VEROTRONIC TECHNOLOGIES
*RF Cable Assemblies*

# VEROPROBE

High Precision, Great Performance Probe Cable


## Features

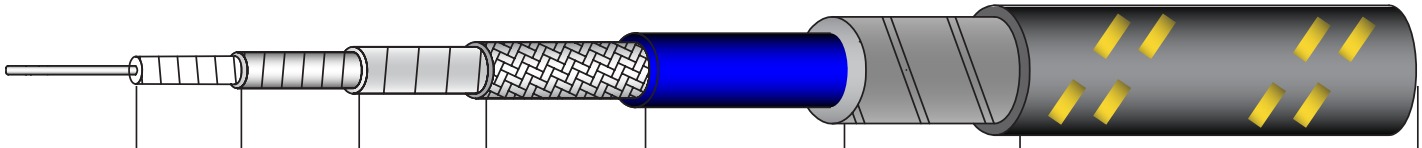
- Durability and Long Lifetime Usage
- Accurate and Precise Measurement
- Optimise Measurement Cost
- Measurements up to 67 GHz

## Typical Applications

- High Frequency Printed Circuit Board
- Automated Test Equipment (ATE)
- Semiconductor Test Equipment (IC tester)
- High Speed Digital Application
- RF Signal Measurements

## Cable Structure

### VEROPROBE I (no armor)

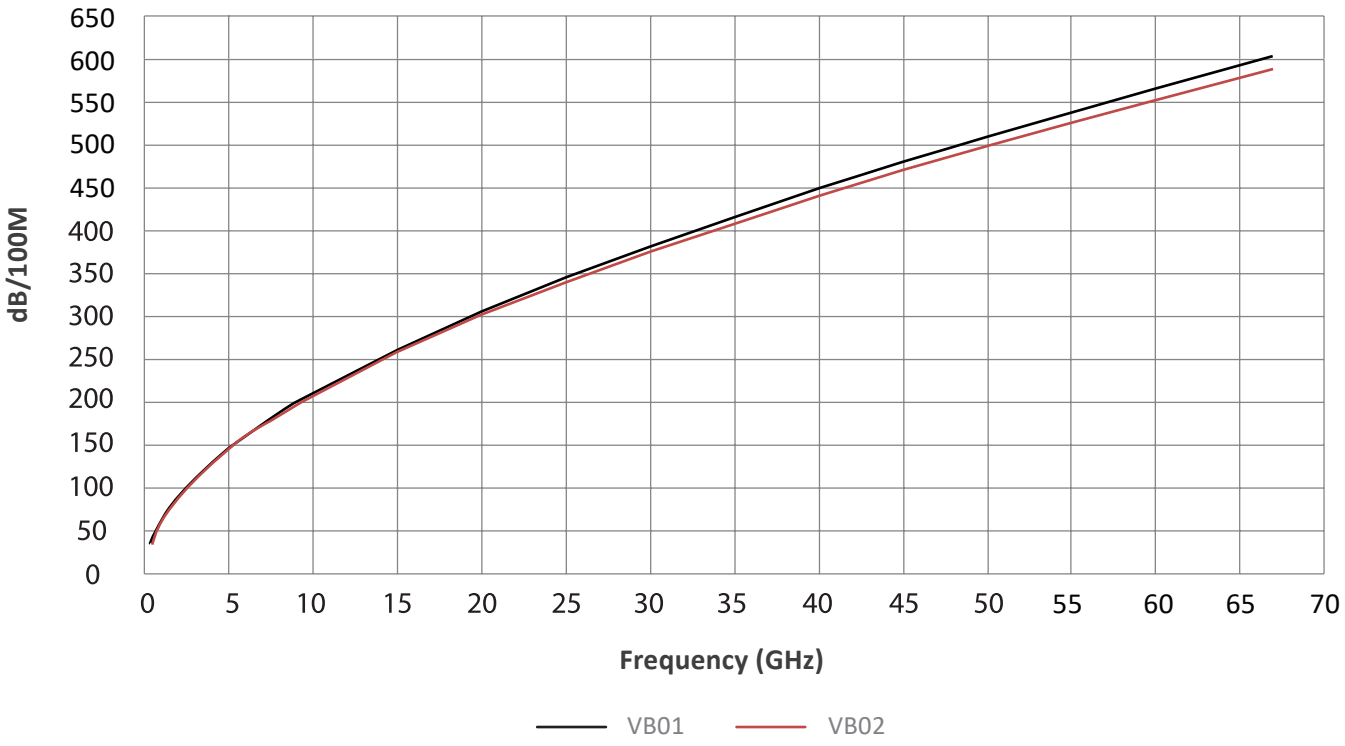


| Center Conductor | Dielectric | Outer Conductor | Inner Tape | Shielding | Jacket | Anti Twist Layer | Jacket |
|---|---|---|---|---|---|---|---|
| Silver Plated Copper Clad Steel | Copper PTFE | Silver Plated Copper Foil | PTFE | Silver Plated Copper | Blue FEP | Waterproof Glue | PTFE Wire |

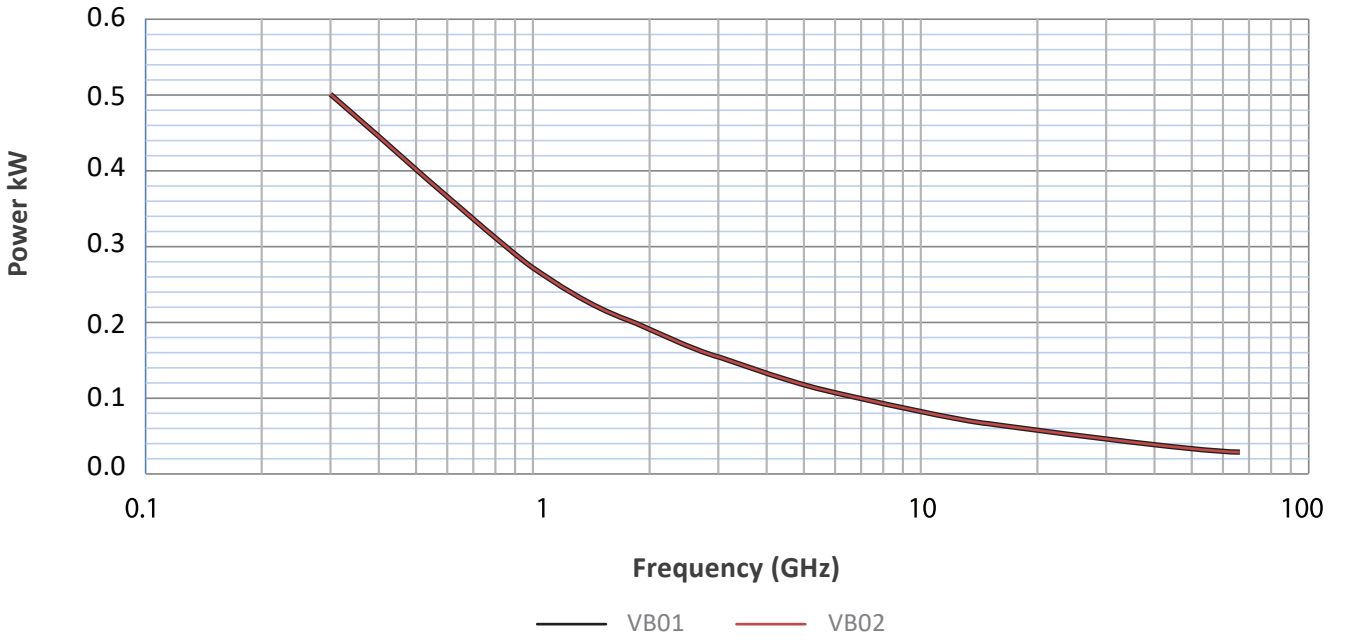
### VEROPROBE II (with armor)

| Center Conductor | Dielectric | Outer Conductor | Protective Layer | Inner Layer | Shielding | Jacket | Armored Spring | Stretchening Net | Anti Twist Layer | Jacket |
|---|---|---|---|---|---|---|---|---|---|---|
| Silver Plated Copper | PTFE | Silver Plated Copper Foil | Aluminium -Mylar Laminated Tape | PTFE | Silver Plated Copper | Black FEP | Stainless Steel Strip | Silver Plated Copper | Waterproof Glue | PTFE Wire |

## VEROPROBE Attenuation




## VEROPROBE Average Power

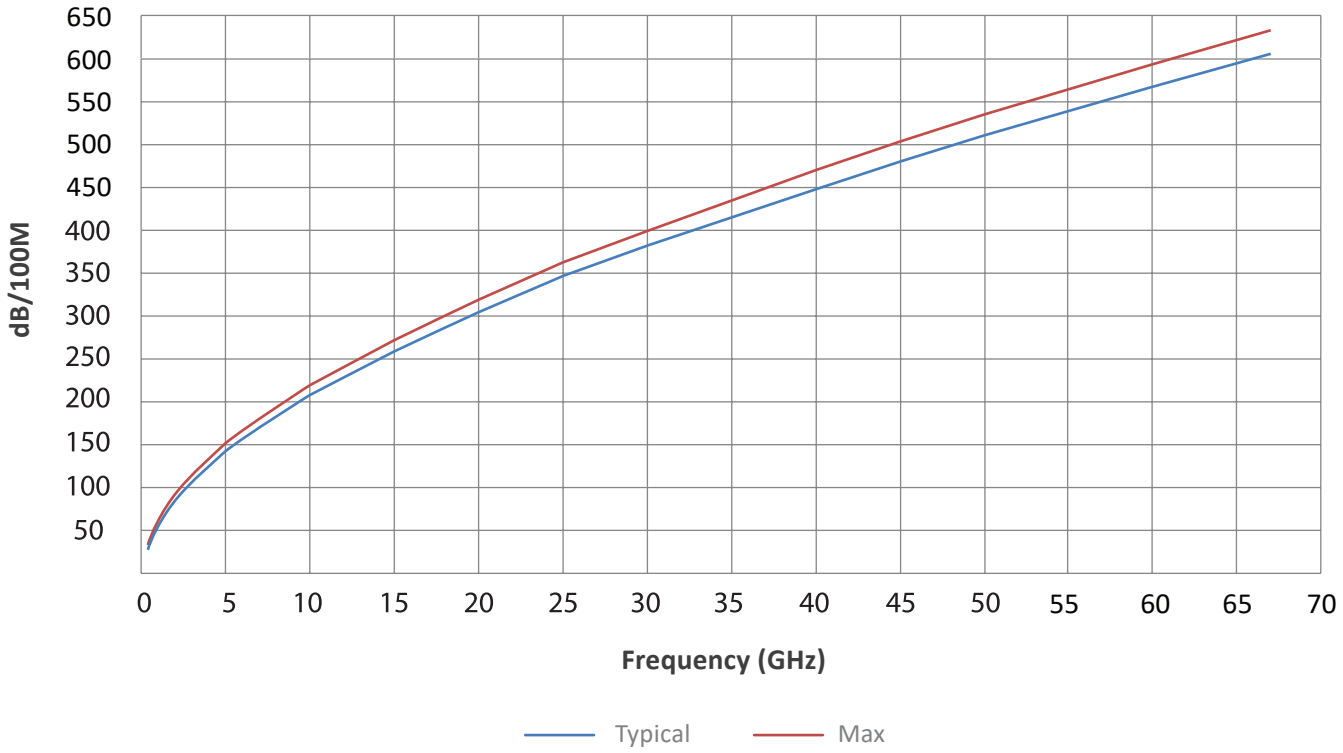


VERO PROBE

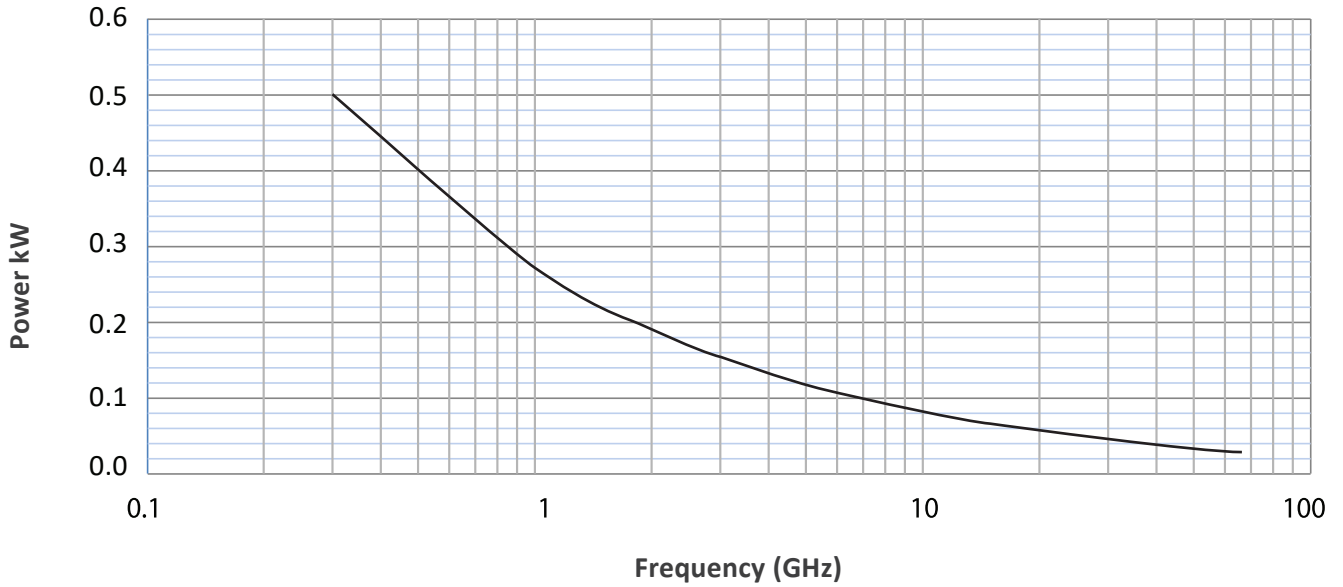
## Specifications

| Cable | VB01 | | VB02 | |
|---|---|---|---|---|
| Unit | mm | inch | mm | inch |
| Overall | 3.15 | 0.124 | 4.65 | 0.183 |
| Jacket | 2.60 | 0.102 | 2.60 | 0.102 |
| Min. Bend Radius | 16.00 | 0.630 | 24.00 | 0.945 |
| Bend Radius: Repeated | 32.00 | 1.260 | 48.00 | 1.890 |
| Temperature Range | -55/125˚C | -67/257˚F | -55/125˚C | -67/257˚F |
| Maximum Frequency (GHz) | 67 | | 67 | |
| Typical VSWR | 1.30 | | 1.30 | |
| Maximum VSWR | 1.40 | | 1.40 | |
| Max. Insertion Loss (dB/m) | 6.02 | | 5.87 | |
| Peak Power (kW) | 3.60 | | 3.60 | |
| Typical Amplitude Stability (dB) | < ±0.07 | | < ±0.07 | |
| Typical Phase Stability (Degree) | < ±6 | | < ±6 | |
| Impedance (Ohms) | 50 | | 50 | |
| Shielding Effectiveness (dB) | >90 | | >90 | |
| Voltage Tolerance (DC) | 500 | | 500 | |
| Velocity of Propagation | 74% | | 74% | |
| Dielectric Constant | 1.83 | | 1.83 | |
| Time Delay (Nominal) (ns/m) | 4.5 | | 4.5 | |
| Capacitance (pF/ft) | 90.2 | | 90.2 | |
| Weight (g/m) | 20.0 | | 61.0 | |
| Compress Resistance | 3.61kgf/cm | 0.142lbs/ft | 2.64kgf/cm | 0.104lbs/ft |

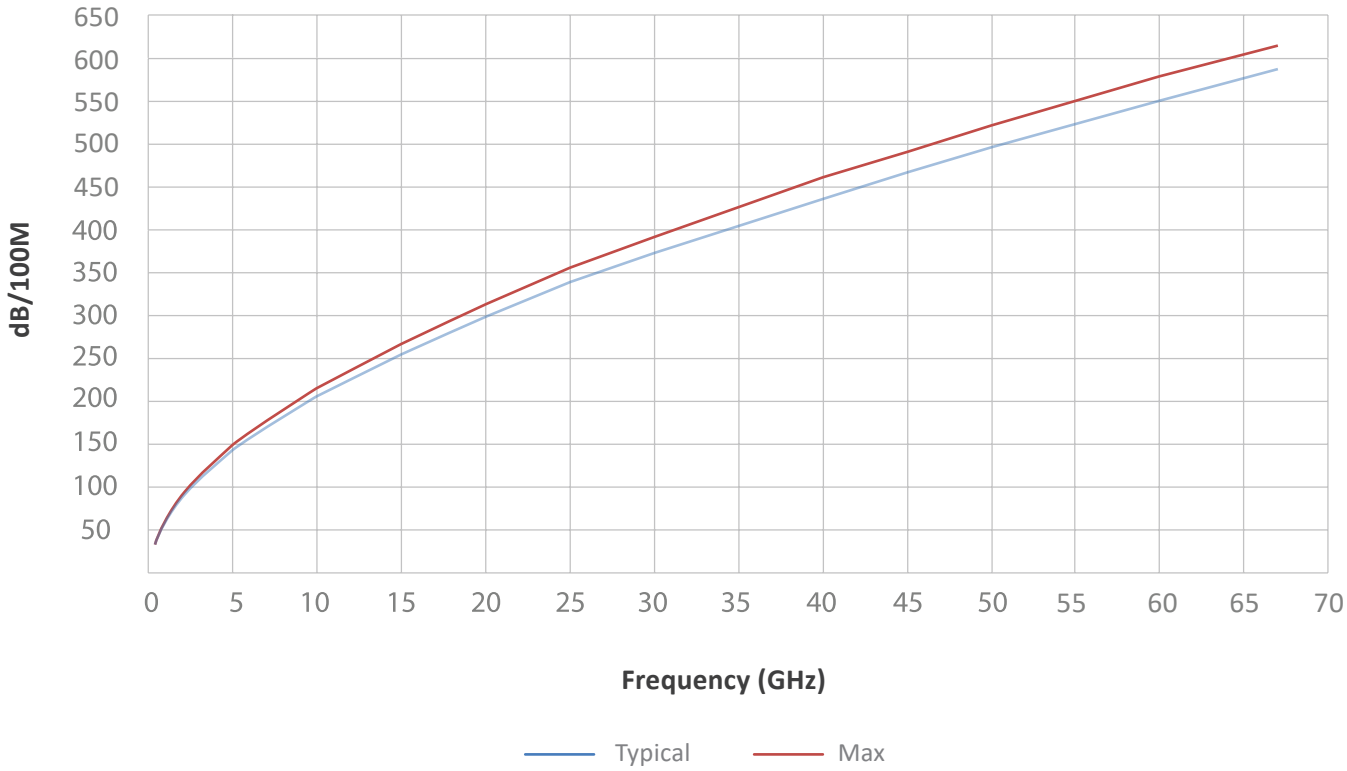
## VB01 Attenuation



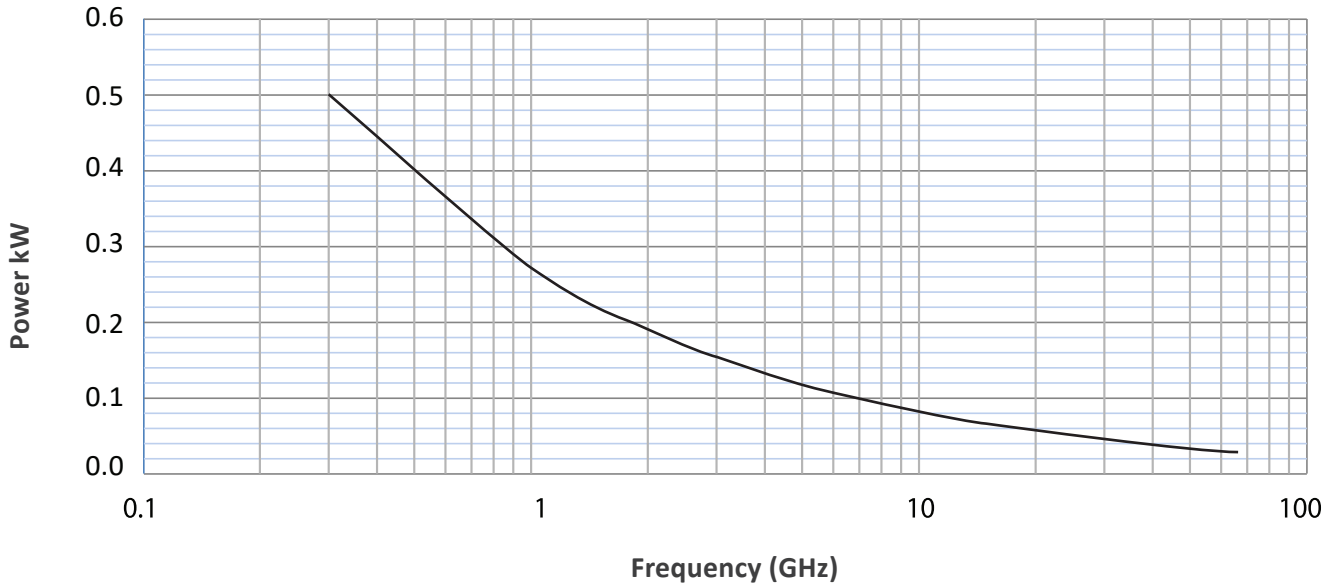

## VB01 Average Power



## VB02 Attenuation




## VB02 Average Power



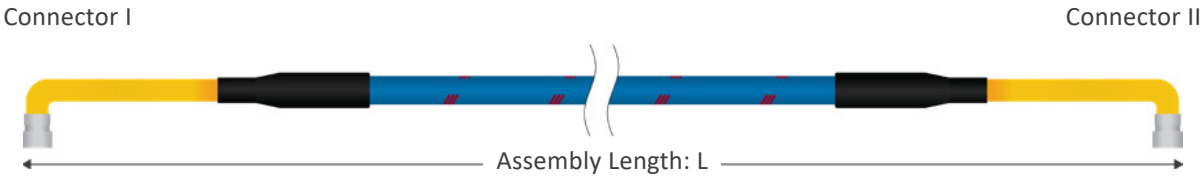
**Attenuation** (Typical @25˚C & VSWR = 1:1)
**& Power** (VSWR = 1:1; 40˚C; Sea Level)

| Frequency (MHz) | VB01 | | VB02 | |
|---|---|---|---|---|
| | Attenuation (dB/100m) | Average Power (kW) | Attenuation (dB/100m) | Average Power (kW) |
| 300 | 34.21 | 0.500 | 34.20 | 0.500 |
| 1000 | 63.11 | 0.271 | 63.00 | 0.271 |
| 2000 | 90.11 | 0.190 | 89.81 | 0.190 |
| 4000 | 129.13 | 0.132 | 128.43 | 0.133 |
| 6000 | 159.75 | 0.107 | 158.64 | 0.108 |
| 10000 | 209.50 | 0.082 | 207.55 | 0.082 |
| 18000 | 287.72 | 0.059 | 284.03 | 0.060 |
| 26500 | 355.86 | 0.048 | 350.30 | 0.049 |
| 40000 | 448.00 | 0.038 | 439.44 | 0.039 |
| 50000 | 508.53 | 0.034 | 497.73 | 0.034 |
| 60000 | 564.65 | 0.030 | 551.61 | 0.031 |
| 67000 | 601.89 | 0.028 | 587.27 | 0.029 |

**Calculate Attenuation = K1*√FMHz + K2*FMHz**

| | VB01 | VB02 |
|---|---|---|
| K1 | 1.9500000 | 1.9537172 |
| K2 | 0.0014500 | 0.0012174 |

## Selecting The Suitable Cable:
## Part Number Construction




Cable Type-Length Conn (I)Conn (II) - A

**VB02-01000 KMM KMM - A**

1 2 3 4 5

1

| Cable Type | Cable Code |
|---|---|
| **VERO**PROBE **I** | VB01 |
| **VERO**PROBE II | VB02 |

2

| Length Requirement | Length Code |
|---|---|
| 1000mm | 01000 |

3

| Connector (I) | Connector Code |
|---|---|
| 2.92mm (Male) | KMM |

4

| Connector (II) | Connector Code |
|---|---|
| 2.92mm (Male) | KMM |

5

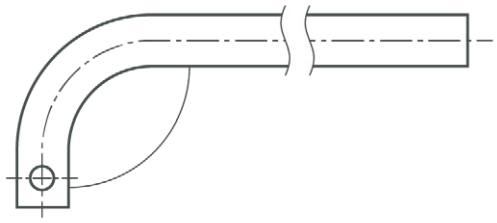
| With Armor | No Armor |
|---|---|
| A | N |

### Criteria for Connector Selection

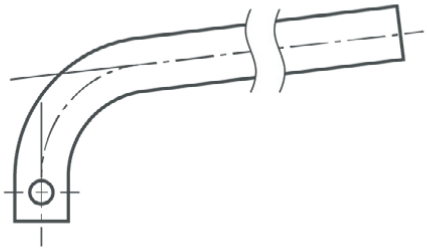
| Connector Type | Mate | Connector Code | | | Max Operating Frequency (GHZ) | **vero**PROBE **I** | **vero**PROBE **II** | VSWR |
|---|---|---|---|---|---|---|---|---|
| 2.92mm | M | K | M | M | 40.0 | ● | ● | 1.25 |
| 2.92mm | M 90° | K | 9 | M | 40.0 | ● | ● | 1.25 |
| 2.92mm | M 83° | K | 8 | M | 40.0 | ● | ● | 1.25 |
| 2.92mm | F | K | M | F | 40.0 | ● | ● | 1.25 |
| 2.4mm | M | L | M | M | 50.0 | ● | ● | 1.30 |
| 2.4mm | M 90° | L | 9 | M | 50.0 | ● | ● | 1.30 |
| 2.4mm | M 83° | L | 8 | M | 50.0 | ● | ● | 1.30 |
| 2.4mm | F | L | M | F | 50.0 | ● | ● | 1.30 |
| 1.85mm | M | V | M | M | 67.0 | ● | ● | 1.35 |
| 1.85mm | M 90° | V | 9 | M | 67.0 | ● | ● | 1.35 |
| 1.85mm | M 83° | V | 8 | M | 67.0 | ● | ● | 1.35 |
| 1.85mm | F | V | M | F | 67.0 | ● | ● | 1.35 |

## Available Standard Ferrule

### 90°



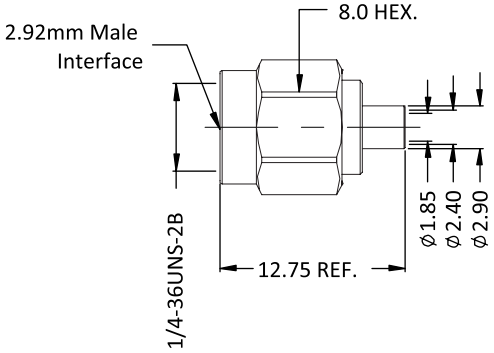
### 83°



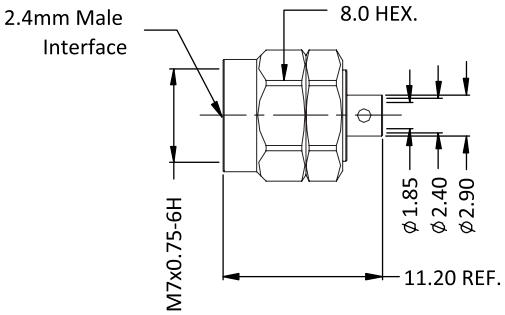
## Available Standard Connectors

### VB01

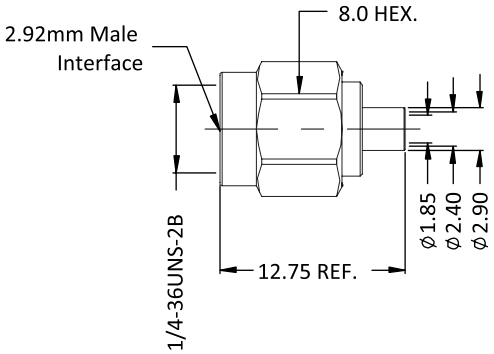
**Type** 2.92mm Male **Code** KMM



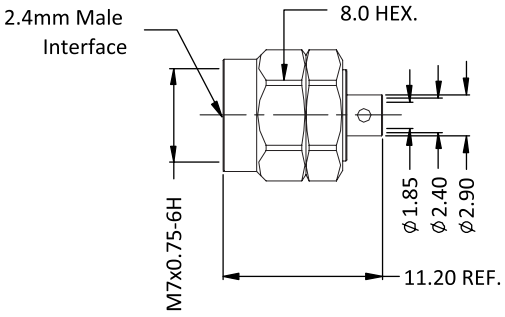

**Type** 2.4mm Male **Code** LMM



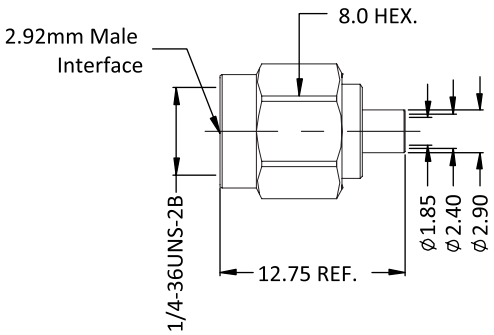

**Type** 2.92mm Male 90° **Code** K9M



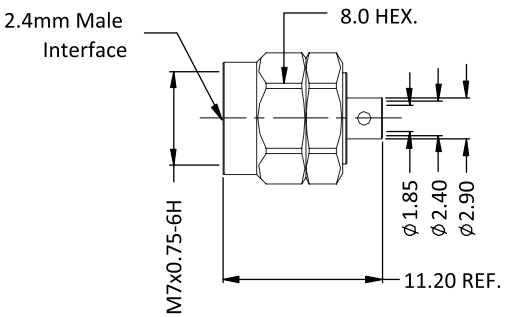

**Type** 2.4mm Male 90° **Code** L9M



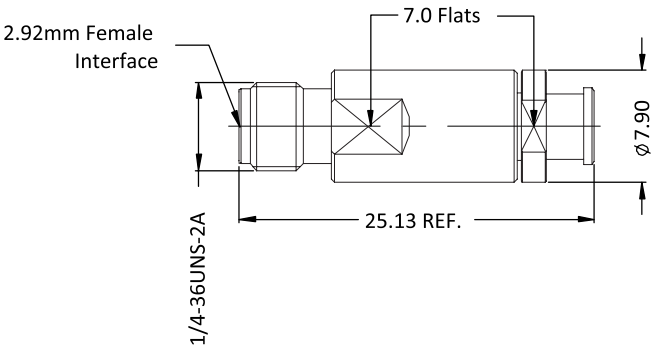

**Type** 2.92mm Male 83° **Code** K8M



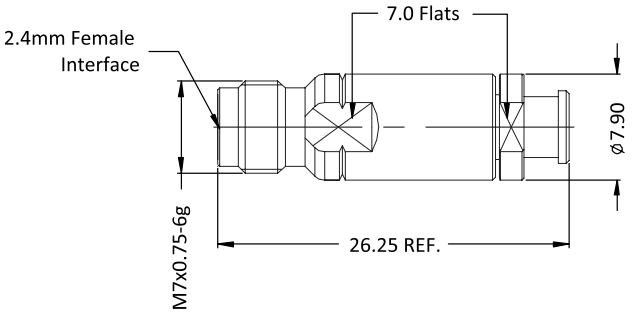

**Type** 2.4mm Male 83° **Code** L8M



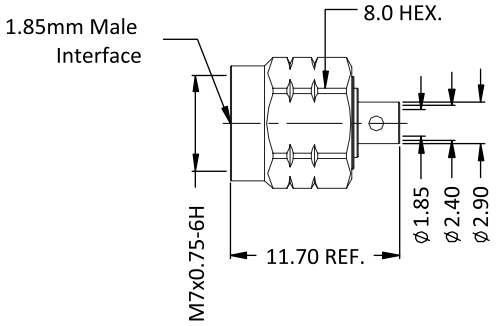
Type 2.92mm Female Code KMF



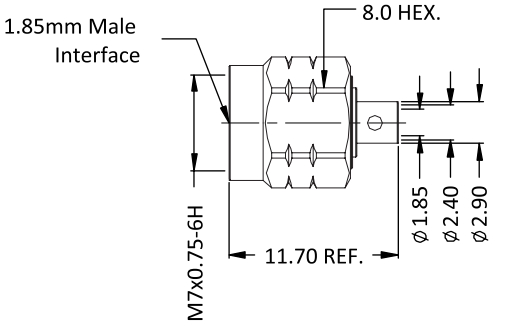

Type 2.4mm Female Code LMF



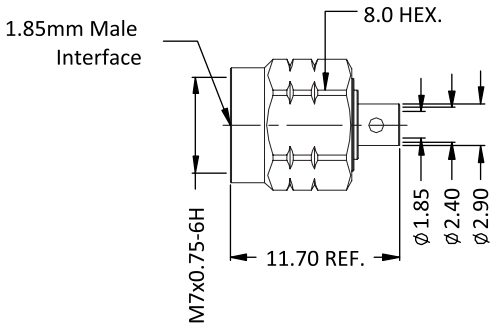

Type 1.85mm Male Code VMM



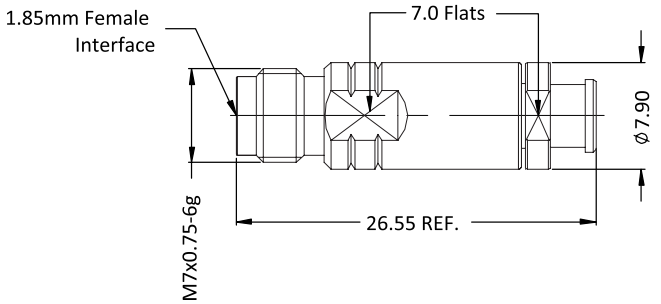

Type 1.85mm Male 83° Code V8M



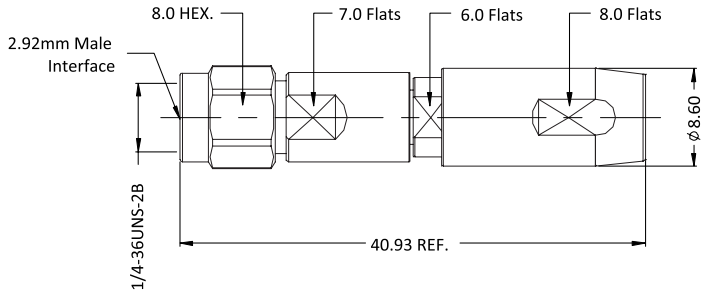

Type 1.85mm Male 90° Code V9M



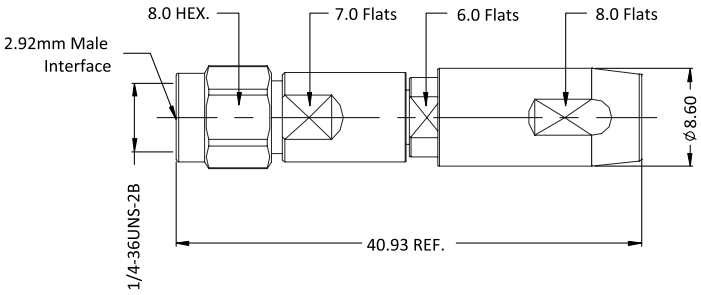

Type 1.85mm Female Code VMF



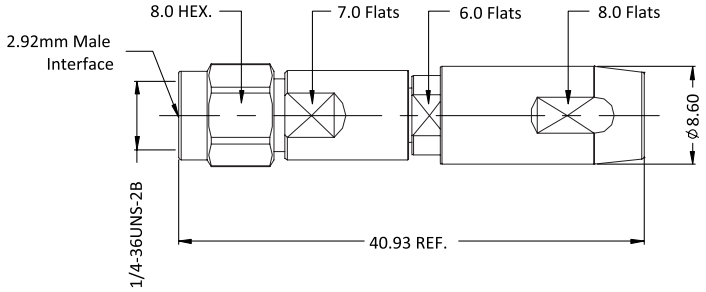
| Type | 2.92mm Male | Code | KMM |
|---|---|---|---|



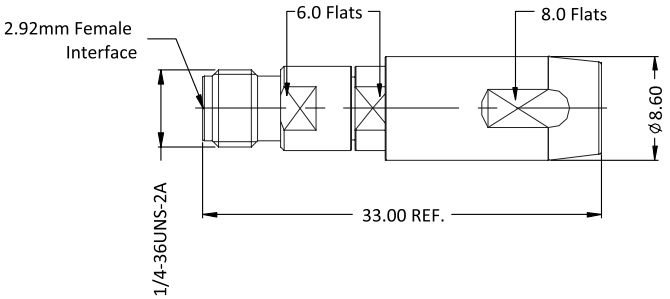

| Type | 2.92mm Male 83° | Code | K8M |
|---|---|---|---|



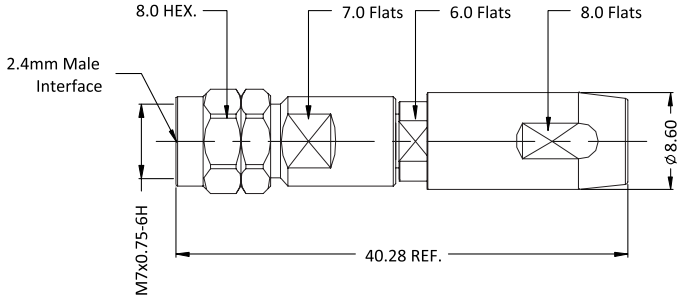

| Type | 2.92mm Male 90° | Code | K9M |
|---|---|---|---|



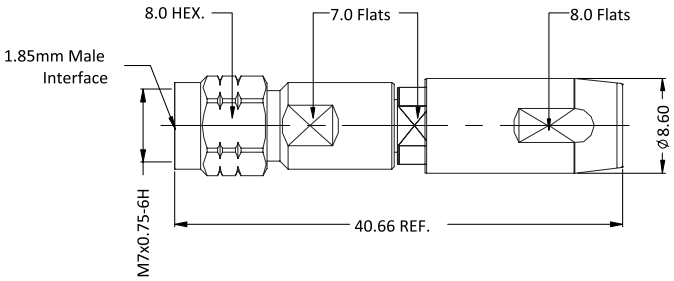

| Type | 2.92mm Female | Code | KMF |
|---|---|---|---|



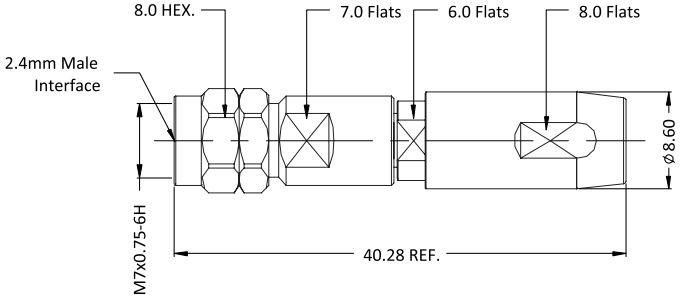

| Type | 2.4mm Male | Code | LMM |
|---|---|---|---|



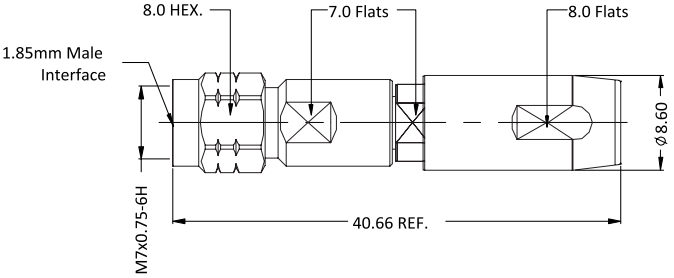

| Type | 1.85mm Male | Code | VMM |
|---|---|---|---|




| Type | 2.4mm Male 90° | Code | L9M |
|---|---|---|---|

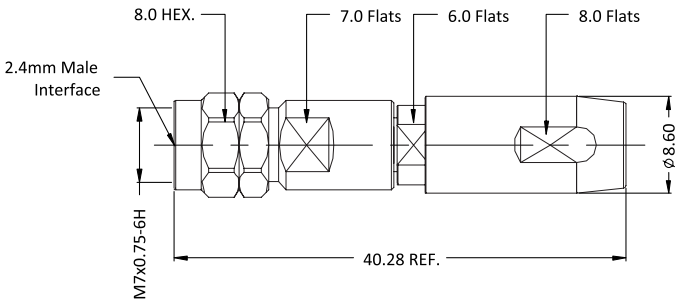



| Type | 1.85mm Male 90° | Code | V9M |
|---|---|---|---|

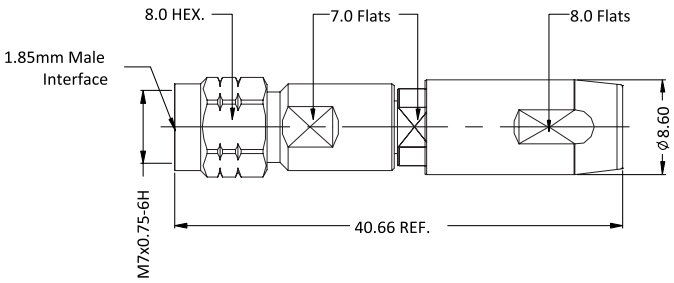


## VB02

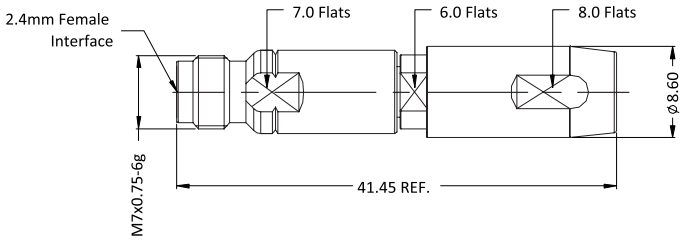
| Type | 2.4mm Male 83° | Code | L8M |
|---|---|---|---|



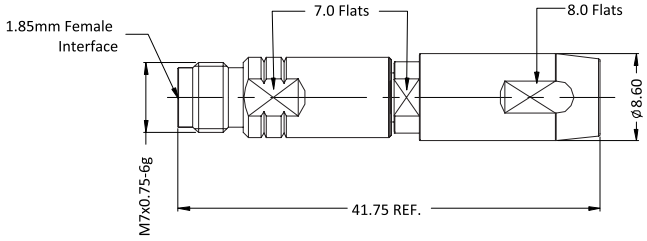

| Type | 1.85mm Male 83° | Code | V8M |
|---|---|---|---|




| Type | 2.4mm Female | Code | LMF |
|---|---|---|---|




| Type | 1.85mm Female | Code | VMF |
|---|---|---|---|






5012 Ang Mo Kio Avenue 5, #03-12 Techplace II
Singapore 569876
**E:** sales@verotronic.com
**www.verotronic.com**

VEROTRONIC TECHNOLOGIES