

WM1018NKU is an reflective SP10T RF switch module Powered by Ideal Switch® technology from Menlo Microsystems.

WM1018NKU provides 25W power handling, low insertion loss and high linearity from DC to 18 GHz and is powered and controlled through USB type-C connector and external connectors include 2.92mm-vertical launch connector for all RF port.

WM1018NKU is ideal solution for RF signal routing in wireless infrastructure and wireless applications.



■ Features

- DC to 18GHz frequency range
- 25 W(CW), 100 W(Pulsed) power handling
- Low insertion loss : 3.5 dB @ 18 GHz
- High linearity, IIP3 > 90 dBm
- High Reliability > 3 billion Switching Operations
- ESD rating : 2kV HBM on all RF port

■ Applications

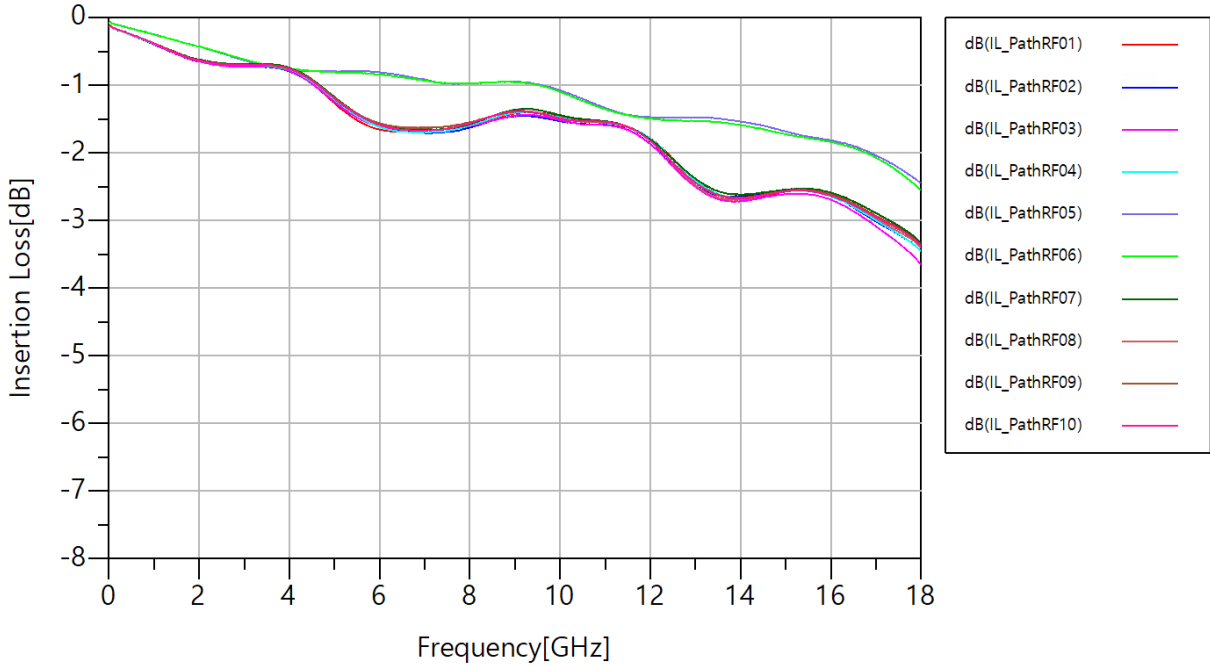
- Test & Measurement
- High Power RF Front-ends
- Antenna Tuning and Beam Steering
- 5G Wireless Communication
- RF signal routing

■ Electrical Specifications

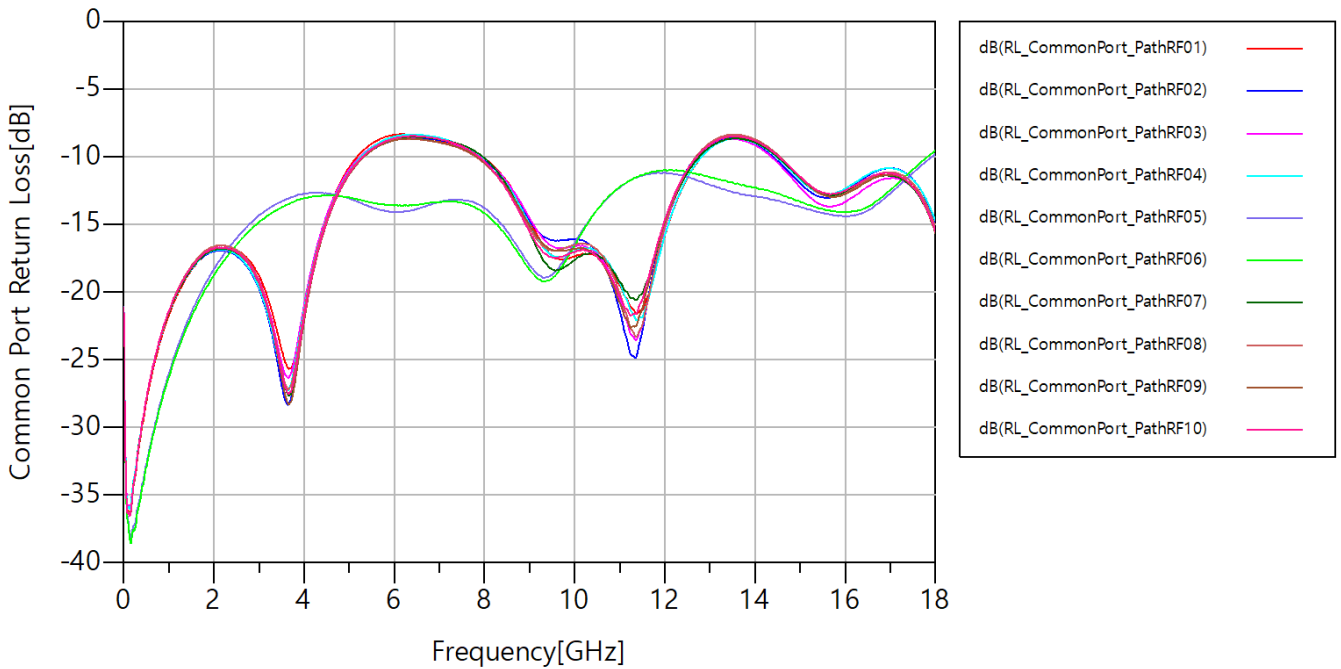
Parameter	Condition	Min	Typ	Max	Unit
Operation Frequency		DC		18	GHz
Insertion loss	@ 9 GHz, All RF port terminated		1.5		dB
	@ 18 GHz, All RF port terminated		3.5		
Return loss (common port)	@ 9 GHz, All RF port terminated		8		dB
	@ 18 GHz, All RF port terminated		8		
Return loss (active port)	@ 9 GHz, All RF port terminated		8		dB
	@ 18 GHz, All RF port terminated		8		
Isolation	@ 9 GHz, All RF port terminated		30		dB
	@ 18 GHz, All RF port terminated		18		
CW Input Power @ 6 GHz	For +85 °C ambient test condition			25	W
Peak Input Power @ 2 GHz	For a 10% duty cycle, 10 μs pulse width, +25 °C ambient test condition.			150	W
Input IP3	Measured at +25°C		90		dBm
Switching Time	COM port control time @Window10		200		us
On/Off Operations	Cold switched operations, measured at 10 kHz cycling rate, measured at +25°C	3x10 ⁹	30x10 ⁹		Cycle
Current consumption	USB type-C		19		mA
Power Supply	USB type-C		5		V
Baud Rate	USB COM port		115200		bps
RF Connectors	2.92mm-female				
ESD HBM	RF port		2		kV
	USB port		16		
Operating Temperature		-40		85	°C

■ Typical Performance Data

< Insertion Loss >

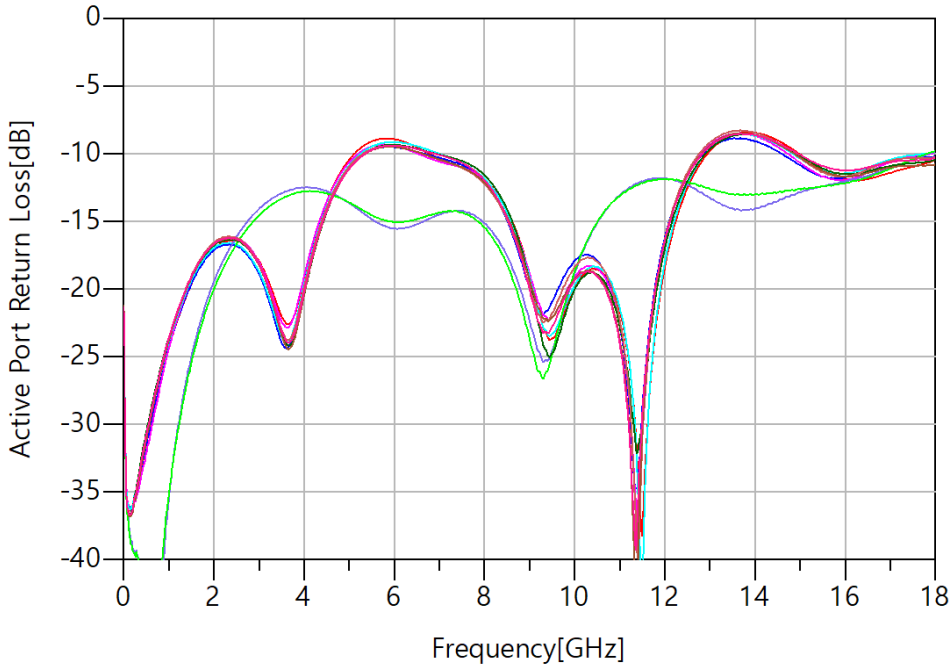


< Common Port Return Loss >



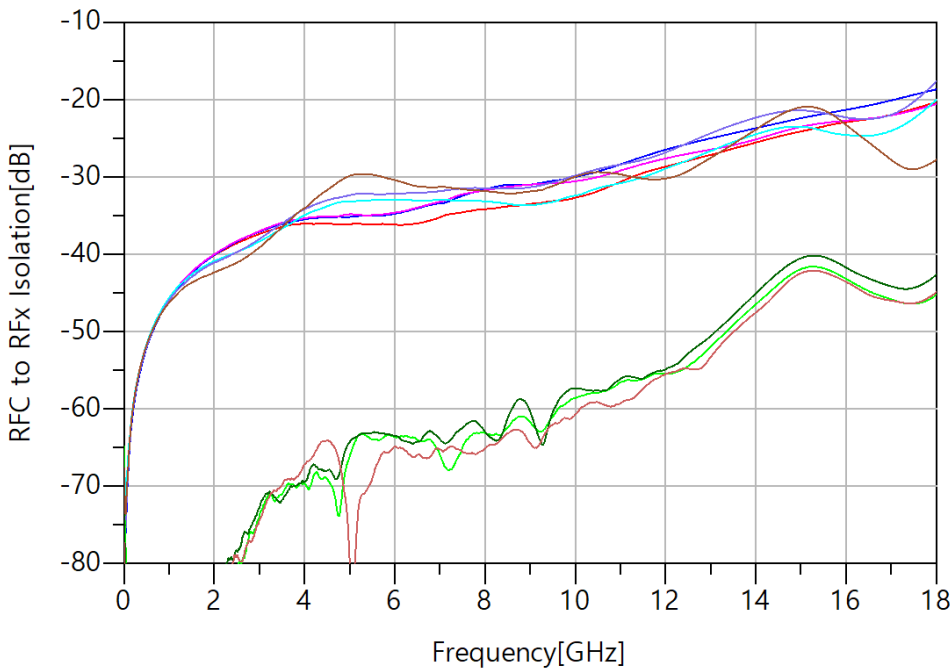
■ **Typical Performance Data**

< Active Port Return Loss >



- dB(RL_ActivePort_PathRF01) — Red
- dB(RL_ActivePort_PathRF02) — Blue
- dB(RL_ActivePort_PathRF03) — Magenta
- dB(RL_ActivePort_PathRF04) — Cyan
- dB(RL_ActivePort_PathRF05) — Purple
- dB(RL_ActivePort_PathRF06) — Green
- dB(RL_ActivePort_PathRF07) — Olive
- dB(RL_ActivePort_PathRF08) — Orange
- dB(RL_ActivePort_PathRF09) — Brown
- dB(RL_ActivePort_PathRF10) — Pink

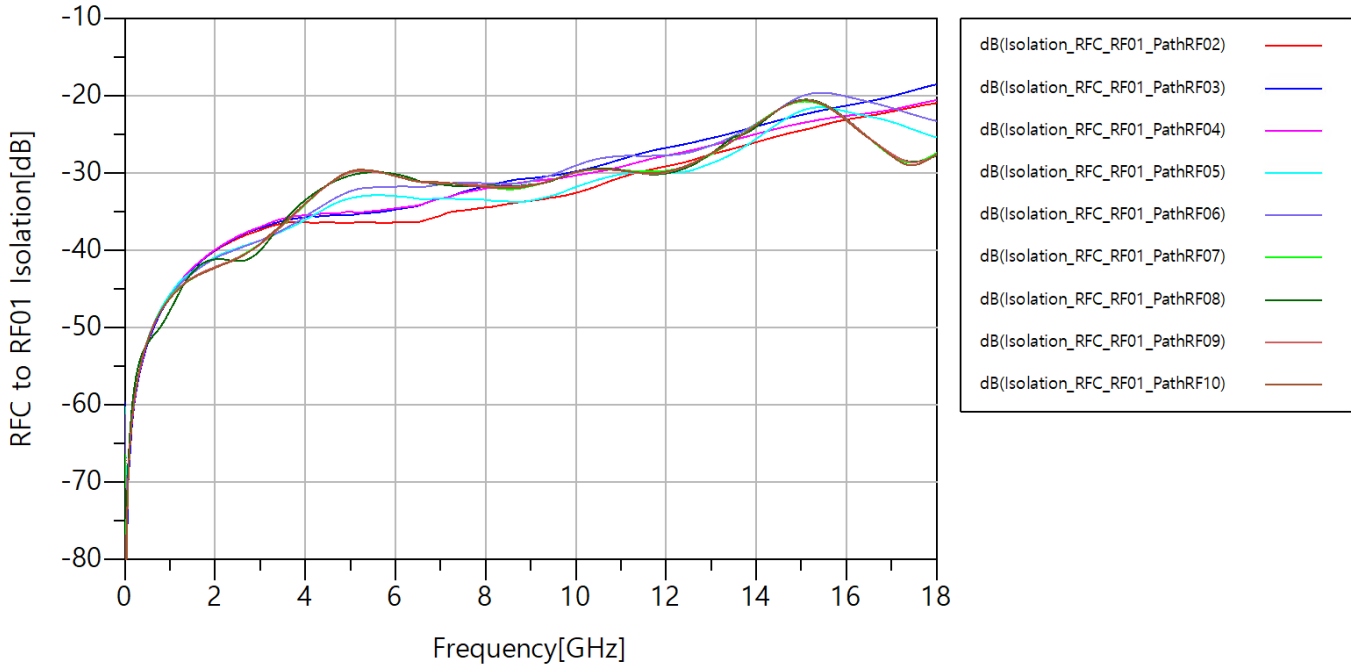
< RFC to RFx Isolation @ PathRF01 >



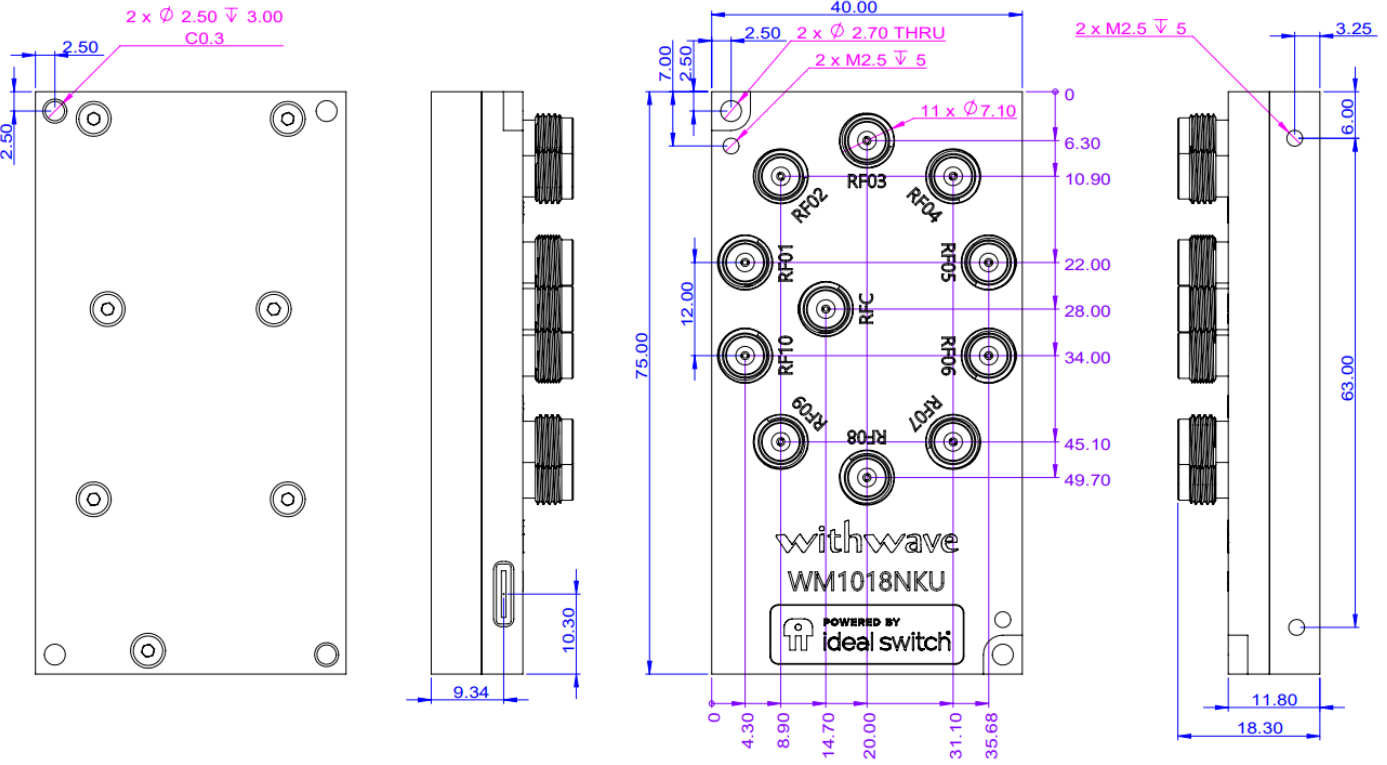
- dB(Isolation_RFC_RF02_PathRF01) — Red
- dB(Isolation_RFC_RF03_PathRF01) — Blue
- dB(Isolation_RFC_RF04_PathRF01) — Magenta
- dB(Isolation_RFC_RF05_PathRF01) — Cyan
- dB(Isolation_RFC_RF06_PathRF01) — Purple
- dB(Isolation_RFC_RF07_PathRF01) — Green
- dB(Isolation_RFC_RF08_PathRF01) — Olive
- dB(Isolation_RFC_RF09_PathRF01) — Orange
- dB(Isolation_RFC_RF10_PathRF01) — Brown

■ Typical Performance Data

< RFC to RF01 Isolation @ PathRFx >



Dimension



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	WM1018NKU, 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	2023-05-31	Initial work