withwave

RF Switch Modules

Withwave's ***RF Switch Modules*** have absorptive RF switches such as ***SP4T, SP8T, SP10T & SP12T*** according to switching applications and frequency range.
They delivers high isolation, low insertion loss and fast switching time, making this devices ideal for RF signal routing in wireless infrastructure and applications up to 40GHz. frequency range.
External Connectors included 2.92 mm vertical launch connectors for all RF port.
They are powered and controlled through ***USB type-Connector.***

Features

- CMOS SOI technology enhanced
- High Power handing
- High isolation and Low insertion loss
- SP4T, SP8T, SP10T & SP12T

Application

- Test & Measurement
- 5G Wireless communication
- Commercial communication
- RF Signal routing

WS408NKU (10 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		10 GHz	
Insertion loss	All path	10 MHz ~ 10 GHz		3.4		dB
Return loss (common port)	All path	10 MHz ~ 10 GHz	10.0	11.0		dB
Return loss (active port)	All path	10 MHz ~ 10 GHz	11.0	12.3		dB
Return loss (isolated port)	All path	10 MHz ~ 10 GHz	11.0	13.0		dB
Isolation	All path	10 MHz ~ 10 GHz	30.0	33.0		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
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		1.0k 16k		V
Operating Temperature			-40		105	ºC

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

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WS418NKU (18 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		18 GHz	
Insertion loss	All path	10 kHz ~ 18 GHz		5.5		dB
Return loss (common port)	All path	10 kHz ~ 18 GHz	7.0	7.7		dB
Return loss (active port)	All path	10 kHz ~ 18 GHz	8.5	9.7		dB
Return loss (isolated port)	All path	10 kHz ~ 18 GHz	8.5	9.5		dB
Isolation	All path	10 kHz ~ 18 GHz	26.0	28.0		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
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		2.5k 16k		V
Operating Temperature			-40		85	ºC

- CMOS SOI technology enhanced
  - Broadband 10 kHz~18 GHz
  - Fast settling time
- High power handling of 32 dBm THRU path
- Insertion loss
  - 5.5 dB @ 18 GHz
- High isolation
  - 28 dB up to 18 GHz

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WS444NKU (44 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		44 GHz	
Insertion loss	All path	10 MHz ~ 44 GHz		5.6		dB
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	12.0	14.0		dB
Isolation	All path	10 MHz ~ 26 GHz 26 GHz ~ 44 GHz	43.0 33.0	45.0 35.0		dB
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, Δf = 1 MHz		47.0		dBm
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		375 16k		V
Operating Temperature			-40		105	ºC

- CMOS SOI technology enhanced
  - Broadband 10 MHz~44 GHz
  - Fast settling time
- High power handling of 24 dBm THRU path
- Insertion loss
  - 5.6 dB @ 44 GHz
- High isolation
  - 35 dB up to 44 GHz

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WS808NKU (8 GHz)

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 PowerCompression	All path	f = 100 MHz to 8 GHz		35.0		dBm
Input IP3	All path	100 MHz ~ 8 GHz		60.0		dBm
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		1.0k 16k		V
Operating Temperature			-40		105	ºC

- 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

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WS1018NKU (18 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		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
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		2.5k 16k		V
Operating Temperature			-40		85	ºC

- 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

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WS1044NKU (44 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		44 GHz	
Insertion loss	RF05, RF06 Other path	10 kHz ~ 44 GHz 10 kHz ~ 44 GHz		5.8 9.5		dB
Return loss (common port)	All path	10 kHz ~ 44 GHz	12.0	13.0		dB
Return loss (active port)	All path	10 kHz ~ 44 GHz	12.0	13.0		dB
Return loss (isolated port)	All path	10 kHz ~ 44 GHz	11.5	13.0		dB
Isolation	All path	10 MHz ~ 26 GHz 26 GHz ~ 44 GHz	36.0	45.0 38.0		dB
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, Δf = 1 MHz		47.0		dBm
Current consumption		USB type-C		14.0		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		2.92mm-female				
ESD HBM		RF port USB port		375 16k		V
Operating Temperature			-40		105	ºC

- 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

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WS1244NKU (44 GHz)

Electrical Specifications

Parameter	Path	Condition	Min	Typ	Max	Unit
Operation Frequency			10 MHz		44 GHz	
Insertion loss	RFC-RFx	10 MHz ~ 28 GHz 28 GHz ~ 44 GHz		8.0 10.8		dB
Return loss (common port)	RFC-RFx	10 MHz ~ 44 GHz		10		dB
Return loss (active port)	RFC-RFx	10 MHz ~ 44 GHz		10		dB
Return loss (isolated port)	RFx	10 MHz ~ 44 GHz		13		dB
Isolation	RFC–RFx	10 MHz ~ 28 GHz 28 GHz ~ 44 GHz		45 40		dB
RF Input Power	RFC–RFx			24		dBm
0.1 dB Power Compression	RFC–RFx	f = 500 MHz to 40 GHz		26		dBm
Input IP3	RFC	Two-tone input power = 15 dBm f = 500 MHz to 40 GHz, Δf = 1 MHz		47		dBm
Current consumption		USB type-C		19		mA
Power Supply		USB type-C		5.0		V
Baud Rate		USB COM port		115200		bps
RF Connector		RFC: 2.4mm-female RFx: SMPM male				
ESD HBM		RF port USB port		375 16k		V
Operating Temperature			-40		105	ºC

- CMOS SOI technology enhanced
  - Broadband 10MHz~44GHz
  - Fast settling time
- High power handling of 24 dBm THRU path
- Insertion loss
  - 8.0dB @ 28GHz
  - 10.8 dB @ 44GHz
- High isolation
  - 40 dB up to 44GHz

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