

# End Launch Connectors *Narrow Block*

**withwave**

Versatile RF & MW Test Solutions

**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.

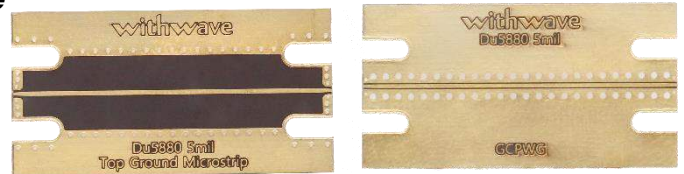
The types of connectors are SMA, 2.92 mm, 2.4 mm, 1.85 mm & 1.0mm.

We solve your performance and cost problems.



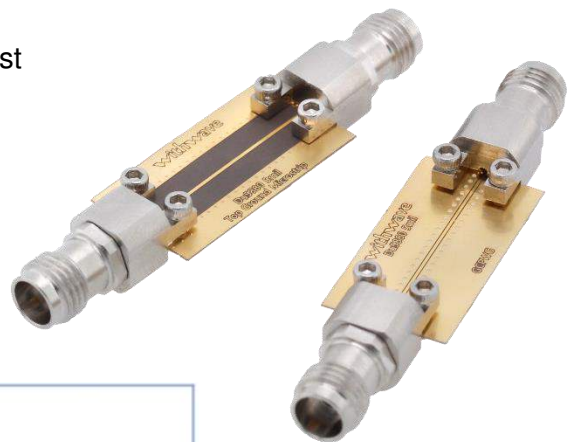
## ■ Features

- 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



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

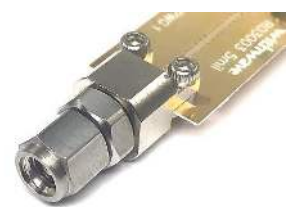
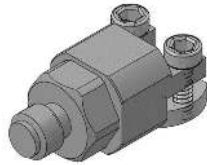
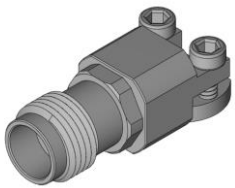
### ■ Specification

| Scope      | Items          | Specification  |
|------------|----------------|--|
| Electrical | Freq. range    | DC to 26.5 GHz (SMA type)<br>DC to 40 GHz (2.92 mm type)<br>DC to 50 GHz (2.4 mm type)<br>DC to 67 GHz (1.85 mm type)<br>DC to 110 GHz (1.0 mm type) |
|            | Impedance      | 50 Ohm   |
|            | VSWR(Max)      | 1.40 : 1 (to 26.5 GHz)<br>1.40 : 1 (to 40 GHz)<br>1.40 : 1 (to 50 GHz)<br>1.40 : 1 (to 67 GHz)<br>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)<br>Stainless Steel   |
|            | Contact        | BeCu with Gold Plated  |

\* 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 |
|                     |           | Male              | NE03MS001 |
|                     |           | Male              | NE03MS001 |
|                     | 2.4 mm    | Female            | NE02FS001 |
|                     |           | Male              | NE02MS001 |
|                     | 1.85 mm   | Female            | NE01FS001 |
|                     |           | Male              | NE01MS001 |
|                     | 1.0 mm    | Female            | NE00FS001 |
|                     |           | Male              | NE00MS001 |

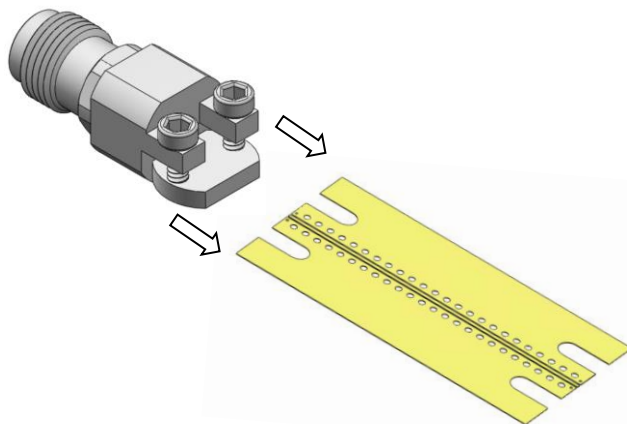


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## ■ Installation Procedure

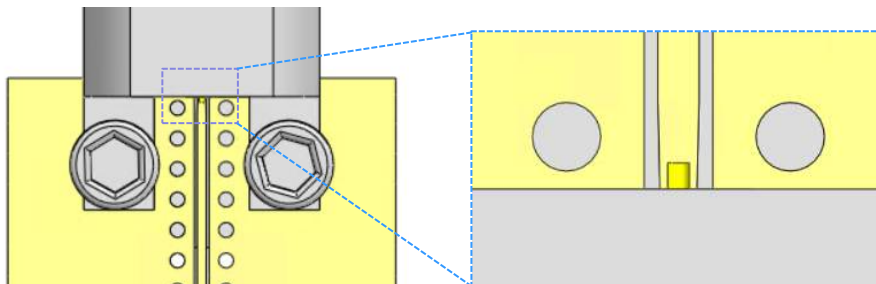
### STEP 1 :

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



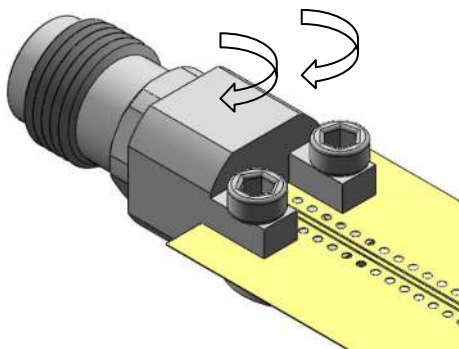
### STEP 2:

Ensure the pin is centered on the trace.



### STEP 3:

Ensure the block is tight against the substrate.

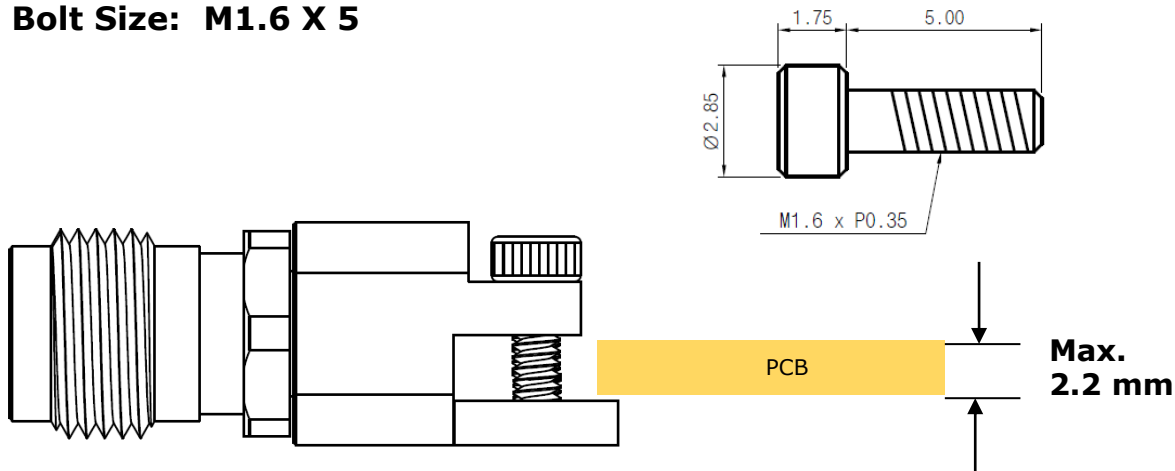


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

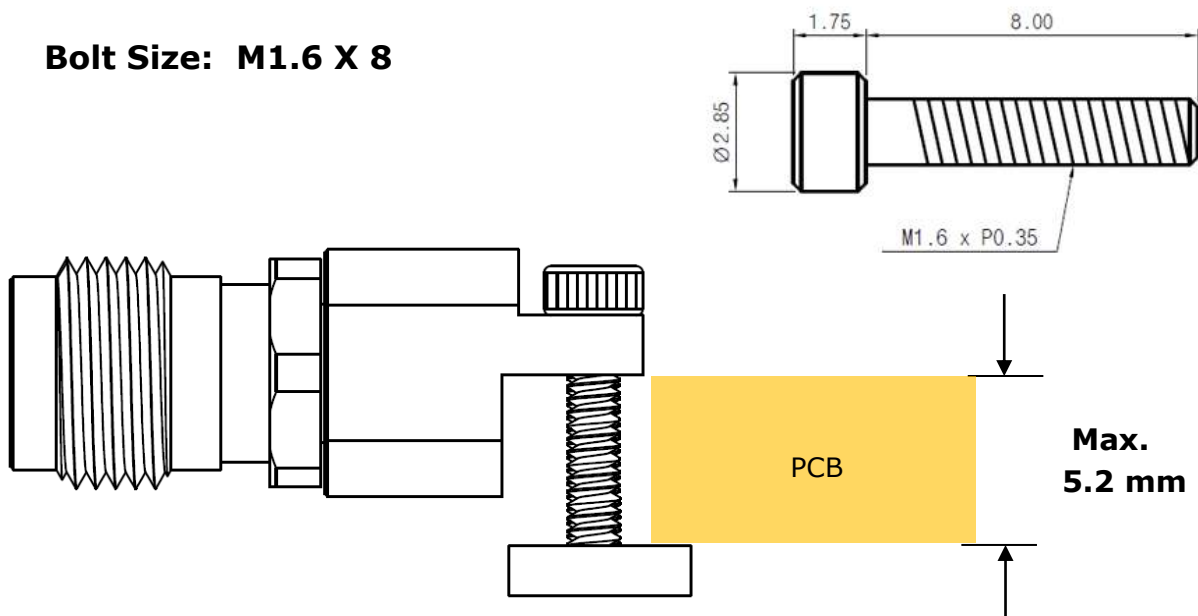
■ **Maximum PCB Thickness (Low Profile type)**

Unit : mm

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



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



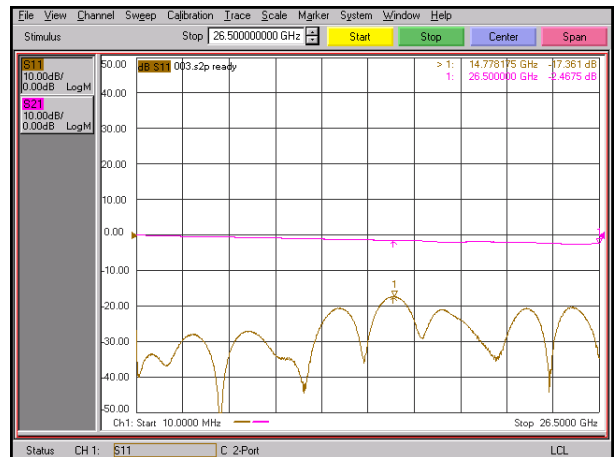
■ **Test Result**

### SMA Type GCPWG Structure

Freq. : 10 MHz to 26.5 GHz

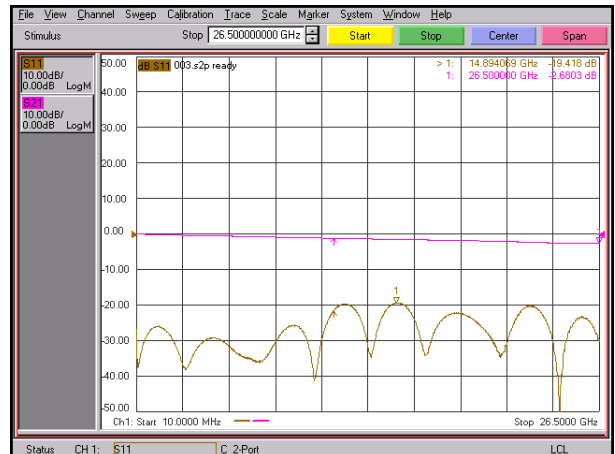
**Substrate : RO4003C (8 mil)**

**Part No. : NE06FS001**



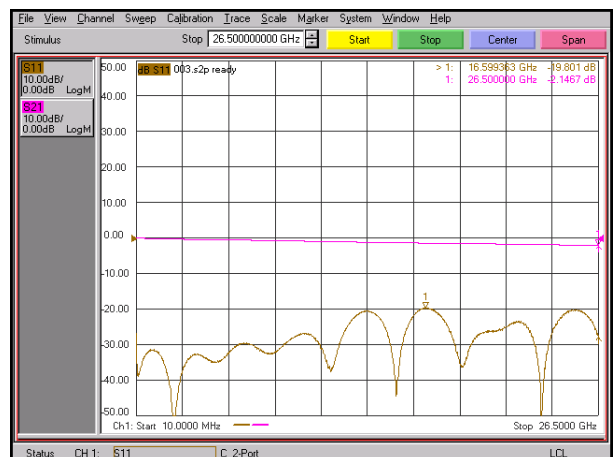
**Substrate : RO4350B (10 mil)**

**Part No. : NE06FS001**



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

**Part No. : NE06FS001**



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

■ Test Result

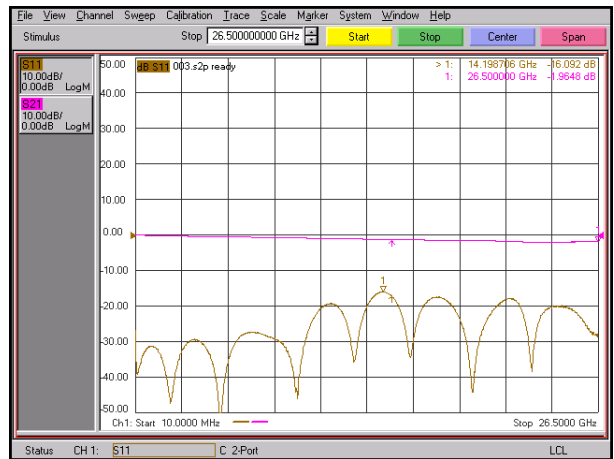
### SMA Type

### Top Ground Microstrip

Freq. : 10 MHz to 26.5 GHz

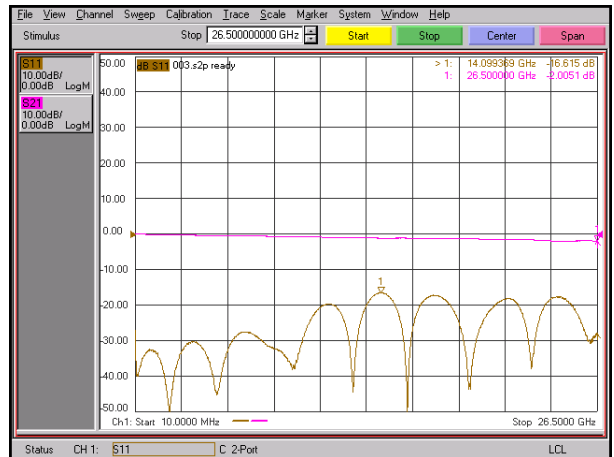
Substrate : RO4003C (8 mil)

Part No. : NE06FS001



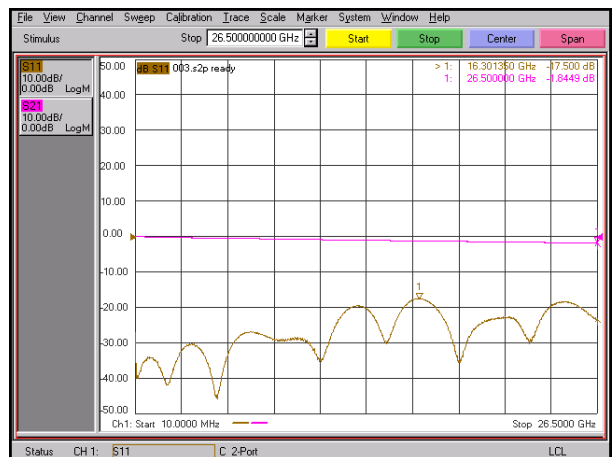
Substrate : RO4350B (10 mil)

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



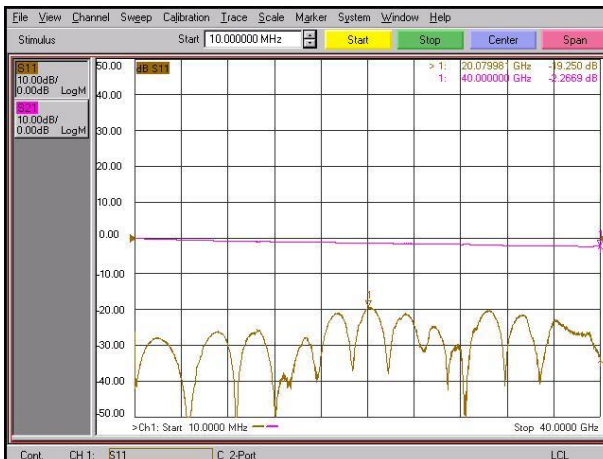
Substrate : RO4350B (10 mil)

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**

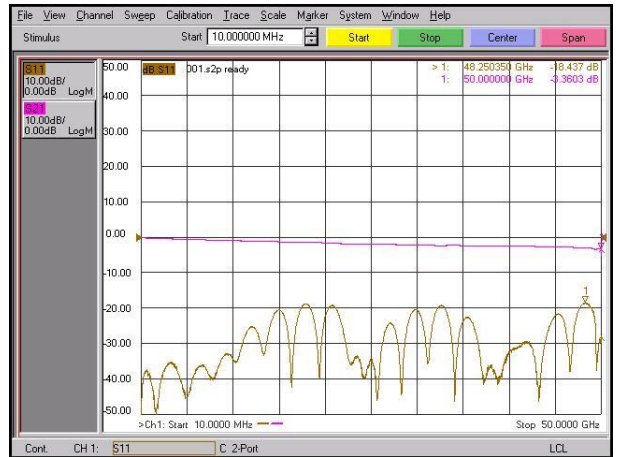


**Freq. : 10 MHz to 50 GHz**



**Substrate : RO4350B (10 mil)**

**Part No. : NE02FS001**



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

**Part No. : NE02FS001**



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

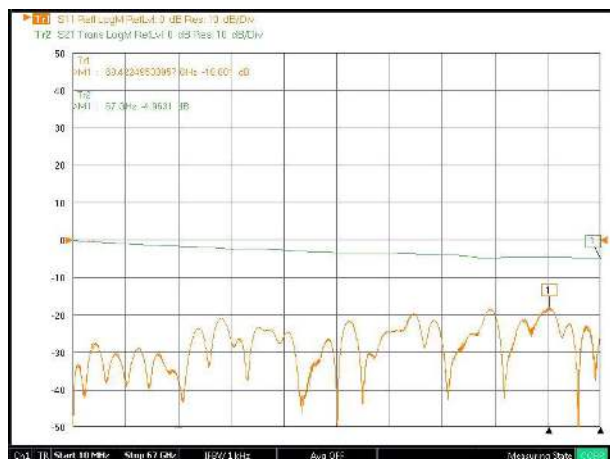
■ **Test Result**

### 1.85 mm Type GCPWG Structure

Freq. : 10 MHz to 67 GHz

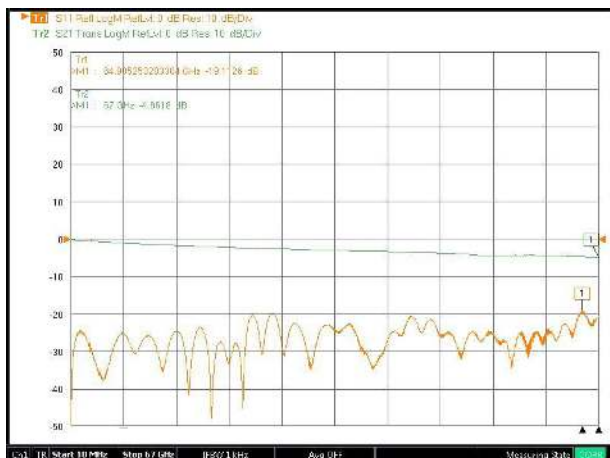
Substrate : RO4003C (8 mil)

Part No. : NE01FS001



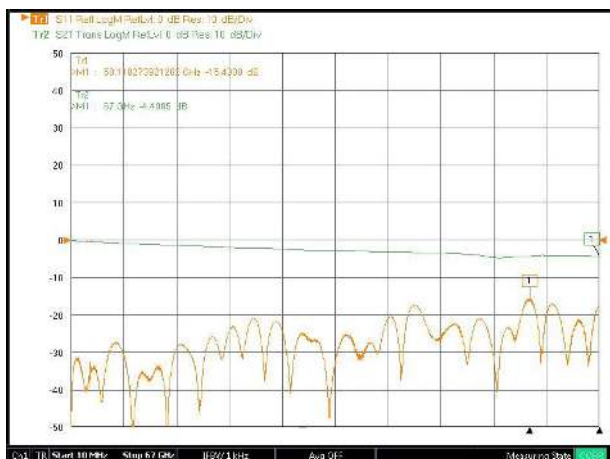
Substrate : RO4350B (10 mil)

Part No. : NE01FS001



Substrate : Duroid 5880 (5 mil)

Part No. : NE01FS001



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

### ■ Test Result

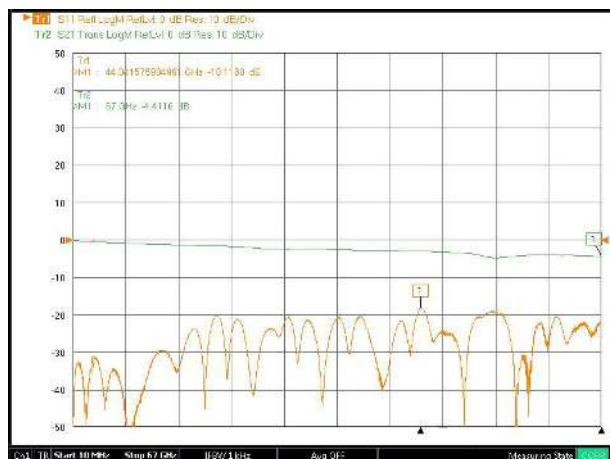
## 1.85 mm Type

### Top Ground Microstrip

Freq. : 10 MHz to 67 GHz

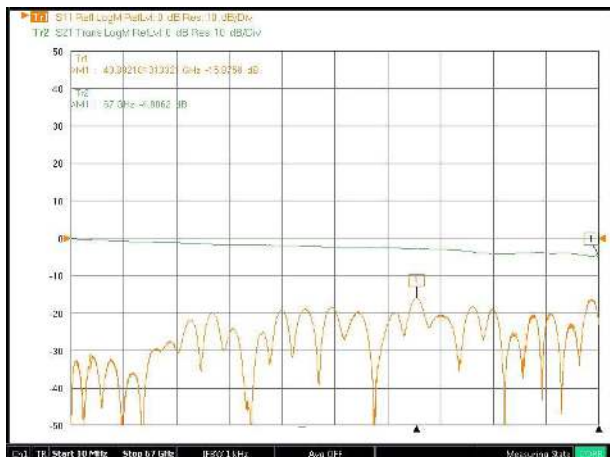
Substrate : RO4003C (8 mil)

Part No. : NE01FS001



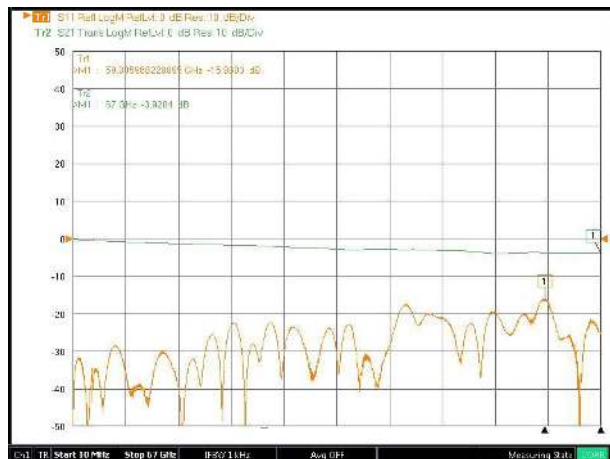
Substrate : RO4350B (10 mil)

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

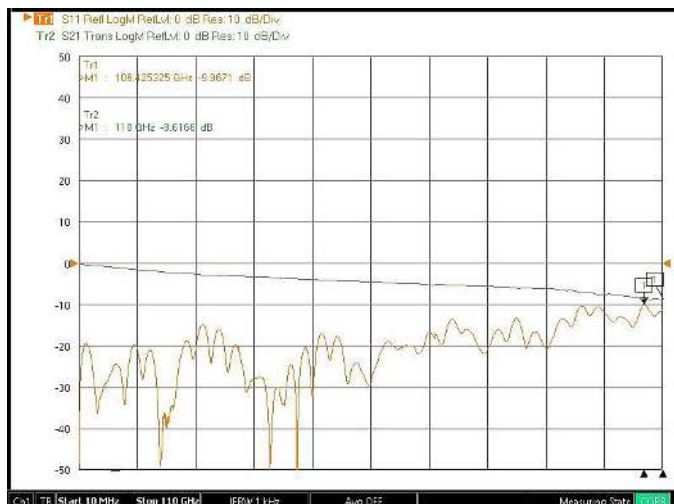
Freq. : 10 MHz to 110 GHz

Substrate : RO3003 (5 mil)

Part No. : NE00FS001



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



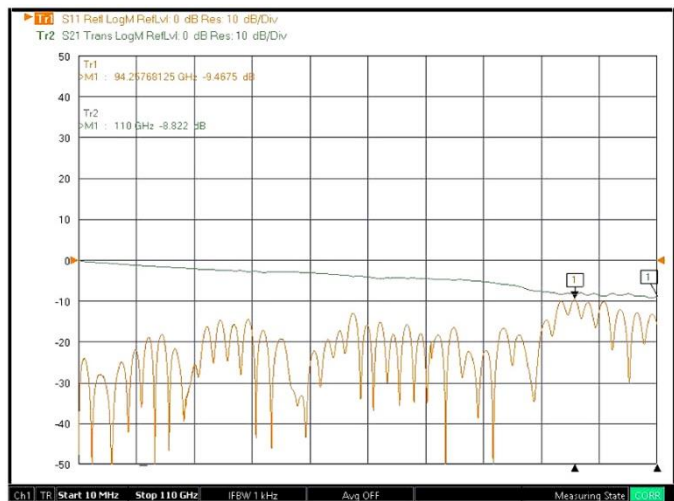
### Top Ground Microstrip

Substrate : RO3003 (5 mil)

Part No. : NE00FS001



\* Substrate length : 30 mm



### ■ Test Result

## 1.0 mm Type (Male)

### GCPWG Structure

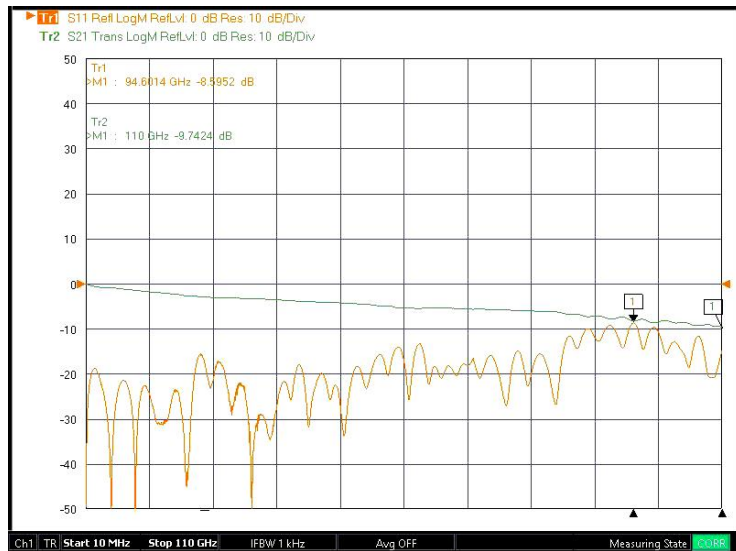
Freq. : 10 MHz to 110 GHz

Substrate : RO3003 (5 mil)

Part No. : NE00MS001



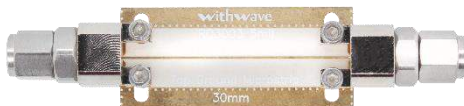
\* Substrate length : 1 inch (=25.4 mm)



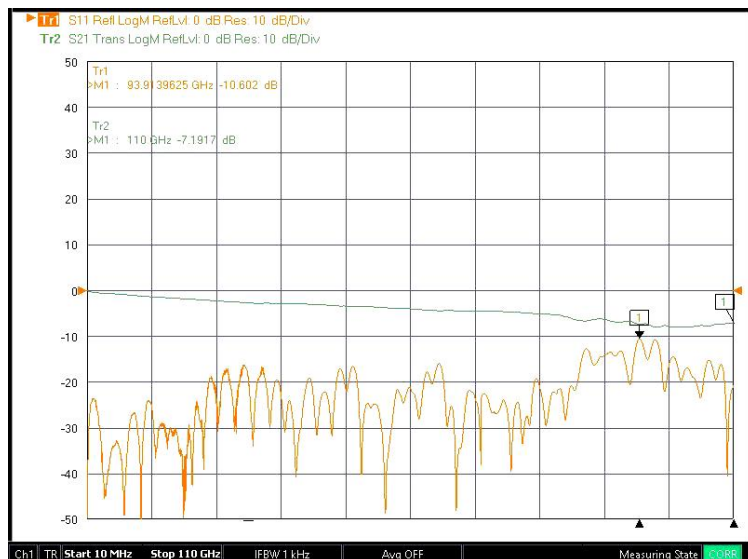
### Top Ground Microstrip

Substrate : RO3003 (5 mil)

Part No. : NE00MS001



\* Substrate length : 30 mm



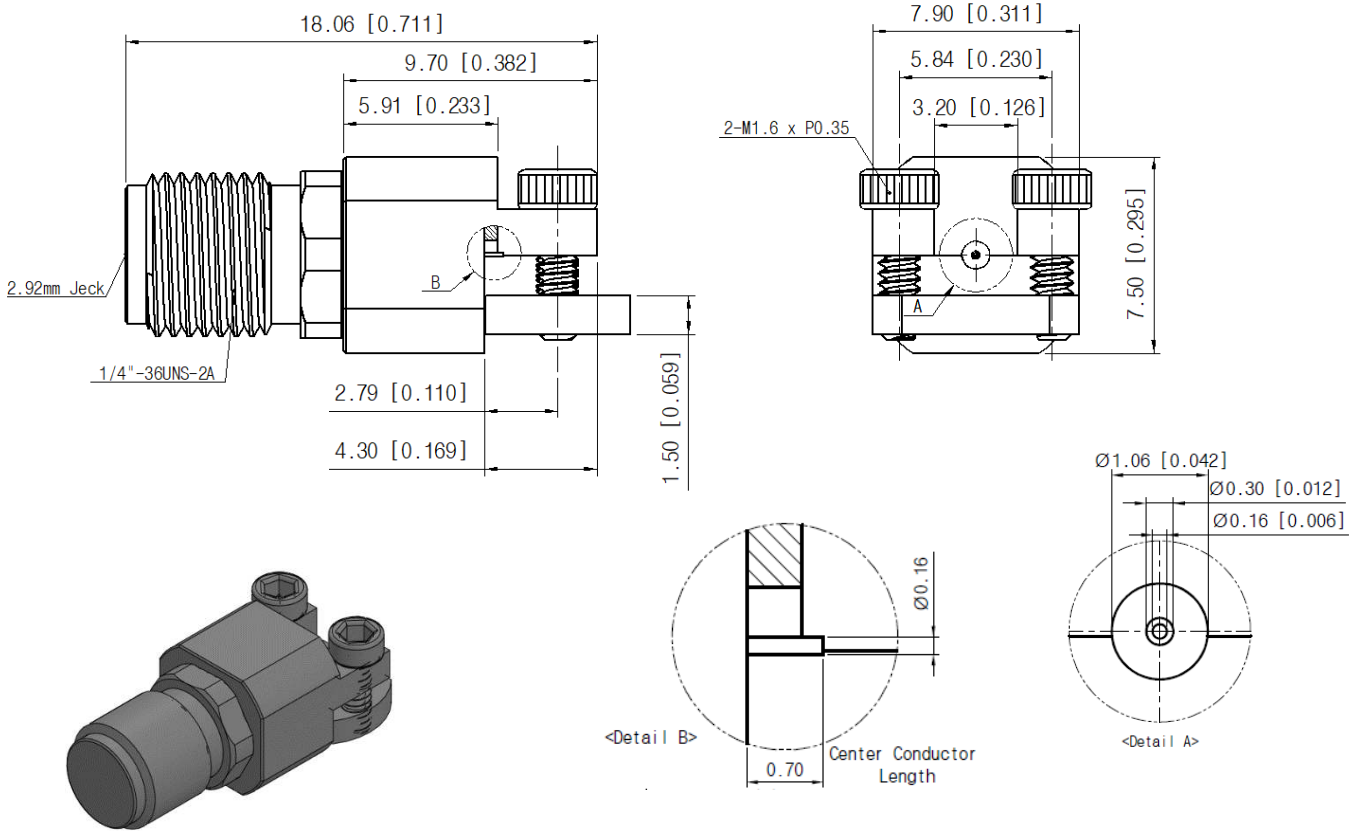
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## SMA Type (Female)

### ■ Drawing

Part No. : NE06FS001

Unit : mm[inch]



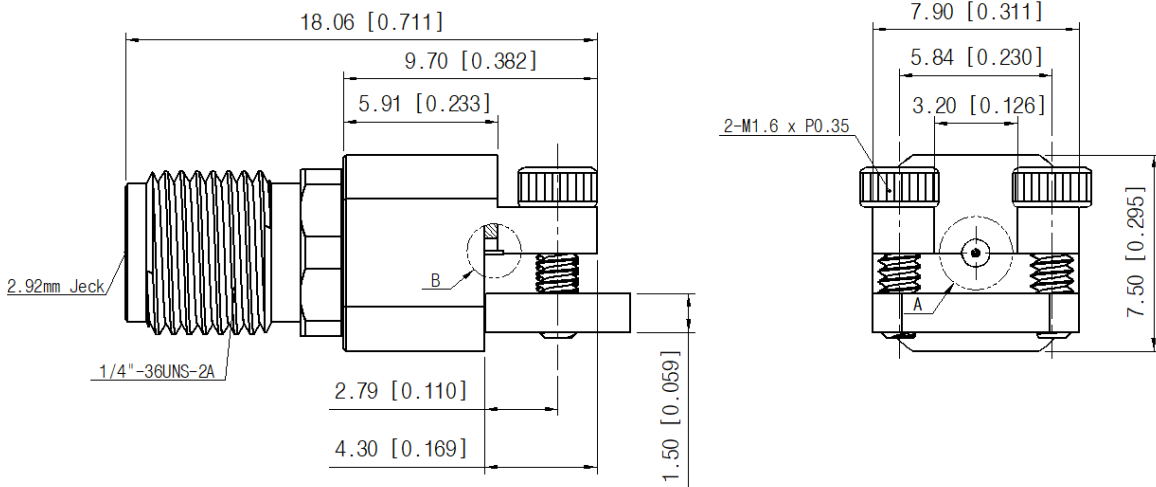
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 2.92 mm Type (Female)

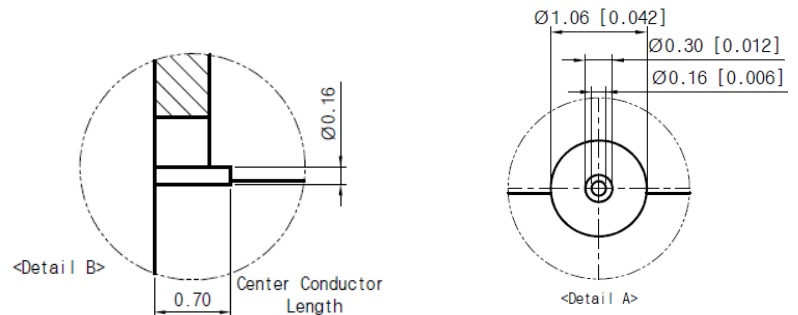
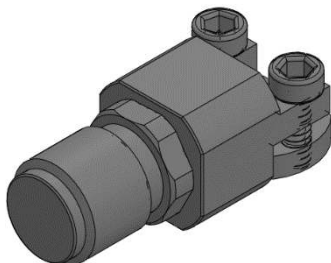
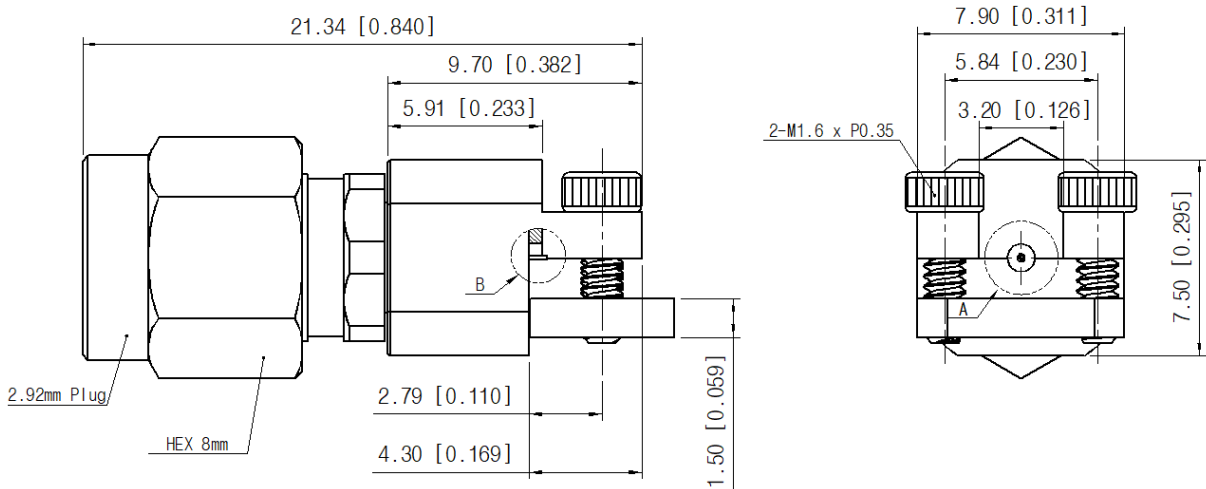
■ **Drawing**

Part No. : NE03FS001

Unit : mm[inch]



Part No. : NE03MS001





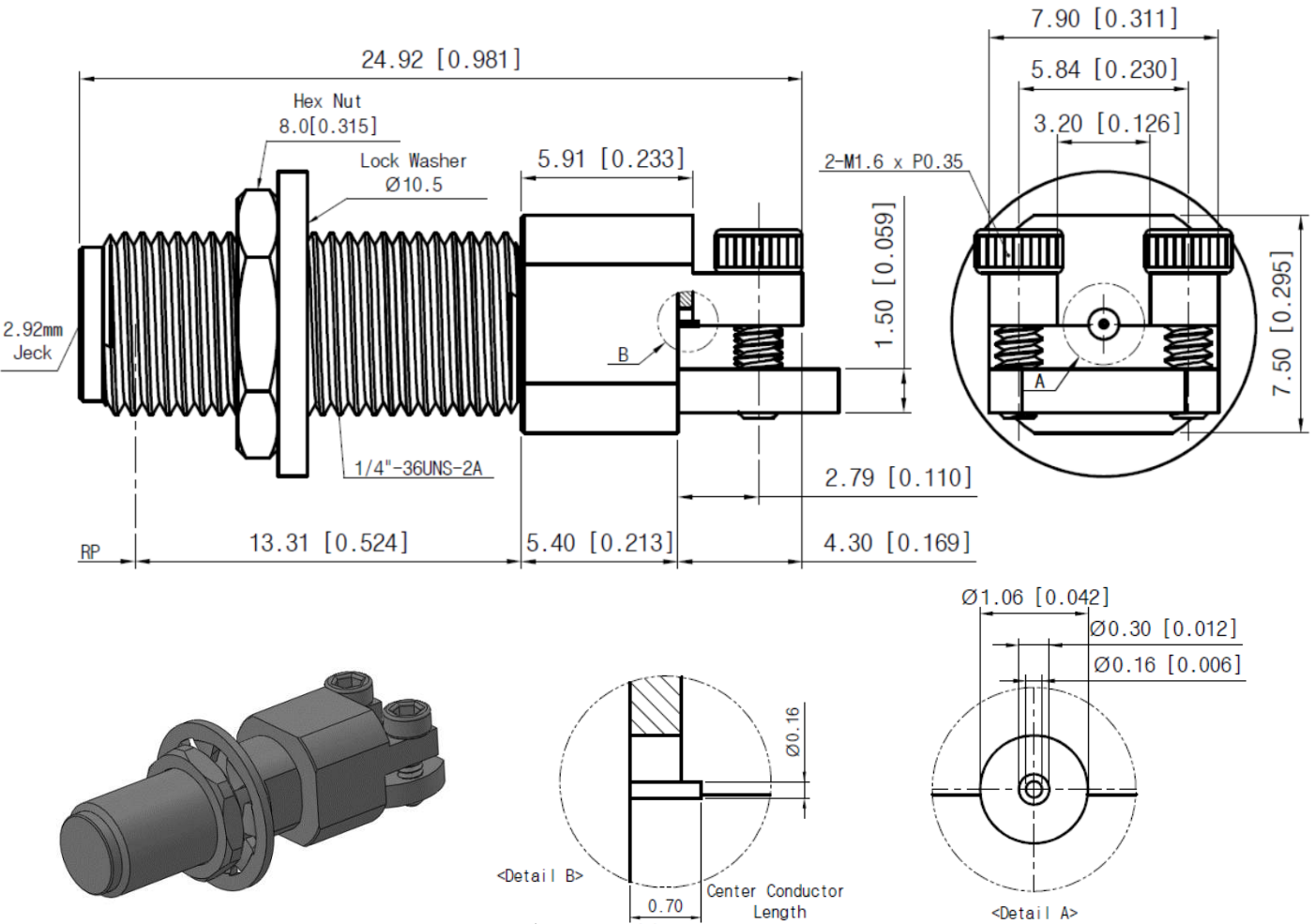
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 2.92 mm Type (Female) : Bulkhead

### ■ Drawing

Part No. : NE03FS002

Unit : mm[inch]

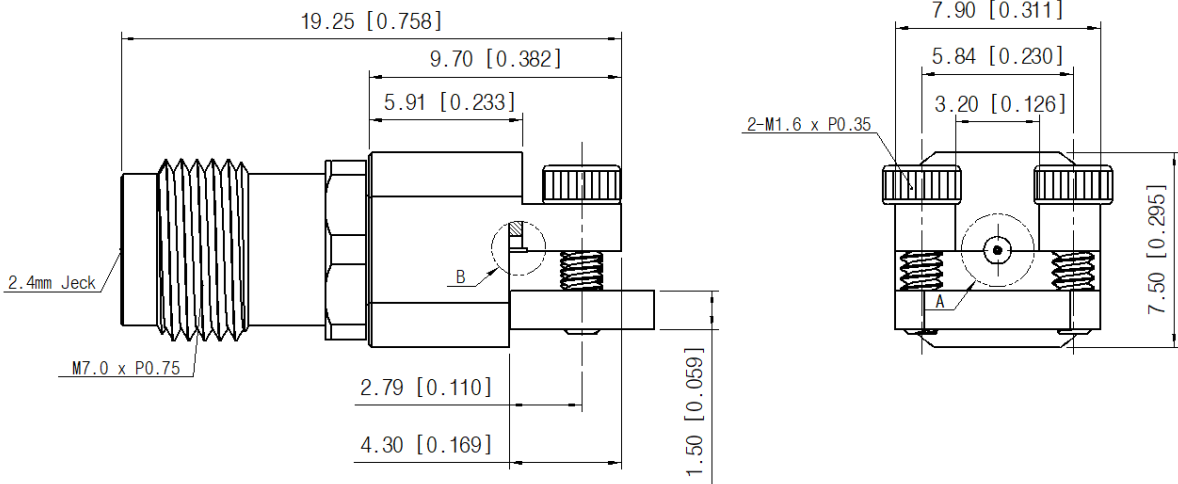


## 2.4 mm Type (Female)

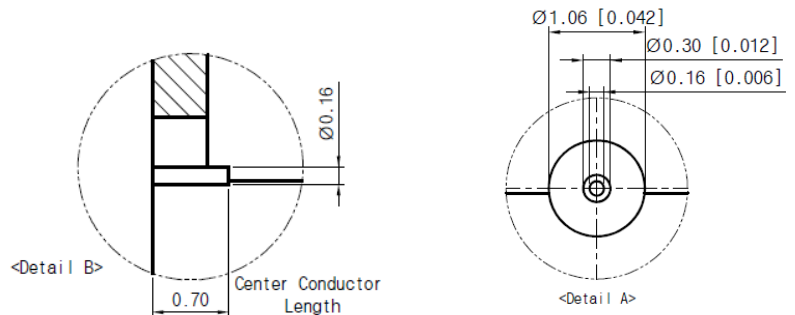
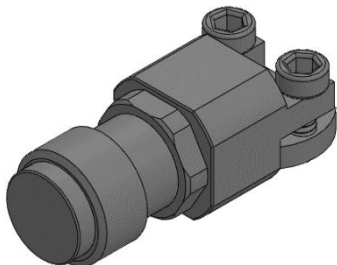
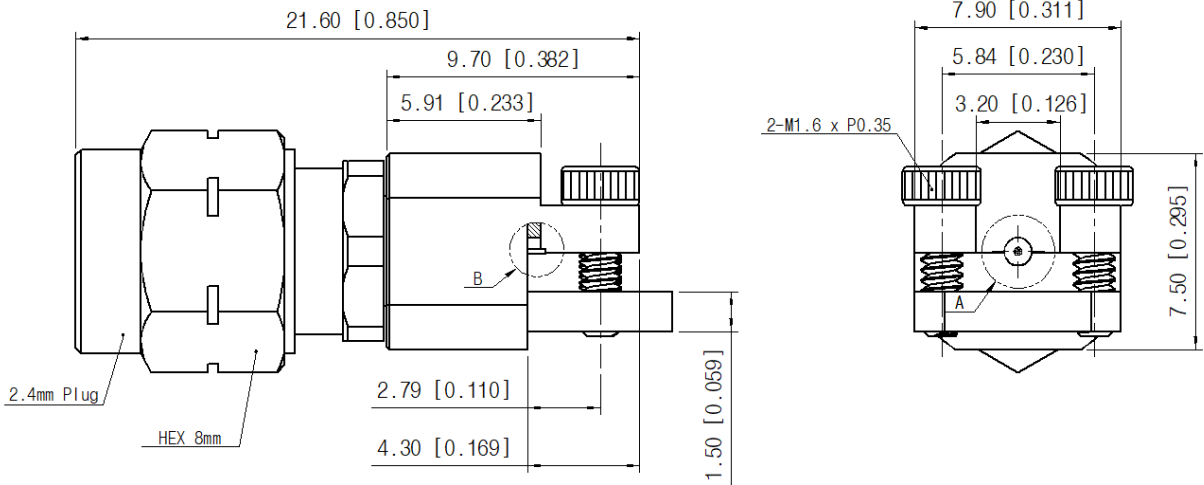
■ **Drawing**

**Part No. : NE02FS001**

Unit : mm[inch]



**Part No. : NE02MS001**



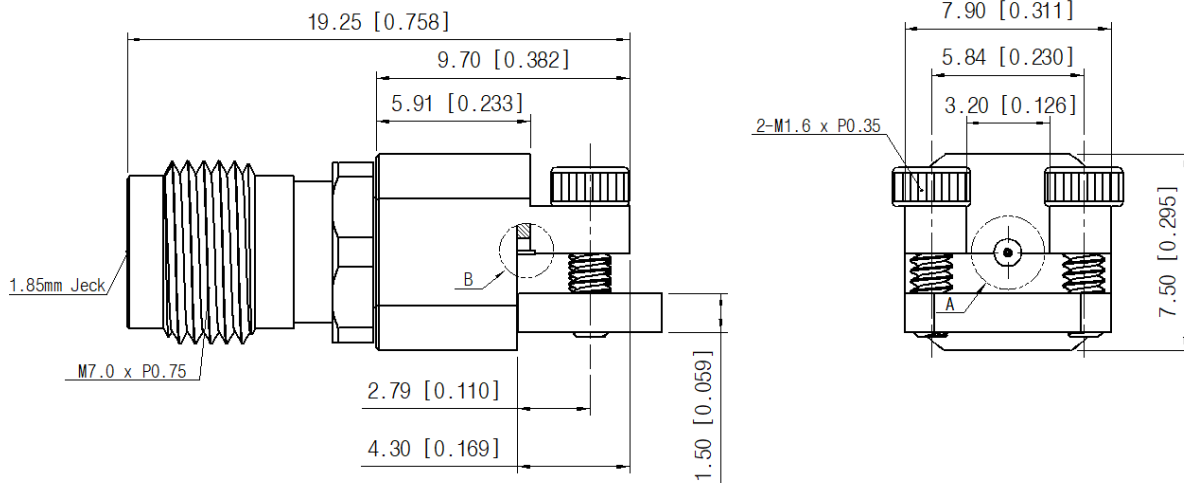
**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

## 1.85 mm Type (Female)

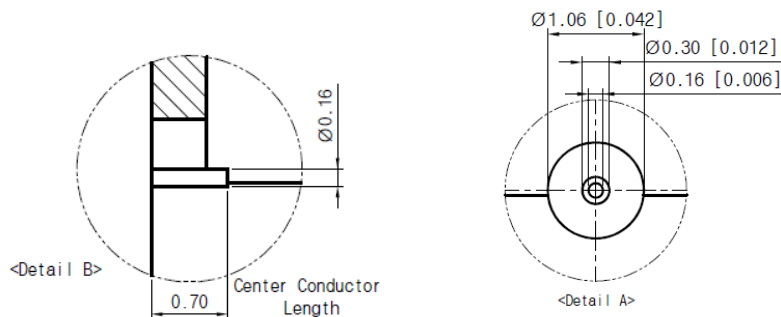
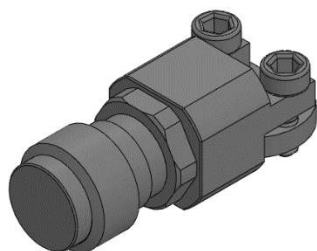
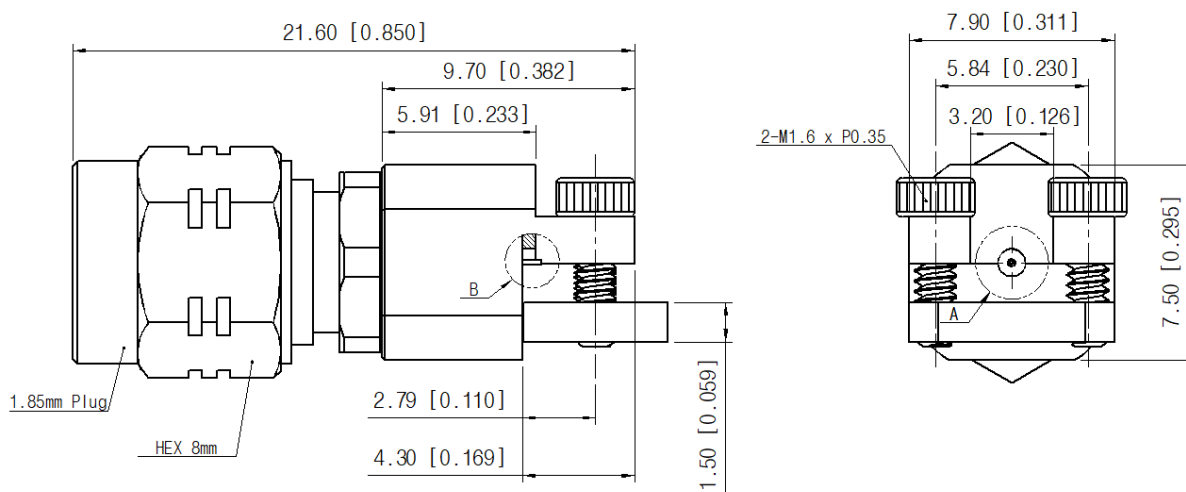
■ **Drawing**

Part No. : NE01FS001

Unit : mm[inch]



Part No. : NE01MS001

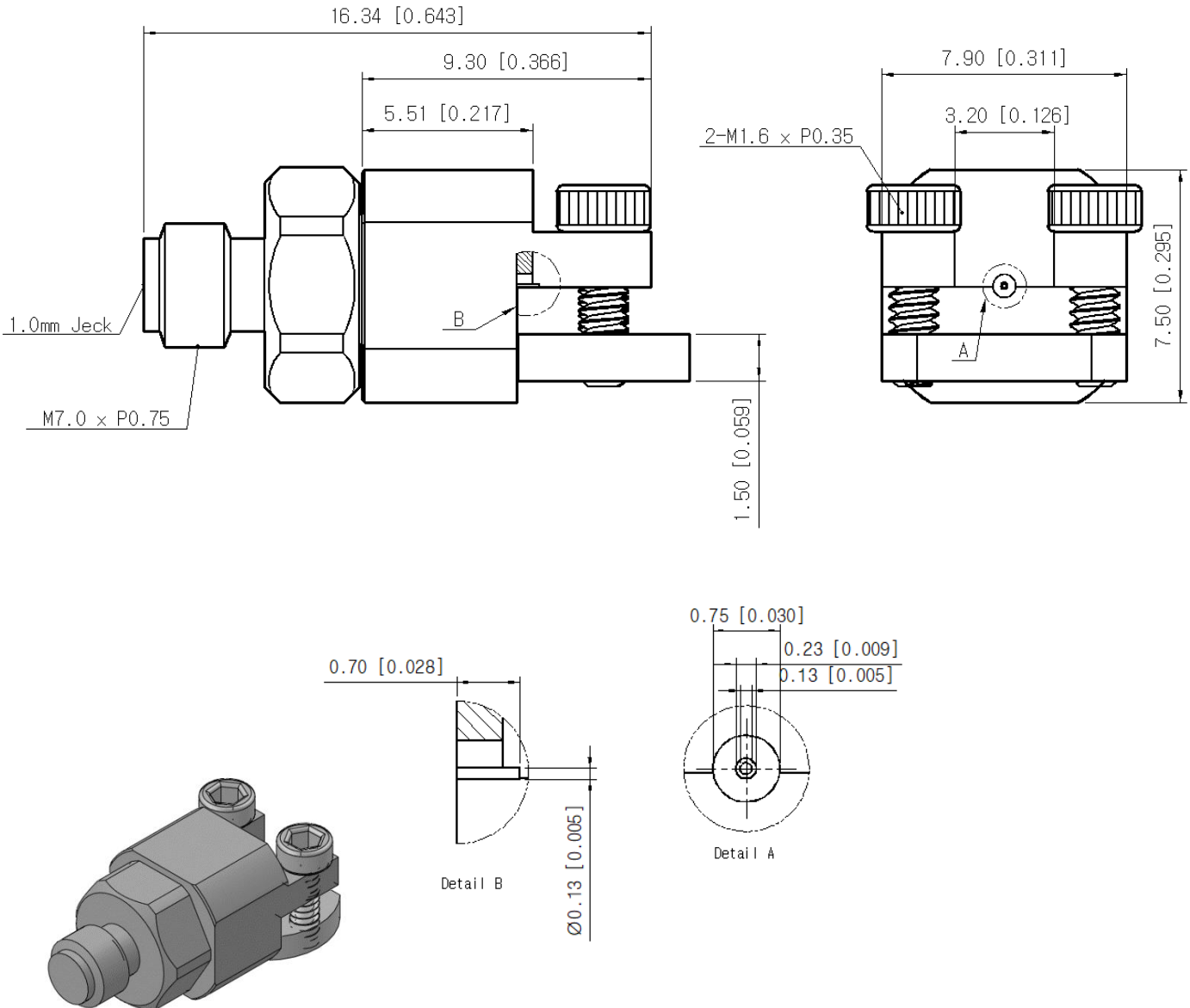


### 1.0 mm Type (Female)

#### ■ Drawing

Part No. : NE00FS001

Unit : mm[inch]

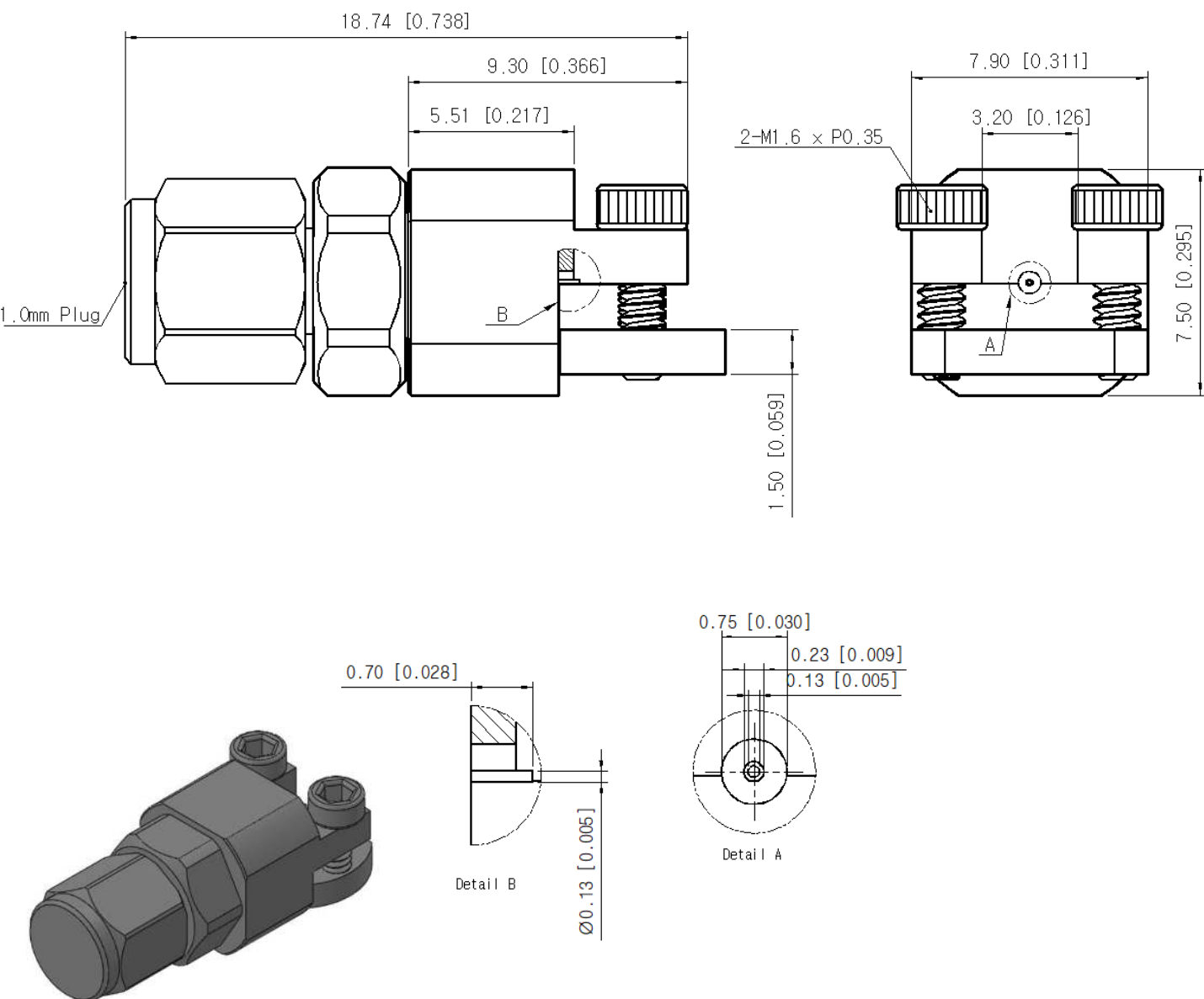


### 1.0 mm Type (Male)

■ Drawing

Part No. : NE00FS001

Unit : mm[inch]





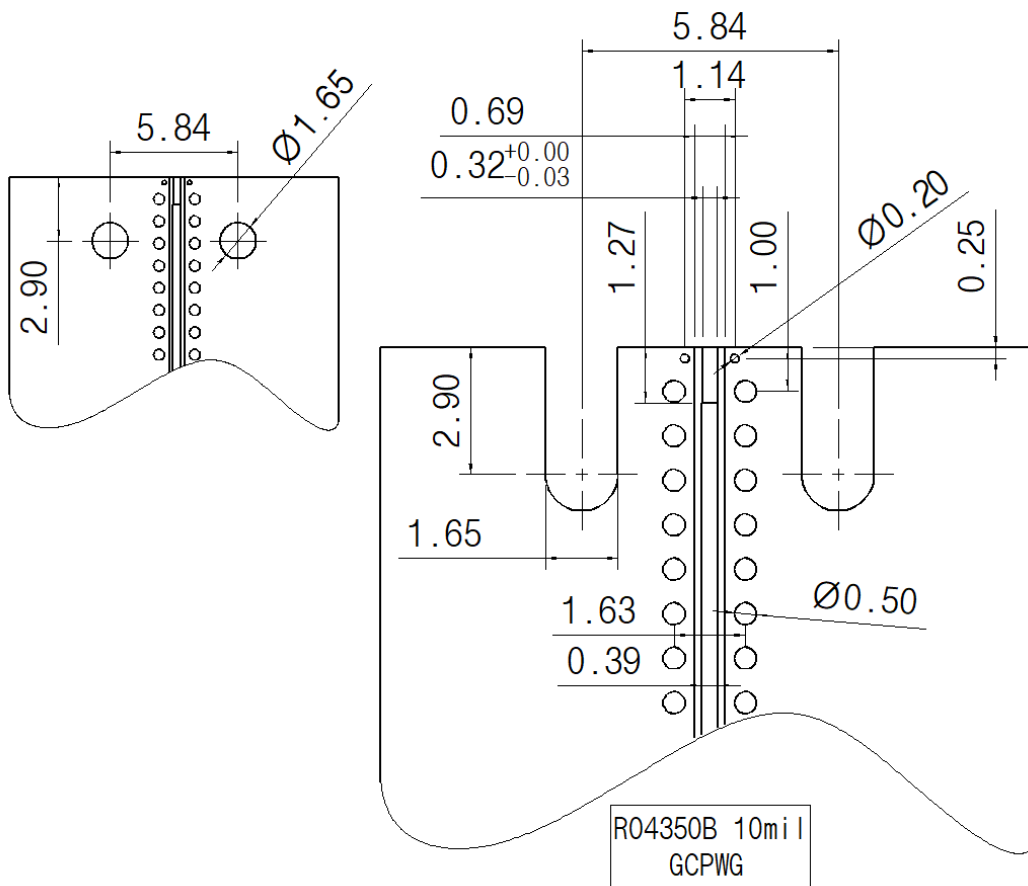


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## GCPWG (RO4350B 10 mil)

Unit : mm



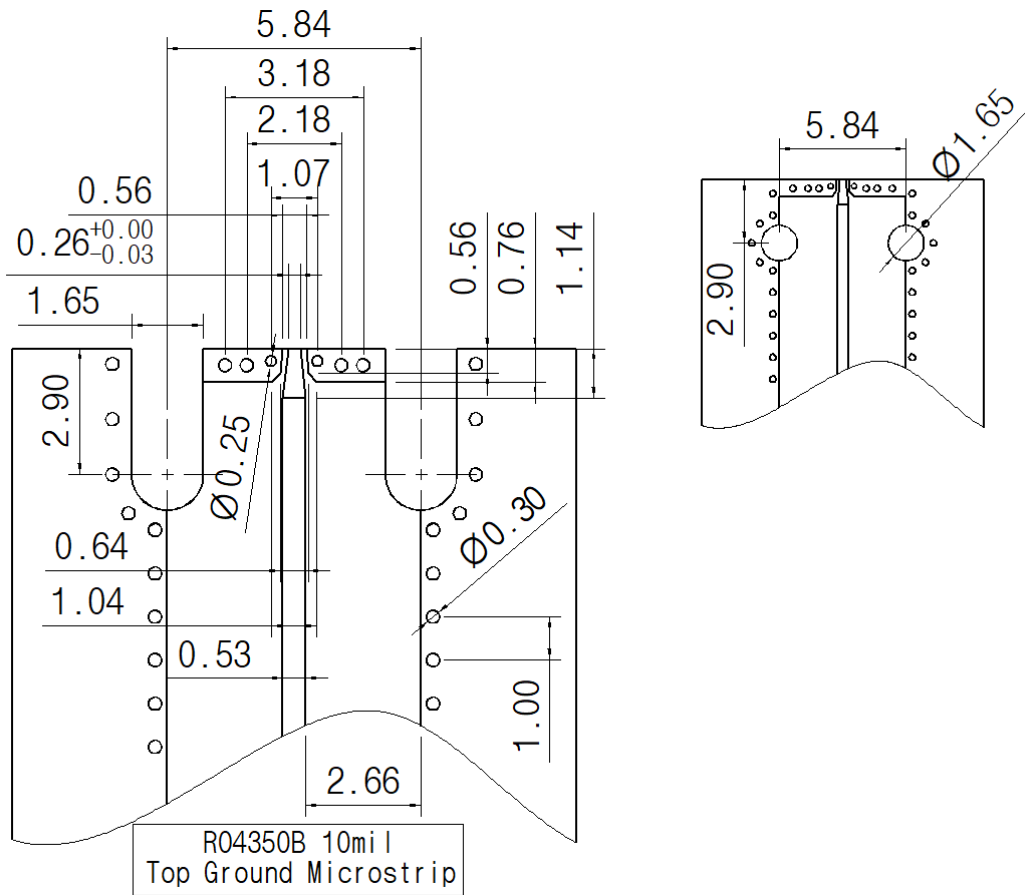


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ **PCB Layout**

## Top Ground Microstrip (R04350B 10 mil)

Unit : mm



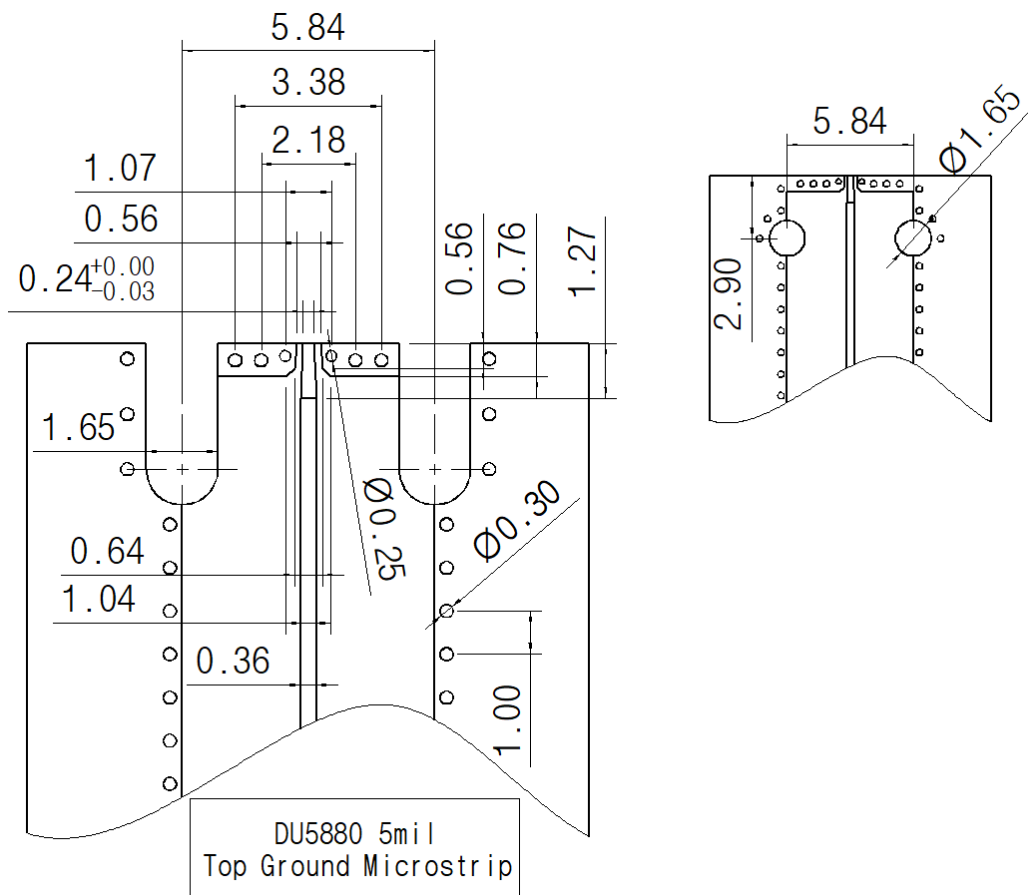


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ **PCB Layout**

## Top Ground Microstrip (Duroid 5880 5 mil)

Unit : mm

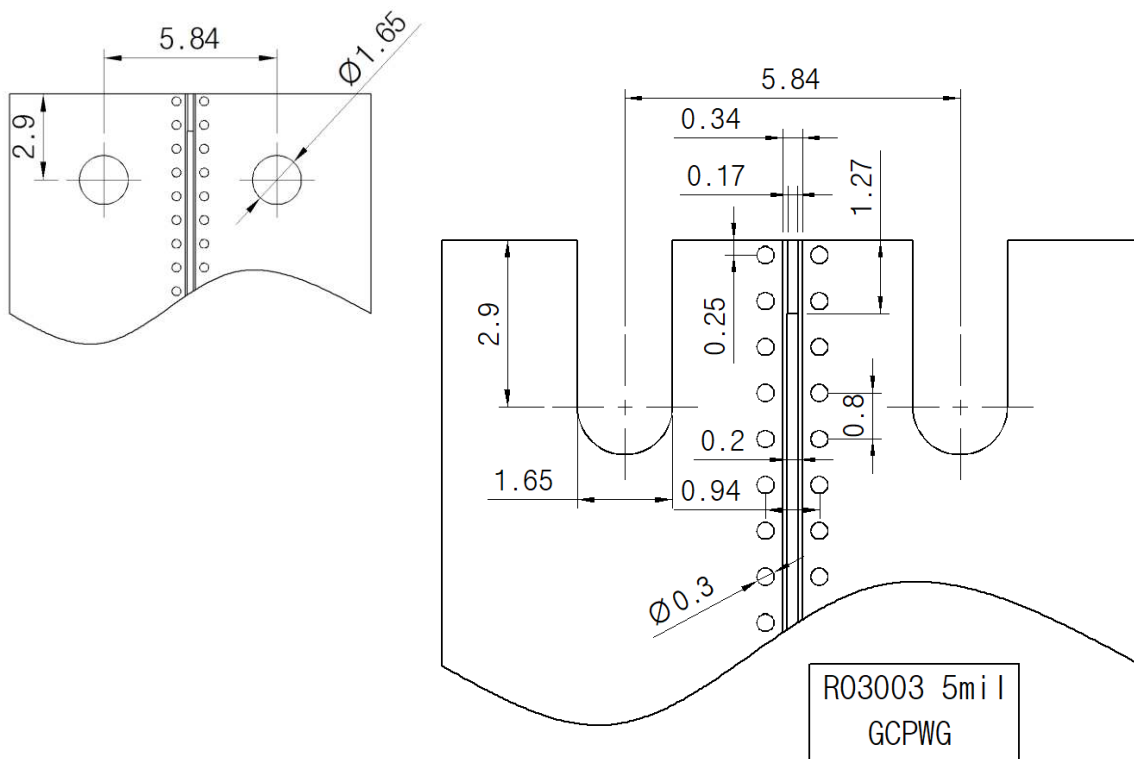


**SMA, 2.92 mm, 2.4 mm, 1.85 mm, 1.0 mm**

■ PCB Layout

## GCPWG (RO3003 5 mil)

Unit : mm





# End Launch Connectors *Narrow Block*

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

## ■ *Revision History*

| <b>Revision</b> | <b>Date</b> | <b>Changes</b>                                |
|-----------------|-------------|---|
| 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       |