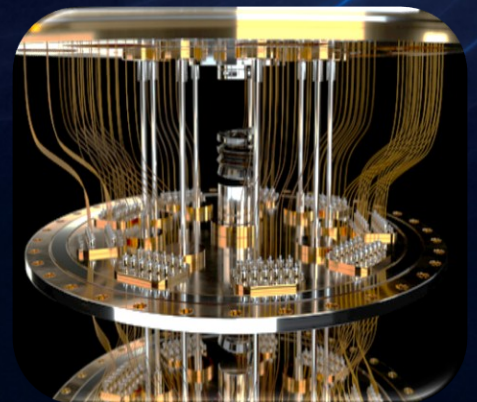
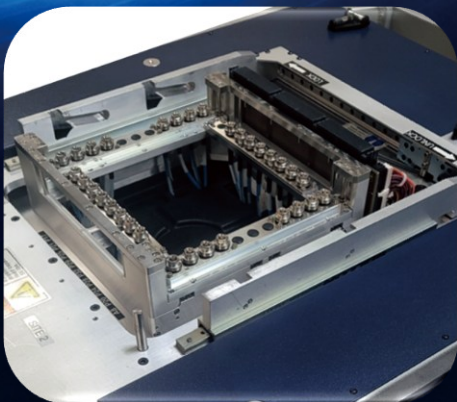


# SMP, SMPM and SMPS Interconnects

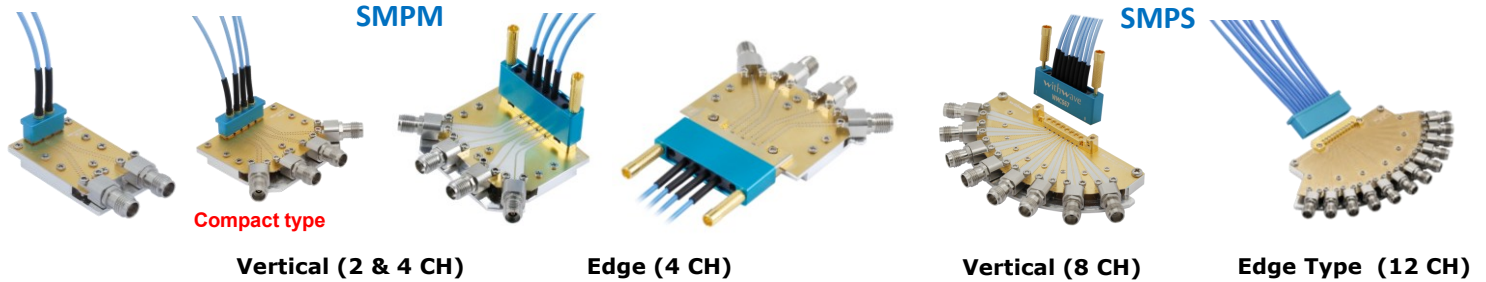
High-Density Connectivity up to 67 GHz



# SMP, SMPM and SMPS Interconnects

## Multi-Channel Connectors & Cable Assemblies

Solderless SMPM and SMPS board connectors in vertical and edge-mount versions, with ganged cable assemblies from 2 to 12 Channels. SMPS support frequencies up to **67 GHz** at 2.54 mm pitch.



Board Connector (Pitch : 2.54 mm)

1x8 Channel (Part # : WMCS-8A-02-V)



Board Connector (Pitch : 4.0 mm)

1x4 Channel (Part # : WMCM-4A-01-V)



1x4 Channel (Part # : WMCM-4A-01-E)



| Type     | Series | Freq.  | Channels                | Pitch   |
|----------|--------|--------|-------------------------|---------|
| Vertical | SMPM   | 40 GHz | 1x2, 1x4 (compact type) | 4.0 mm  |
|          | SMPM   | 40 GHz | 1x4                     | 4.0 mm  |
|          | SMPS   | 67 GHz | 1x8                     | 2.54 mm |
| Edge     | SMPM   | 40 GHz | 1x4                     | 4.0 mm  |
|          | SMPS   | 67 GHz | 1x12                    | 2.54 mm |

## Cable Assemblies

Straight and right angle, length built to order



| Part No.                 | Description             | Cable | Freq.  | Length  |
|--------------------------|-------------------------|-------|--------|---------|
| <b>FX180-PF17PF13-XX</b> | SMPM(F)B/H to SMP(F)R/A | FX180 | 40 GHz | XX = mm |
| <b>FX047-PF1KF1-XX</b>   | SMPM(F) to 2.92 mm(F)   | FX047 | 40 GHz |         |
| <b>FX047-PF62M1-XX</b>   | SMPS(F) to 2.4mm(M)     | FX047 | 50 GHz |         |
| <b>FX047-PF6PF6-XX</b>   | SMPS(F) to SMPS(F)      | FX047 | 67 GHz |         |

## PCB Connectors

Vertical and edge launch



| Part No.                     | Series | Mount      | Detent                  | Freq.    |
|------------------------------|--------|------------|-------------------------|----------|
| <b>EL05MS001 / EL05MS002</b> | SMP    | Edge mount | Smooth Bore/full detent | 18 GHz   |
| <b>PM05MS007 / PM05MS008</b> | SMP    | Vertical   | Smooth Bore/full detent | 26.5 GHz |
| <b>SM05MS001 / SM05MS002</b> | SMP    | Vertical   | Smooth Bore/full detent | 40 GHz   |
| <b>ST17MS001 / ST17MS003</b> | SMPM   | Vertical   | Smooth Bore/full detent | 67 GHz   |

# SMP, SMPM and SMPS Interconnects

## Bullet Adapters Blind-mate between test head and board



| Part No.          | Interface           | Length   | Freq.  |
|-------------------|---------------------|----------|--------|
| <b>AD05F05FS2</b> | SMP(F) - SMP(F)     | 6.44 mm  | 40 GHz |
| <b>AD05F05FS3</b> | SMP(F) - SMP(F)     | 16.50 mm | 40 GHz |
| <b>AD05F05FS5</b> | SMP(F) - SMP(F)     | 46.40 mm | 40 GHz |
| <b>AD17F17FS1</b> | SMPPM(F) - SMPPM(F) | 5.34 mm  | 67 GHz |

## Integrated Solutions with SMPM, SMPS Interface

### Vacuum Feedthrough



| Part No.            | Interface    | Type                                        | Channel | Freq.  |
|---------------------|--------------|---------------------------------------------|---------|--------|
| <b>HFT-SM02-12C</b> | SMPPM (Male) | Room temperature and Cryogenic applications | 12 CH   | ~18GHz |

### Attenuator Module



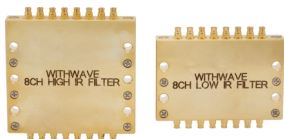
| Part No.                | Interface    | Type                                                 | Channel | Freq.  |
|-------------------------|--------------|------------------------------------------------------|---------|--------|
| <b>ATC- SM02-30C-xx</b> | SMPPM (Male) | Cryogenic applications<br>(0, 10, 20 dB Attenuation) | 30 CH   | ~18GHz |

### Attenuator Module



| Part No.             | Interface     | Type                                                 | Channel | Freq. |
|----------------------|---------------|------------------------------------------------------|---------|-------|
| <b>ATC-S01-8C-xx</b> | SMPS (Female) | Cryogenic applications<br>(0, 10, 20 dB Attenuation) | 8 CH    | 18GHz |

### IR Filter Modules



| Part No.          | Interface     | Type                   | Channel | Freq.                               |
|-------------------|---------------|------------------------|---------|-------------------------------------|
| <b>IRF-S0x-8C</b> | SMPS (Female) | Cryogenic applications | 8 CH    | 1, 5, 10 GHz<br>(Cut-off frequency) |

# Product Lineup

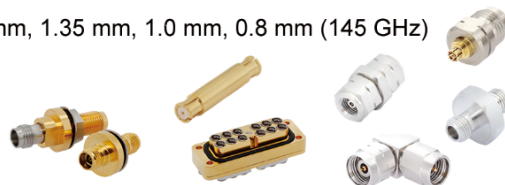
## Microwave Connectors

- End Launch Type : SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm & 0.8 mm (145 GHz)
- Vertical Launch Type : SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm & 0.8 mm (145 GHz)
- Panel Mount Type : SMA, 2.92 mm, 2.4 mm, SMP
- SMT Type : SMP, SMPM, SMPS (67 GHz)
- Non-magnetic Connectors : SMA, 2.92 mm, 2.4 mm



## Microwave Adapters

- Straight Type : SMA, N, 2.92 mm, 3.5 mm, 2.4 mm, 1.85 mm, 1.35 mm, 1.0 mm, 0.8 mm (145 GHz)
- Right Angle Type : 2.92 mm, 2.4 mm, 1.85 mm
- Low PIM type : DIN, 4.3-10, N- & SMA
- Bullet Adapters : SMP, SMPM
- Vacuum Feed Through (SMA, SMPM)



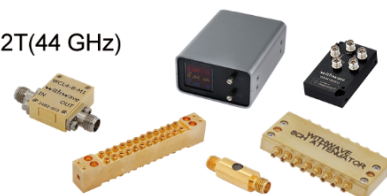
## Microwave Cable Assemblies

- Ultra Low Loss : SMA, 2.92 mm, 3.5 mm, 2.4 mm
- Flexible & Phase Stable : SMA, N, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm, 0.8 mm (145 GHz)
- Semi-Rigid & Semi-Flexible : SMA, N, 2.92 mm, 2.4 mm
- Push on : SMP/SMPM/SMPS to 2.92 mm & 2.4 mm, Multi-Channel
- Cryogenic Cable Assemblies (SUS, CuNi, NbTi)



## RF Switches/ Cryogenic Modules

- Absorptive Switch Modules (MMIC)
  - ·SP4T (10, 18, 44 GHz) · SP8T (8 GHz) · SP10T (18, 44 GHz) · SP12T(44 GHz)
- Reflective Switch Modules (MEMS)
  - ·SP4T (18 GHz) · SP10T (18 GHz) · 4-Port Matrix Switch (20 GHz)
- Cryogenic LNA & Low noise power Supply
- Cryogenic IR Filters      ▪ Cryogenic Attenuators



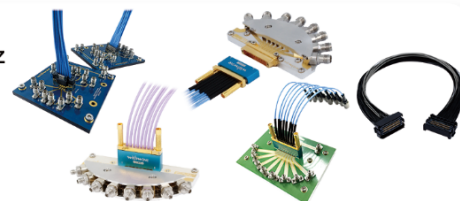
## High Speed Connectors & Module

- High Speed Board to Board Connectors (0.9 & 1.0 mm pitch) : 56 Gbps NRZ, 112 Gbps PAM-4
- High Speed Micro-Miniature Board to Board Connector: Hermaphroditic Type (50 GHz)
- QSFP28 Connector (0.8 mm pitch) : 28 Gbps
- Broadband DC Blocks (110, 145 GHz)



## High Speed & Interconnect Solution

- High Speed Multicoax Cable (WMX Series)
  - Vertical & Edge Mount type      · 20, 40, 50, 67, 110 & 145 GHz
- High Speed Multicoax Cable (SMPM & SMPS Series)
  - Vertical & Edge Mount type      · 40 & 67 GHz
- High Speed Cable (56 Gbps NRZ)
  - Right Angle & Vertical type (24 differential Pair, 92 Ohm)



## Calibration Kits & Test Probes

- Mechanical Calibration Kits : N-type (8 GHz), 3.5 mm(9 GHz)
- Automatic Calibration Modules : N-type (18 GHz), 3.5 mm(26.5 GHz) in 2-& 4-Ports
- T-Probe (Pogo Type) : GSG, GS type (20 & 40 GHz)
- Hyprobe test socket : 0.175~0.35mm pitch (40 Gbps)



## Absorber Sheets

- LS Series ( < 6 GHz)      ▪ MD Series ( < 24 GHz)      ▪ HS Series ( < 40 GHz)
- MT Series ( < 18 GHz)      ▪ HT Series ( < 40 GHz)      ▪ MS Series ( < 18 GHz)
- Flexible Form Type
- LF Series ( <18 GHz), HF Series ( >18 GHz)

