

Amphenol®



5G

EXTREME PERFORMANCE
RF INTERCONNECTS

アンフェノール



EXTREME PERFORMANCE RF INTERCONNECTS

SV offers a variety of millimeter wave (mmWave) coaxial cable assemblies and connectors for 5G mobile communication development and production. Our high frequency (26 GHz and beyond) push-on and threaded RF connectors offer industry leading signal fidelity in the 5G frequency spectrum and unique packaging designs for high density requirements. Let SV Microwave be your partner in 5G product development.

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11 Millimeter Wave Connectors, Cable Assemblies & Adapters

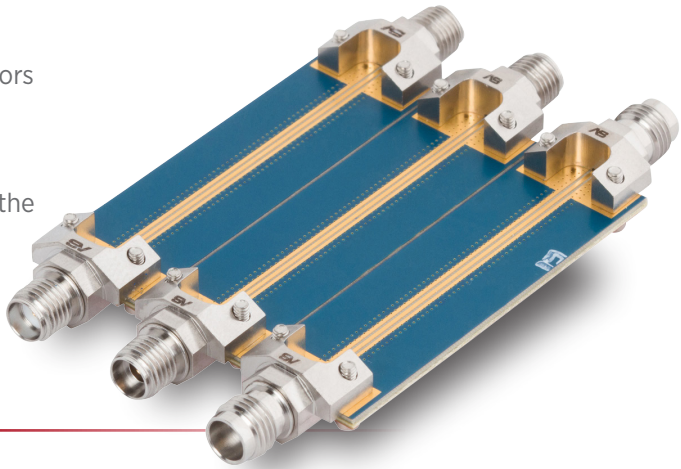
12 High Frequency Attenuators & Terminations

SOLDERLESS EDGE LAUNCH CONNECTORS

SV Microwave's high speed RF/coaxial solderless edge launch connectors are ideal for high frequency PCB applications where precision is key.

These rugged, durable and reusable connectors are adjustable to accommodate multiple PCB thicknesses and do not cause damage to the printed circuit board.

Current interface configurations include our high frequency SMA, 2.92mm, 2.4mm and 1.85mm series.



FEATURES AND BENEFITS

- Solderless compression mount for fast and easy installation
- Cost effective solutions for testing
- Durable and rugged design
- Customized PCB footprint design through simulation optimization
- Adjustable for multiple PCB thicknesses

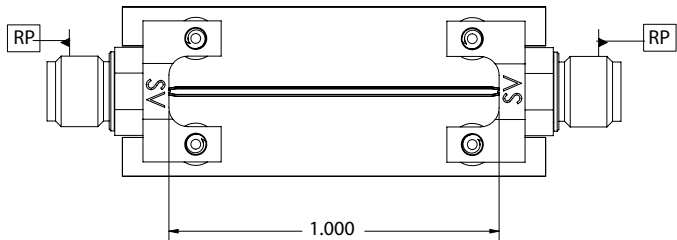
APPLICATIONS

- RF test and measurement boards
- Rapid prototyping
- High speed digital component test

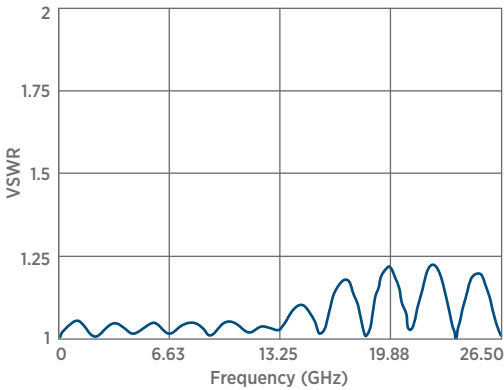
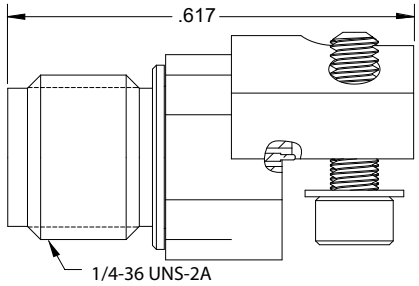
SPECIFICATIONS	SMA	2.92mm	2.4mm	1.85mm
IMPEDANCE	50 Ω	50 Ω	50 Ω	50 Ω
MAX FREQUENCY	26.5 GHz	40 GHz	50 GHz	67 GHz
INTERMATEABILITY	3.5mm, 2.92mm	SMA, 3.5mm	1.85mm	2.4mm
MATING TORQUE*	7-10 in-lb	7-10 in-lb	5-7 in-lb	5-7 in-lb
PCB MOUNTING TORQUE*	12 in-oz	12 in-oz	12 in-oz	12 in-oz

*Recommended

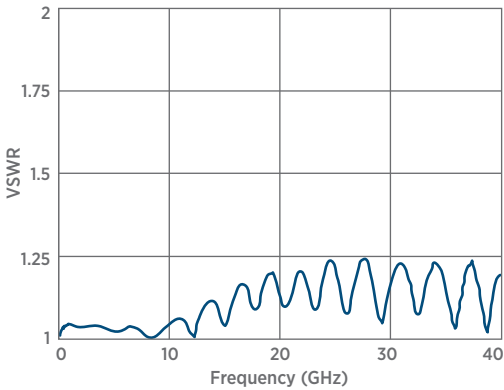
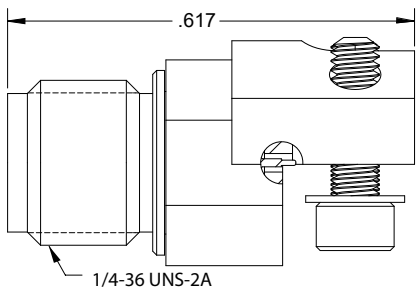
Plots shown represent full path VSWR measurements (connector to connector) on a 1" trace, 10 mil thick Rogers 3003 microstrip stackup.



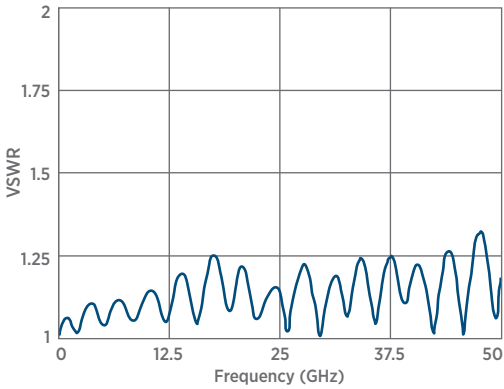
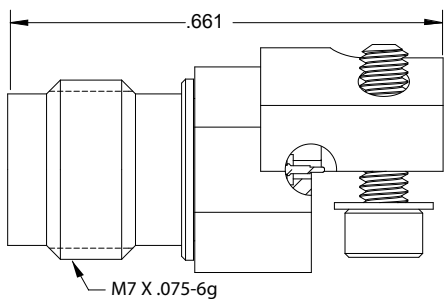
SMA Solderless Edge Launch Connector
P/N: SF2921-61450



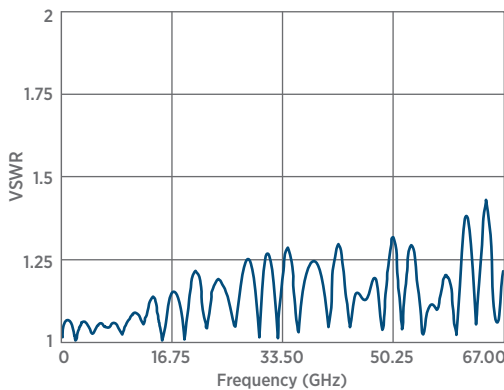
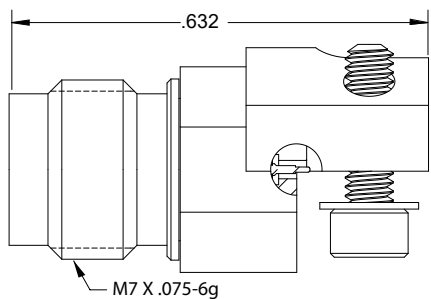
2.92mm Solderless Edge Launch Connector
P/N: SF1521-60107



2.4mm Solderless Edge Launch Connector
P/N: SF1621-60036



1.85mm Solderless Edge Launch Connector
P/N: SF3321-60021

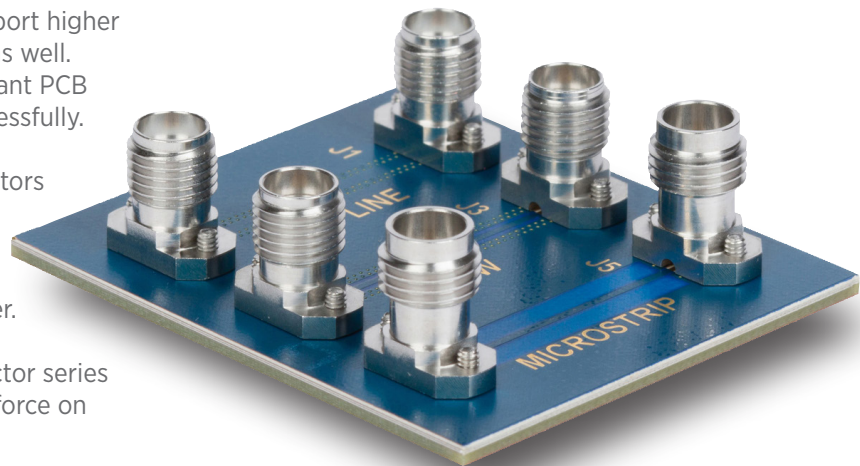


LITETOUCH SOLDERLESS PCB CONNECTORS

As printed circuit board substrates become thinner to support higher operating frequencies, coaxial connectors need to evolve as well. To support frequencies above 30 GHz, low dielectric constant PCB substrates are trending thinner than .010” to transmit successfully.

Conventional ‘compression style’ solderless coaxial connectors depend on compressing the trace/substrates to make electrical contact. This compression becomes increasingly impactful on the impedance of the transition from coaxial connector to PCB as the substrates get thinner.

SV Microwave developed the proprietary LiteTouch connector series to address this issue by significantly reducing the contact force on the trace required for a good electrical connection.



FEATURES AND BENEFITS

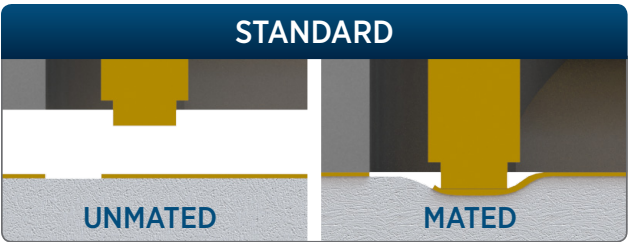
- Solderless compression mount for fast and easy installation (available with screws)
- Conforms to flexible circuit boards
- Non-destructive engagement on soft or thin (<.010”) dielectric substrates
- Custom optimized PCB footprint design through simulation

APPLICATIONS

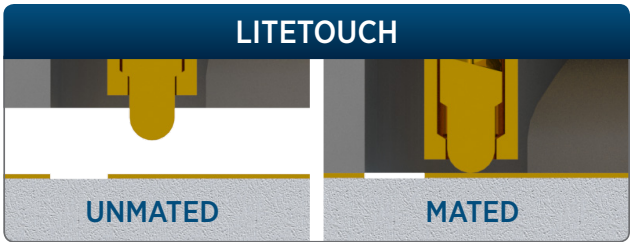
- Precision thin substrate mounting
- High speed digital test

SPECIFICATIONS	SMA	2.92mm	2.4mm
IMPEDANCE	50 Ω	50 Ω	50 Ω
MAX FREQUENCY	26.5 GHz	40 GHz	50 GHz
INTERMATEABILITY	3.5mm, 2.92mm	SMA, 3.5mm	1.85mm
MATING TORQUE*	7-10 in-lb	7-10 in-lb	5-7 in-lb
PCB MOUNTING TORQUE*	12 in-oz	12 in-oz	12 in-oz

*Recommended

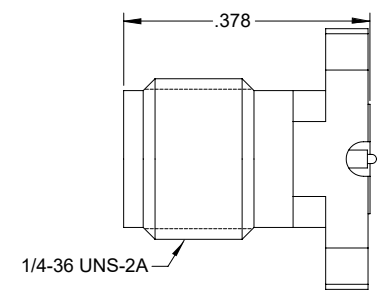


Unmated and mated standard solderless compression on thin (<0.10”) dielectric PCB

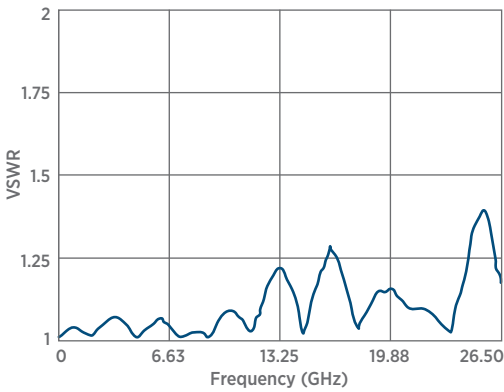


Unmated and mated LiteTouch solderless compression on thin (<0.10”) dielectric PCB

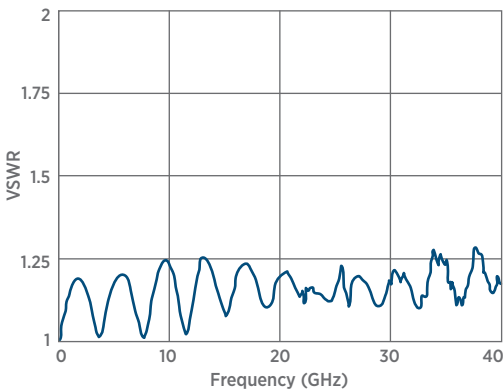
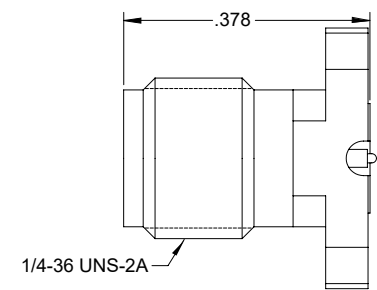
SMA Solderless LiteTouch Connector
Stripline P/N: SF2921-61507
CPW/Microstrip P/N: SF2921-61506*



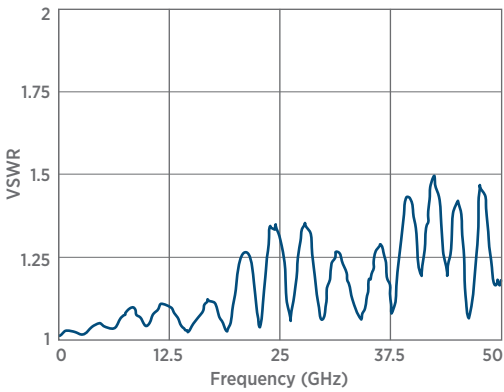
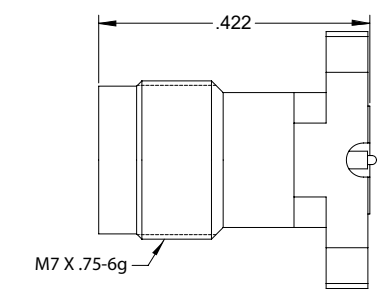
Add ‘-1S’ to P/N to add 2x 4.76mm screws



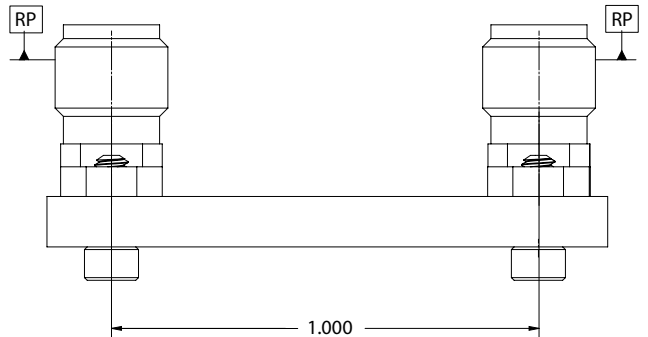
2.92mm Solderless LiteTouch Connector
Stripline P/N: SF1521-60124
CPW/Microstrip P/N: SF1521-60115*



2.4mm Solderless LiteTouch Connector
Stripline P/N: SF1621-60049
CPW/Microstrip P/N: SF1621-60048*



Plots shown represent full path VSWR measurements (connector to connector) on a 1” trace, 10 mil thick Rogers 3003 microstrip stackup.



*Images and plot shown for CPW/Microstrip version

MINI-D RF HIGH PERFORMANCE SYSTEM

SV's Mini-D RF Connection System has industry leading .110" port-to-port spacing for high mating cycle applications without damaging the cable assembly.

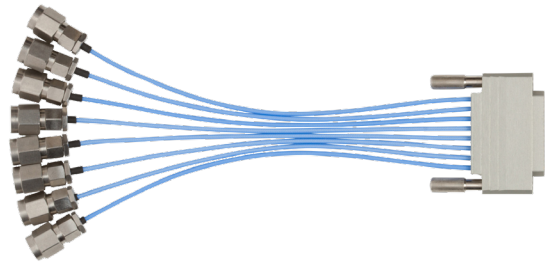
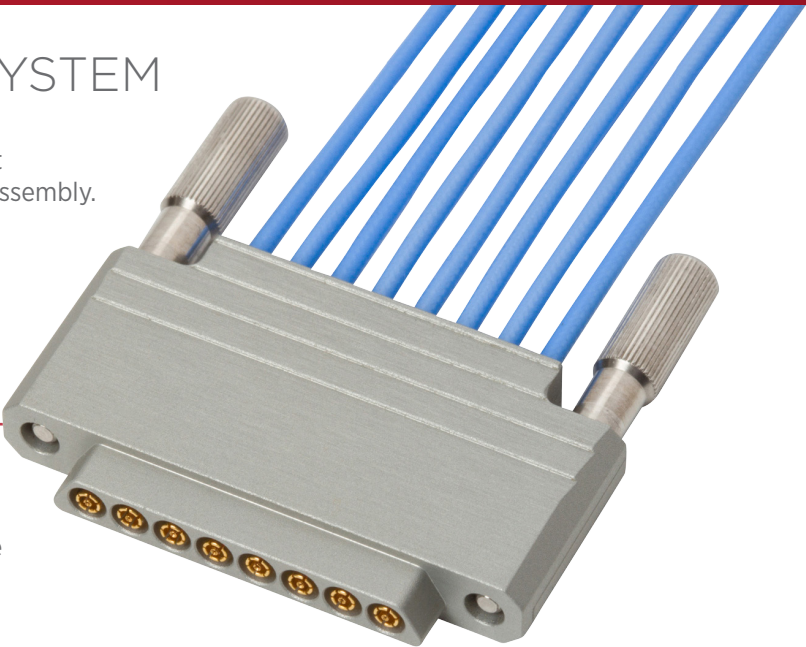
SV's low profile edge and surface mount PCB connector options are available with excellent RF performance through 67 GHz.

FEATURES AND BENEFITS

- High density design (.110" port-to-port spacing)
- SMPS interface recessed from D-Sub housing to protect from damage
- Rugged lightweight aluminum housing
- High Frequency RF performance to 67 GHz (1.85mm)

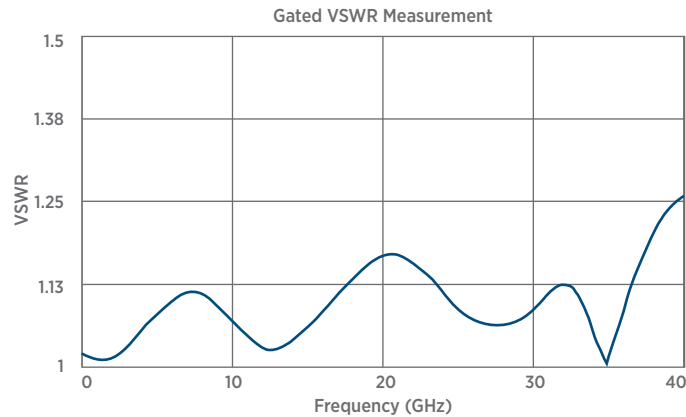
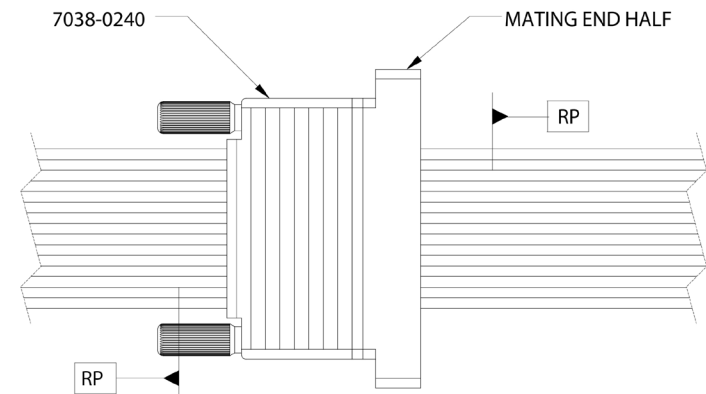
APPLICATIONS

- Automated Test Equipment (ATE)
- Product Evaluation Board
- Test and Instrumentation

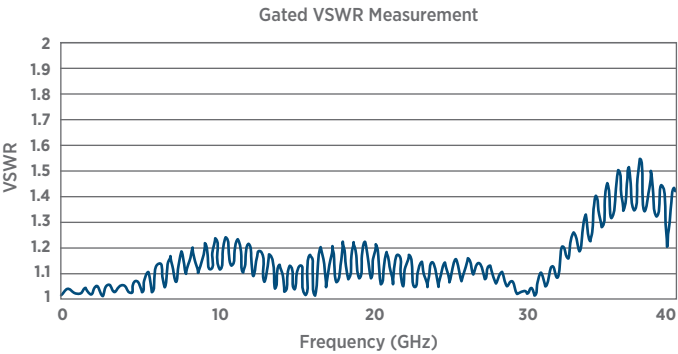
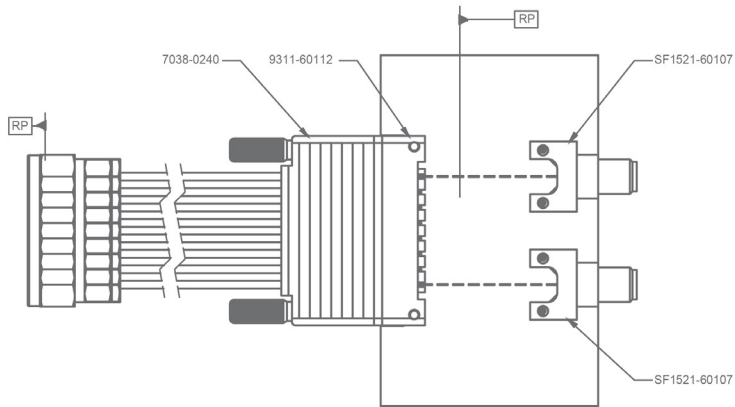


SPECIFICATIONS	SMA	2.92mm	2.4mm	1.85mm
IMPEDANCE	50 Ω	50 Ω	50 Ω	50 Ω
MAX FREQUENCY	26.5 GHz	40 GHz	50 GHz	65 GHz
INSERTION FORCE	9 lbs (nominal) to mate 8 position cable connector to PCB mount			
WITHDRAWAL FORCE	7 lbs (nominal) to de-mate 8 position cable connector to PCB mount			

Gated VSWR measurement was generated using time domain gating at RP1 and RP2 as shown in the below image. Image consists of Mini-D RF Cable Assembly mated to Panel Mount Mini-D RF Male Cable Assembly. Cable assemblies terminated to 2.92mm cables.



Gated VSWR measurement in below image consist of Mini-D RF Cable Assembly (7038-0240) and mating connector (9311-60112) plus ~.25" PCB after launch transition.



Mini-D RF to 2.92mm Cable Assembly

P/N: 7038-0240

Mini-D RF PCB Edge Launch

P/N: 9311-60112

Mini-D RF PCB Surface Mount

P/N: 9311-60128

PRODUCT OFFERING OVERVIEW

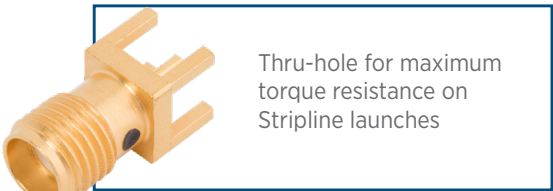
COAXIAL PCB CONNECTORS

SV's complete line of coaxial PCB connectors meet the industry need for high performing, high frequency threaded and push-on designs. Current configurations include single and multiport, edge launch, surface mount and through hole variations.

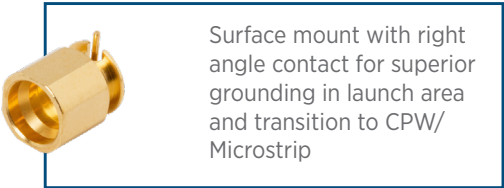
Additionally, SV can customize PCB footprint design to optimize connector to PCB transitions.



Multiple port configurations for high signal density applications



Thru-hole for maximum torque resistance on Stripline launches



Surface mount with right angle contact for superior grounding in launch area and transition to CPW/ Microstrip



Edge mount/ fixed width for maximum performance at an economical price

HIGH FREQUENCY ADAPTERS

Amphenol SV Microwave manufactures a large variety of coaxial high frequency adapters. SV's 'in series' RF adapters are available as a right angle, bulkhead, flange mount and more. SV's 'between series' RF enables a conversion between two different RF interconnect series and between different connector genders (i.e. male to female, male to male and female to female) and orientation transformations (i.e. straight to right angle).

Additionally, SV offers waterproof, hermetic adapters designed to withstand rigorous environments and harsh elements. Ingress Protection ratings are used to specify the environmental protection of enclosures and casings around electronic products.



Water resistant adapters use internal and external o-rings for ingress protection



Large selection of COTS between-series adapters available



Spring loaded SMPX series bullets are ideal for mitigating tolerance stackup

PRODUCT OFFERING OVERVIEW

RF CABLE ASSEMBLIES

We partner with the premier raw coaxial cable suppliers in the industry, including our Amphenol sister division, Times Microwave systems to offer a large variety of standard and custom flexible and semi-rigid cable assemblies.

We specialize in high frequency (DC-67 GHz) and extreme environment coaxial cables and mixed signal harnesses. All of our solderers are J-STD certified, so our cables are consistently among the highest quality in the industry. Above is just a sampling of some of the many types of cables we have to offer. Speak to one of our cable experts today for all your RF cable needs.



Blindmate Flexible



High Frequency



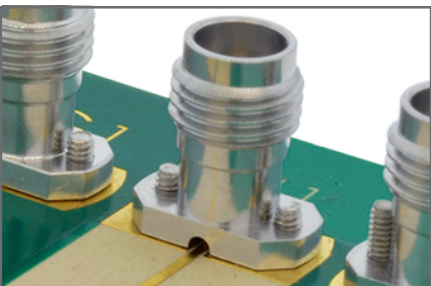
Mixed Signal RF & Digital



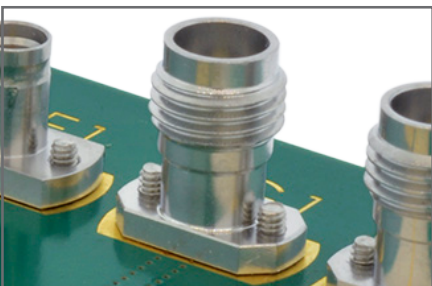
Semi-Rigid and Conformable

STANDARD SOLDERLESS PCB CONNECTORS

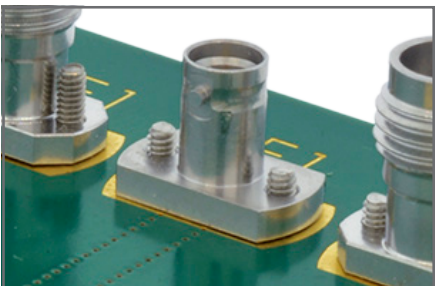
SV Microwave manufactures a large variety of standard solderless coaxial PCB connectors in high frequency bands including millimeter wave. These connectors are available with multiple screw lengths to accommodate any board thickness. These precision PCB connectors are ideal for mobile communications (including 5G), high speed digital environments and test & instrumentation.



Mousehole version for CPW and Microstrip surface launches



Standard version for Stripline launches



Available in threaded and push-on series (SMPM Shown)

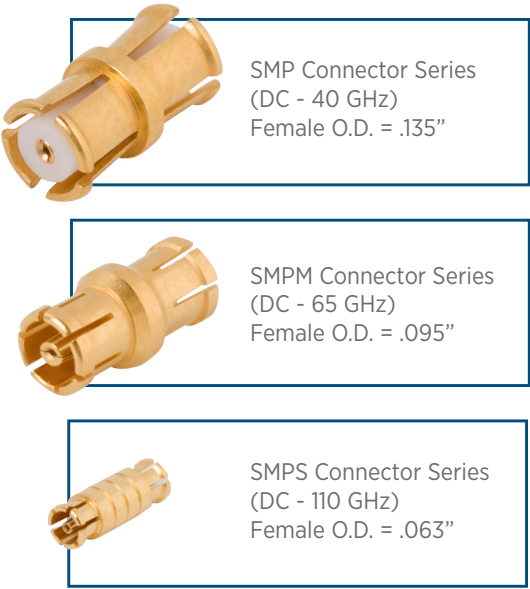
PRODUCT OFFERING OVERVIEW

SMP, SMPM & SMPS PRODUCT LINE

SV offers a wide range of SMP, SMPM, and SMPS connectors, cable assemblies and adapters that are designed for high-density, high-frequency application.

These unique push-on connectors offer progressively increased (higher bandwidth) electrical performance as the density decreases.

Our standard product offering includes multiport, PCB mount, components, adapters, cable connectors & assemblies, and more.



MILLIMETER WAVE CONNECTORS, CABLE ASSEMBLIES AND ADAPTERS

SV Microwave's high frequency, high performance millimeter wave product line has the precision, quality and frequencies needed for the millimeter wave spectrum.

STANDARD PRODUCT OFFERING INCLUDES:

- 2.92 mm: DC – 40 GHz bandwidth
- 2.4 mm: DC – 50 GHz bandwidth
- 1.85 mm: DC – 67 GHz bandwidth
- 1.0 mm: DC – 110 GHz bandwidth



Cables and resistive products
(attenuators and terminations)



Board level products evaluated for
maximum performance through the
PCB launch

PRODUCT OFFERING OVERVIEW

HIGH FREQUENCY ATTENUATORS AND TERMINATIONS

SV Microwave manufactures a complete line of standard and custom-designed attenuators including fixed coaxial, QPL, Hi-Rel, and Chip versions. Attenuators are circuits that reduce the power level of a signal to a certain level with little or no reflection and are typically used for test and measurement, satellite payloads, circuits and circuit boards where space is at a premium.

Additionally, SV's terminations are available in power handling values from ¼ watt up to 5 watts and attenuation values from .5 dB through 20 dB.



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Amphenol アフエノール ジャパン株式会社

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<http://www.amphenol.co.jp/military>