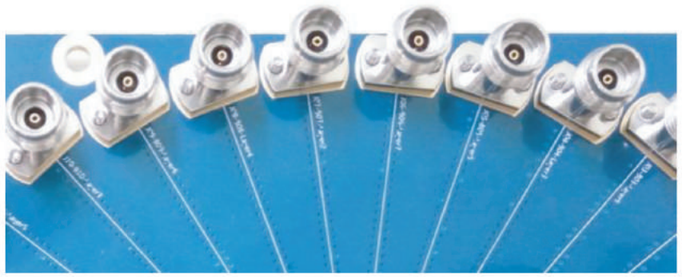


MICROWAVE FARM®

Vertical Launch & Wave Launch Connectors

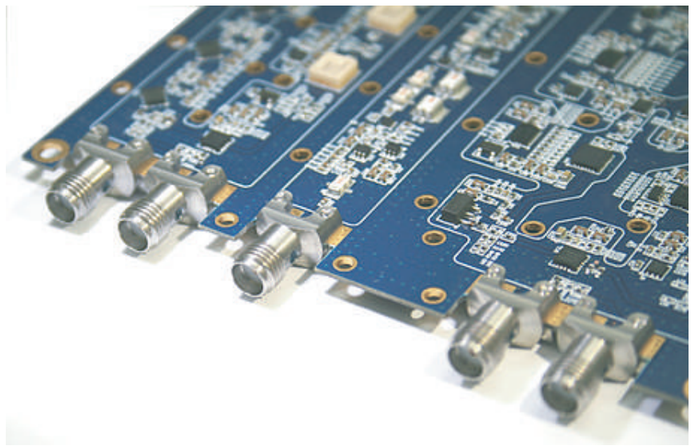
Features

Vertical Launch

DC to 40GHz (2.92 mm) & 50 GHz (2.4 mm)
2.92 mm & 2.4 mm type (Female, Male)
Excellent Vertical transition performance (VSWR <1.3)
Easy & Solderless installation on designed substrate

Wave Launch Connectors

SMA (27 GHz)**, 2.92 mm** (40 GHz)**, 2.4 mm** (50 GHz)**, 1.85 mm** (67 GHz)
Optimized well-used high frequency substrates (RO4003, 4350B, Du5880) according to substrate thickness (5, 8, 10 and 12 mil.)
Easy Installation on designed substrate



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Vertical Launch Connectors
2.92 mm, 2.4 mm

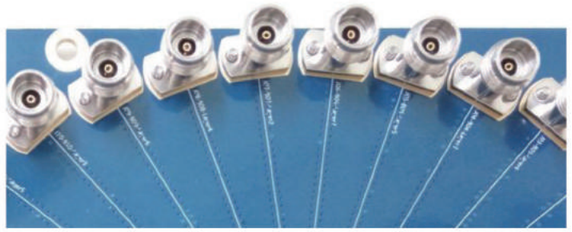
Microwave Farm's Vertical Launch Connectors are specially designed for solderless vertical PCB launch on test & measurement board.
These conectors have excellent electrical transition performance up to 40 GHz and 50 GHz as well as reduce instllation time by eliminating soldering.

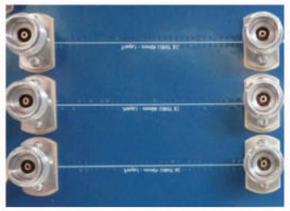
■ *Features*

- DC to 40 GHz (2.92 mm) & 50 GHz (2.4 mm)
- 2.92 mm & 2.4 mm type (Female, Male)
- Excellent Vertical transition (VSWR <1.3)
- Easy & Solderless Installation on designed substrate

■ *Application*

- Test and measurement
- High Speed Digital Test Boards
- Test and Characterization Boards





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Vertical Launch Connectors
2.92 mm, 2.4 mm

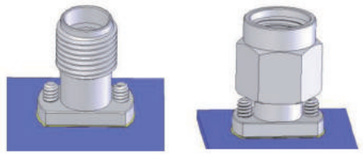
■ *Specification (2.92 mm Connector)*

Scope	Items	Specification
Electrical	Freq. range	DC to 40 GHz
	Impedance	50 Ohm
	VSWR(Max)	1.3 : 1 (DC to 40 GHz)
Material	Connector type	2.92 mm type (Female, Male)
	Body & Block	Stainless Steel
	PIN	BeCu with Gold Plated

** RoHS Compliant*

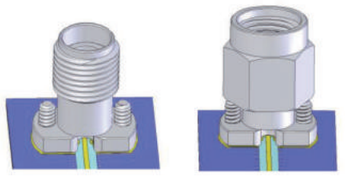
■ *Ordering Information (2.92 mm Connector)*

Stripline type



Application	Type	Part No.
Stripline	Female	VC03FS001
	Male	VC03MS001

Microstrip type



Application	Type	Part No.
Microstrip	Female	VC03FS002
	Male	VC03MS002

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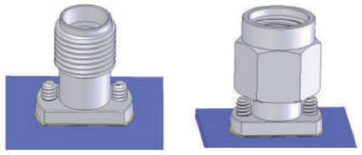
Specification (2.4 mm Connector)

Scope	Items	Specification
Electrical	Freq. range	DC to 50 GHz
	Impedance	50 Ohm
	VSWR(Max)	1.3 : 1 (DC to 50 GHz)
Material	Connector type	2.4 mm type (Female, Male)
	Body & Block	Stainless Steel
	PIN	BeCu with Gold Plated

** RoHS Compliant*

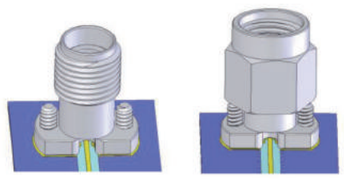
Ordering Information (2.4 mm Connector)

Stripline type



Application	Type	Part No.
Stripline	Female	VC02FS001
	Male	VC02MS001

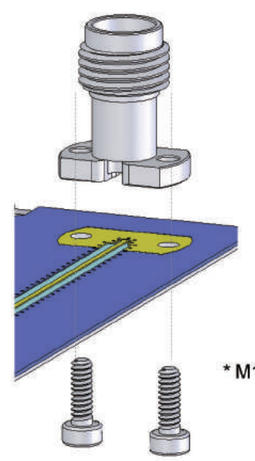
Microstrip type



Application	Type	Part No.
Microstrip	Female	VC02FS002
	Male	VC02MS002

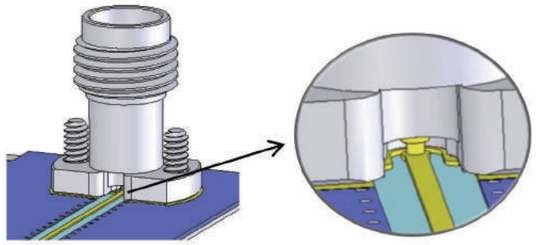
Installation Procedure

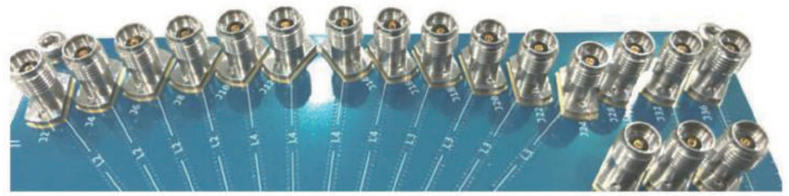
STEP 1 :
Launch vertical connector on the position of substrate.



* M1.6 Screw Bolting

STEP 2:
Ensure Connector Body should be tighten against the substrate using two screws while ensuring center pin should be centered on the trace.



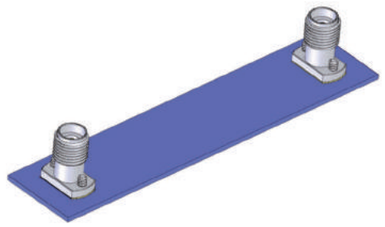


2.92 mm Connector

■ *Test Result (Stripline type)*

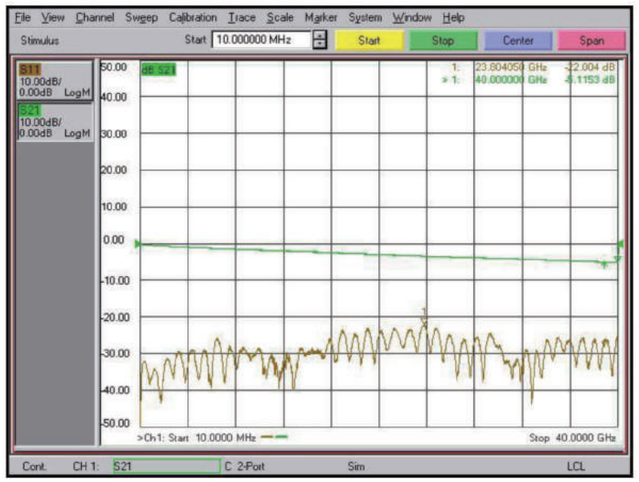
Female type

Part No. : VC03FS001



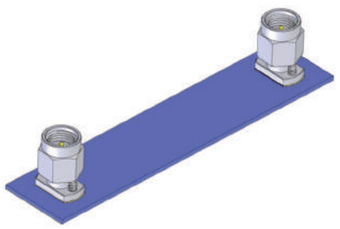
- Substrate : RO4003C(8 mil)
- Trace length : 70 mm (stripline)

Freq. : 10 MHz to 40 GHz



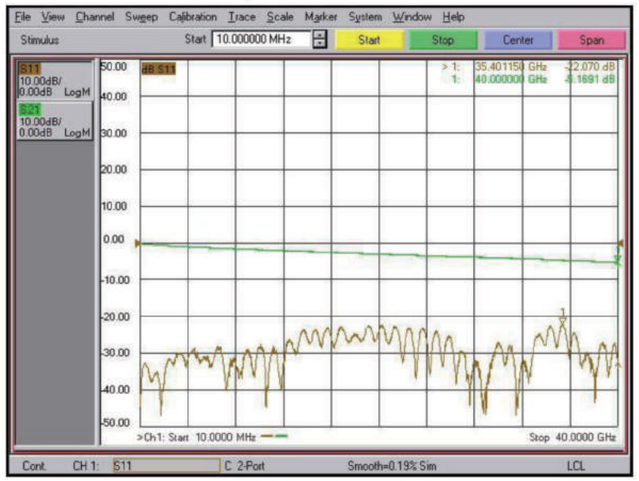
Male type

Part No. : VC03MS001



- Substrate : RO4003C(8 mil)
- Trace length : 70 mm (stripline)

Freq. : 10 MHz to 40 GHz

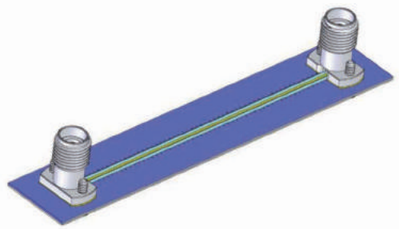


2.92 mm Connector

■ *Test Result (Microstrip type)*

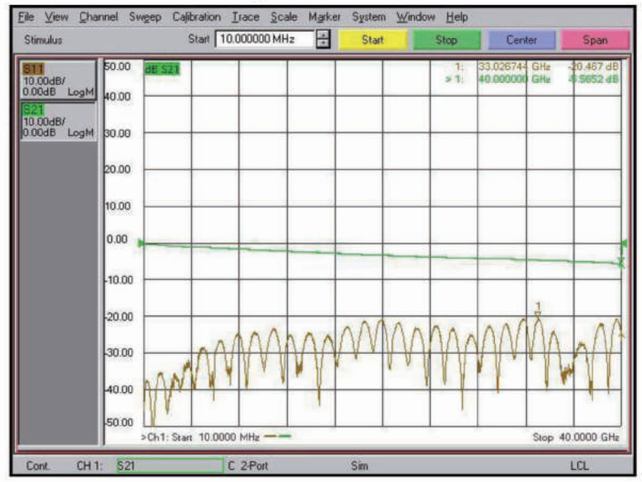
Female type

Part No. : VC03FS002



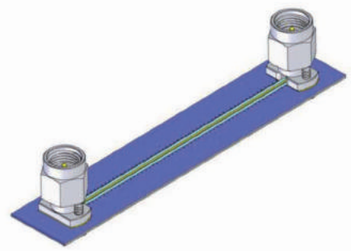
- Substrate : RO4003C(8 mil)
- Trace length : 60 mm (microstrip)

Freq. : 10 MHz to 40 GHz



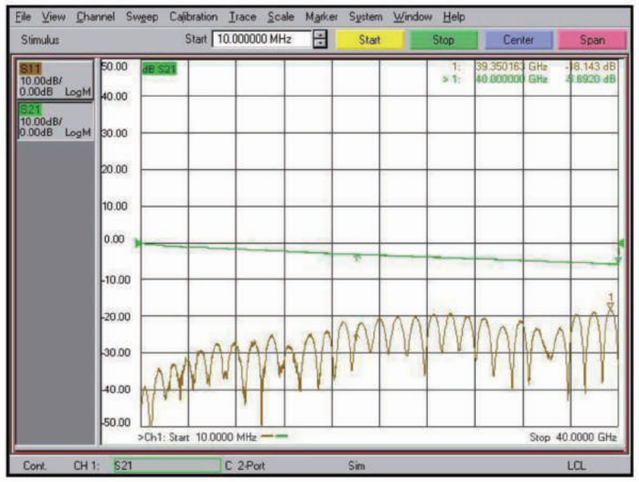
Male type

Part No. : VC03MS002



- Substrate : RO4003C(8 mil)
- Trace length : 60 mm (microstrip)

Freq. : 10 MHz to 40 GHz



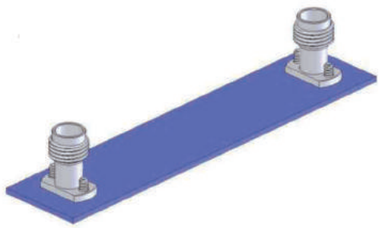
2.4 mm Connector

■ *Test Result (Stripline)*

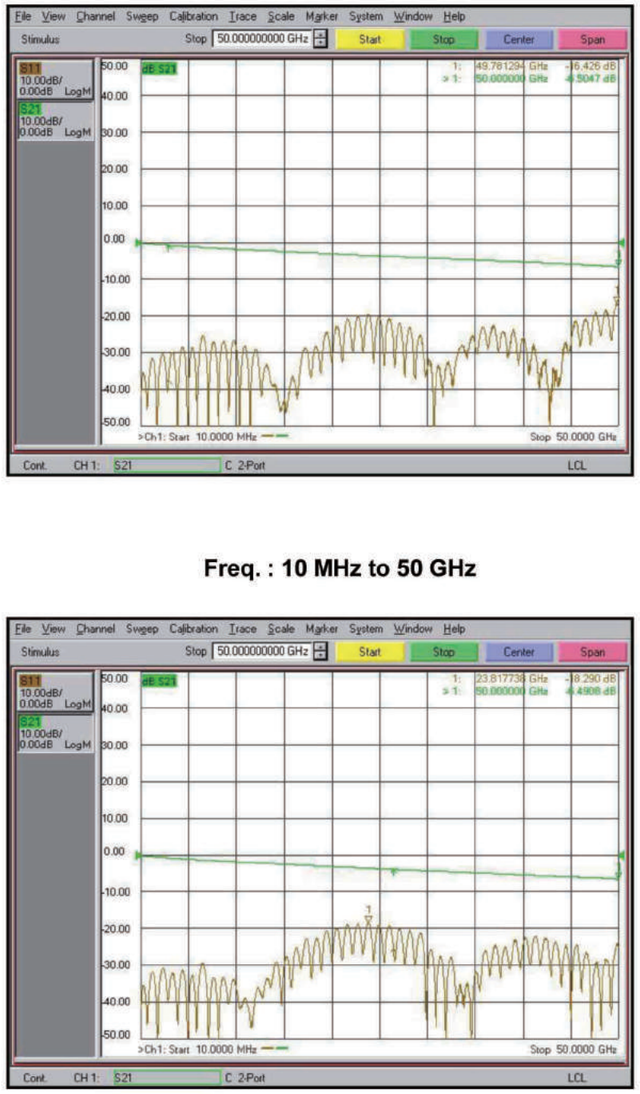
Female type

Part No. : VC02FS001

Freq. : 10 MHz to 50 GHz



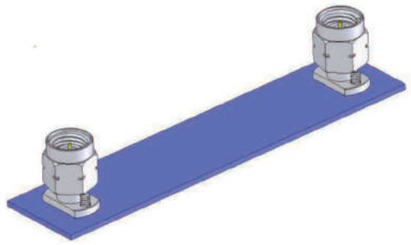
- Substrate : RO4003C(8 mil)
- Trace length : 70 mm (stripline)



Male type

Part No. : VC02MS001

Freq. : 10 MHz to 50 GHz



- Substrate : RO4003C(8 mil)
- Trace length : 70 mm (stripline)

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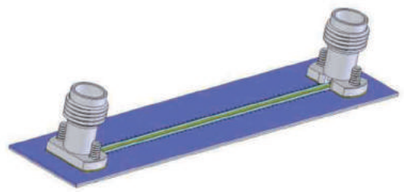
2.4 mm Connector

■ *Test Result (Microstrip type)*

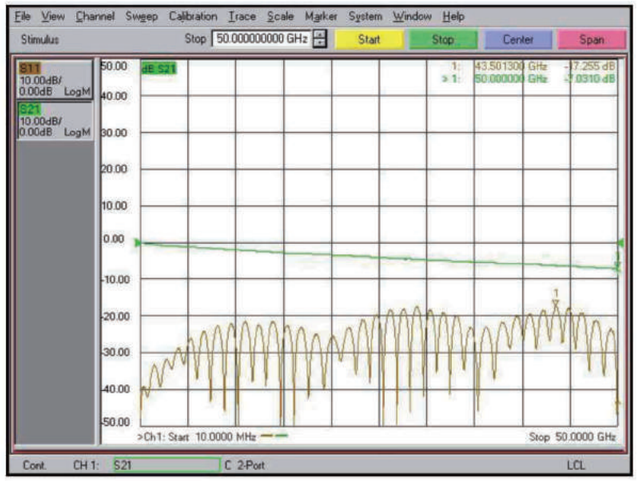
Female type

Part No. : VC02FS002

Freq. : 10 MHz to 50 GHz



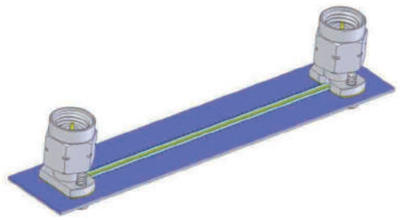
- Substrate : RO4003C(8 mil)
- Trace length : 60 mm (microstrip)



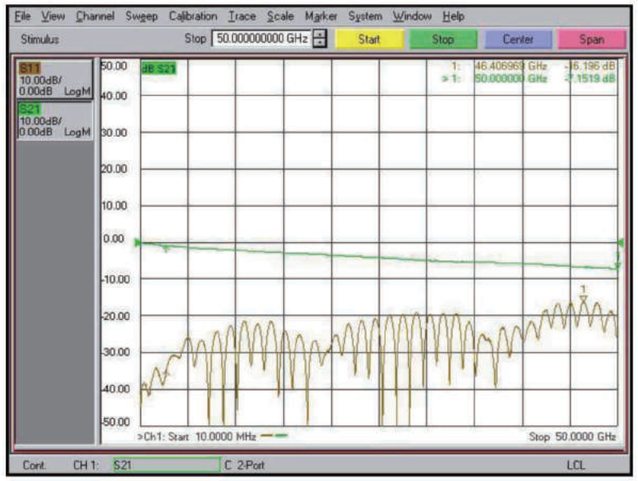
Male type

Part No. : VC02MS002

Freq. : 10 MHz to 50 GHz



- Substrate : RO4003C(8 mil)
- Trace length : 60 mm (microstrip)



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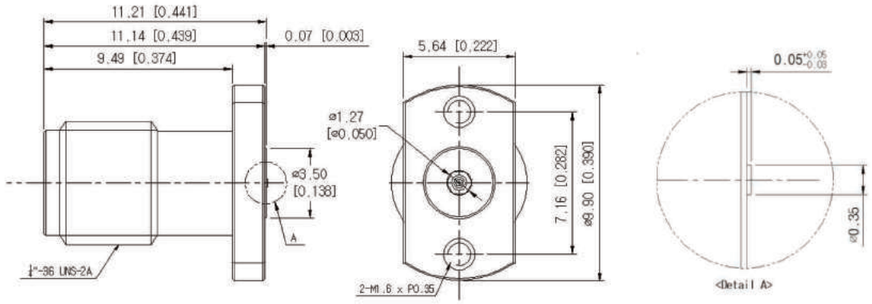
2.92 mm Connector

■ *Drawing*

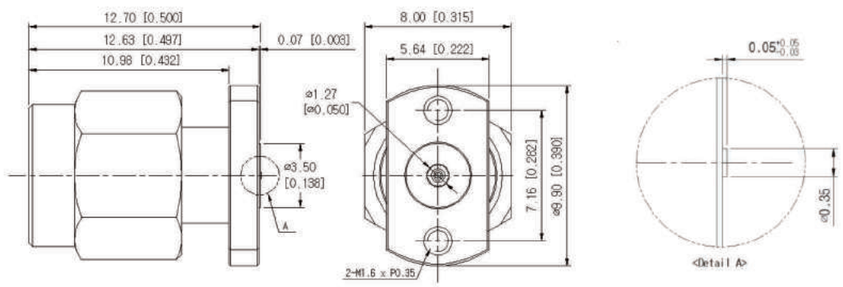
Stripline type

Unit : mm

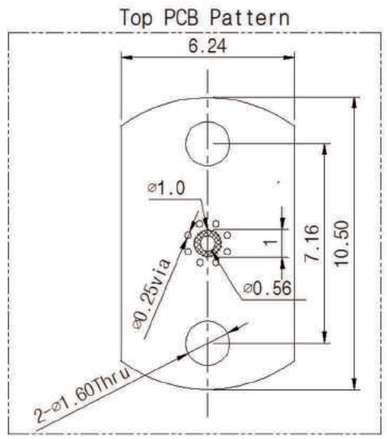
Female type



Male type



<Recommended PCB pattern>



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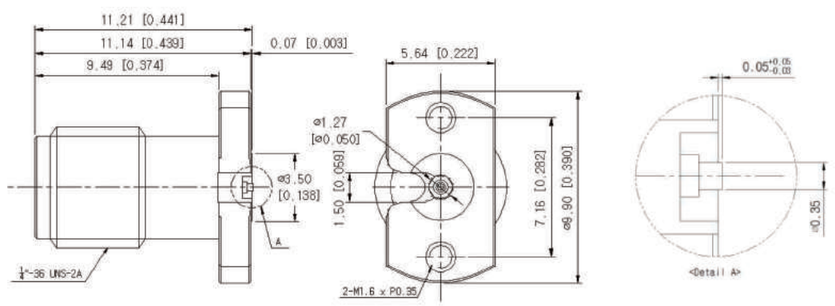
2.92 mm Connector

■ *Drawing*

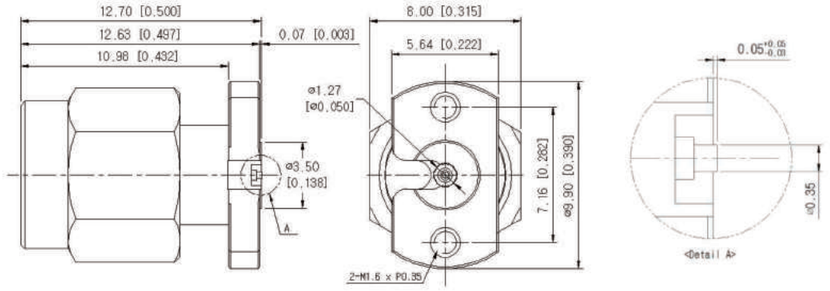
Microstrip type

Unit : mm

Female type



Male type



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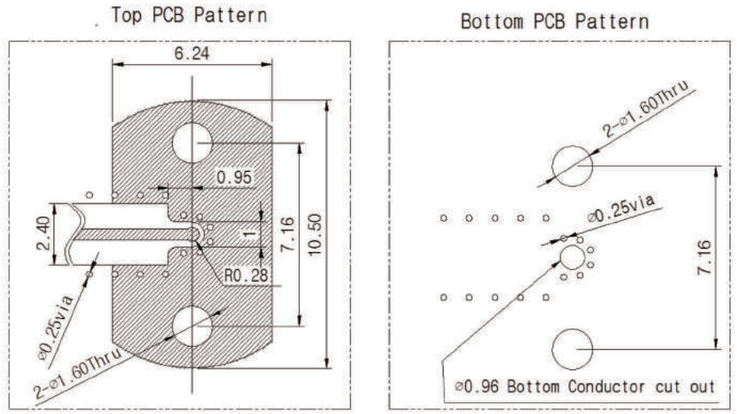

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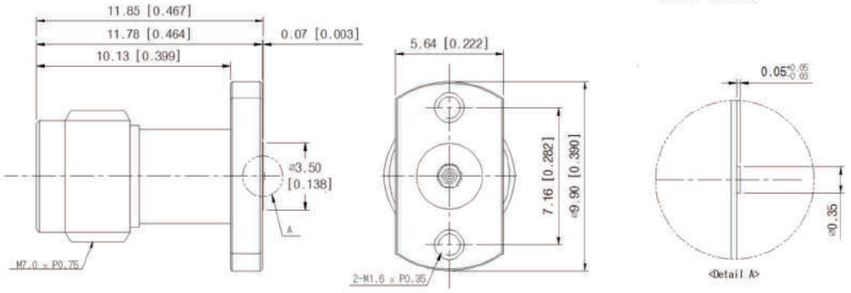
2.4 mm Connector

■ *Drawing*

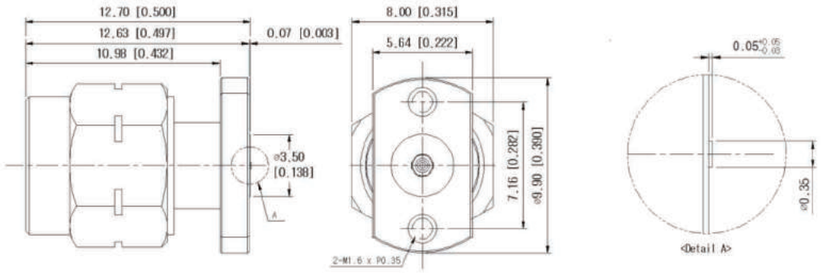
Stripline type

Unit : mm

Female type



Male type



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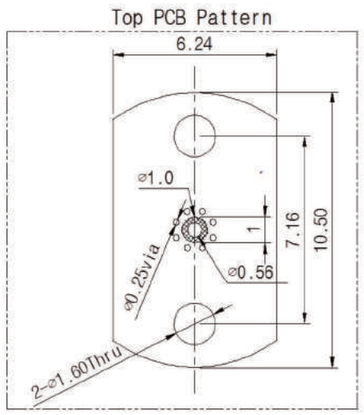


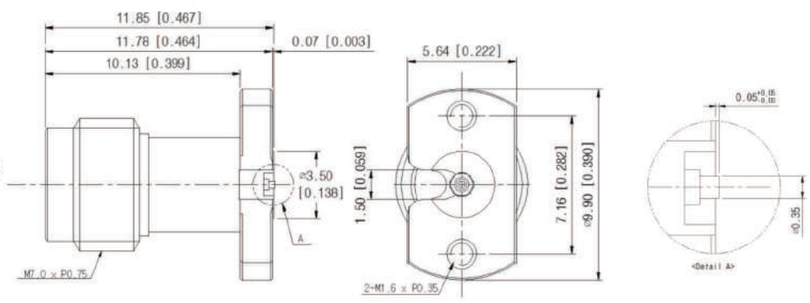
2.4 mm Connector

■ *Drawing*

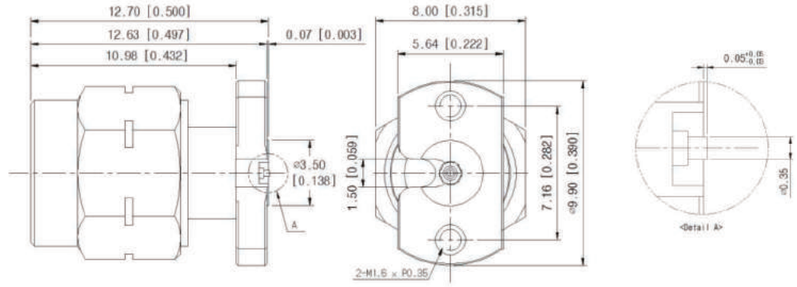
Microstrip type

Unit : mm

Female type



Male type



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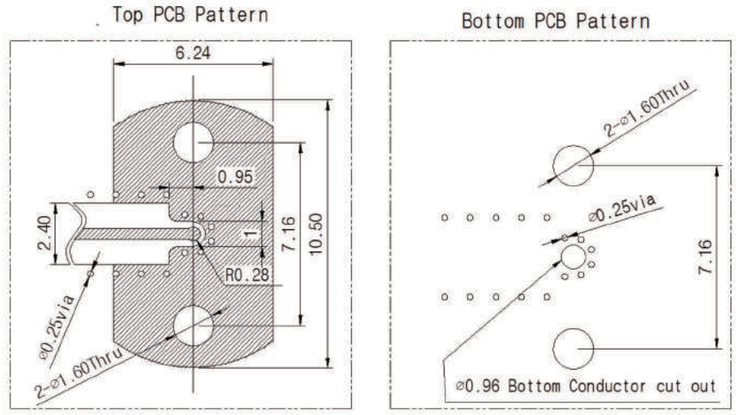


Wave Launch Connectors
SMA, 2.92 mm, 2.4 mm, 1.85 mm

Wave Launch™ connectors are specially designed for well-used high frequency substrates to minimize Electromagnetic effects including impedance discontinuities from coaxial to Microstrip/CPW structure. We solve your performance and cost problems.

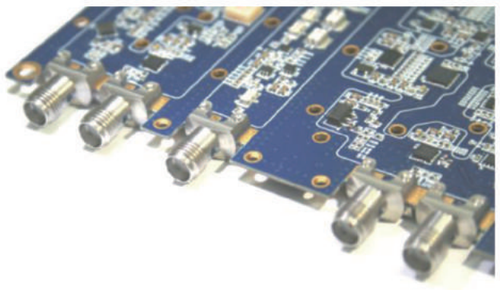
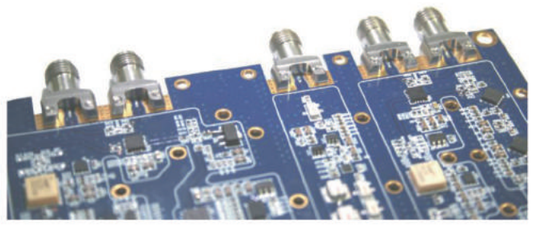
■ *Features*

- **Now available in : SMA (27 GHz), 2.92 mm (40 GHz), 2.40 mm (50 GHz), 1.85 mm (67 GHz)**
- Optimized ***well-used high frequency substrates (RO4003C, RO4350B, Du5880)***
- according to substrate thickness (5, 8, 10, 12 mil)
- Easy Installation on designed substrate

Substrate	Thickness(mil)	Dielectric Constant	Available Wave Launch Connector		
			SMA	2.92mm	2.4mm
RO4003C	8.0	3.55	O	O	O
	12.0		O	O	O
RO4350B	10.0	3.65	O	O	O
Du5880	5.0	2.20	O	O	O
	10.0		O	O	O

■ *Application*

- RFIC Chip set evaluation board
- High data rate ASIC and SoC evaluation module test
- Substrate Characterization

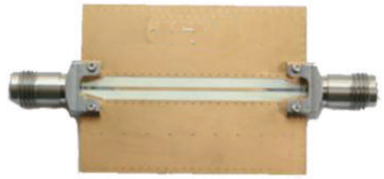
Wave Launch Connectors
SMA, 2.92 mm, 2.4 mm, 1.85 mm

■ *Specification (Board Edge Type)*

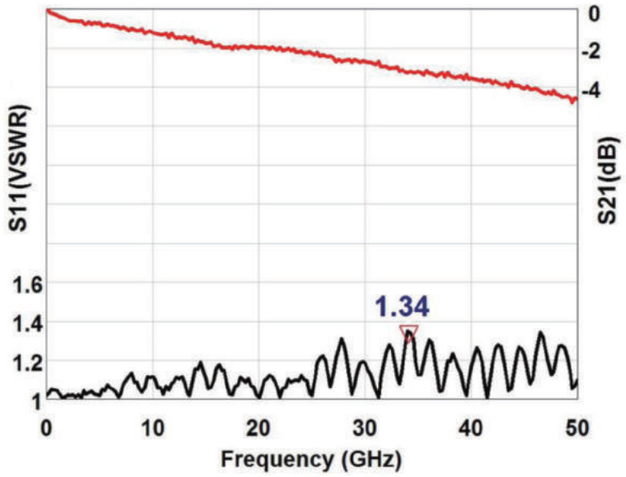
Scope	Items	Specification
Electrical	Freq. range	DC to 27 GHz (SMA type) DC to 40 GHz (2.92 mm type) DC to 50 GHz (2.4 mm type) DC to 67 GHz (1.85 mm type)
	Impedance	50 Ohm
	VSWR(Max)	1.34 : 1 (to 50 GHz)
Material	Connector type	SMA, 2.92 mm, 2.4 mm, 1.85 mm
	Body & Block	Stainless Steel
	Contact	BeCu with Gold Plated

** RoHS Compliant*

■ *Measurement data*



- Connector : 2.4 mm
- Substrate : RO4350B(10 mil)
- Trace length : 40 mm (microstrip)



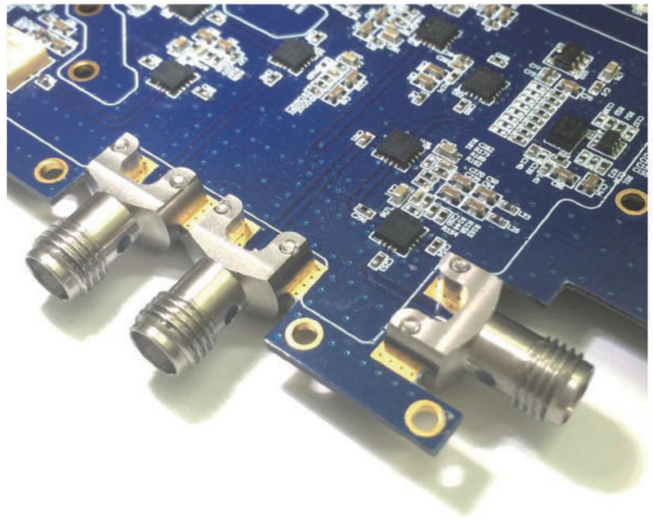
■ *Ordering Information*

- Board Edge Type
  - No need of ground soldering
  - Easy installation

Substrate	Thickness(mil)	Wave Launch Connector		
		SMA	2.92mm	2.4mm
RO4003C	8.0	SM06FS001	SM03FS001	SM02FS001
	12.0	SM06FS002	SM03FS002	SM02FS002
RO4350B	10.0	SM06FS003	SM03FS003	SM02FS003
Du5880	5.0	SM06FS004	SM03FS004	SM02FS004
	10.0	SM06FS005	SM03FS005	SM02FS005

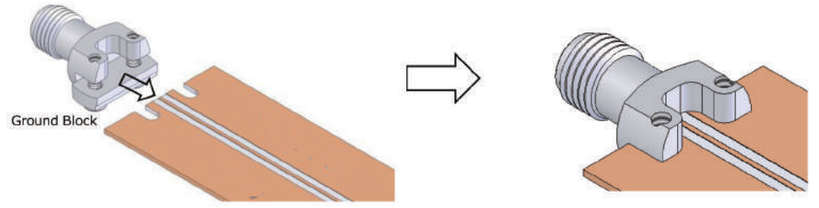
- Panel Mount Type
  - No need of glass bead
  - Simple circuit housing design

Substrate	Thickness(mil)	Part Number		
		SMA	2.92mm	2.4mm
RO4003C	8.0	PM06FS001	PM03FS001	PM02FS001
	12.0	PM06FS002	PM03FS002	PM02FS002
RO4350B	10.0	PM06FS003	PM03FS003	PM02FS003
Du5880	5.0	PM06FS004	PM03FS004	PM02FS004
	10.0	PM06FS005	PM03FS005	PM02FS005

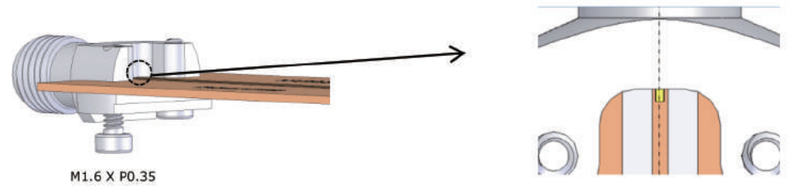


■ *Installation Procedure*

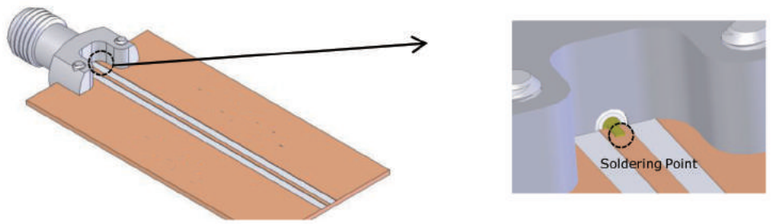
STEP 1 :
Insert wave launch connector (including ground block & screws) in the edge position of substrate.



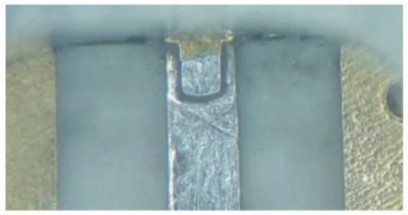
STEP 2:
Ensure ground block should be tighten against the substrate using two screws while ensuring plat pin should be centered on the trace.



STEP 3:
Solder the flat pin to center trace on substrate while ensuring the connector is held in the correct position.
(Note: solder should flow along the length of the exposed flat pin for good electrical performance)



STEP 4:
Remove any excess solder and clean all flux and other residues from the trace.



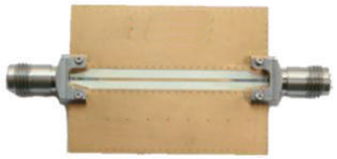
■ *Test Result*

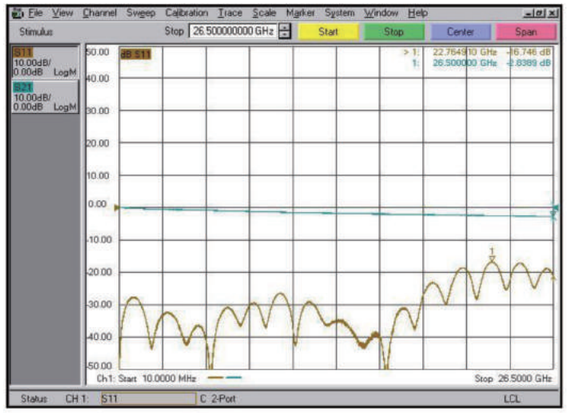
SMA Type

Freq. : 10 MHz to 26.5 GHz

Substrate : RO4003C (8 mil)

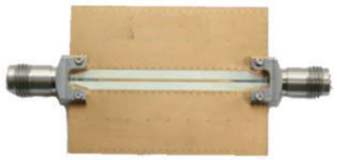
Part No. : SM06FS001

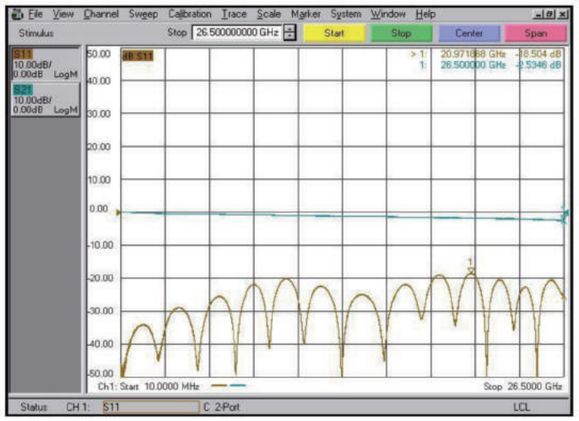




Substrate :RO4003C (12 mil)

Part No. : SM06FS002

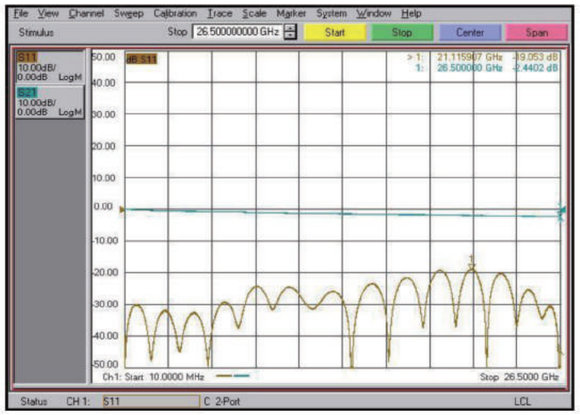




Substrate :RO4350B (10 mil)

Part No. : SM06FS003

** Trace length : 40 mm (Microstrip) **



Wave Launch Connectors
SMA, 2.92 mm, 2.4 mm, 1.85 mm

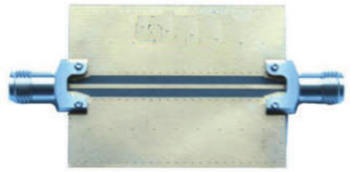
■ *Test Result*

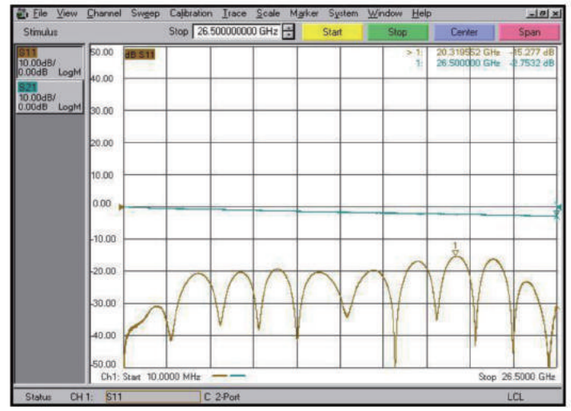
SMA Type

Freq. : 10 MHz to 26.5 GHz

Substrate : Du5880 (5 mil)

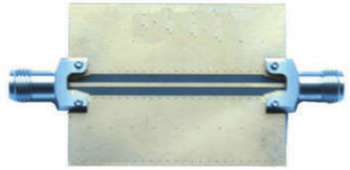
Part No. : SM06FS004

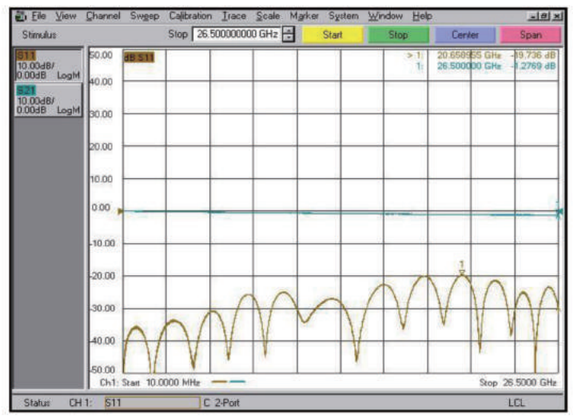




Substrate :Du5880 (10 mil)

Part No. : SM06FS005





** Trace length : 40 mm (Microstrip) **

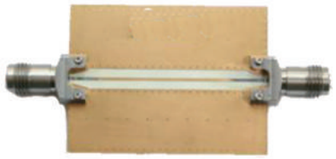
■ *Test Result*

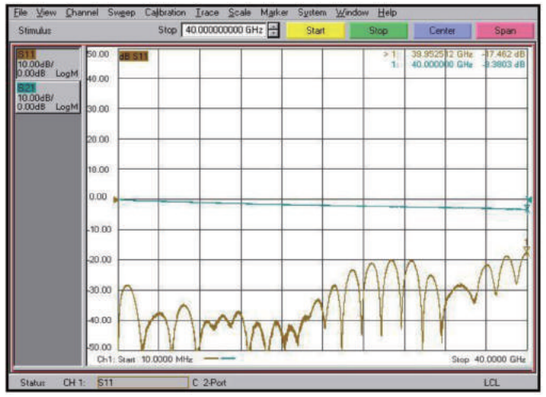
2.92mm Type

Freq. : 10 MHz to 40 GHz

Substrate : RO4003C (8 mil)

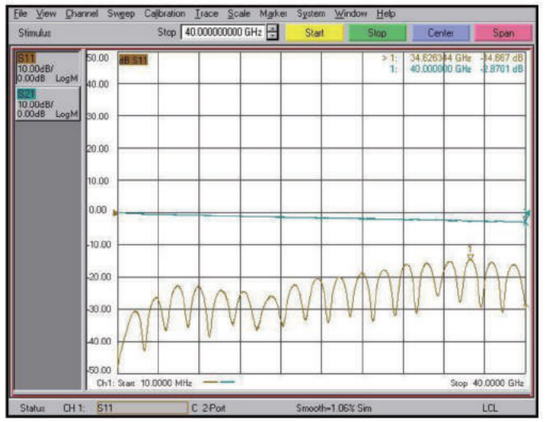
Part No. : SM03FS001





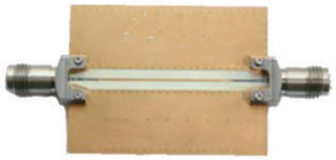
Substrate :RO4003C (12 mil)

Part No. : SM03FS002

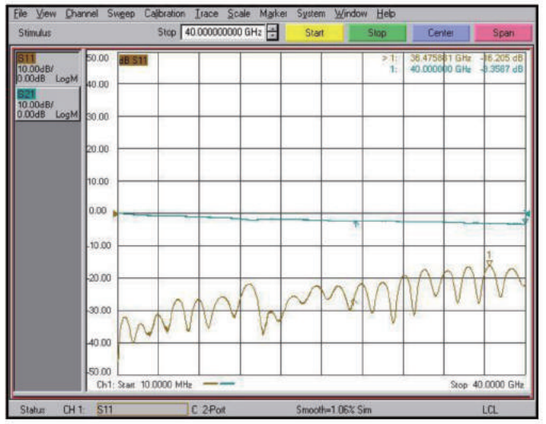


Substrate :RO4350B (10 mil)

Part No. : SM03FS003



** Trace length : 40 mm (Microstrip) **



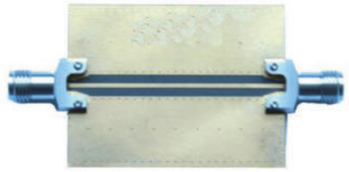
■ *Test Result*

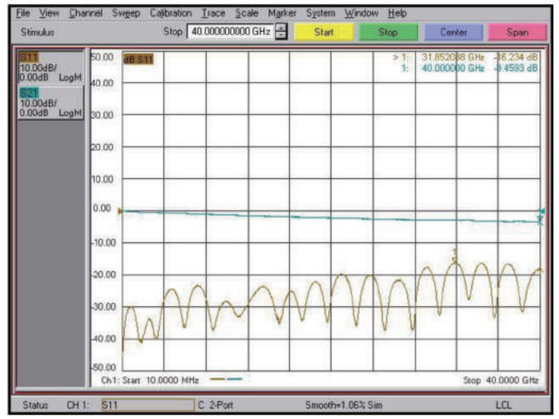
2.92mm Type

Freq. : 10 MHz to 40 GHz

Substrate : Du5880 (5 mil)

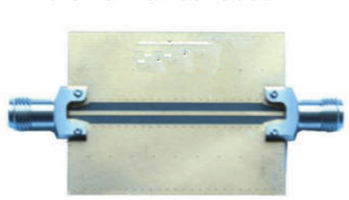
Part No. : SM03FS004



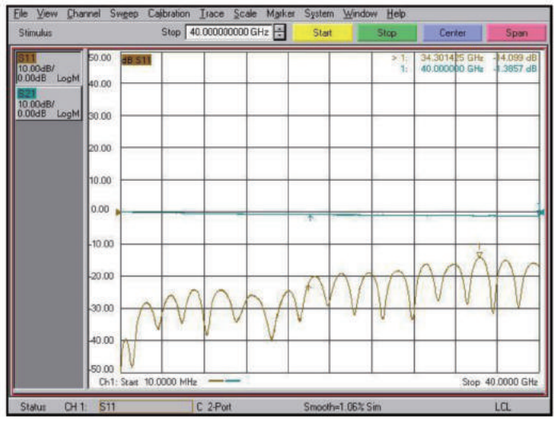


Substrate :Du5880 (10 mil)

Part No. : SM03FS005



** Trace length : 40 mm (Microstrip) **



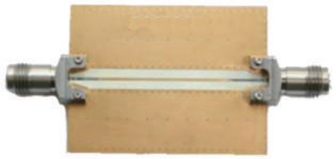
■ *Test Result*

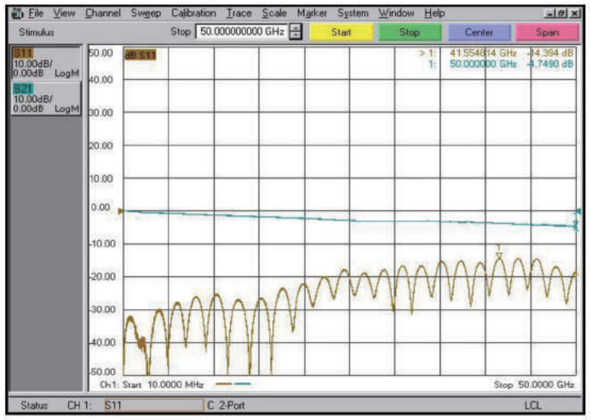
2.4mm Type

Freq. : 10 MHz to 50 GHz

Substrate : RO4003C (8 mil)

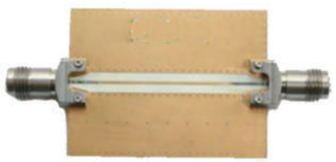
Part No. : SM02FS001

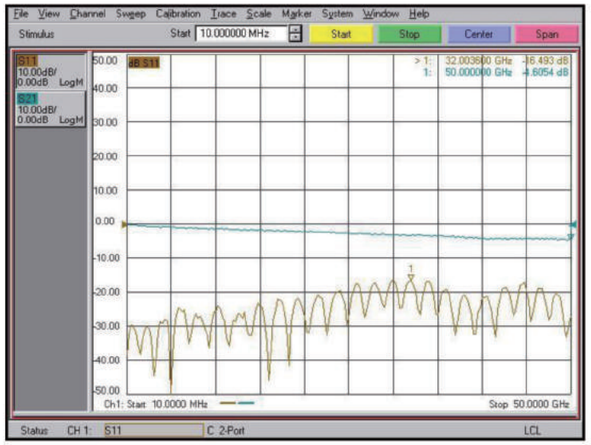




Substrate :RO4350B (10 mil)

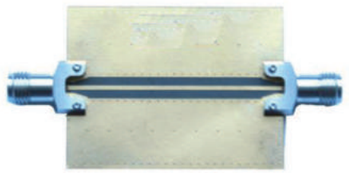
Part No. : SM02FS003



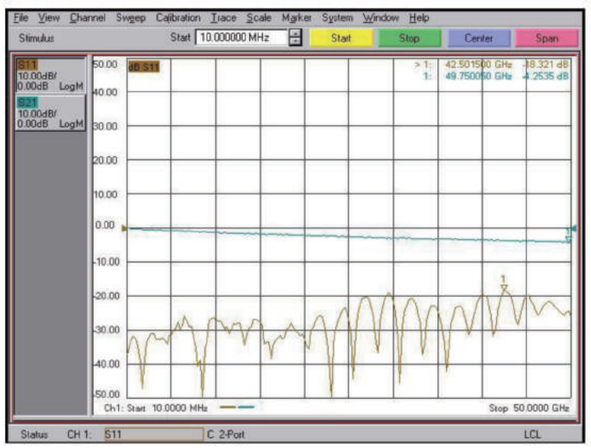


Substrate : Du5880 (5 mil)

Part No. : SM02FS004



** Trace length : 40 mm (Microstrip) **



Wave Launch Connectors
SMA, 2.92 mm, 2.4 mm, 1.85 mm

■ *Test Result*

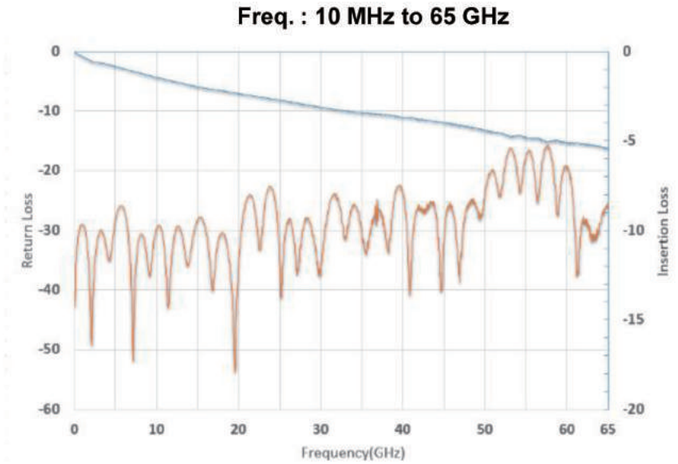
1.85 mm Type

Freq. : 10 MHz to 65 GHz

Substrate : Du5880 (5 mil)

Part No. : SM01FS004

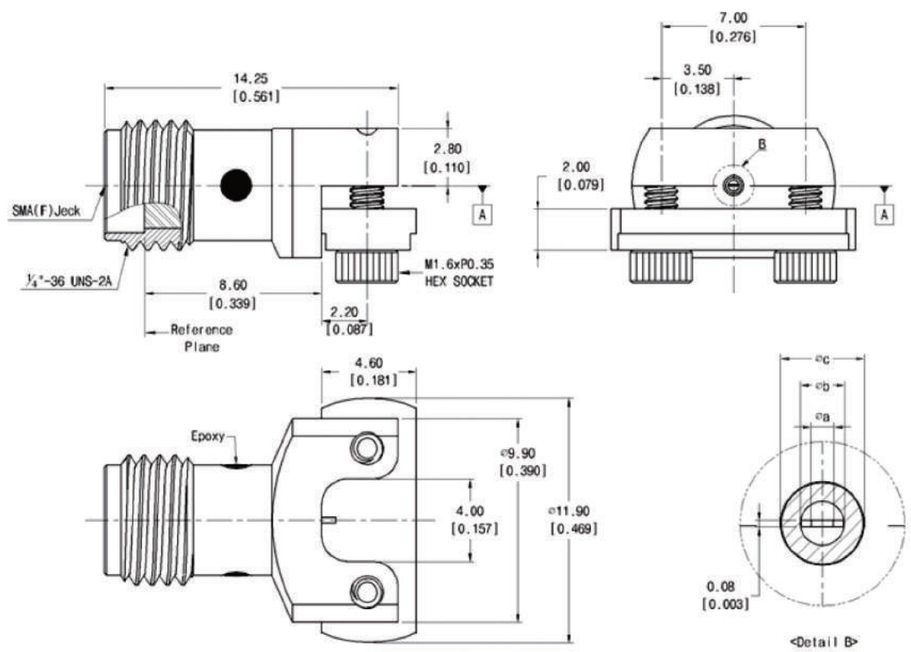
** Trace length : 40 mm (Microstrip) **



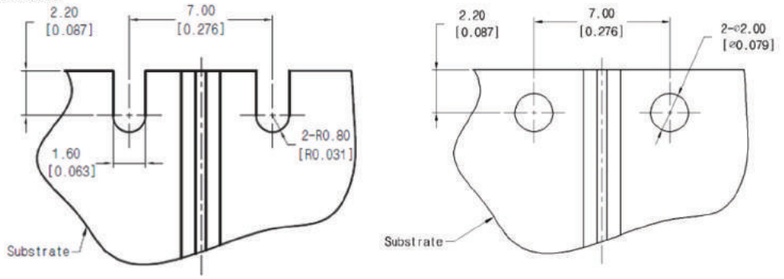
■ *Drawing*

SMA Type

Unit : mm



<Recommended pattern>



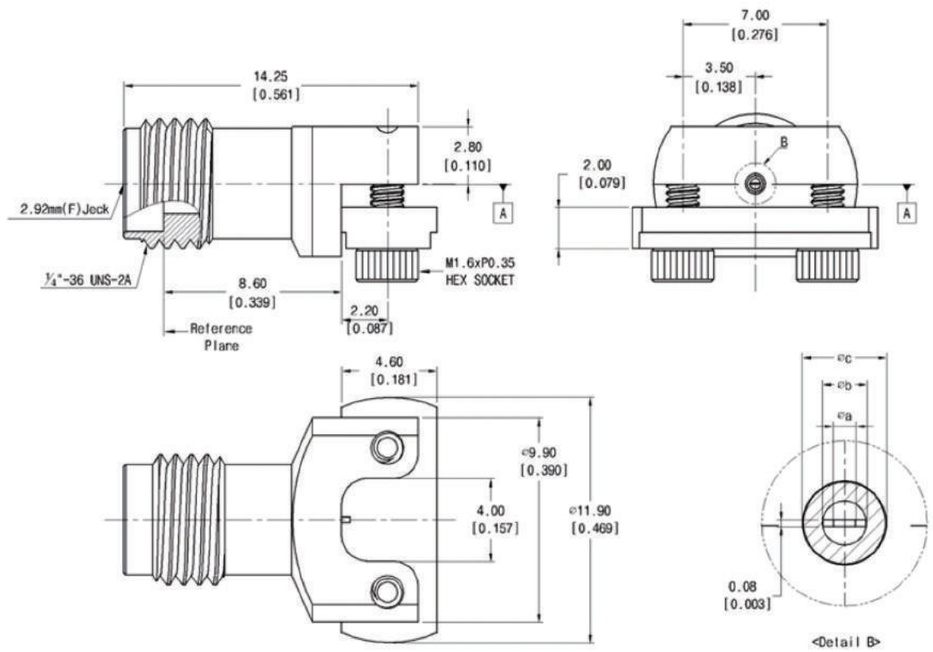
SMA(26.5GHz)

PCB			Pin Diameter		Dielectric Dia.	Part No.
Type	Substrate Thick.	Pattern Width	øa	øb	øc	
	mil	mm				
RO4003C	8.0	0.436	0.28	0.42	0.82	SM06FS001
	12.0	0.677	0.40	0.64	1.14	SM06FS002
RO4350B	10.0	0.545	0.28	0.54	1.00	SM06FS003
Du5880	5.0	0.366	0.28	0.34	0.70	SM06FS004
	10.0	0.765	0.40	0.72	1.24	SM06FS005

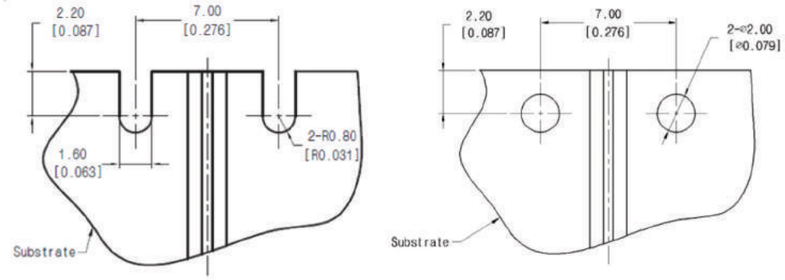
■ *Drawing*

2.92 mm Type

Unit : mm



<Recommended pattern>



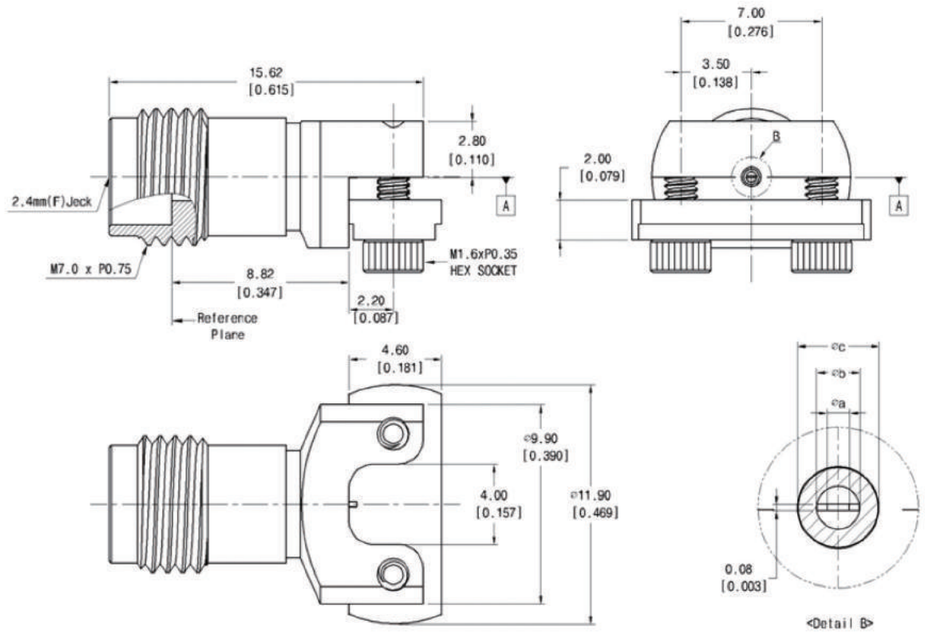
2.92mm(40GHz)

PCB			Pin Diameter		Dielectric Dia.	Part No.
Type	Substrate Thick.	Pattern Width	øa	øb	øc	
	mil	mm				
RO4003C	8.0	0.436	0.28	0.42	0.82	SM03FS001
	12.0	0.677	0.40	0.64	1.14	SM03FS002
RO4350B	10.0	0.545	0.28	0.54	1.00	SM03FS003
Du5880	5.0	0.366	0.28	0.34	0.70	SM03FS004
	10.0	0.765	0.40	0.72	1.24	SM03FS005

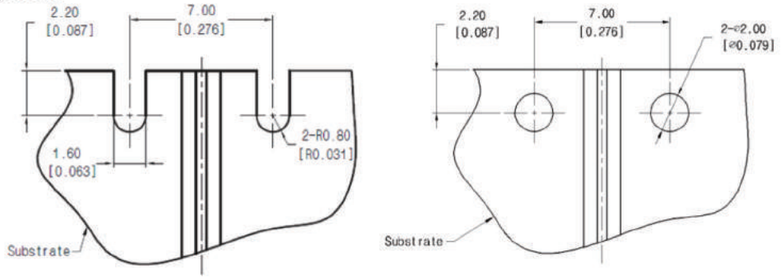
■ *Drawing*

2.4 mm Type

Unit : mm



<Recommended pattern>



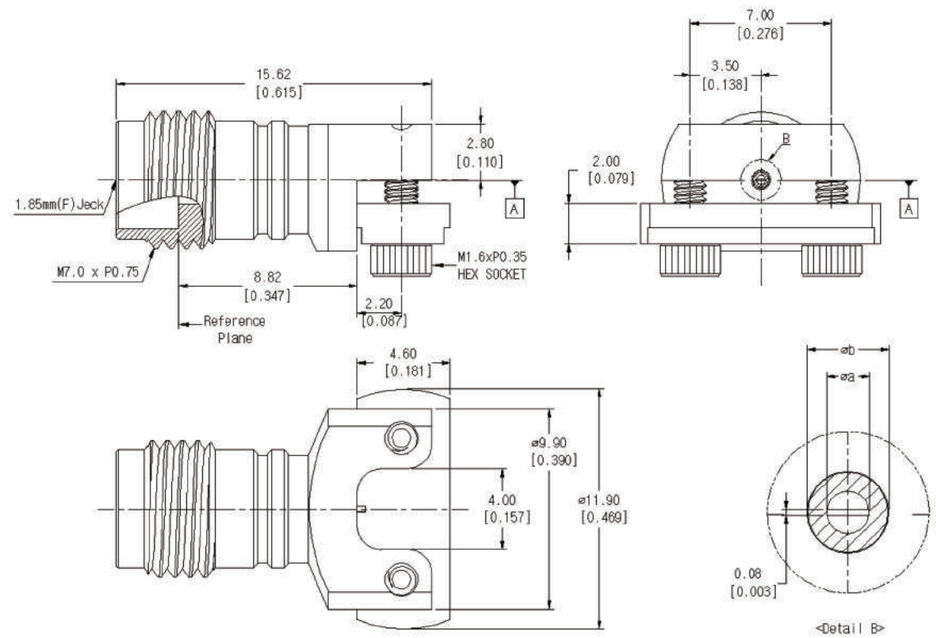
2.4mm(50GHz)

PCB			Pin Diameter		Dielectric Dia.	Part No.
Type	Substrate Thick.	Pattern Width	øa	øb	øc	
	mil	mm				
RO4003C	8.0	0.436	0.28	0.42	0.82	SM02FS001
	12.0	0.677	0.40	0.64	1.14	SM02FS002
RO4350B	10.0	0.545	0.28	0.54	1.00	SM02FS003
Du5880	5.0	0.366	0.28	0.34	0.70	SM02FS004
	10.0	0.765	0.40	0.72	1.24	SM02FS005

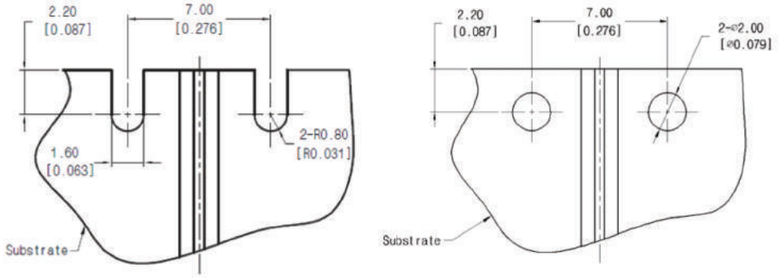
■ *Drawing*

1.85 mm Type

Unit : mm



<Recommended pattern>



1.85mm(65GHz)

PCB			Pin Dia.	Die. Dia.	
Type	Substrate Thick.	Pattern Width	øa	øb	
	mil	mm			Part No.
Du5880	5.0	0.366	0.28	0.62	SM01FS001