WS1018NKU 18 GHz SP10T RF Switch module

withwave
Versatile RF & MW Test Solutions

WS1018NKU is an absorptive SP10T RF switch module that supports a frequency range from 10 kHz to 18 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 18 GHz. External connectors include 2.92mm-vertical launch connector for all RF port.
WS1018NKU is powered and controlled through USB type-C connector.

Features

- CMOS SOI technology enhanced
  - Broadband 10 kHz~18 GHz
  - Fast settling time
- High power handling of 32 dBm THRU path
- Insertion loss
  - RF05, RF06 path : 4.8 dB @ 18 GHz
  - Other RF path : 9.0 dB @ 18 GHz
- High isolation
  - 30 dB up to 18 GHz

Applications

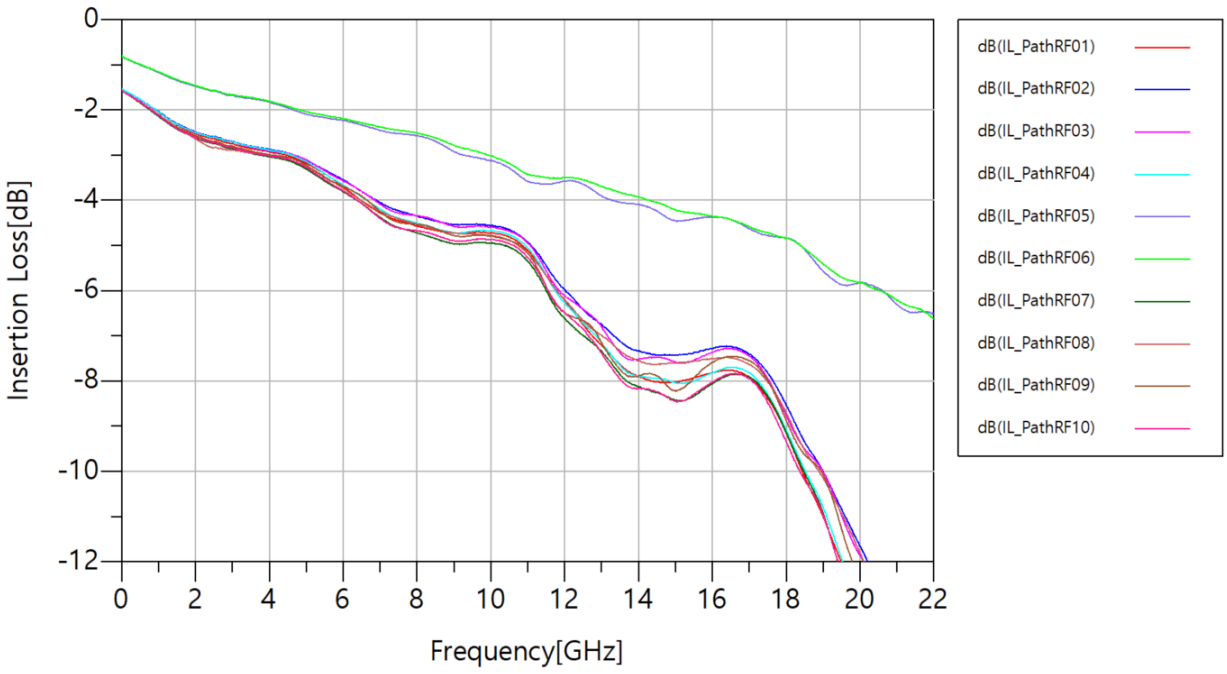
- Test & Measurement
- 5G Wireless Communication
- Commercial Communication
- RF signal routing

Electrical Specifications

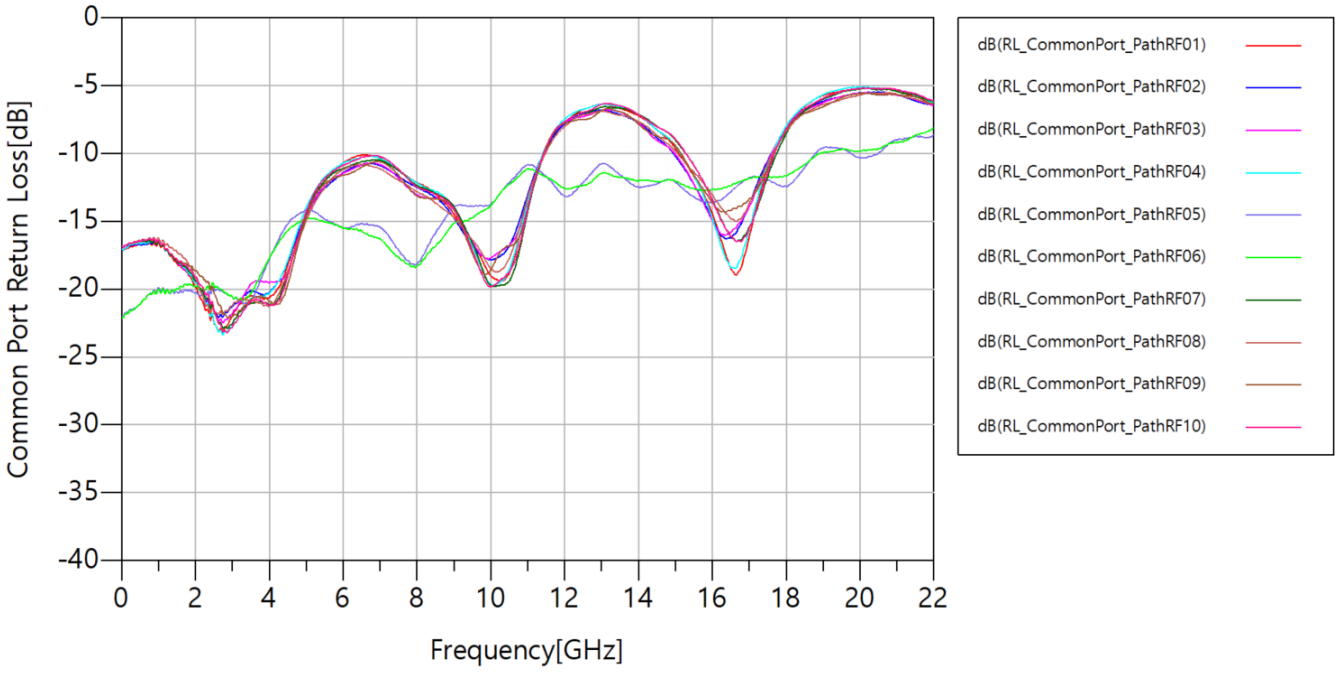
Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 kHz		18 GHz	
Insertion loss	RF05, RF06 Other path	10 kHz ~ 18 GHz 10 kHz ~ 18 GHz		4.8 9.0		dB
Return loss (common port)	All path	10 kHz ~ 18 GHz	5.5	6.3		dB
Return loss (active port)	All path	10 kHz ~ 18 GHz	7.5	8.5		dB
Return loss (isolated port)	All path	10 kHz ~ 18 GHz	7.5	8.5		dB
Isolation	All path	10 kHz ~ 18 GHz	28.0	30.0		dB
RF Input Power	All path			32.0		dBm
0.1 dB Power Compression	All path	f = 26 MHz to 18 GHz		33.0		dBm
Input IP3	All path	10 MHz ~ 18 GHz		59.0		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 USB port		2.5k 16k		V
Operating Temperature			-40		85	ºC

Typical Performance Data

< Insertion Loss >

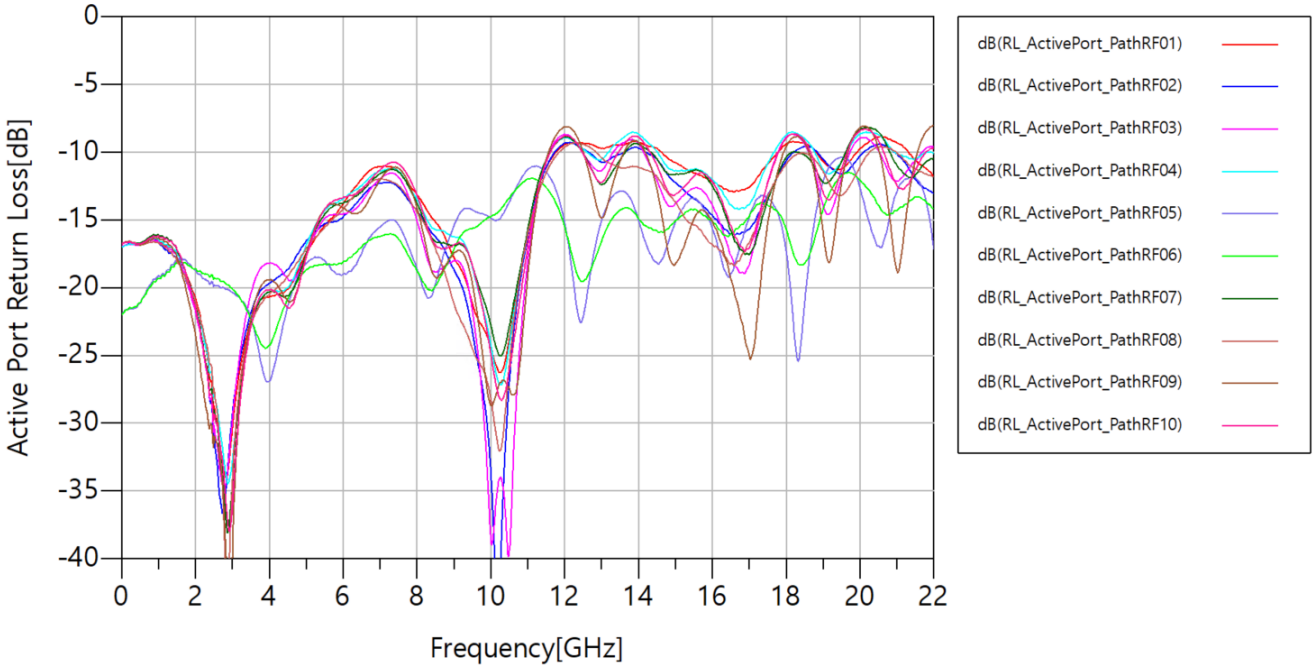


< Common Port Return Loss >

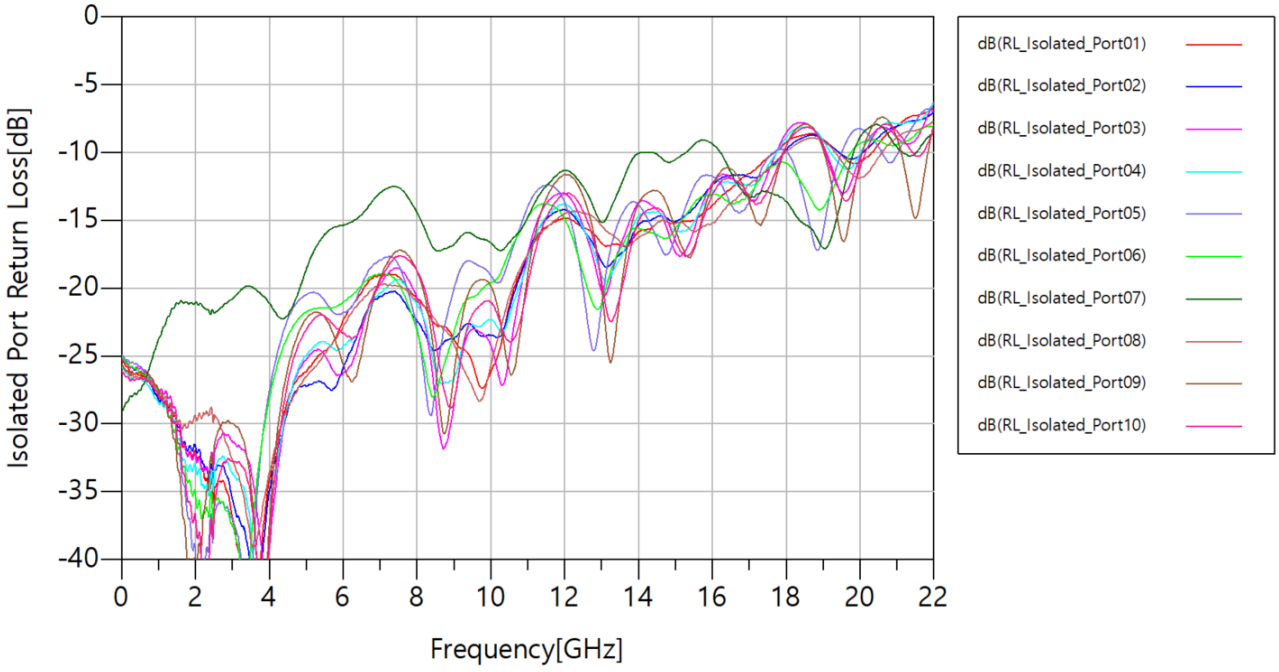


Typical Performance Data

< Active Port Return Loss >

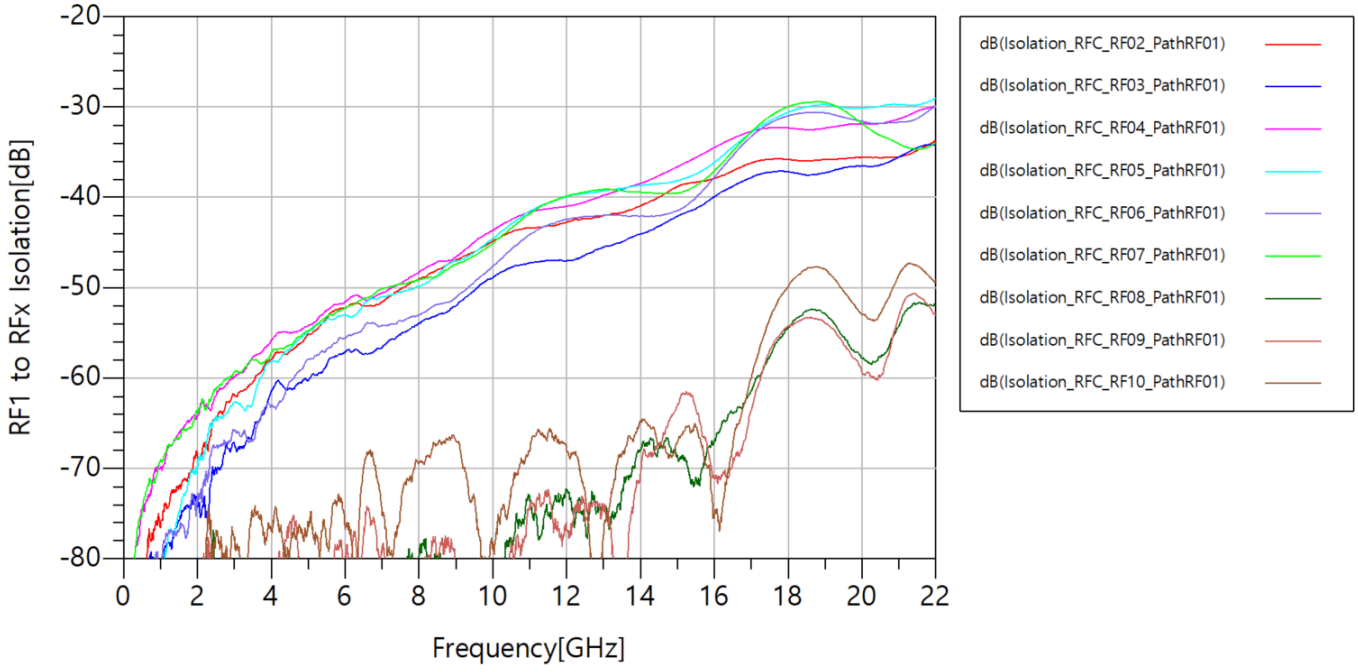


< Isolated Port Return Loss >

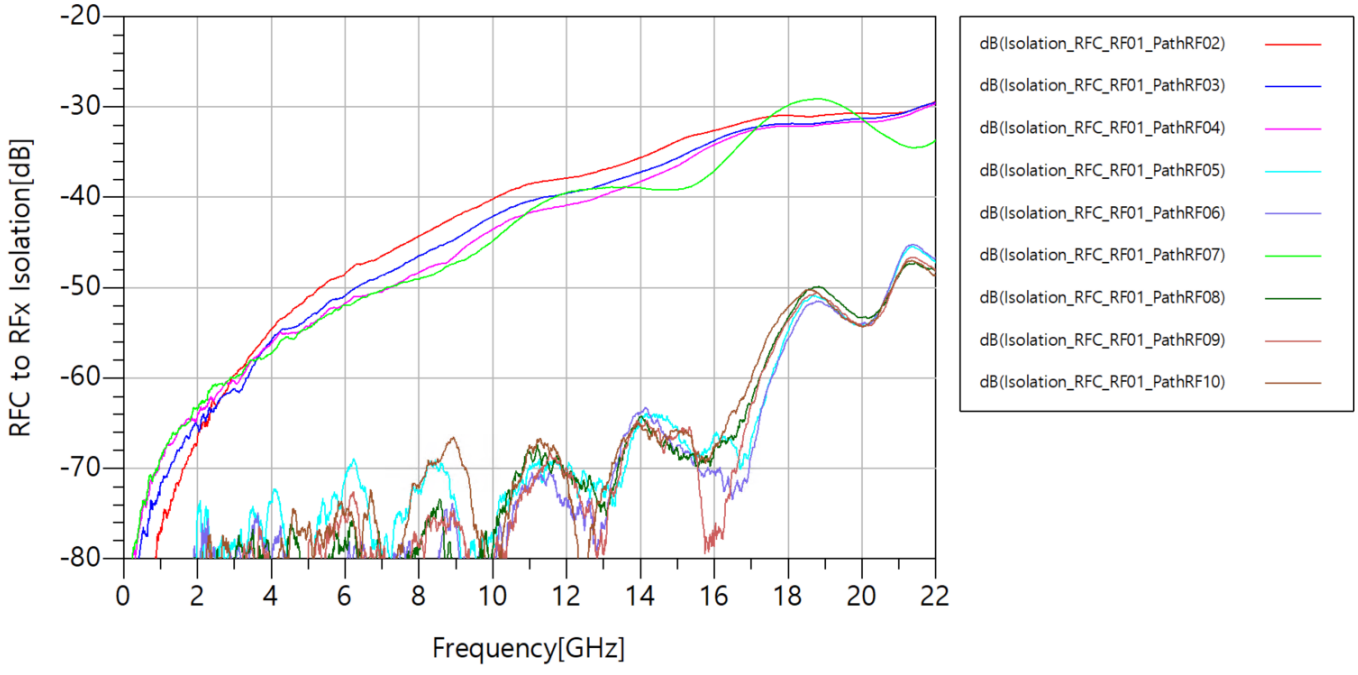


Typical Performance Data

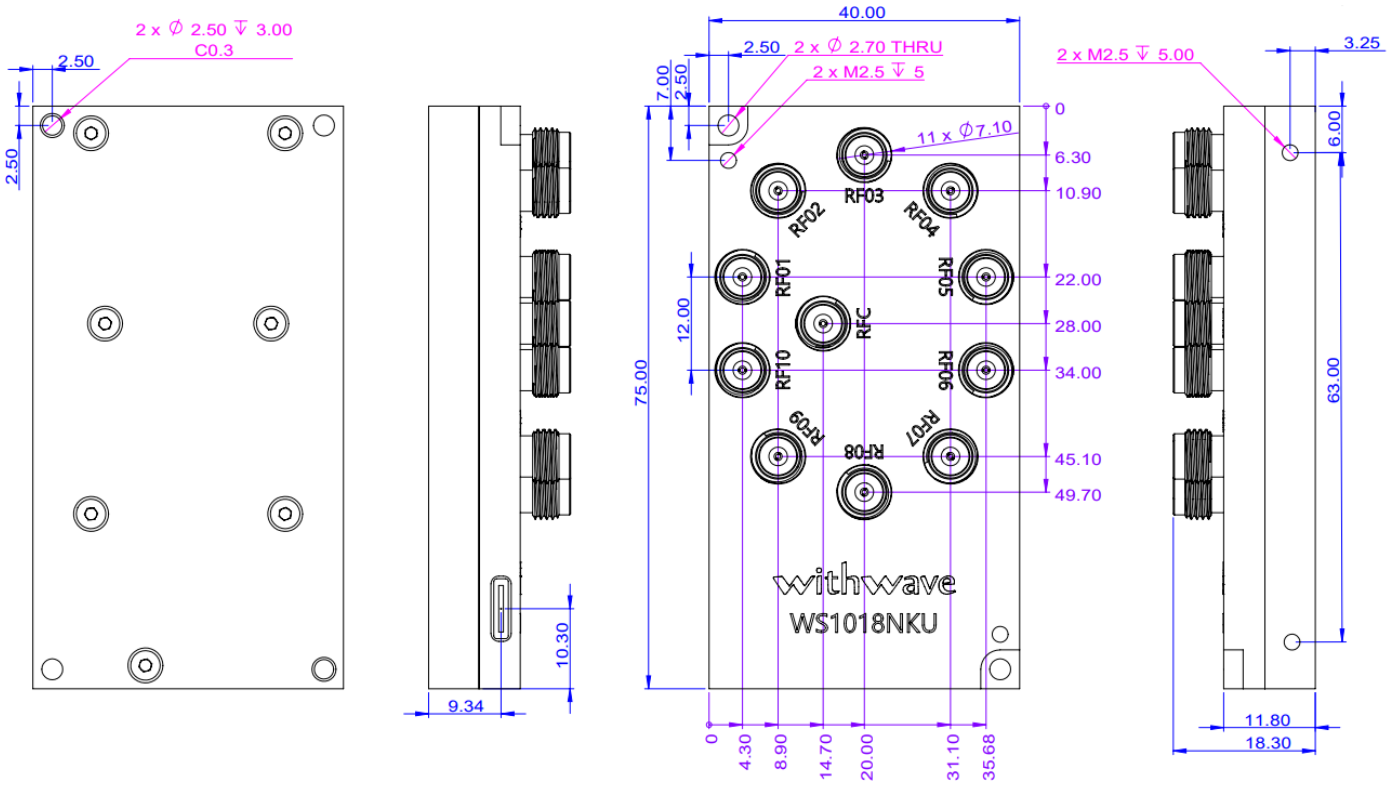
< RFC to RFx Isolation @ PathRF01 >



< RFC to RF01 Isolation @ PathRFx>



Dimension


2 x ∅ 2.50 ↧ 3.00
C0.3
2.50
2.50
9.34
10.30
40.00
2.50
2 x ∅ 2.70 THRU
2 x M2.5 ↧ 5
7.00
2.50
11 x ∅7.10
RF02
RF03
RF04
RF01
RF05
RFC
RF10
RF06
RF09
RF07
RF08
12.00
75.00
withwave
WS1018NKU
0
6.30
10.90
22.00
28.00
34.00
45.10
49.70
0
4.30
8.90
14.70
20.00
31.10
35.68
2 x M2.5 ↧ 5.00
3.25
6.00
63.00
11.80
18.30

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, Serial number	WS1018NKU, Withwave co, ltd., V1.0, SN0001
2	RESET;	Reset the product	RESET;	RESET;
3	Pxx;	Switching to RFC to RFxx Port number should be 2-di git 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 Ver 1.1	2022-06-02 2023-05-31	Initial work Add switching time