

# End Launch Connectors *Narrow Block*

**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

*Withwave's End Launch connectors (Narrow Block)* are specially designed for well-used high frequency substrates to minimize electromagnetic effects including impedance discontinuities from coaxial to GCPWG (Grounded Coplanar Waveguide) and Top Ground Microstrip structure.

The types of connectors are SMA, 2.92 mm, 2.4 mm, 1.85 mm & 1.0mm.

We solve your performance and cost problems.



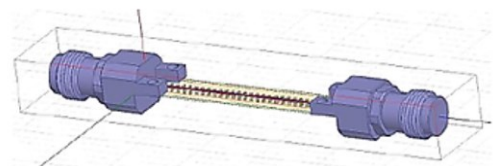
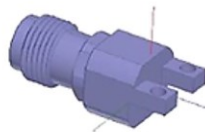
## ■ Features

- Now available in : **SMA (26.5 GHz), 2.92 mm (40 GHz), 2.40 mm (50 GHz), 1.85 mm (67 GHz), 1.0 mm(110GHz)**
- **GCPWG, Top Ground Microstrip structure**
- Easy Installation on designed substrate
- No Soldering required



## ■ Application

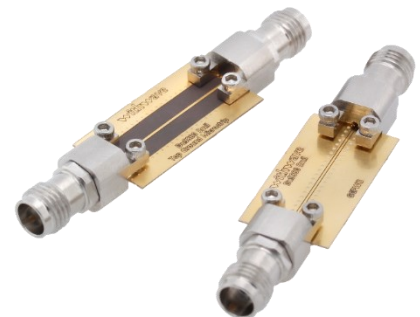
- RFIC Chip set evaluation board
- High data rate ASIC and SoC evaluation module test
- Substrate Characterization



## - Design Assistance

- 3D Model for Mechanical Layout (STEP file)
- **ANSYS HFSS models** (version 17.0 or newer) for 3D EM(Electromagnetic) Simulation

		
End Launch (Standard)	End Launch (Narrow Block)	Bulkhead type



# End Launch Connectors **Narrow Block**



**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

Versatile RF & MW Test Solutions

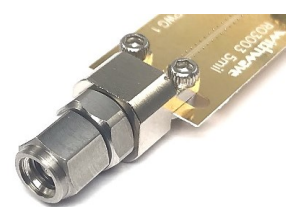
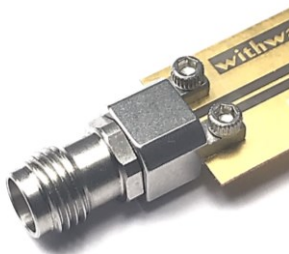
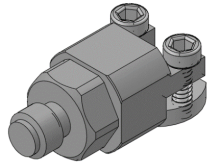
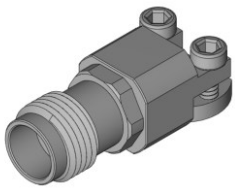
## ■ Specification

Scope	Items	Specification
Electrical	Freq. range	DC to 26.5 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) DC to 110 GHz (1.0 mm type)
	Impedance	50 Ohm
	VSWR(Max)	1.40 : 1 (to 26.5 GHz) 1.40 : 1 (to 40 GHz) 1.40 : 1 (to 50 GHz) 1.40 : 1 (to 67 GHz) 2.00 : 1 (to 110 GHz)
Material	Connector type	SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm
	Body & Block	Brass with Ni Plated(SMA) Stainless Steel
	Contact	BeCu with Gold Plated
	Operating Temperature	-55~+125°C

\* RoHS Compliant

## ■ Ordering Information

Application	Connector	Type	Part No.	
<b>Narrow Block</b>	SMA	Female	NE06FS001	
		Male	NE06MS001	
	2.92 mm	Female	NE03FS001	
		Female (Bulkhead)	NE03FS002	
	2.4 mm	Male	NE03MS001	
		Female	NE02FS001	
	1.85 mm	Male	NE02MS001	
		Female	NE01FS001	
	1.0 mm	Male	NE01MS001	
		Female	NE00FS001	
			Male	NE00MS001

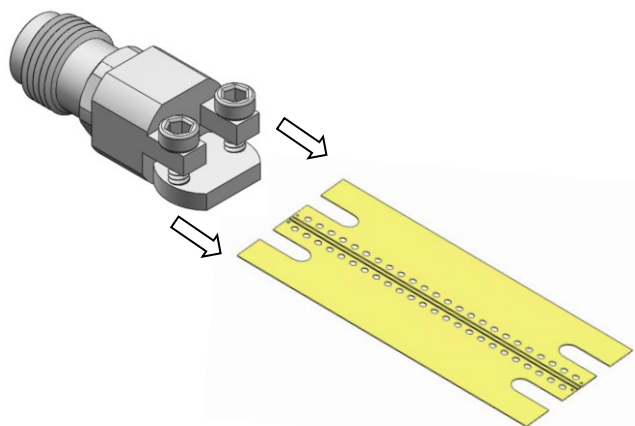


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## ■ Installation Procedure

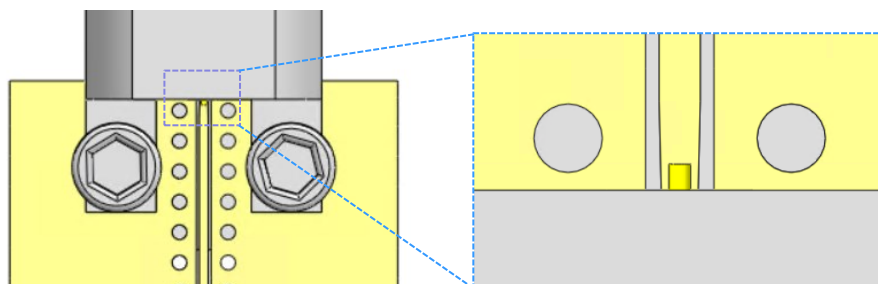
### STEP 1 :

Insert end launch connector (including block & screws) in the edge position of substrate.



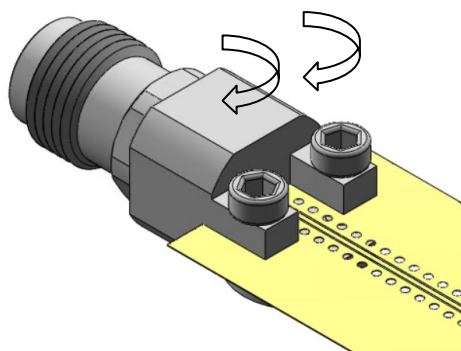
### STEP 2:

Ensure the pin is centered on the trace.



### STEP 3:

Ensure the block is tight against the substrate.

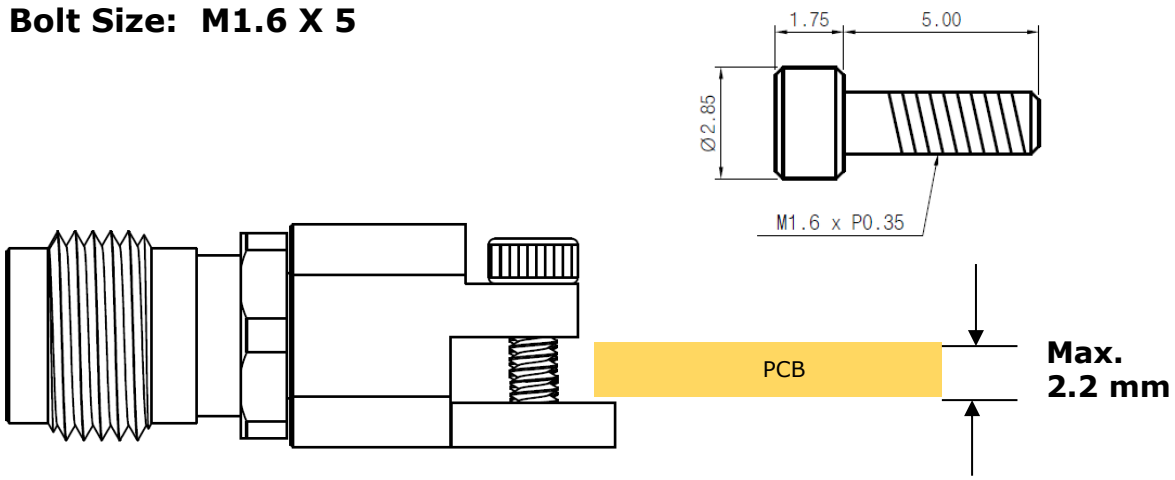


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

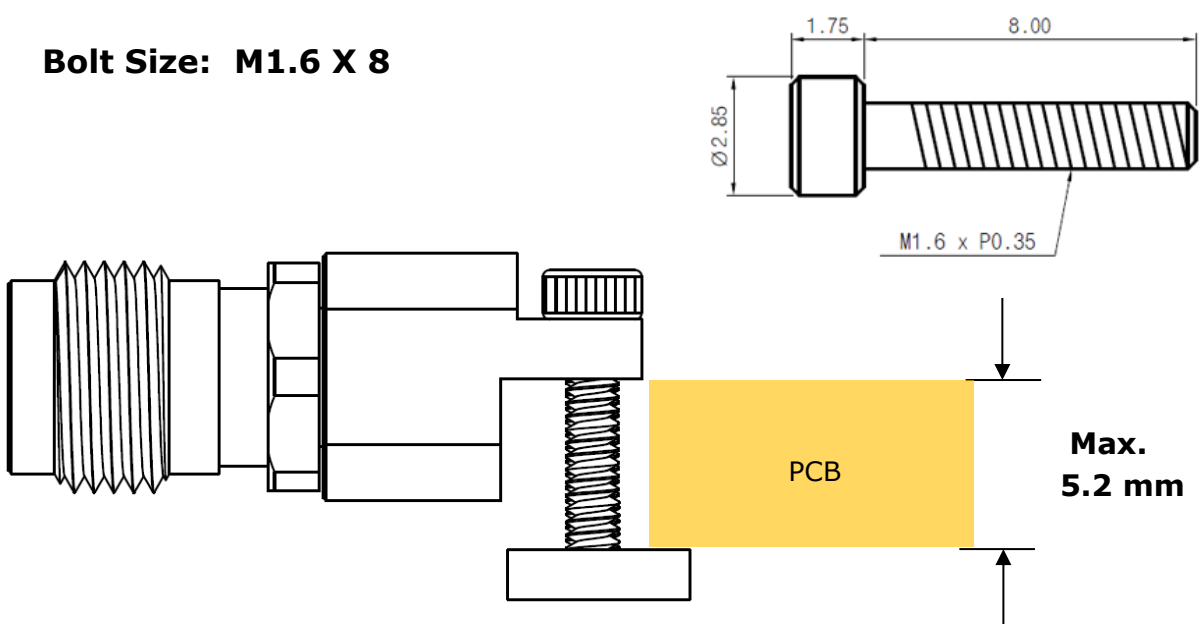
■ **Maximum PCB Thickness (Low Profile type)**

Unit : mm

**Bolt Size: M1.6 X 5**



**Bolt Size: M1.6 X 8**



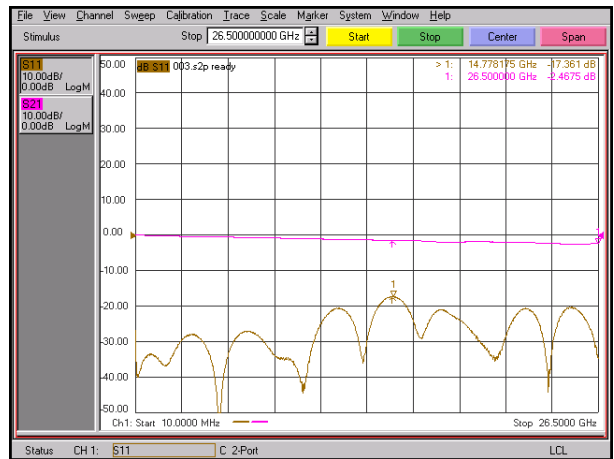
■ **Test Result**

### SMA Type GCPWG Structure

Freq. : 10 MHz to 26.5 GHz

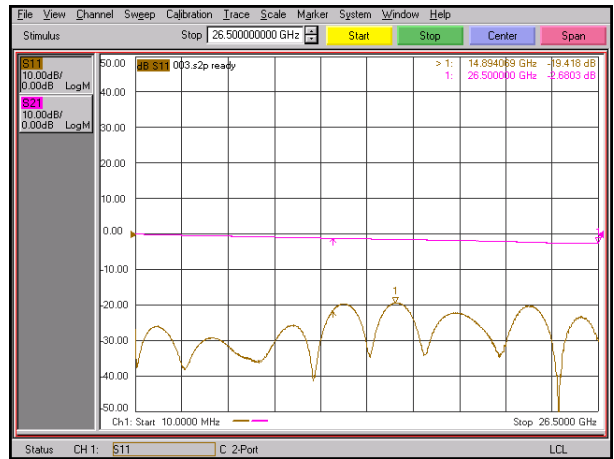
**Substrate : RO4003C (8 mil)**

**Part No. : NE06FS001**



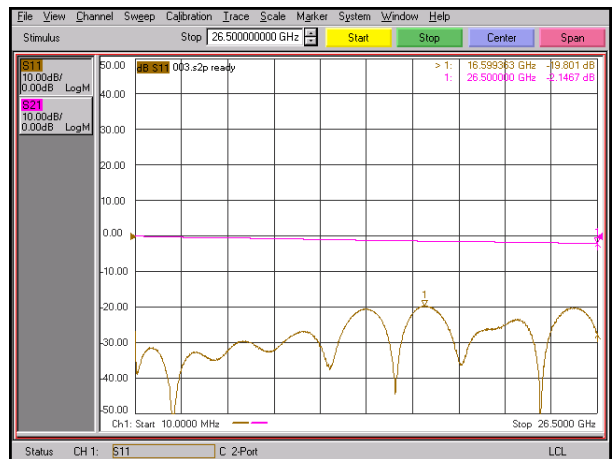
**Substrate : RO4350B (10 mil)**

**Part No. : NE06FS001**



**Substrate : Duroid 5880 (5 mil)**

**Part No. : NE06FS001**



\* Substrate length : 1 inch (=25.4 mm)

■ **Test Result**

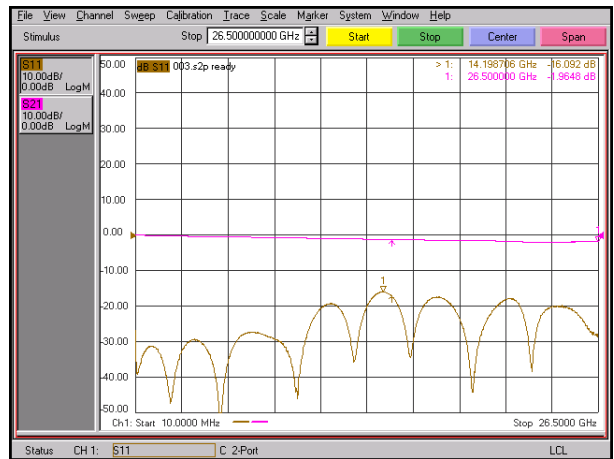
### SMA Type

### Top Ground Microstrip

Freq. : 10 MHz to 26.5 GHz

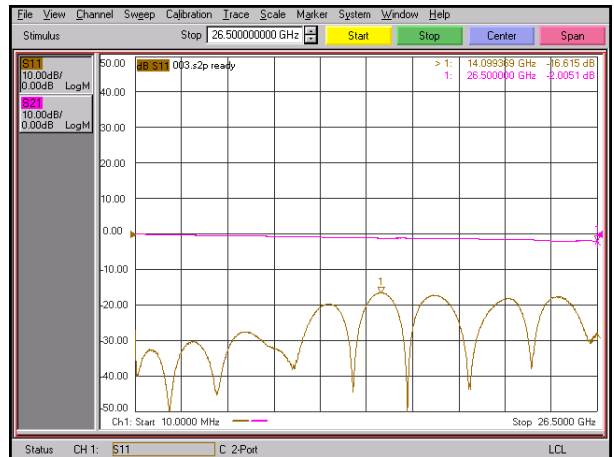
Substrate : RO4003C (8 mil)

Part No. : NE06FS001



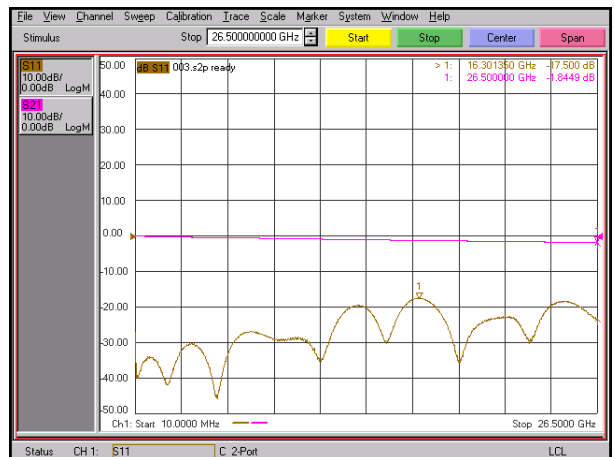
Substrate : RO4350B (10 mil)

Part No. : NE06FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE06FS001



\* Substrate length : 1 inch (=25.4 mm)



■ Test Result

## 2.92mm Type GCPWG Structure

Freq. : 10 MHz to 40 GHz

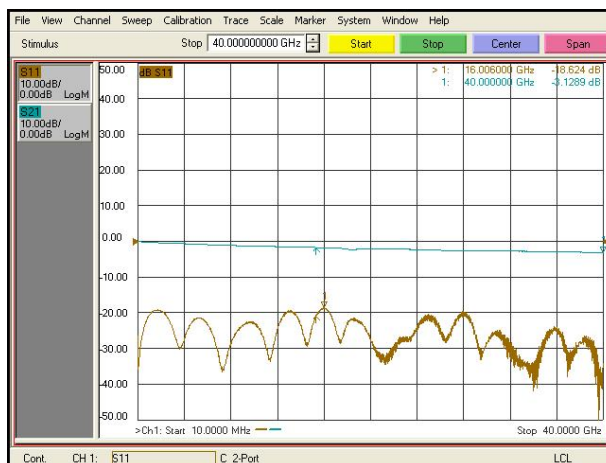
Substrate : RO4003C (8 mil)

Part No. : NE03FS001



Substrate : RO4350B (10 mil)

Part No. : NE03FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE03FS001



\* Substrate length : 1 inch (=25.4 mm)

■ Test Result

## 2.92mm Type

### Top Ground Microstrip

Freq. : 10 MHz to 40 GHz

Substrate : RO4003C (8 mil)

Part No. : NE03FS001



Substrate : RO4350B (10 mil)

Part No. : NE03FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE03FS001



\* Substrate length : 1 inch (=25.4 mm)



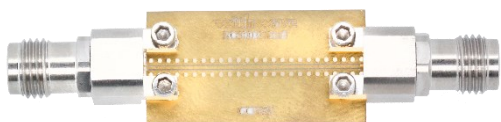
■ **Test Result**

## 2.4 mm Type GCPWG Structure

**Freq. : 10 MHz to 50 GHz**

**Substrate : RO4003C (8 mil)**

**Part No. : NE02FS001**



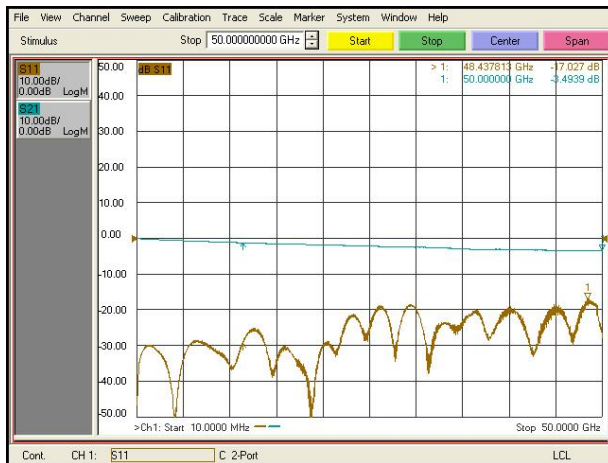
**Substrate : RO4350B (10 mil)**

**Part No. : NE02FS001**



**Substrate : Duroid 5880 (5 mil)**

**Part No. : NE02FS001**



\* Substrate length : 1 inch (=25.4 mm)

■ **Test Result**

## 2.4 mm Type

### Top Ground Microstrip

**Substrate : RO4003C (8 mil)**

**Part No. : NE02FS001**



**Substrate : RO4350B (10 mil)**

**Part No. : NE02FS001**



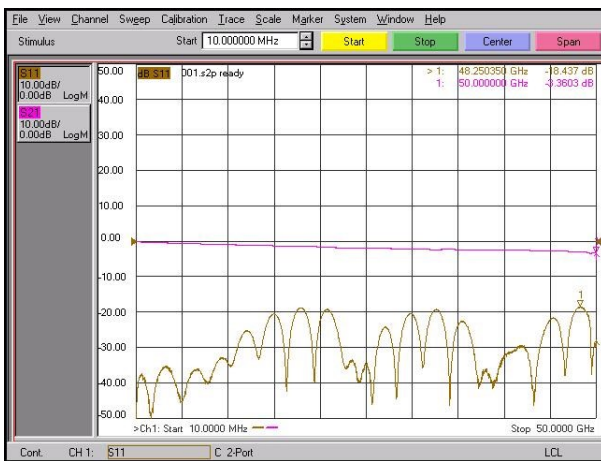
**Substrate : Duroid 5880 (5 mil)**

**Part No. : NE02FS001**



\* Substrate length : 1 inch (=25.4 mm)

**Freq. : 10 MHz to 50 GHz**



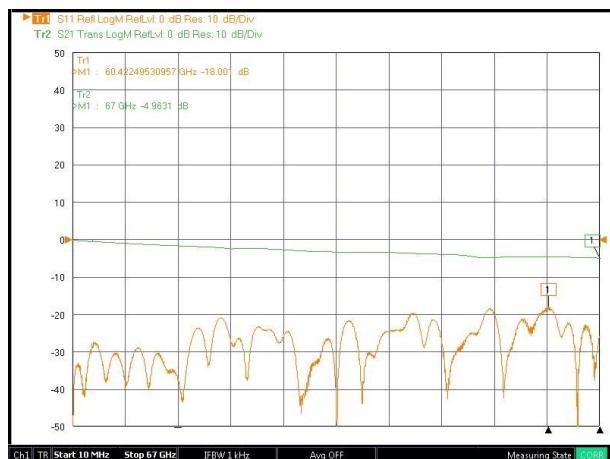
■ **Test Result**

### 1.85 mm Type GCPWG Structure

Freq. : 10 MHz to 67 GHz

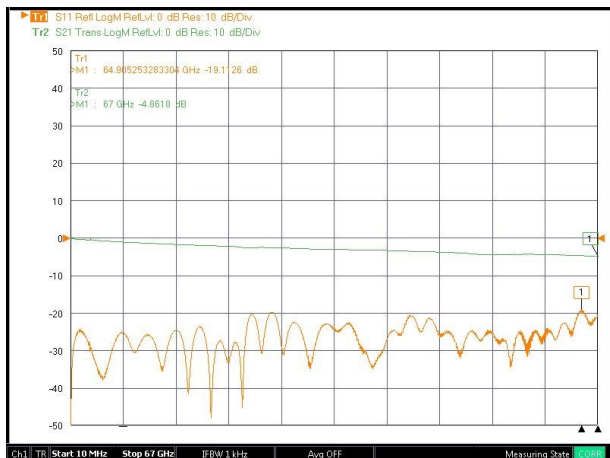
Substrate : RO4003C (8 mil)

Part No. : NE01FS001



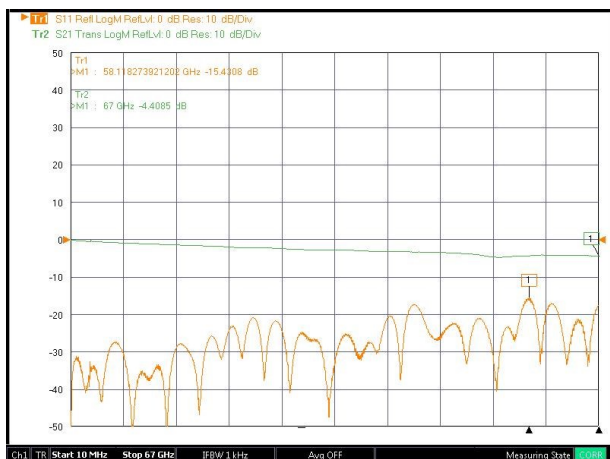
Substrate : RO4350B (10 mil)

Part No. : NE01FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE01FS001



\* Substrate length : 1 inch (=25.4 mm)

■ Test Result

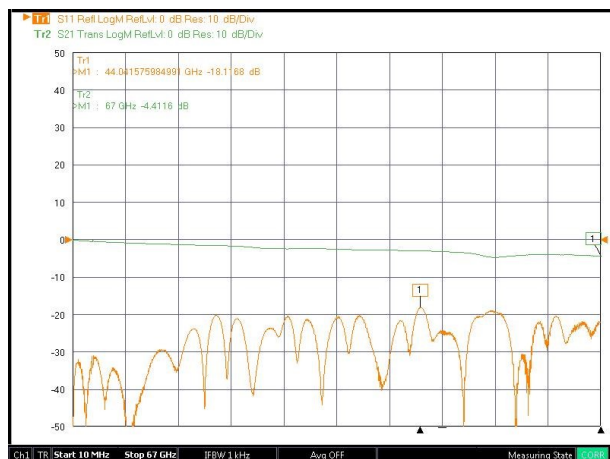
### 1.85 mm Type

### Top Ground Microstrip

Freq. : 10 MHz to 67 GHz

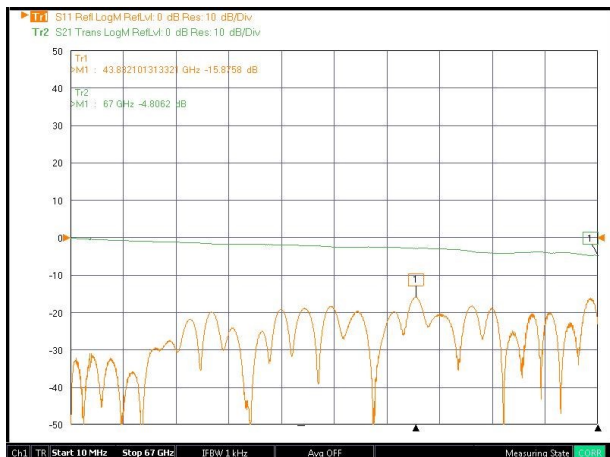
Substrate : RO4003C (8 mil)

Part No. : NE01FS001



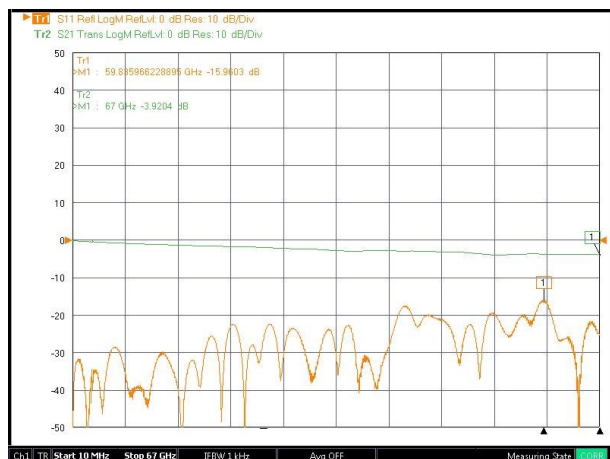
Substrate : RO4350B (10 mil)

Part No. : NE01FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE01FS001



\* Substrate length : 1 inch (=25.4 mm)

### ■ Test Result

## 1.0 mm Type (Female)

### GCPWG Structure

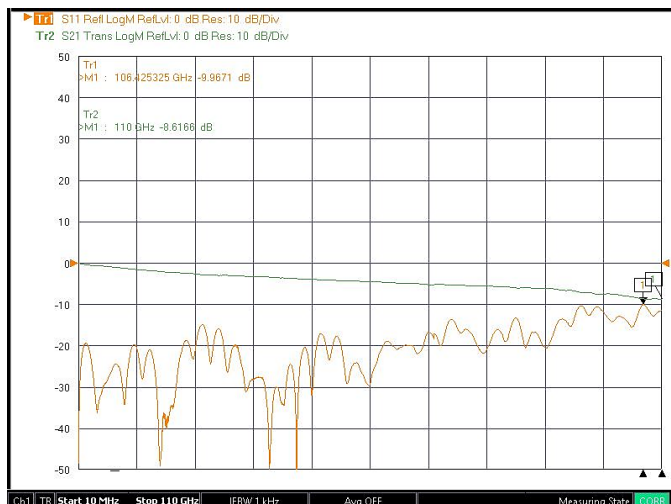
Freq. : 10 MHz to 110 GHz

Substrate : RO3003 (5 mil)

Part No. : NE00FS001



\* Substrate length : 1 inch (=25.4 mm)



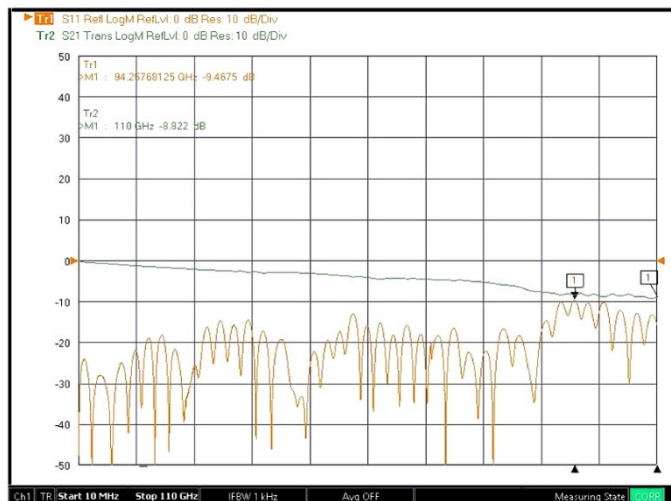
## Top Ground Microstrip

Substrate : RO3003 (5 mil)

Part No. : NE00FS001



\* Substrate length : 30 mm





### ■ Test Result

## 1.0 mm Type (Male)

### GCPWG Structure

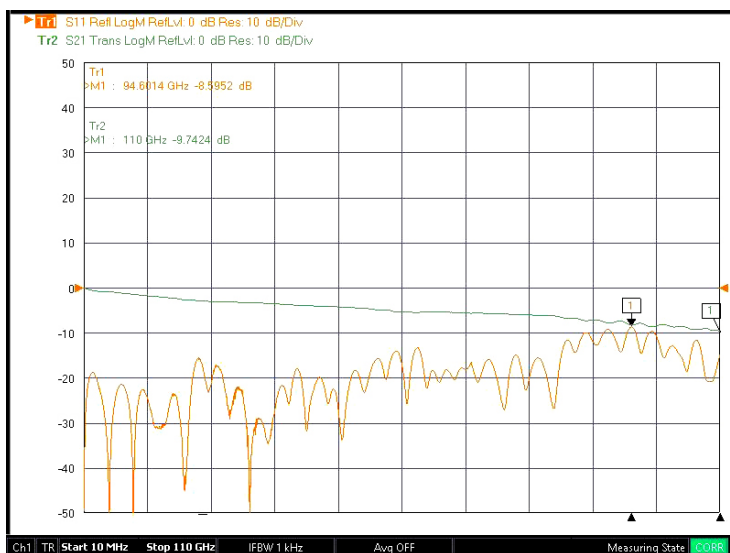
Freq. : 10 MHz to 110 GHz

Substrate : RO3003 (5 mil)

Part No. : NE00MS001



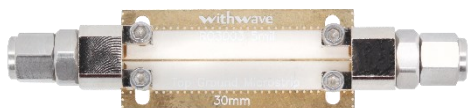
\* Substrate length : 1 inch (=25.4 mm)



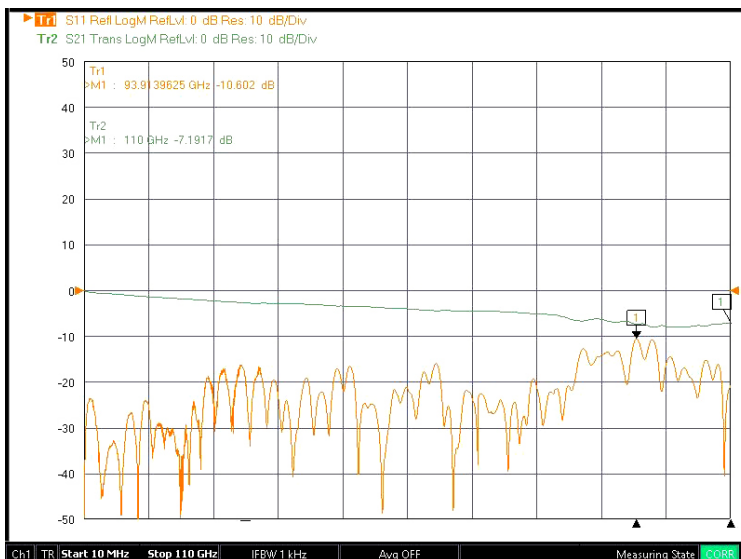
## Top Ground Microstrip

Substrate : RO3003 (5 mil)

Part No. : NE00MS001



\* Substrate length : 30 mm





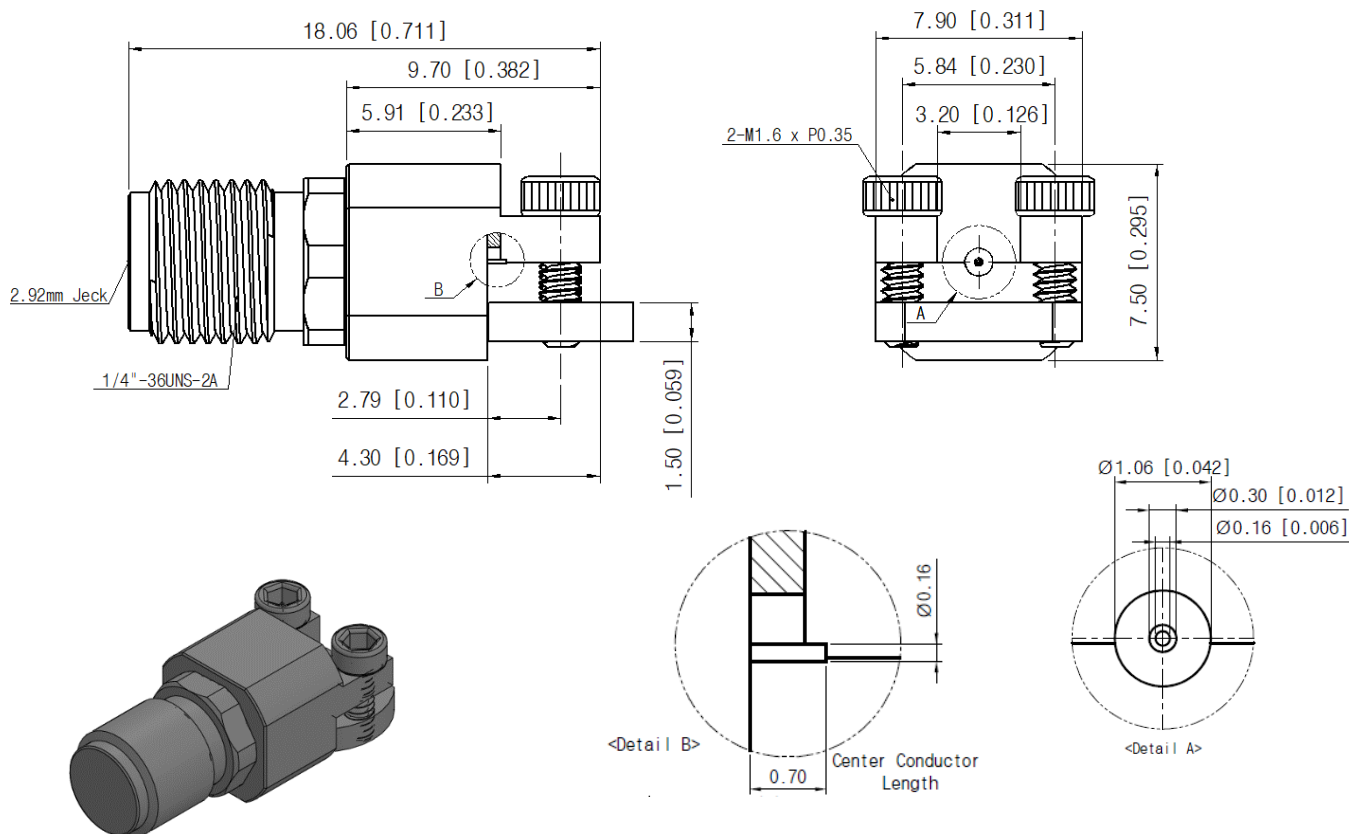
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## SMA Type (Female)

### ■ Drawing

Part No. : NE06FS001

Unit : mm[inch]



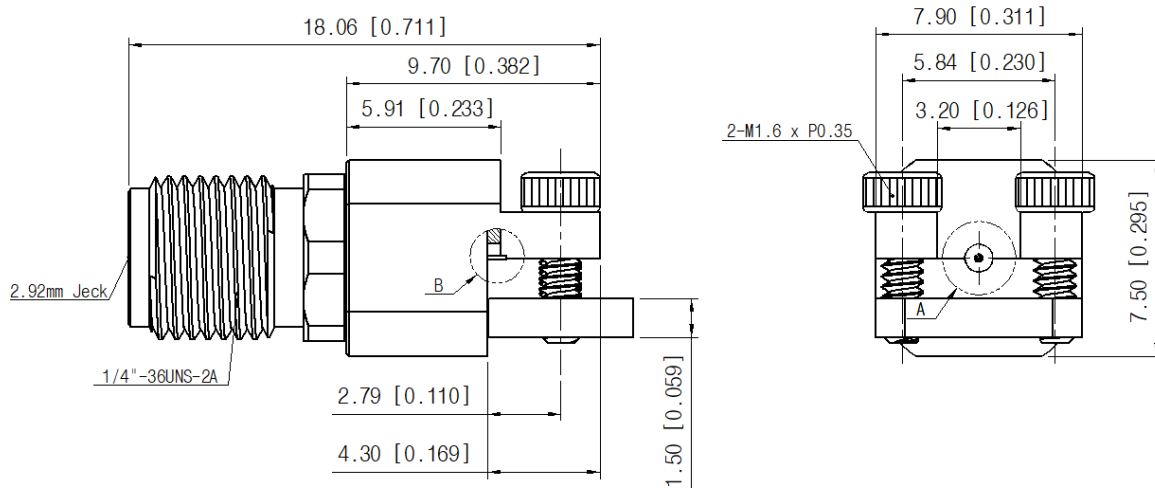
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 2.92 mm Type (Female)

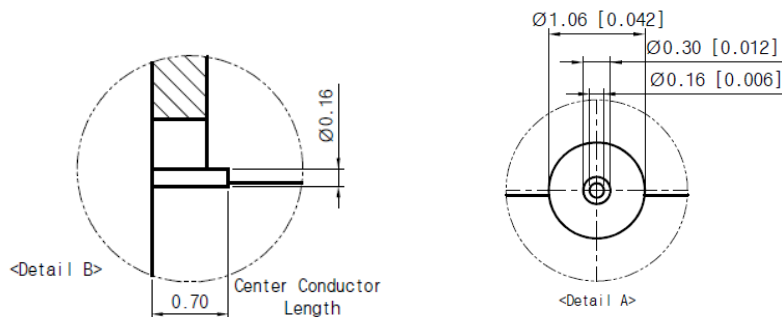
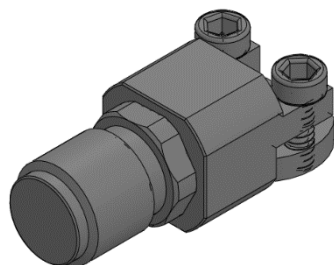
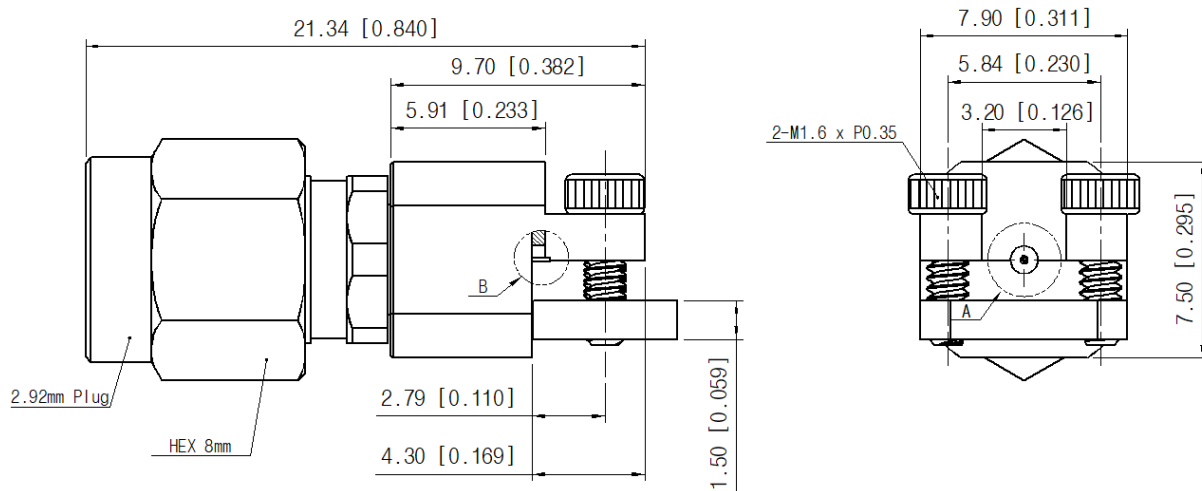
■ **Drawing**

Part No. : NE03FS001

Unit : mm[inch]



Part No. : NE03MS001

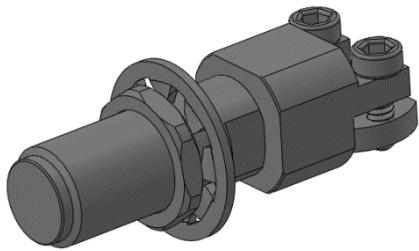
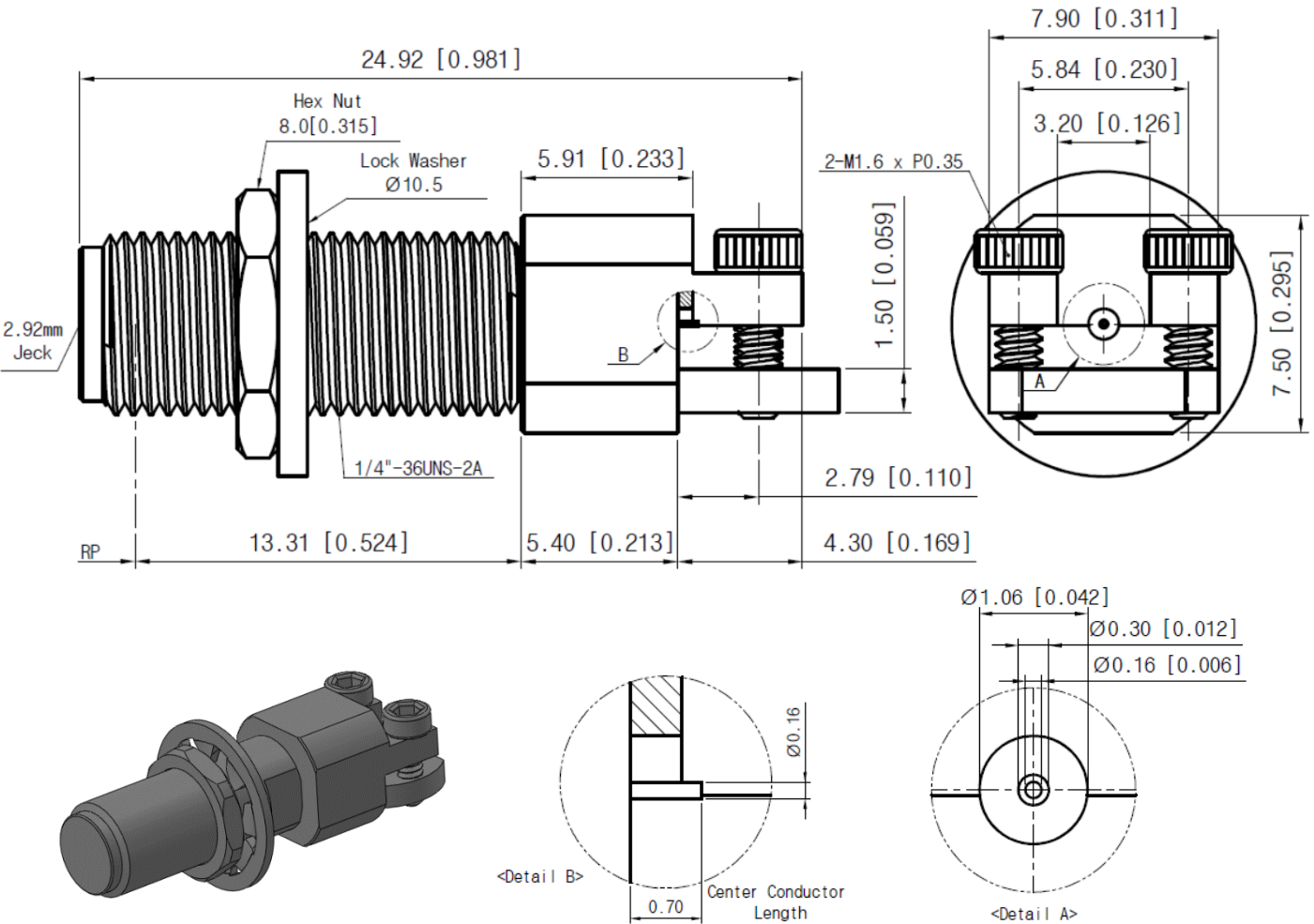


### 2.92 mm Type (Female) : Bulkhead

#### ■ Drawing

Part No. : NE03FS002

Unit : mm[inch]



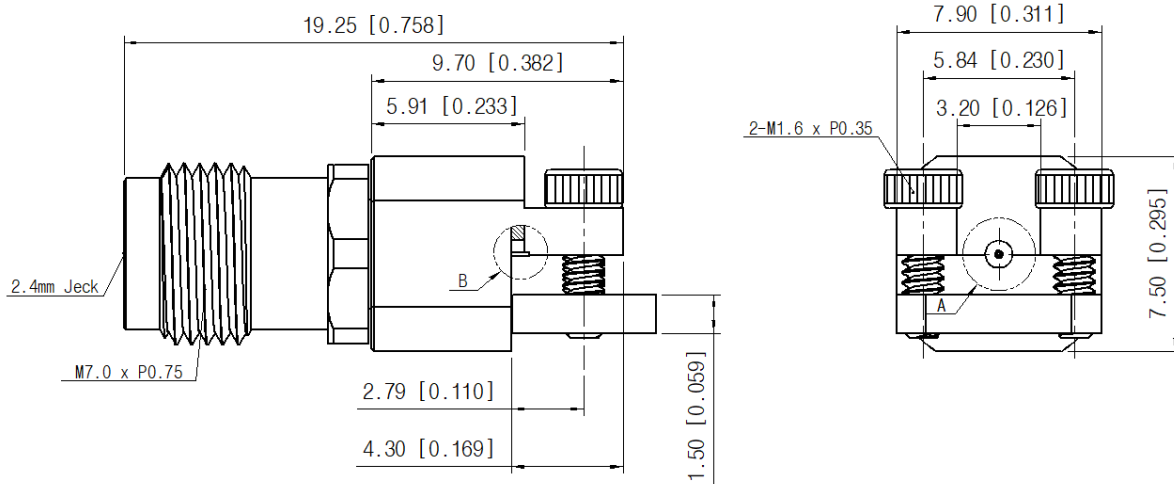
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 2.4 mm Type (Female)

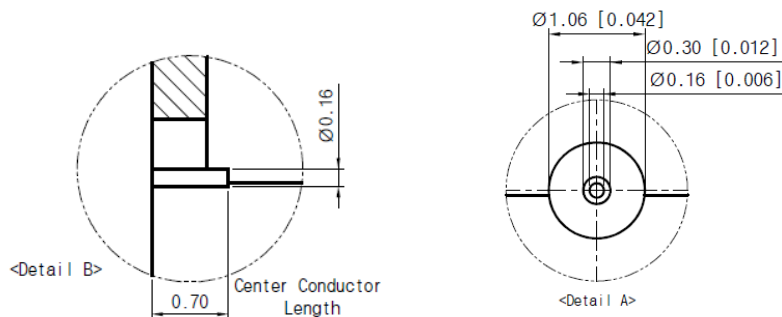
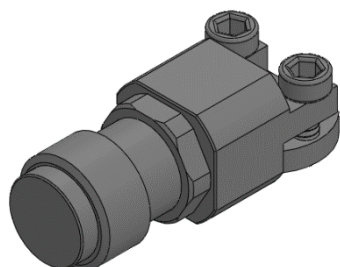
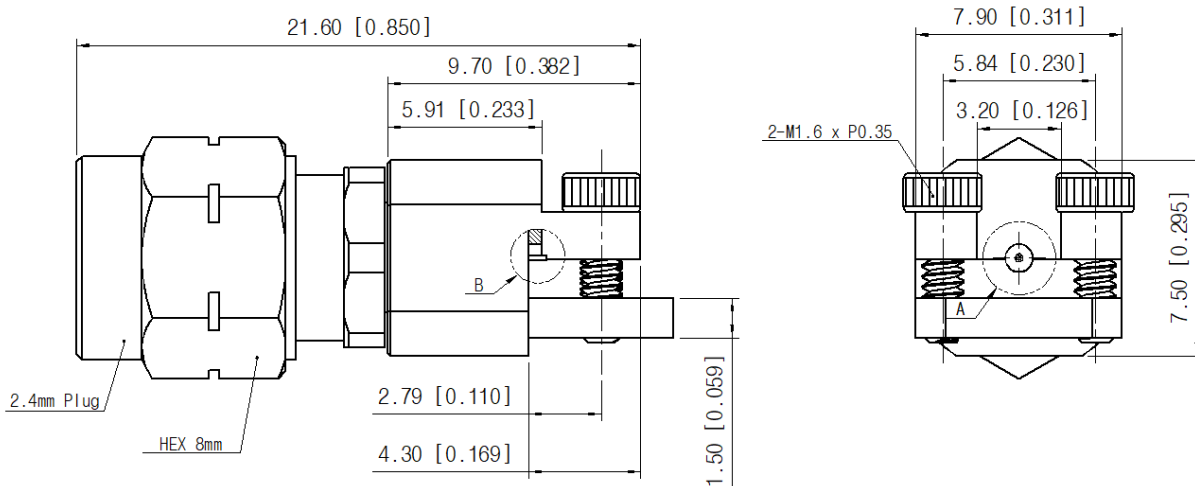
### ■ Drawing

Part No. : NE02FS001

Unit : mm[inch]



Part No. : NE02MS001



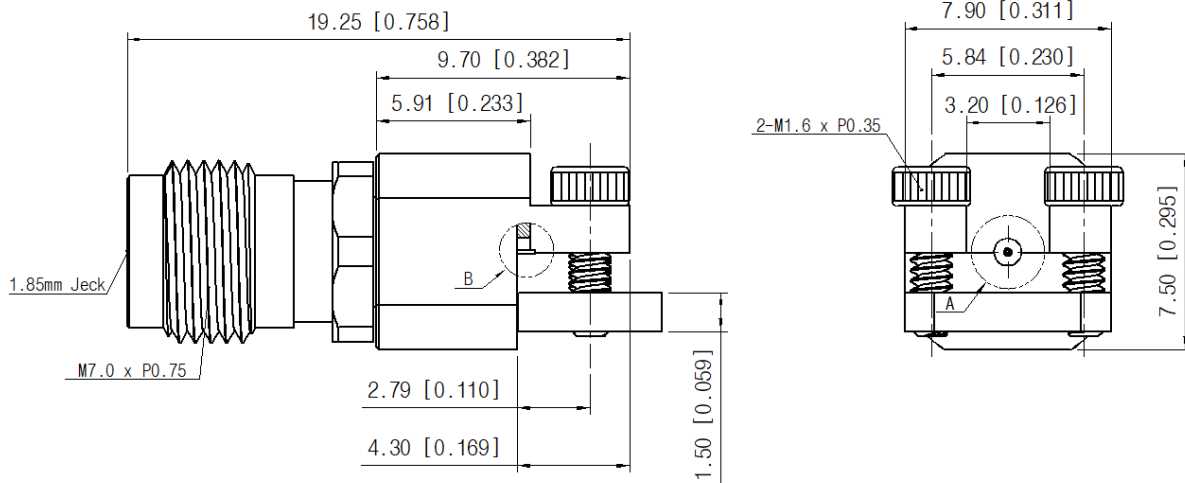
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 1.85 mm Type (Female)

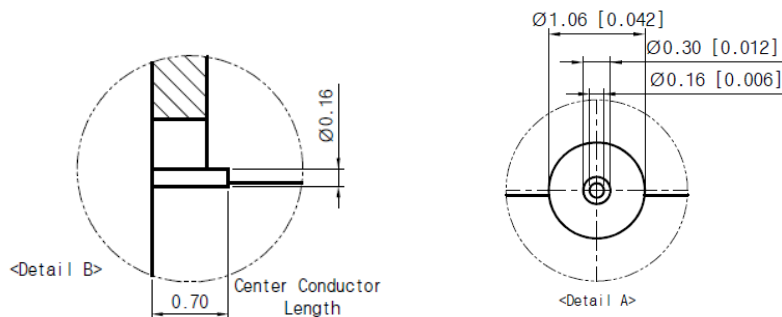
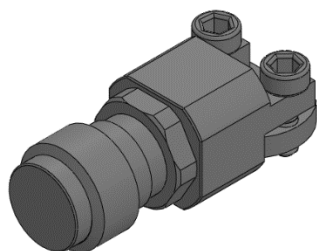
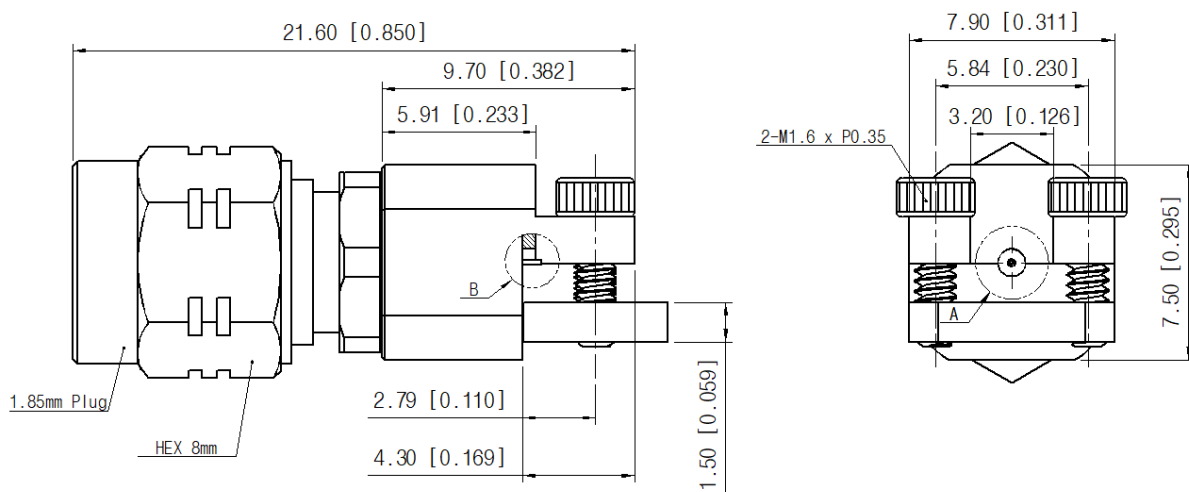
■ **Drawing**

Part No. : NE01FS001

Unit : mm[inch]



Part No. : NE01MS001



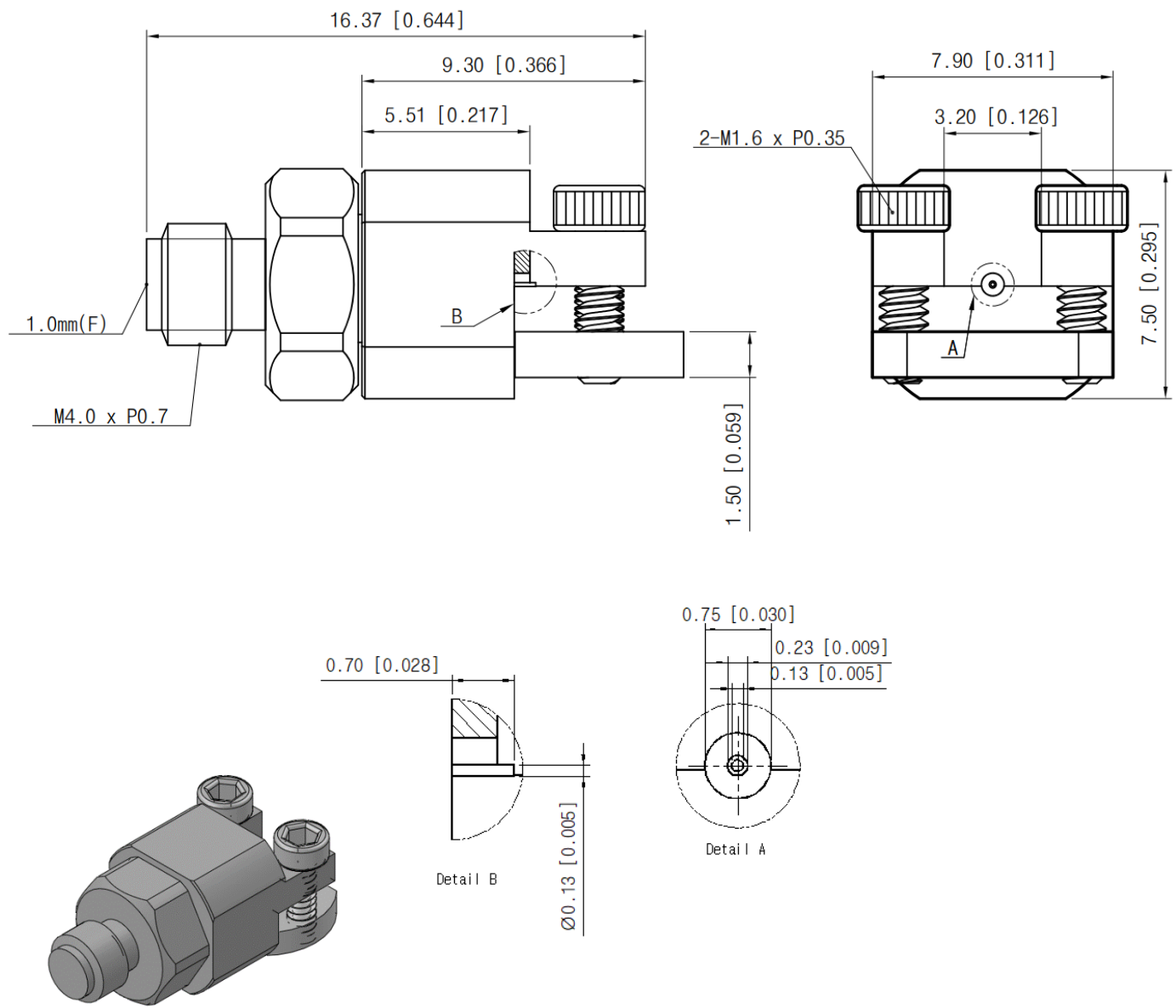
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 1.0 mm Type (Female)

### ■ Drawing

Part No. : NE00FS001

Unit : mm[inch]



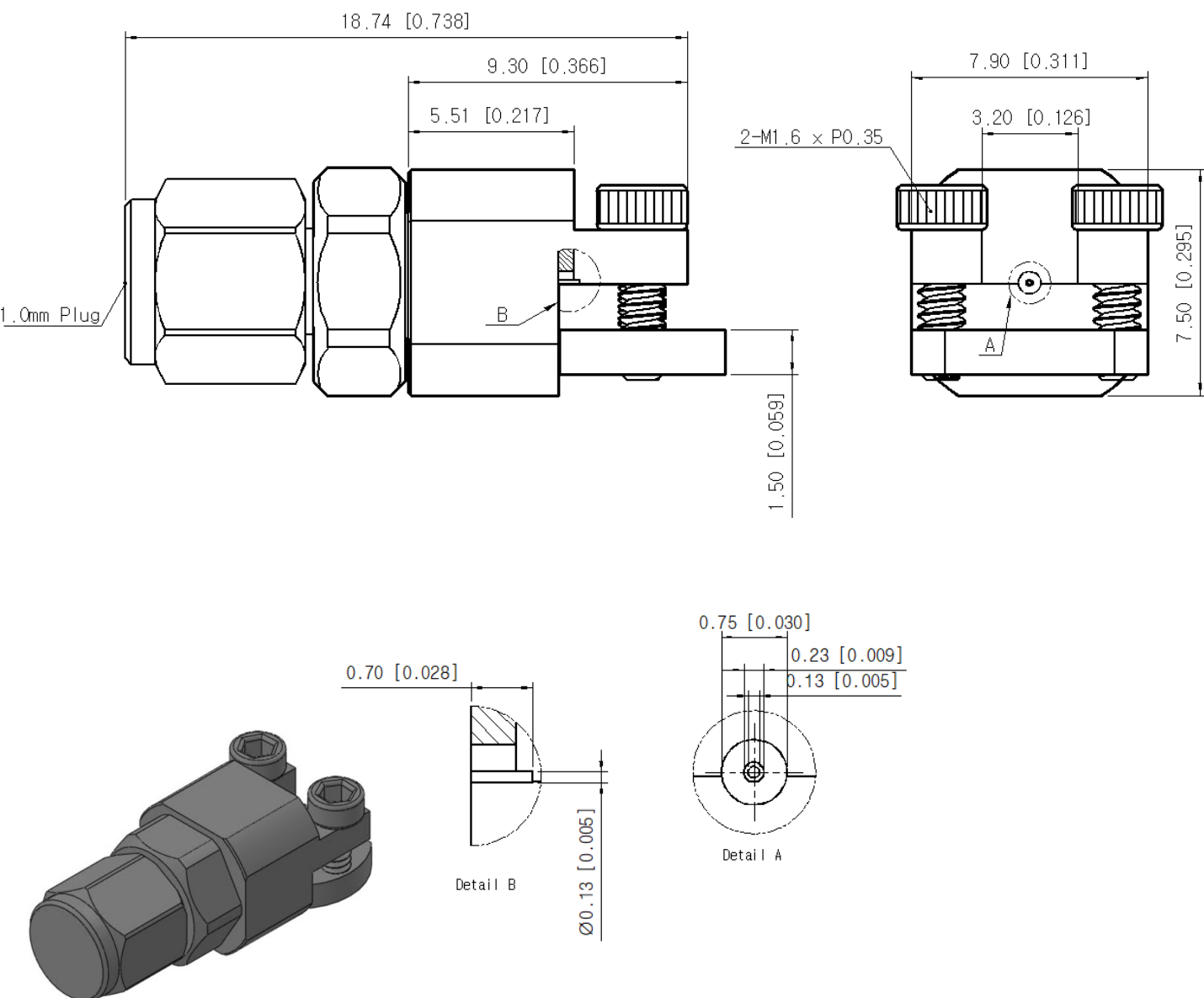


### 1.0 mm Type (Male)

#### ■ Drawing

Part No. : NE00FS001

Unit : mm[inch]

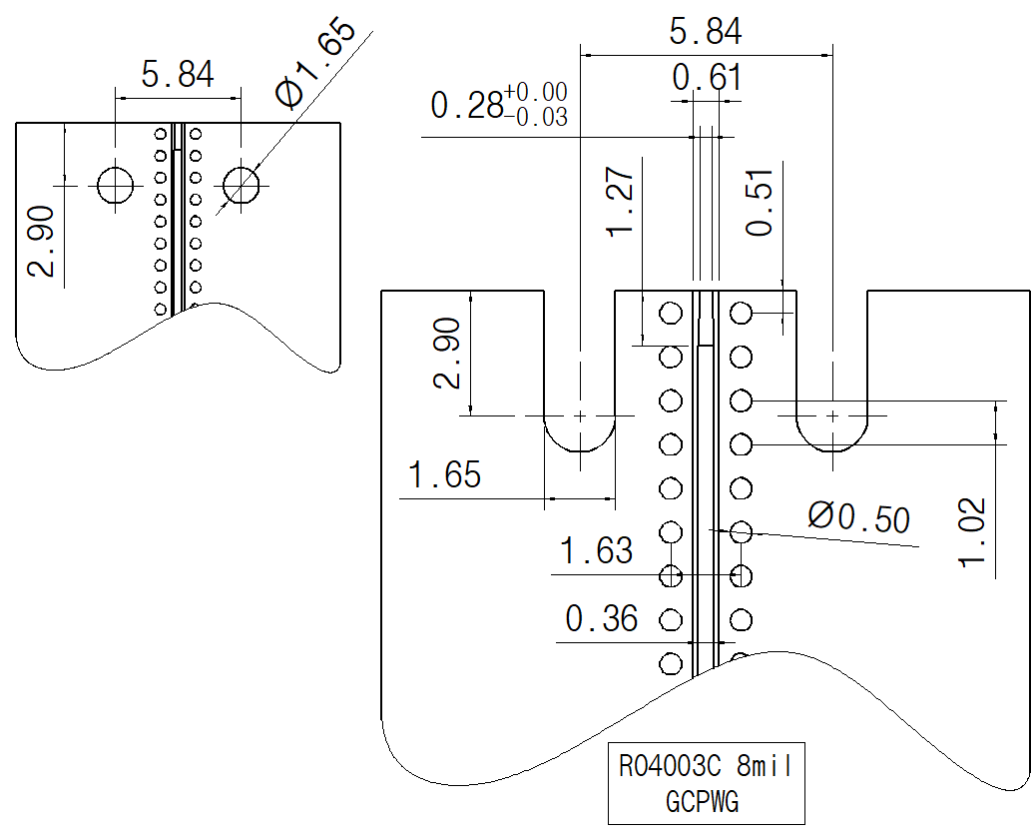


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ **PCB Layout**

## GCPWG (RO4003C 8mil)

Unit : mm

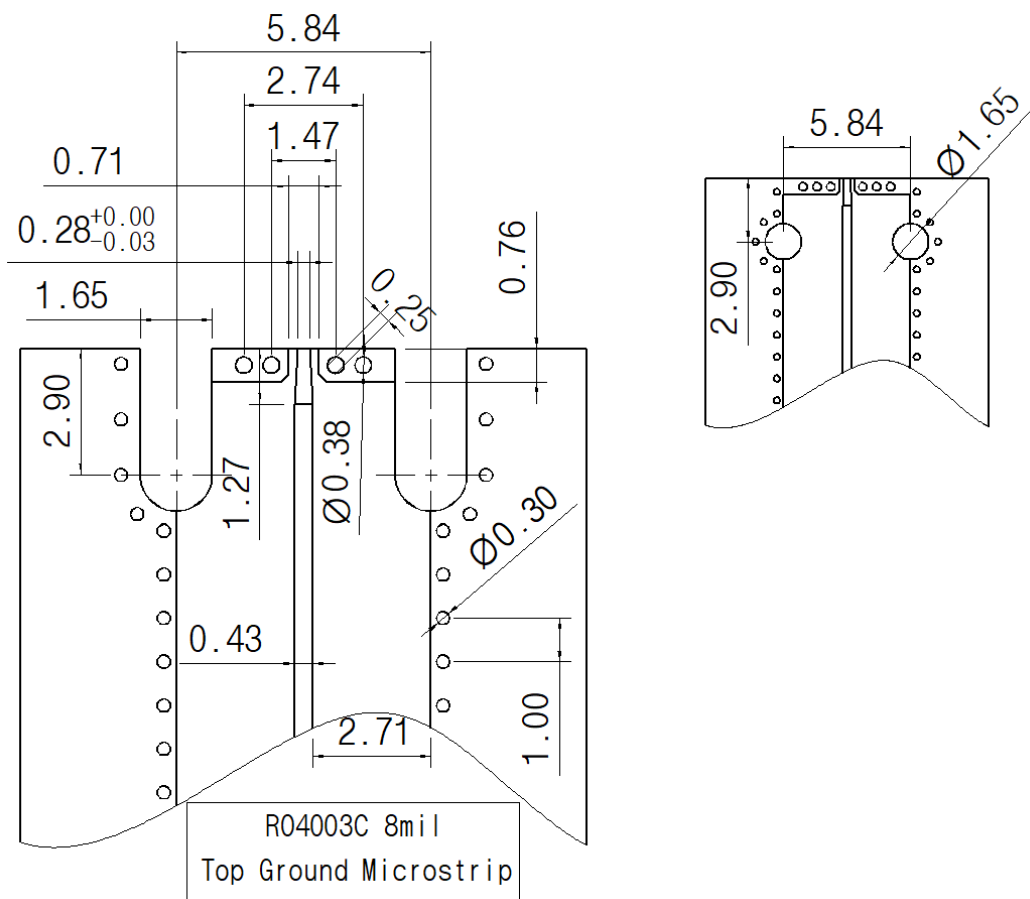


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## Top Ground Microstrip (RO4003C 8mil)

Unit : mm

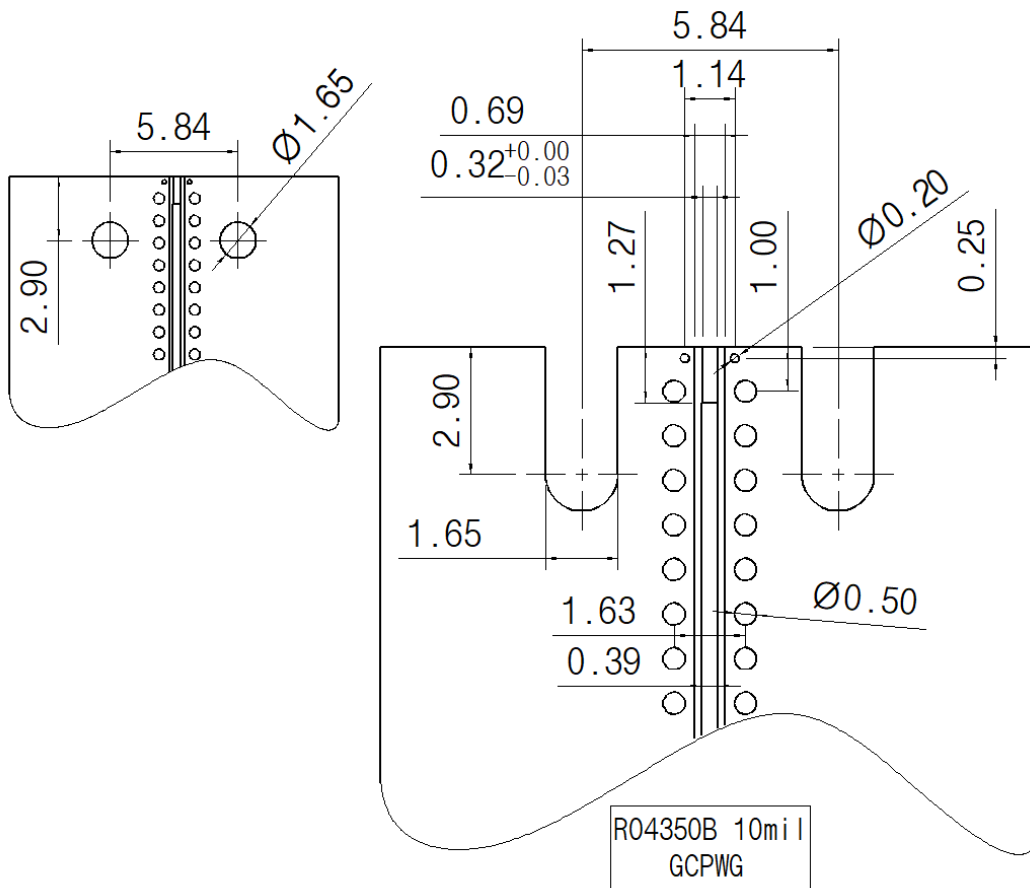


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## GCPWG (RO4350B 10 mil)

Unit : mm

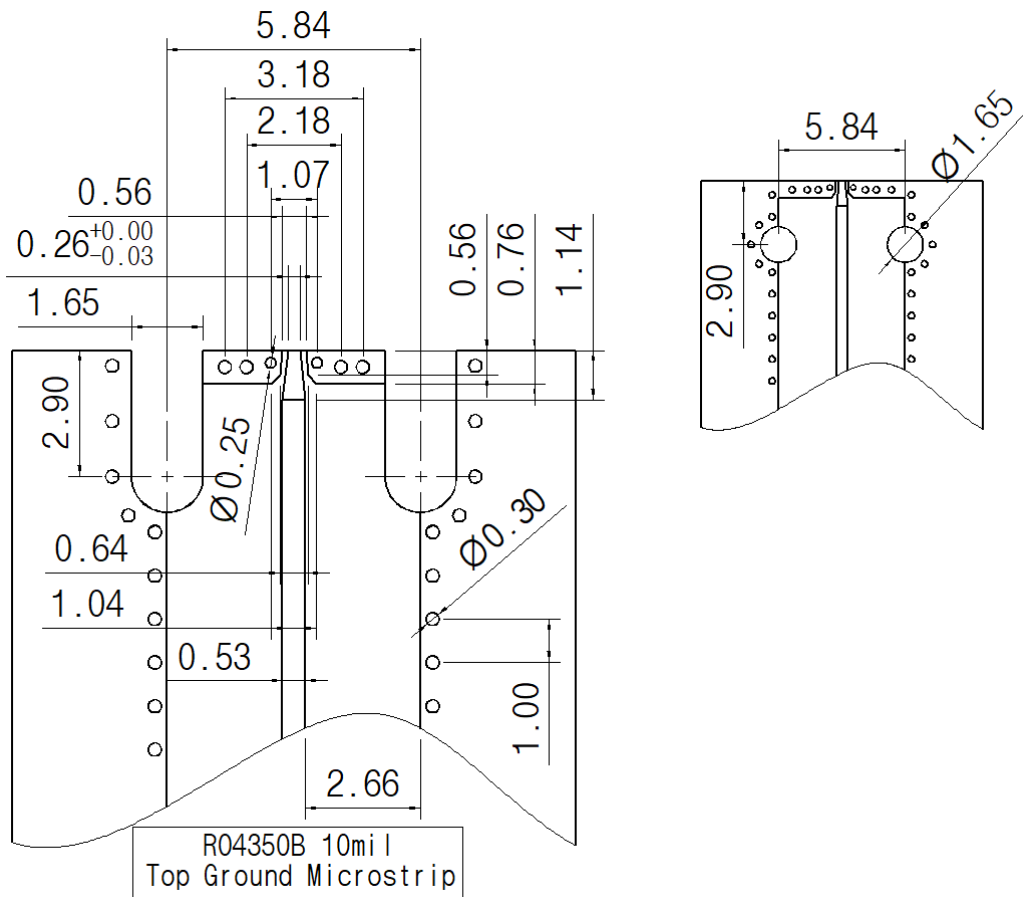


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ **PCB Layout**

## Top Ground Microstrip (RO4350B 10 mil)

Unit : mm

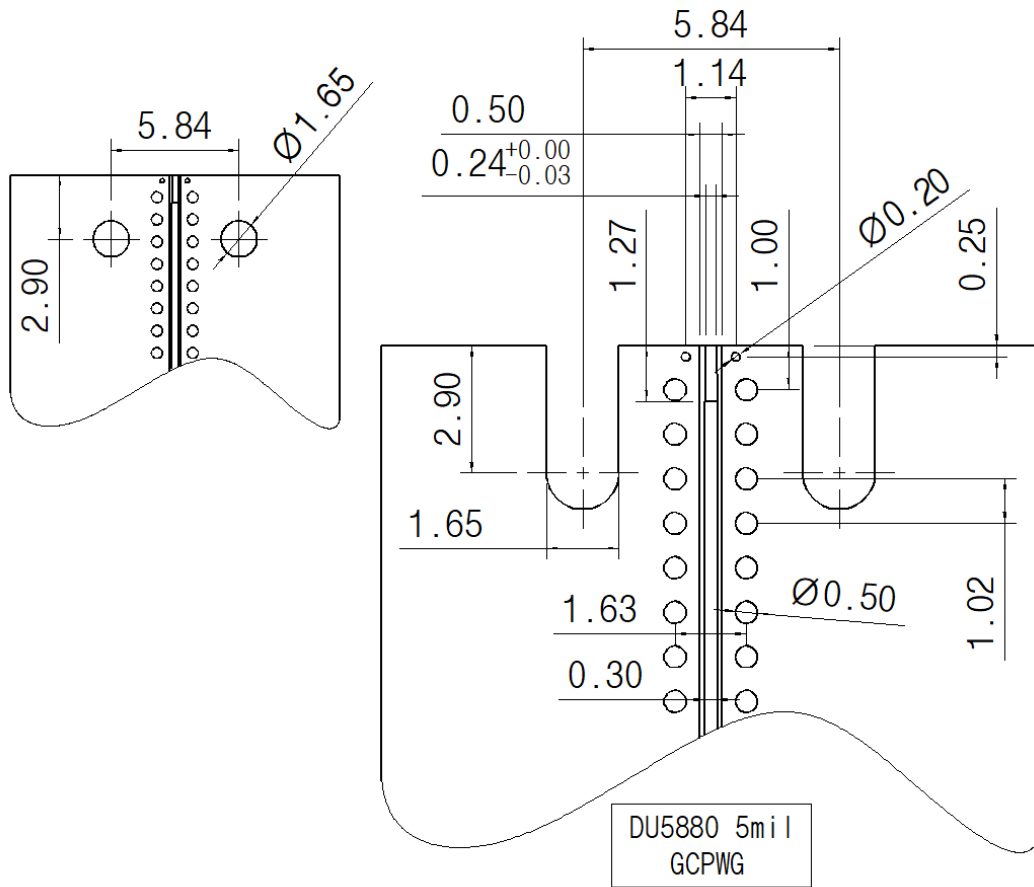


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## GCPWG (Duroid 5880 5mil)

Unit : mm

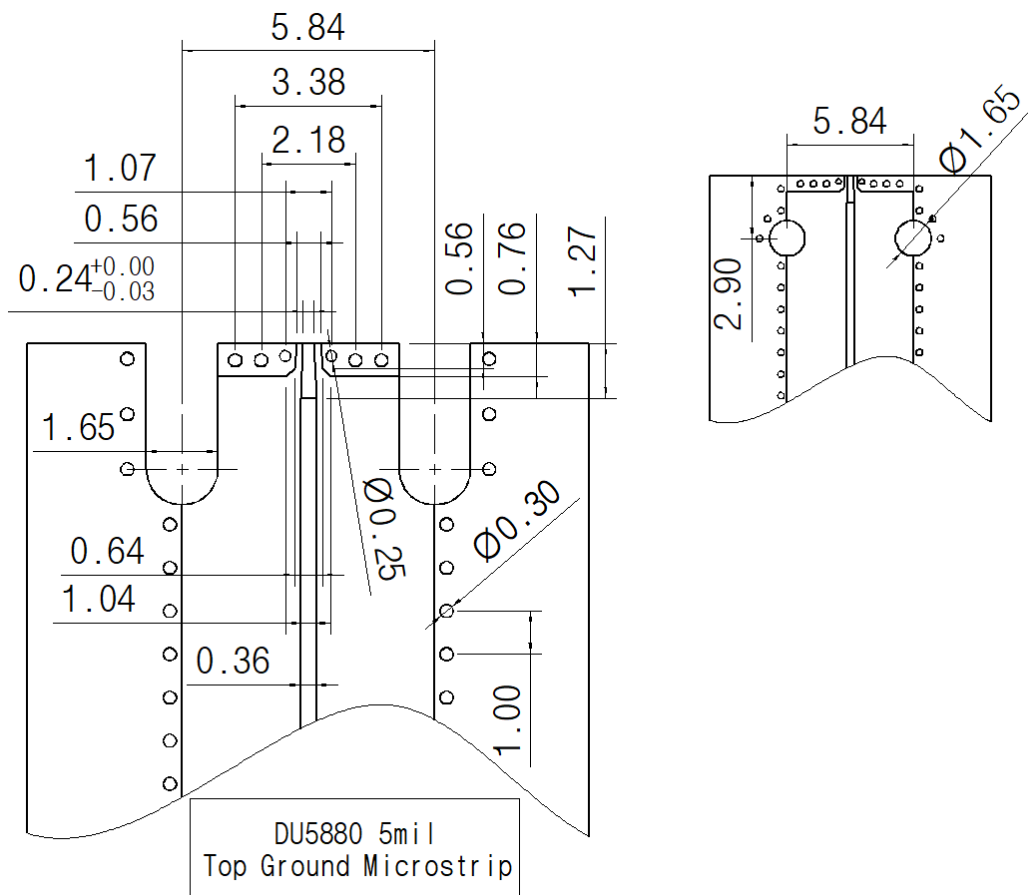




■ PCB Layout

## Top Ground Microstrip (Duroid 5880 5 mil)

Unit : mm

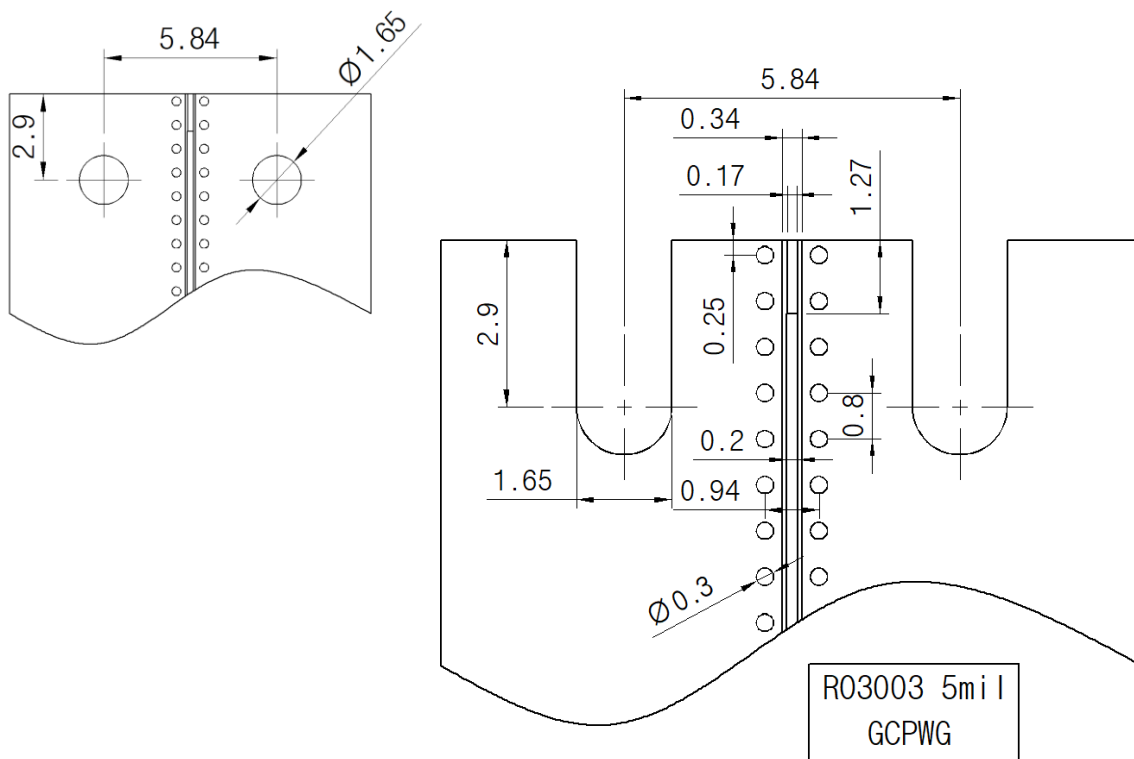


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## GCPWG (RO3003 5 mil)

Unit : mm

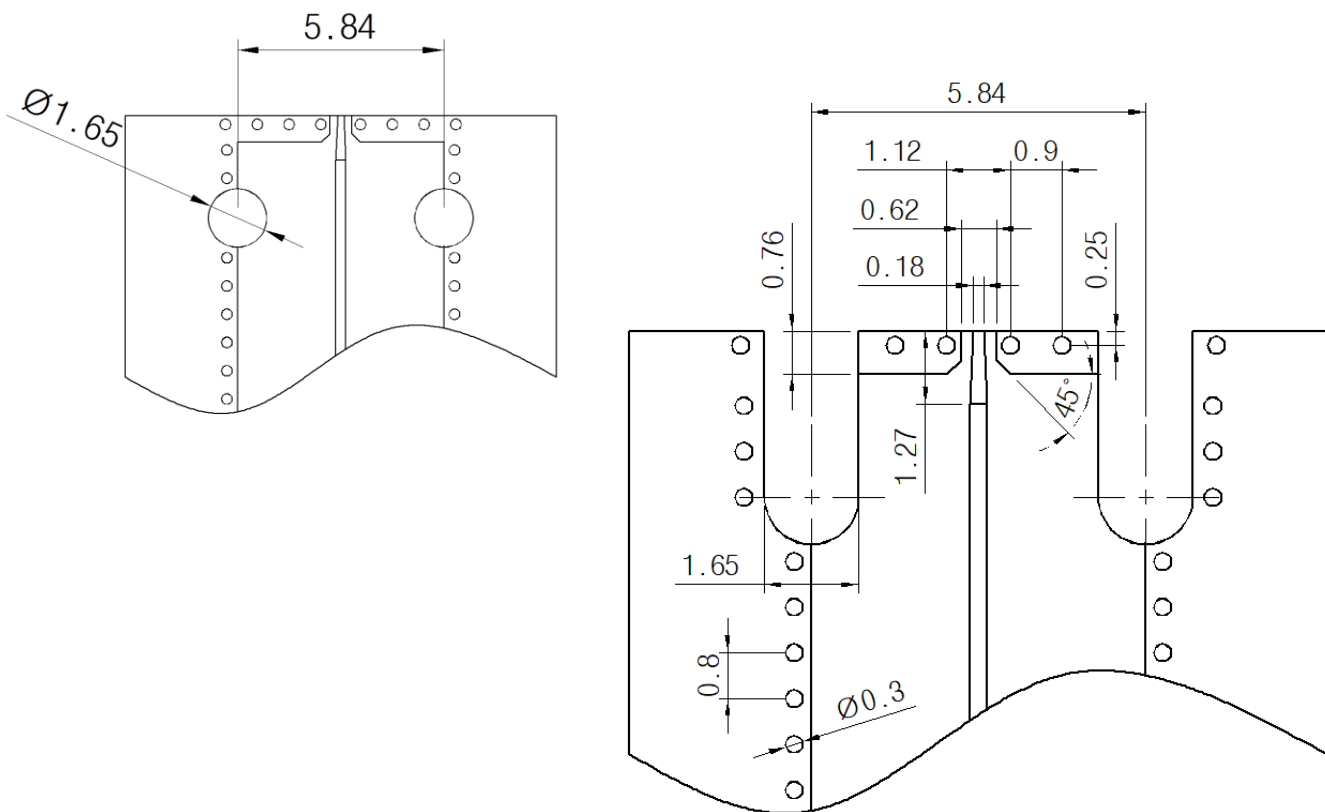


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ **PCB Layout**

## Top Ground Microstrip (R03003 5 mil)

Unit : mm



R03003 5mil  
Top Ground Microstrip

**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## ■ Revision History

Revision	Date	Changes
Ver 1.0	2019-09-15	Released End launch connectors (Narrow Block)
Ver 1.1	2020-01-08	Updated drawing
Ver 1.2	2021-01-11	Add New 1.0 mm type (110 GHz)
Ver 1.3	2021-03-12	Add Test Result of 1.0 mm type (Male)
Ver 1.4	2021-08-31	Add SMA type and 2.92 mm(Bulkhead) type