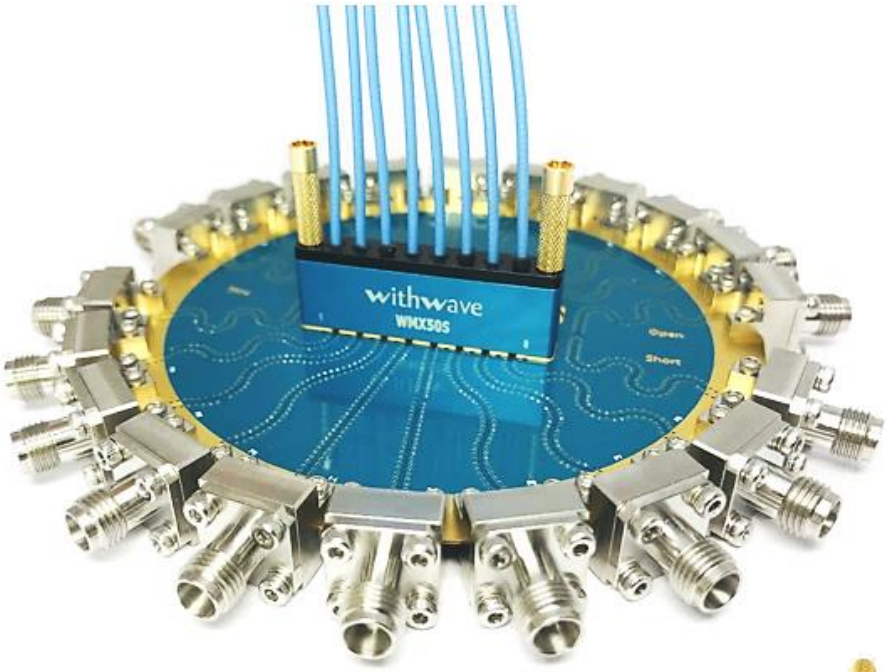
WMX Series™

High Speed Multicoax Cable Assemblies (20,40,50,67GHz)

withwave
Versatile RF & MW Test Solutions

Withwave's High Speed & High-density Multicoax Cable Assemblies (WMX Series) provides a wide range of multiple coax connectors and flexible cable assemblies with a choice of *20,40,50,67 GHz* configurations based on precision array design and superior high frequency cabling solutions.
WMX Series are excellent signal integrity solutions for bench-top testing and automated test equipment to meet increasing demands of semiconductor test equipment and optical testing industries.

These products consist of high performance flexible assemblies which can be bundled in housings (8 and 16 channels) and the interface to board is compression type which provides lower total cost of testing by avoiding costly soldering components.



Features

- Frequency Range : DC to 20, 40, 50 & 67 GHz
- Excellent Insertion and Return loss performance
- Socket & Direct Contact type
- No. of Channel : 1x8, 2x8 Channel
- Pitch : 2.54 mm & 4.00 mm

Applications

- Semiconductor & Optical test equipment
- High speed testing module
- Super Computing
- 5G Communication systems

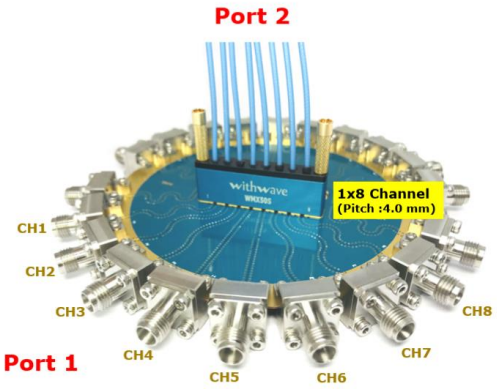
■ *Specification*

Scope	Specification	WMX20	WMX40	WMX50	WMX67
Electrical	Freq. Range (Max)	20	40	50	67
	Operating range/data rate	20 Gbps	40 Gbps	50 Gbps	80 Gbps
	Impedance	50 Ohm			
	VSWR *	1.3	1.4	1.4	1.5
	Cross-talk *	<-50 dB	<-50 dB	<-50 dB	<-50 dB
Mechanical & Environmental	PCB Contact type	Socket type Direct Contact type			
	No. of Channel	1x8 (8 Channel) 2x8 (16 Channel)			
	Connector type	SMA	2.92 mm	2.4 mm	1.85 mm
	Pitch	2.54 mm 4.00 mm			
	Cable Out Diameter **	0.047 inch			
	Temperature	-55 ~+125℃			

* Test Condition
- Cable length : 150 mm(O.D : 0.047 inch), Pitch : 4.0 mm
- PCB : Multilayer (RO4003C 8 mil + FR4 16 mil), RF Trace Length : 44. 14 mm(*CBCPW Structure*)

** Please see cable specification for detail information (Page 12)

Test Results (WMX40)

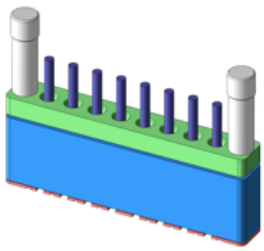


Test Condition

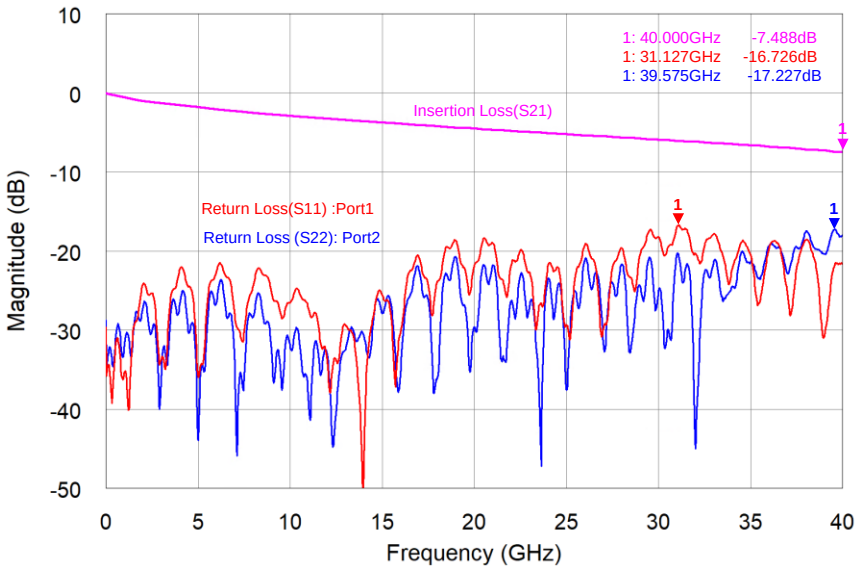
- **WMX40 (Socket & Direct Contact)** ***: 1x8 Channel***
  - Cable length : 150 mm(O.D : 0.047 inch)
  - Pitch : 4.0 mm
  - Connector : 2.92 mm (Female)
- **Test Board**
  - PCB : Multilayer (RO4003C 8 mil + FR4 16 mil)
  - RF Trace length : 44.14 mm(***CBCPW Structure***)
  - Connector: End Launch 2.92 mm(Female)

Socket Type

- Freq.: 10 MHz to 40 GHz

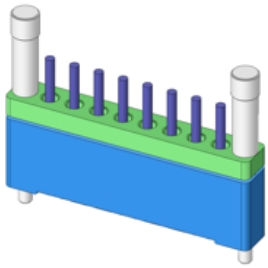


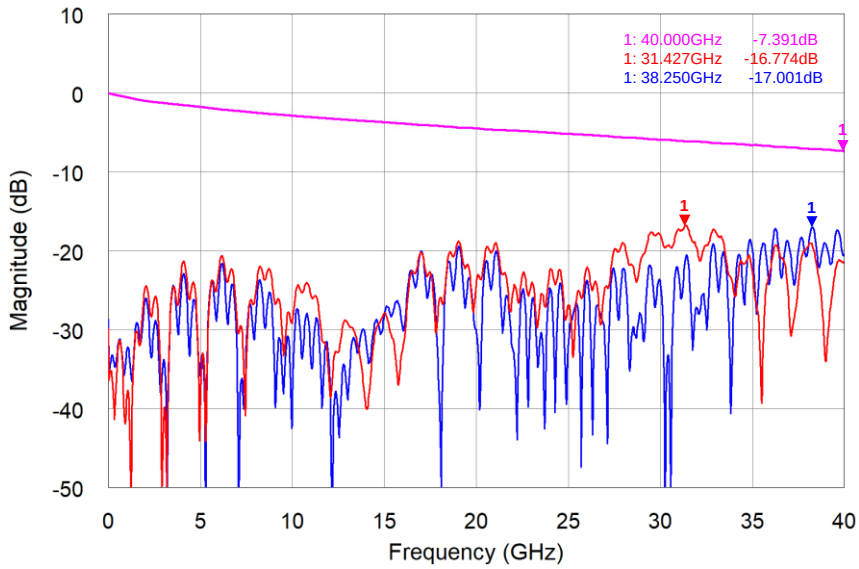
Insertion & Return Loss



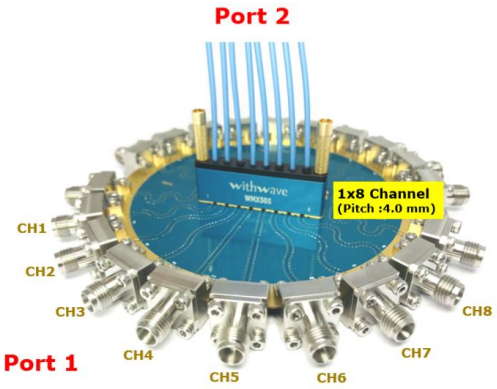
Direct Contact Type

- Freq.: 10 MHz to 40 GHz





■ Test Results (WMX50)

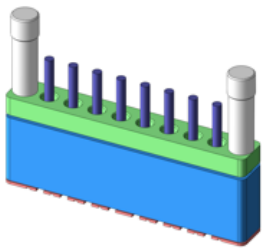


Test Condition

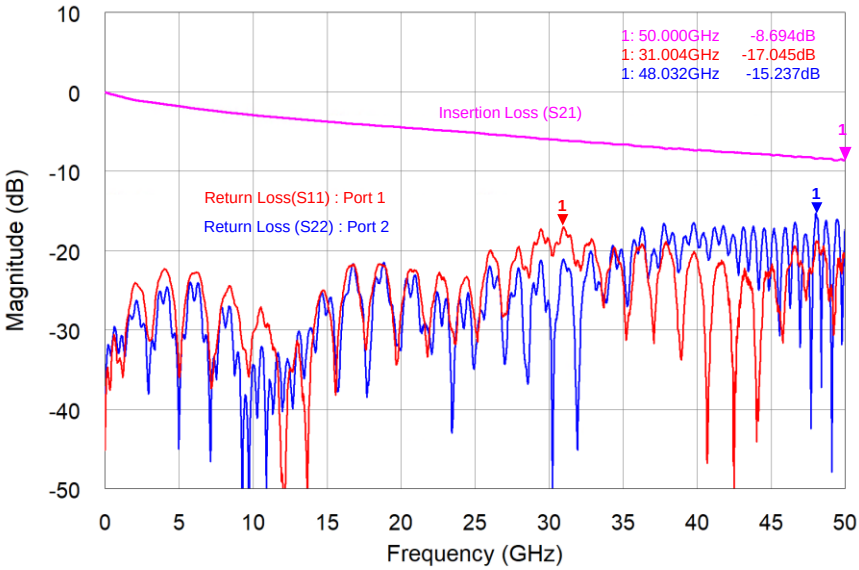
- **WMX50 (Socket & Direct Contact)** ***: 1x8 Channel***
  - Cable length : 150 mm(O.D : 0.047 inch)
  - Pitch : 4.0 mm
  - Connector : 2.4 mm (Female)
- **Test Board**
  - PCB : Multilayer (RO4003C 8 mil + FR4 16 mil)
  - RF Trace length : 44.14 mm(***CBCPW Structure***)
  - Connector: End Launch 2.4 mm(Female)

Socket Type

- Freq.: 10 MHz to 50 GHz

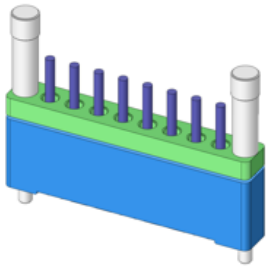


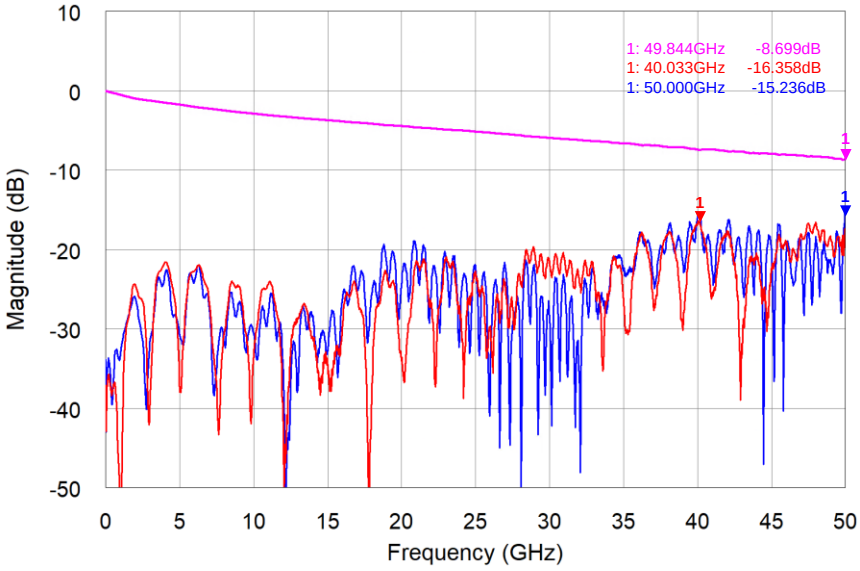
Insertion & Return Loss



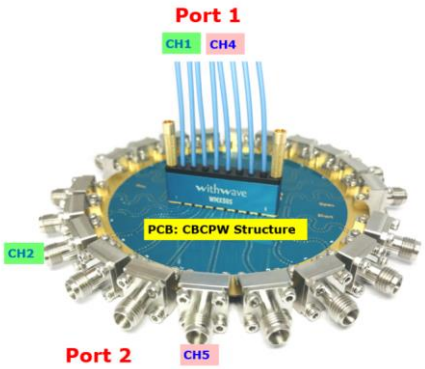
Direct Contact Type

- Freq.: 10 MHz to 50 GHz





■ Test Results (WMX50)

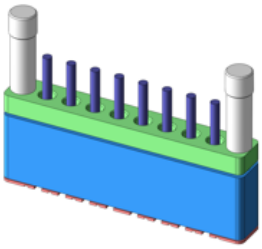


Test Condition

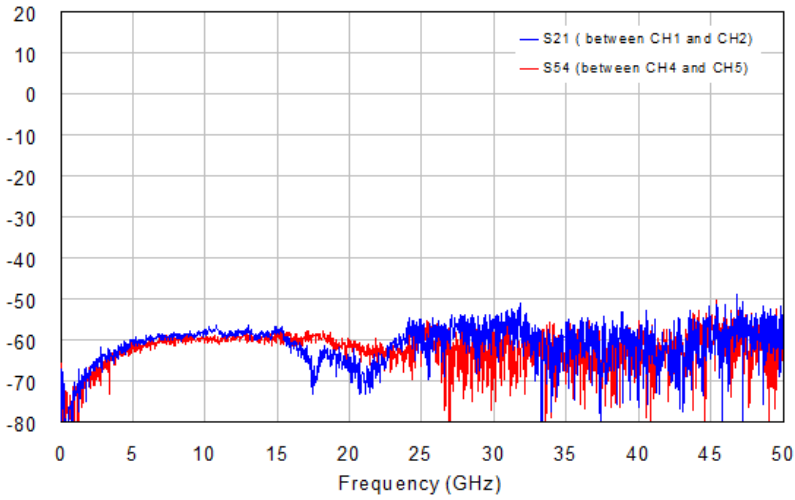
- **WMX50 (Socket & Direct Contact)** ***: 1x8 Channel***
  - Cable length : 150 mm(O.D : 0.047 inch)
  - Pitch : 4.0 mm
  - Connector : 2.4 mm (Female)
- **Test Board**
  - PCB : Multilayer (RO4003C 8 mil + FR4 16 mil)
  - RF Trace length : 44.14 mm(***CBCPW Structure***)
  - Connector: End Launch 2.4 mm(Female)

Socket Type

- Freq.: 10 MHz to 50 GHz

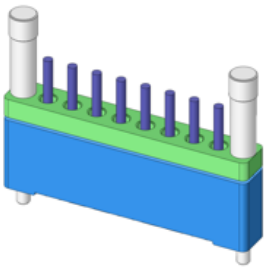


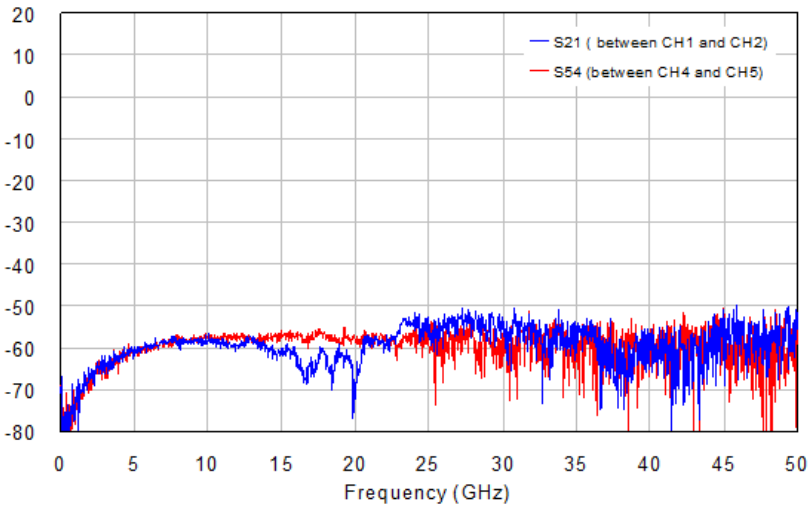
Cross-talk



Direct Contact Type

- Freq.: 10 MHz to 50 GHz





Selection Guide (WMX Series)

WMX40S-8A1-KM1-300-2-02-(HB)

Max. Frequency
20 : 20 GHz (WMX20)
40 : 40 GHz (WMX40)
50 : 50 GHz (WMX50)
67 : 67 GHz (WMX67)

PCB Contact Type
S : Socket Type
D : Direct Contact Type

No of Channel
8A : 1x8 CH
16A: 2X8 CH
16B: 4X4 CH(4mm pitch only)

Pitch Type
1 : 2.54 mm
2 : 4.00 mm

Connector Type
SM1: SMA M (WMX20)
SF1 : SMA F (WMX20)
KM1 : 2.92 mm M (WMX40)
KF1 : 2.92 mm F (WMX40)
PF1 : SMPM F (WMX40)
2M1 : 2.4 mm M (WMX50)
2F1 : 2.4 mm F (WMX50)
VM1 : 1.85 mm M (WMX67)
VF1 : 1.85 mm F (WMX67)
PF2 : SMPM F (WMX67)

Cable Length
(Unit : mm)

Phase Matching
N : No Phase Matching
2 : ±2 pico second
5 : ±5 pico second

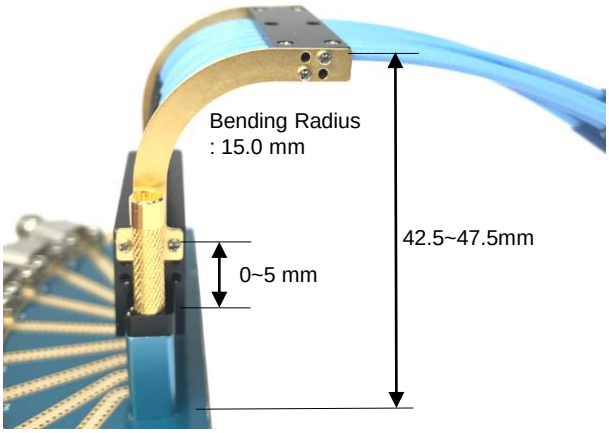
No. of Phase Matched Cable
01 : 1 Cables
02 : 2 Cables
04 : 4 Cables
06 : 6 Cables
08 : 8 Cables

Connector Holder

Bending Jig

Connector Holder

Selection Guide (Option : Bending JIG) for 90 degrees cable bend

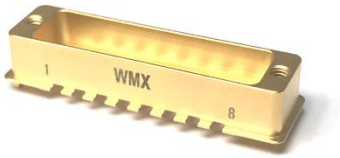


■ Selection Guide (Socket)

WMX-8A-01

Pitch Type
01 : 2.54 mm
02 : 4.00 mm

No of Channel
8A : 1x8 Channel
16A: 2X8 Channel

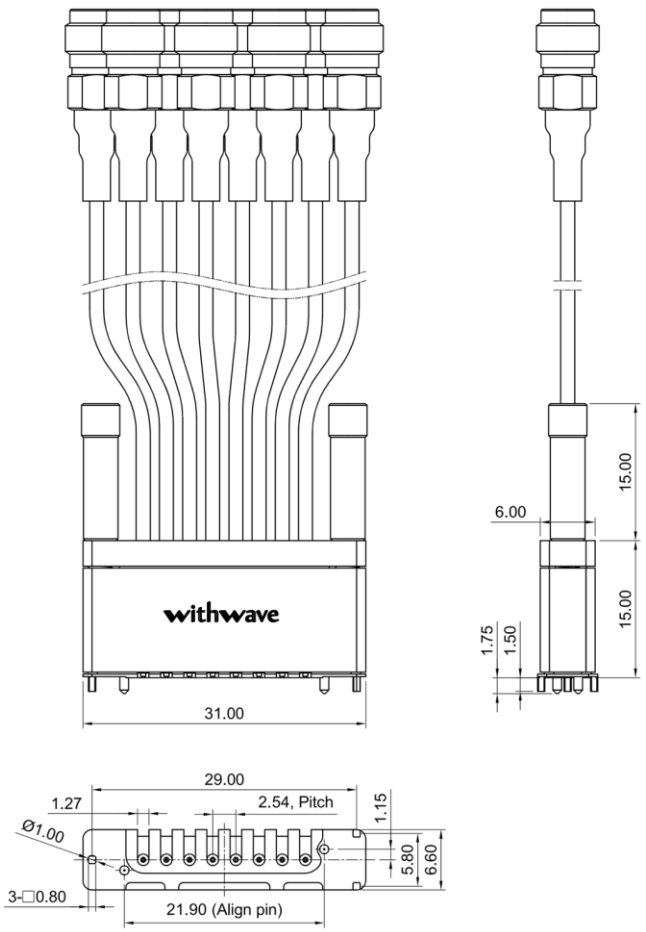
Socket Type (Pitch : 2.54 mm)	
1x8 Channel	**2x8 Channel**
	

Socket Type (Pitch : 4.00 mm)	
1x8 Channel	**2x8 Channel**
	

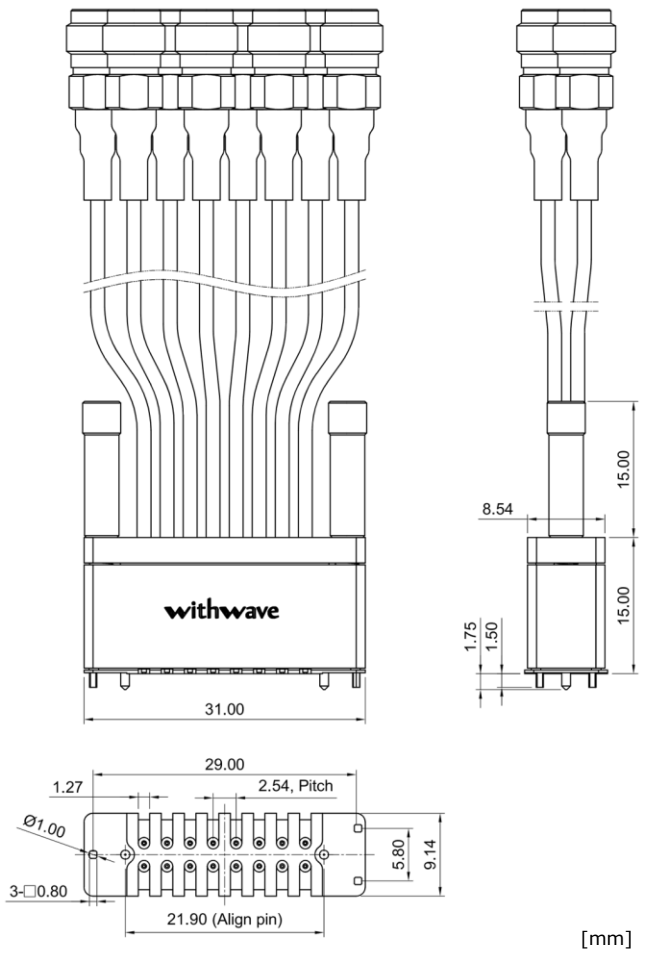
Drawing (WMX Series)

Socket Type (Pitch : 2.54 mm)

1x8 Channel



2x8 Channel

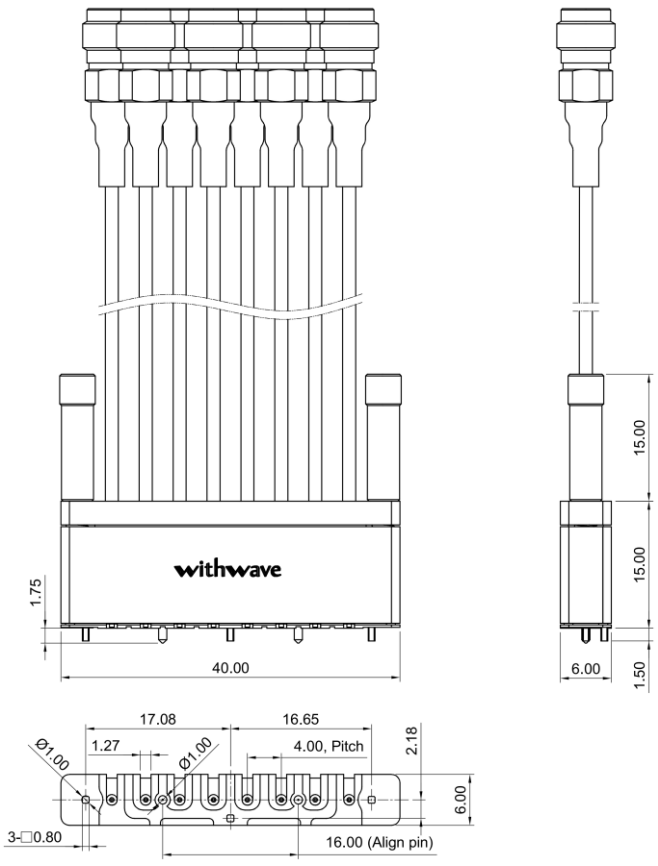


[mm]

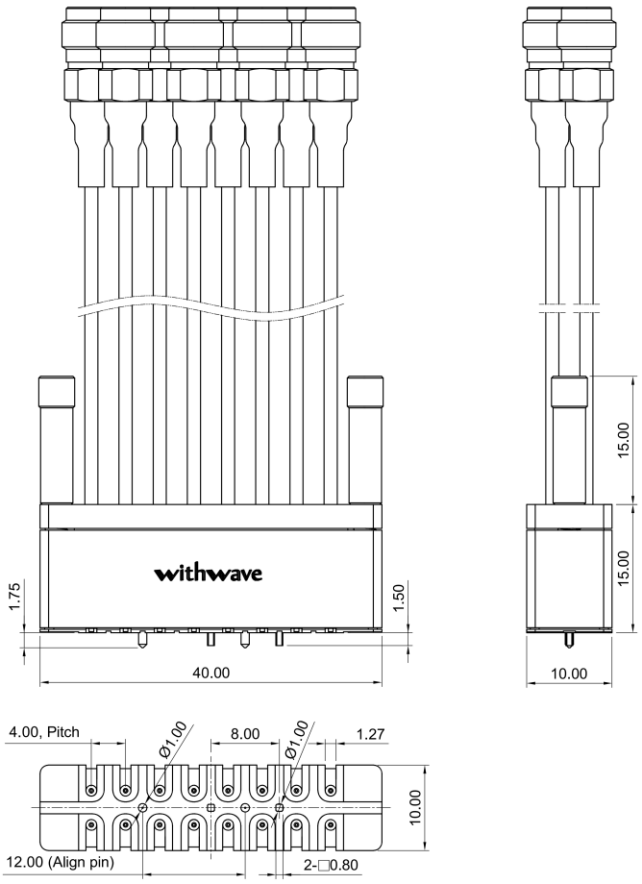
■ Drawing (WMX Series)

Socket Type (Pitch : 4.0 mm)

1x8 Channel



2x8 Channel

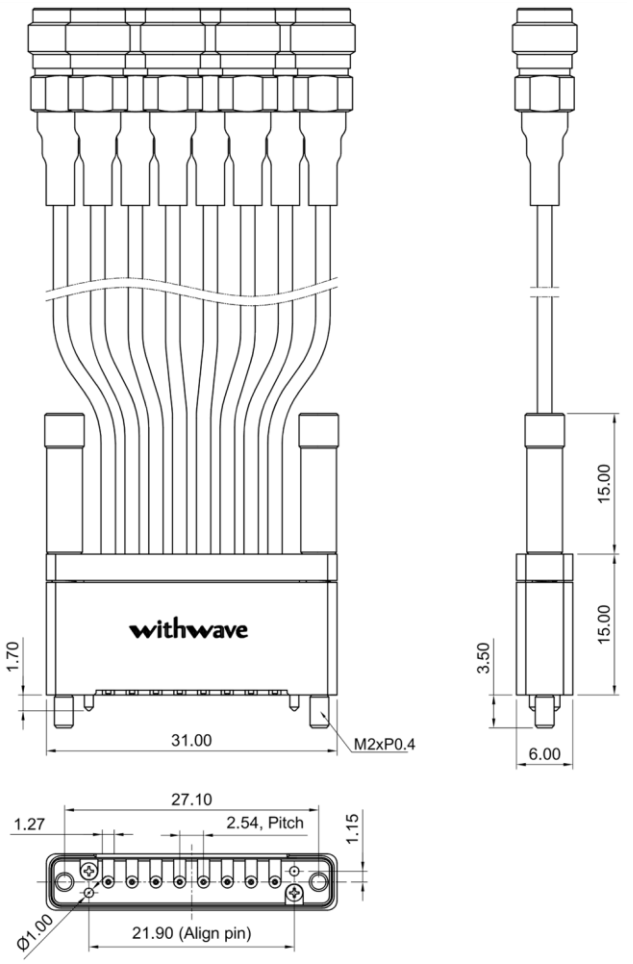


[mm]

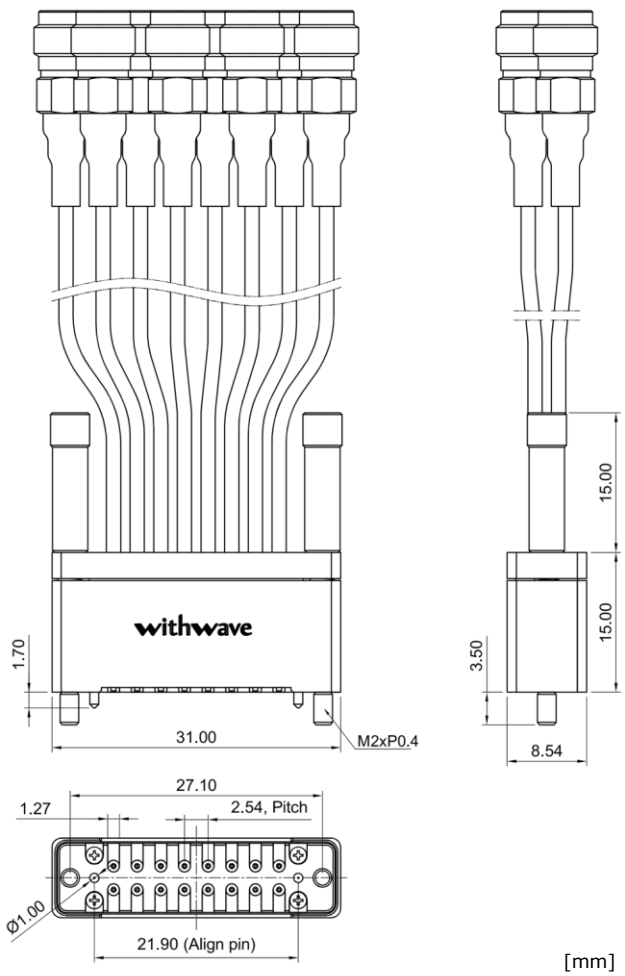
■ Drawing (WMX Series)

Direct Contact Type (Pitch : 2.54 mm)

1x8 Channel



2x8 Channel

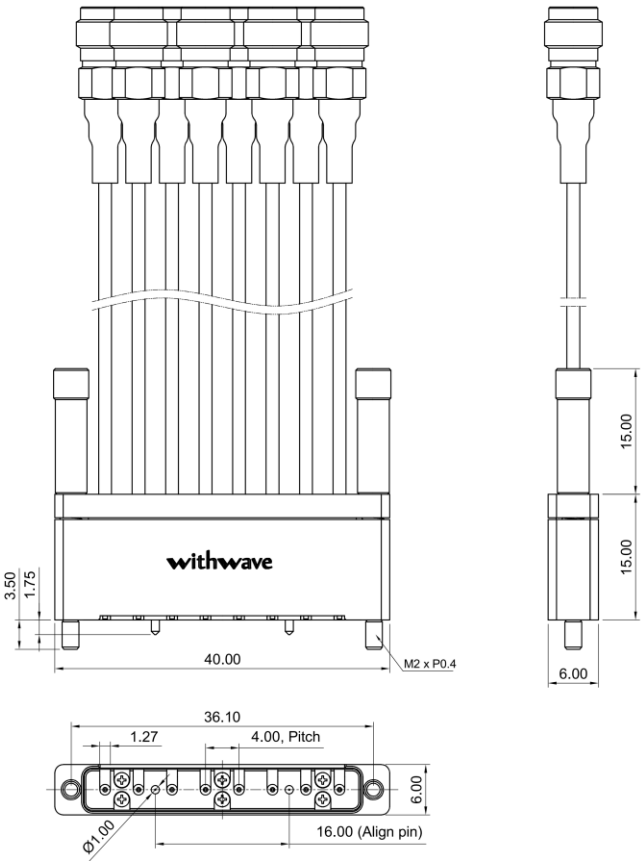


[mm]

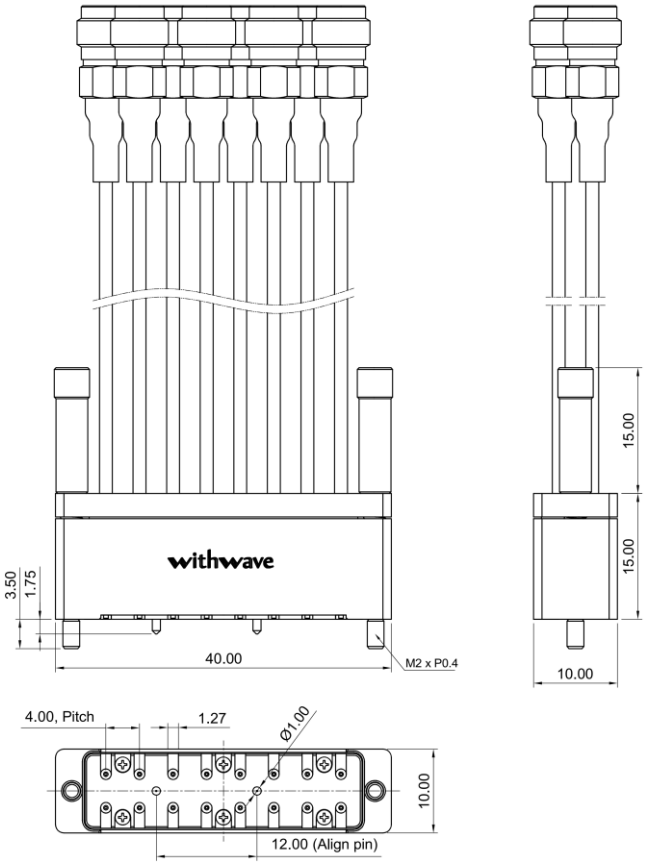
Drawing (WMX Series)

Direct Contact Type (Pitch : 4.0 mm)

1x8 Channel



2x8 Channel

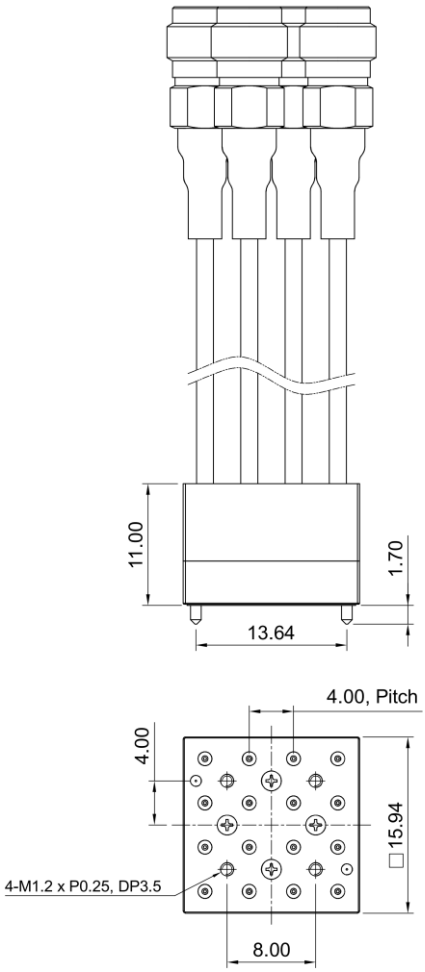


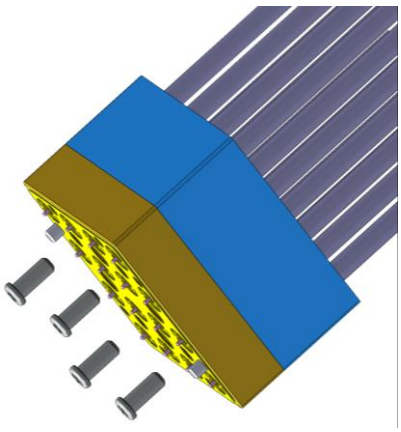
[mm]

Drawing (WMX Series)

Direct Contact Type (Pitch : 4.0 mm)

4x4 Channel

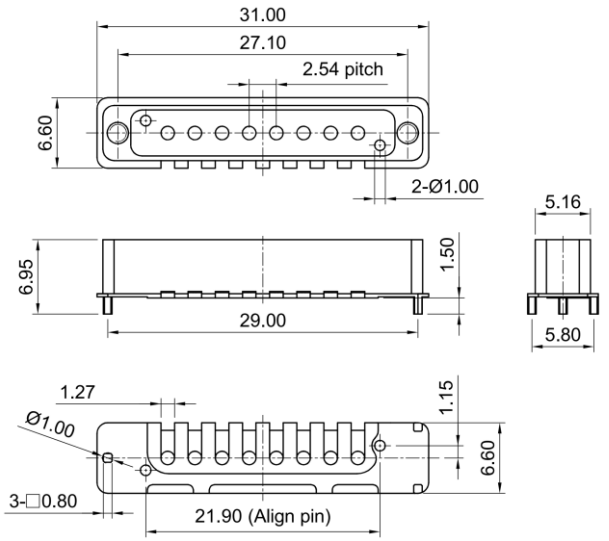




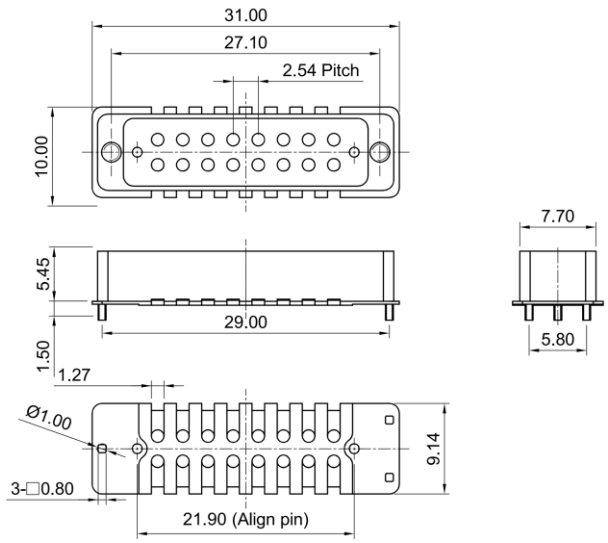
■ Drawing (Socket)

Socket Type (Pitch : 2.54 mm)

1x8 Channel

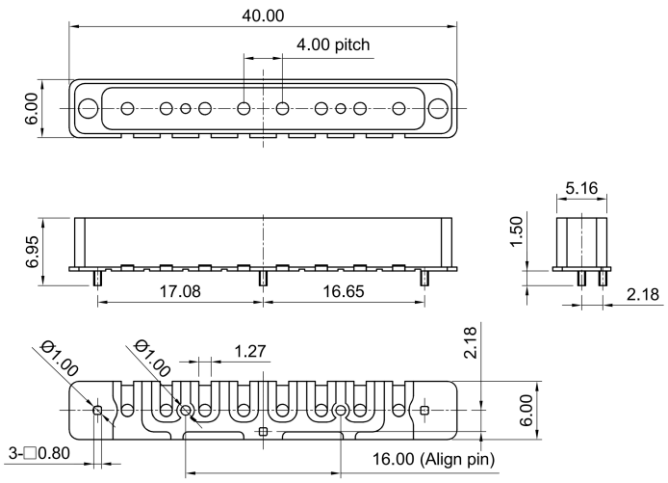


2x8 Channel

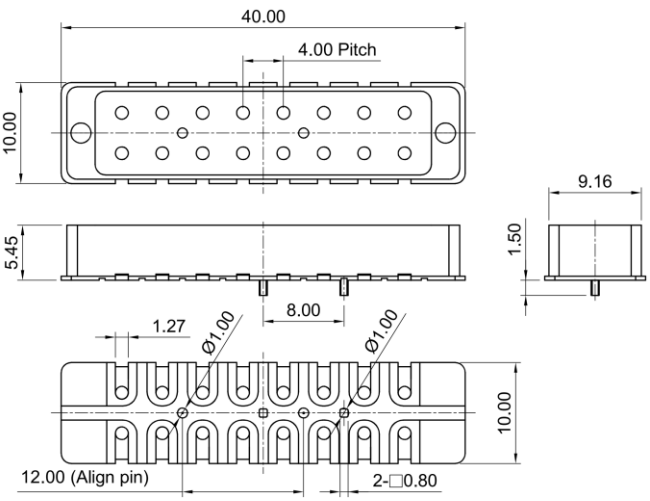


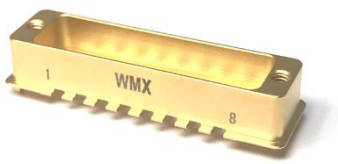
Socket Type (Pitch : 4.00 mm)

1x8 Channel

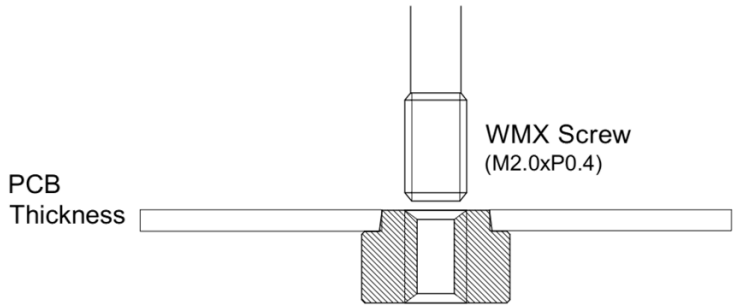


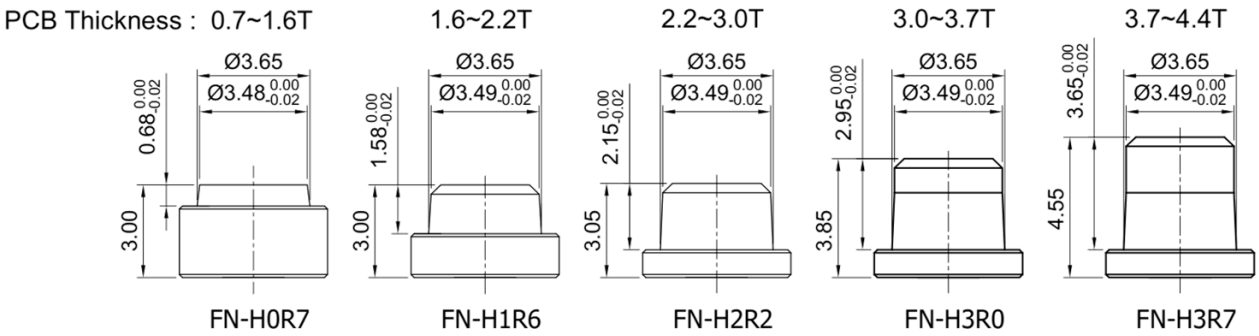
2x8 Channel



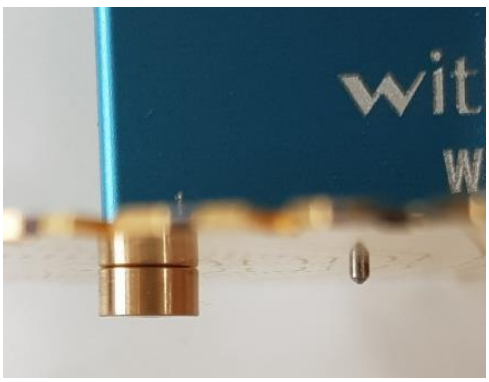


Drawing (Fixing Nuts)





[Nuts for mounting WMX on PCB]



■ Cable Specification (WMC67)

Scope	WMC67			Specification
Electrical Properties	Operating Frequency Range (GHz)			67
	Impedance (Ohm)			50 ± 2
	Velocity of Propagation (%)			70
	Shielding effectiveness (dB)			>90
	Voltage Withstand(V, DC)			350
Material & Construction		Structure	Size (mm)	Material
	1	Center Conductor	0.29	Solid Bare Copper
	2	Dielectric	0.92	Solid PTFE
	3	1st Outer Shield	1.08	Flat Silver Plated Copper
	4	2nd Outer Shield	1.28	Alloy
	5	Jacket	1.53	FEP (Color : Skyblue)
Mechanical And Environmental Performance	Weight (g/m)			7.2
	Operating Temperature Range (°C)			-55~+125
	Bend Radius : Installation (mm)			7.67
	Bend Radius : Repeated (mm)			14.20

Attenuation values

Freq MHz	dB /M	Average power kW
300	0.67	0.046
500	0.87	0.036
1000	1.24	0.025
3000	2.16	0.014
6000	3.08	0.010
10000	4.01	0.008
12400	4.48	0.007
16000	5.12	0.006
18000	5.44	0.006
26500	6.66	0.005
40000	8.29	0.004

Revision History

Revision	Date	Changes
Ver 1.0	2019-06-24	Released WMX Series
Ver 1.1	2020-01-22	Released WMX Series
Ver 1.2	2020-03-01	Add Socket type and Bending Jig
Ver 1.3	2020-05-19	Add Fixing Nuts
Ver 1.4	2020-09-10	Revised selection guide