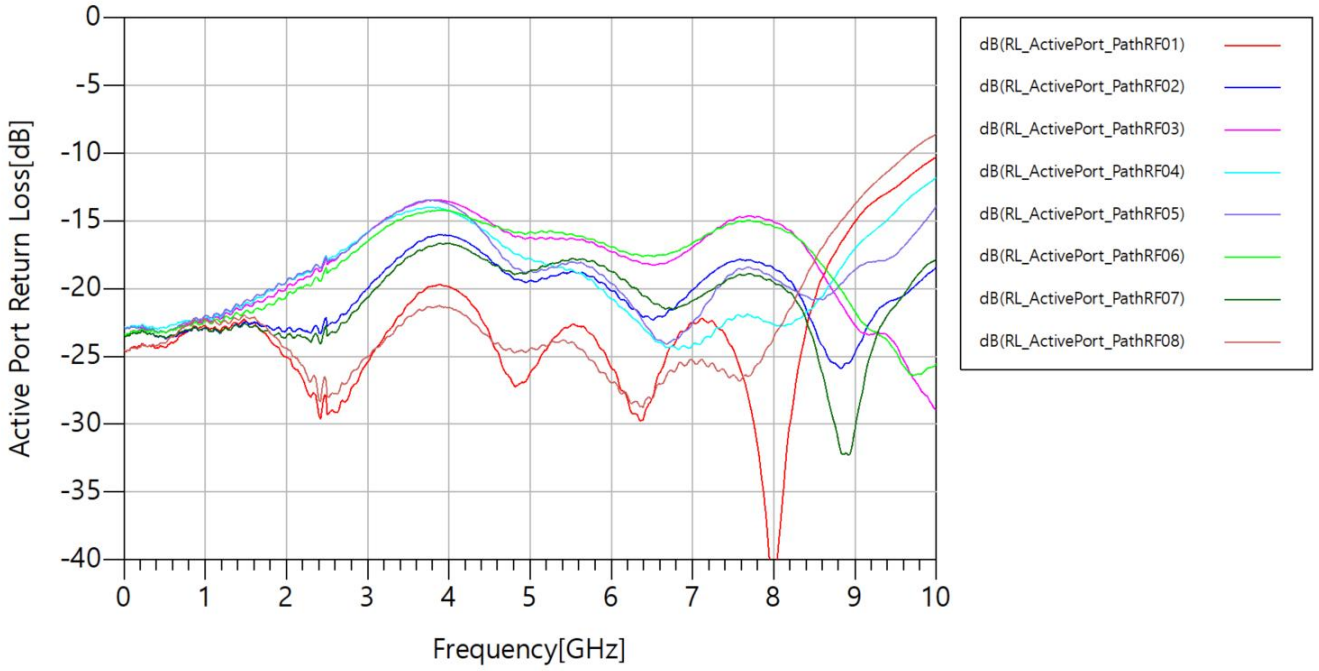


< Common Port Return Loss >

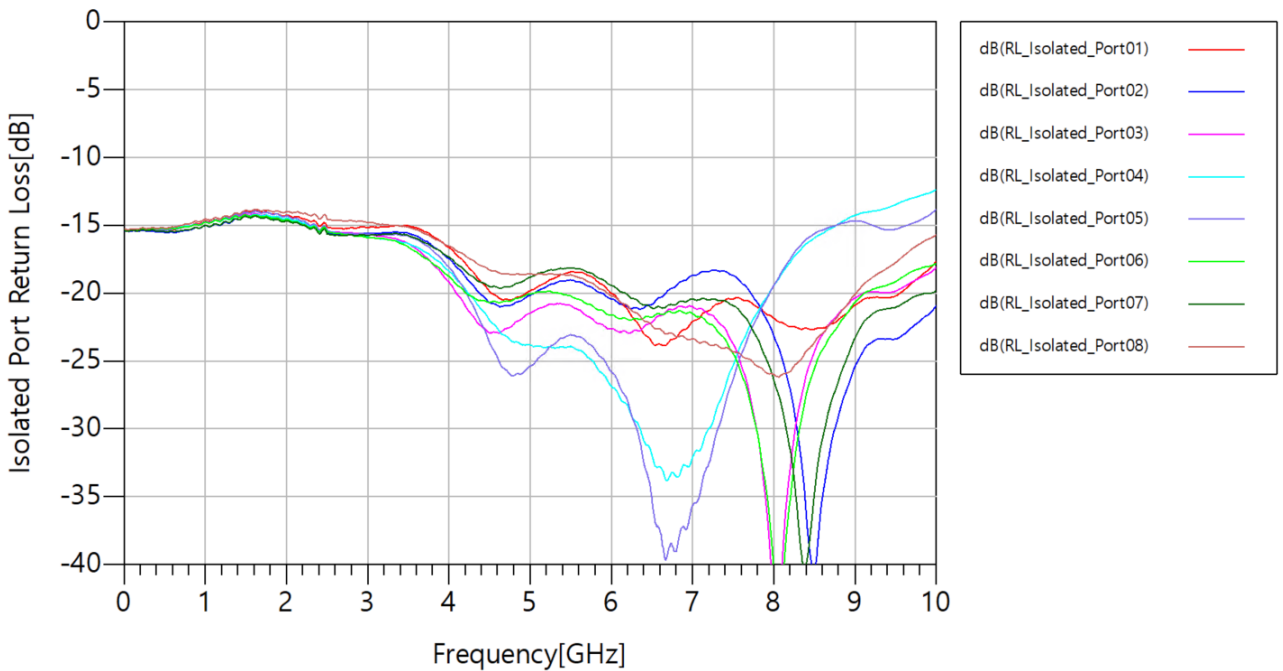


■ **Typical Performance Data**

< Active Port Return Loss >

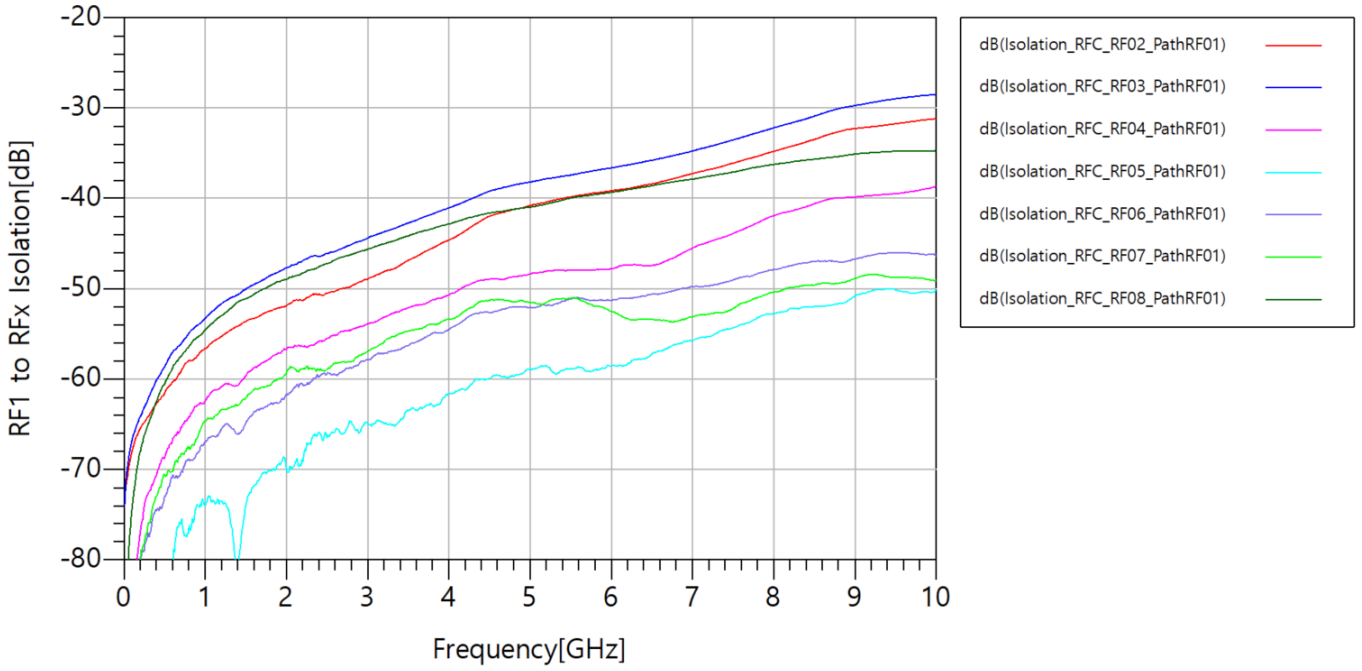


< Isolated Port Return Loss >

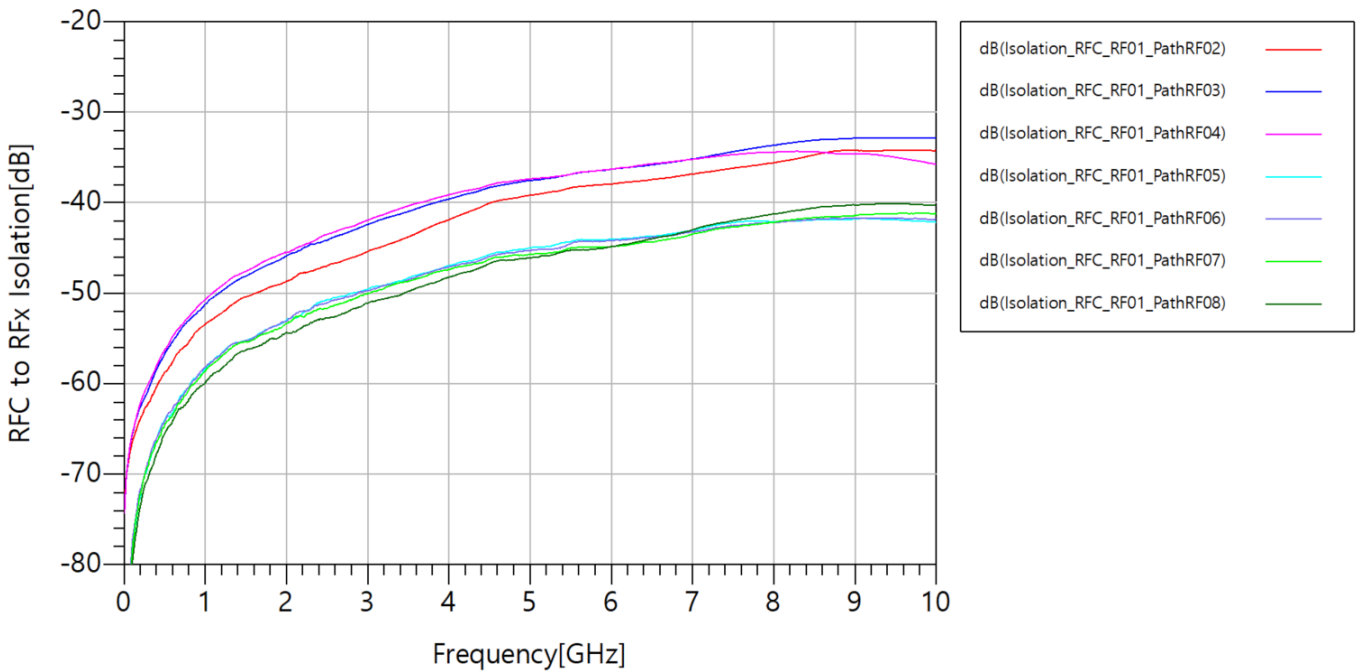


■ Typical Performance Data

< RFC to RFx Isolation @ PathRF01 >



< RFC to RF01 Isolation @ PathRFx >





**Control Description**

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

**Command Specification**

| Index | Command | Description                                                       | Return                                                                                         | Example |
|-------|---------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------|---------|
| 1     | *IDN?;  | Query product information                                         | Product PN, Manufacturer , WS808NKU, Withwave SW version, Serial number co, Ltd., V1.0, SN0001 |         |
| 2     | RESET;  | Reset the product                                                 | RESET;                                                                                         | RESET;  |
| 3     | Pxx;    | Switching to RFC to RFxx<br>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       |
| Ver 1.1  | 2023-05-31 | Add switching time |