Amphenol SV MICROWAVE

VITA RF

PRODUCT PORTFOLIO

ENABLING AN OPEN VPX WORLD

SOSA™
Sensor Open Systems Architecture

VITA
Open Standards, Open Markets

VITA 67.3 OVERVIEW

The VITA 67.3 specification draws on the solutions provided in 67.1 and 67.2 but is unique as it doesn't define the locations of the ports like its predecessors. Additionally, floating contacts have been moved to the Backplane side (vs the Plug-In side in 67.1 and 67.2). These two changes were implemented to allow Plug-In Module designers the freedom to implement direct RF connector PCB launches on the carrier and/or any mezzanine card, eliminating the requirement for RF cable assemblies on the Plug-In Module. However cable options are available and still permitted. The VITA 67.3 specification encompasses three RF series: SMPM, SMPS and NanoRF (as seen in Figure 1).

Chassis and card-manufactures work toward developing an interoperable solution satisfying their immediate density and performance related challenges. In order to ensure the most robust solutions, it is advisable to use modules and contacts from the same manufacturers. However, fully populated Plug-In Modules utilizing V67.3 hardware from two different OEMs qualified to the VPX standard can plug-in to the same Backplane slot.

Figure 1
NanoRF, SMPM and SMPS Plug-In Modules Side-by-side.

VITA 67.3 Connector Modules C, D and E were developed to take advantage of the 1" pitch between adjacent Plug-In Modules. SV Microwave has created a variety of Backplane Connector modules fitting the Module C envelope. While we can customize these to accommodate any application, the most widely adopted options have been the 10 and 14 port configurations that are now available in our global distribution channel.

Figure 1.1
Module D (1/2 Width)

Figure 1.2
Module C (Full Width)

Figure 1.3
Module E (1 1/2 Width)

VITA 67.3 SMPM BACKPLANE MODULES

SV Microwave's VITA 67.3 SMPM series electrical and mechanical performance meet and exceed the standards specified in ANSI/VITA67.3-2023, listed below for reference.

SPECIFICATIONS – VITA 67.3 SMPM (MATED PAIR)				
ELECTRICAL			MECHANICAL	
VSWR	2 MHz to 40 GHz	1.5:1 Max	Axial Travel	.079"
Insertion Loss	2 MHz to 40 GHz	.12 * √(f(GHz))	Radial Float	± .010"
Cross Talk Requirement (dB MIN)	3 MHz to 30 MHz	≥ 140 dB	Spring Pre-load/Contact	3.5 lbs (typ)
	30 MHz to 3 GHz	≥ 120 dB	Disengage Force/Contact	1 .5 lbs (typ)
	3 GHz to 27 GHz	≥ 100 dB	Min Pitch (.047")	.228"
	27 GHz to 40 GHz	≥ 90 dB	Min Pitch (.086")	.228"
Power Handling	3 MHz to 30 MHz	30 dBm	Spring Force/Contact (Full Deflection)	4.25 lbs (typ)
	30 MHz to 3 GHz	20 dBm	Mating Cycles	500 Min
	3 GHz to 40 GHz	20 dBm	Vibration	MIL-STD-810

VITA 67.3 SMPM BACKPLANE CONNECTOR MODULES

VITA 67.3 SMPM
10-Port Backplane
Connector Module
SV PN: SF9321-60059

VITA 67.3 SMPM
14-Port Backplane
Connector Module
SV PN: SF9321-60086

VITA 67.3 SMPM
Backplane Contact
For Ø.086" Cable
SV PN: 3221-40066

VITA 67.3 SMPM
Backplane Contact
For Ø.047" Cable
SV PN: 3221-40071

VITA 67.3 SMPM
Bullet Insertion/
Removal Tool
SV PN: 500-32-052

VITA 67.3 SMPM
Contact Removal Tool
SV PN: 500-32-015

VITA 67.3 SMPM PLUG-IN MODULES

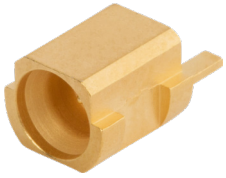
Plug-In Connector Modules are manufactured by a variety of embedded systems technology companies with the common goal of interfacing to the Backplane. SV offers a variety of SMPM Plug-In Connector Modules and contact options as COTS parts.

VITA 67.3 SMPM
10-Port Plug-In Connector Module
SV PN: 9311-60220

VITA 67.3 SMPM
14-Port Plug-In Connector Module
SV PN: 9311-60221

VITA 67.3 SMPM
Plug-In Adapter
SV PN: 1132-6116

VITA 67.3 SMPM
Plug-In Contact
SV PN: 3211-60351 (Ø.047” cable)
SV PN: 3211-60350 (Ø.085” cable)



VITA 67.3 SMPM
Male Edge Launch Connector (Smooth Bore)
SV PN: 3211-60035

VITA 67.3 SMPM
Female to Female Bullet (OAL .211”)
SV PN: 3290-4002

SV’s VITA 67.3 product line has been extended to include SMPM fixed length cable assembly configurations. These standard items are stocking with SV’s distribution partners for quick turn prototyping. Once functionality is verified, contact SV directly for customized cable solutions – whether you are looking for low loss, phase stability or phase/delay matched sets, SV can build a custom cable assembly meet your needs.

SMPM Female VITA 67.3 to SMA Male Cable Assembly
for Ø.085” Cable
SV PN: 7032-7434-120 (12”)
SV PN: 7032-7434-180 (18”)

SMPM Female VITA 67.3 to 2.92 mm Male Cable Assembly
for Ø.085” Cable
SV PN: 7032-7435-120 (12”)
SV PN: 7032-7435-180 (18”)

SMPM Male VITA 67.3 to SMA Male Cable Assembly
for Ø.085” Cable
SV PN: 7032-7840 (12”)

SMPM Male VITA 67.3 to SMA Male Cable Assembly
for Ø.047” Cable
SV PN: 7032-7841 (12”)

VITA 67.3 SMPM ELECTRICAL TEST DATA

Mated pair testing of Backplane and Plug-In Connector Modules confirms specification data. Positioning of gate flags is important since the specification references mated pair performance; SV can provide a full signal path solution that includes almost any standard RF interface. The aluminum block shown in Figure 2 holds the male and female contacts in the proper alignment position during testing, replicating the geometry of the end application.

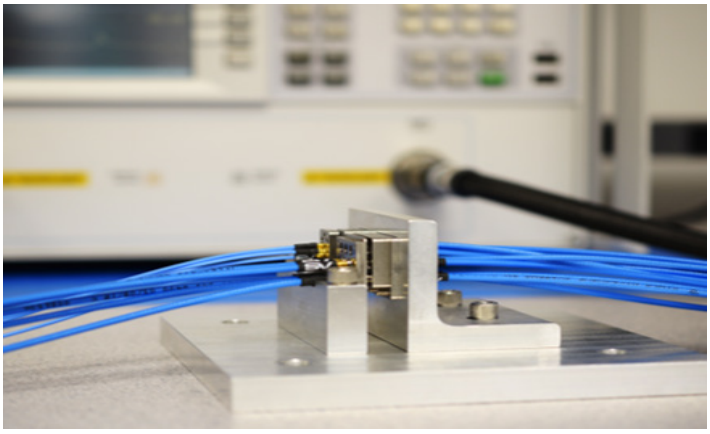


Figure 2
Test Setup for Mated Pair VITA 67.3 SMPM

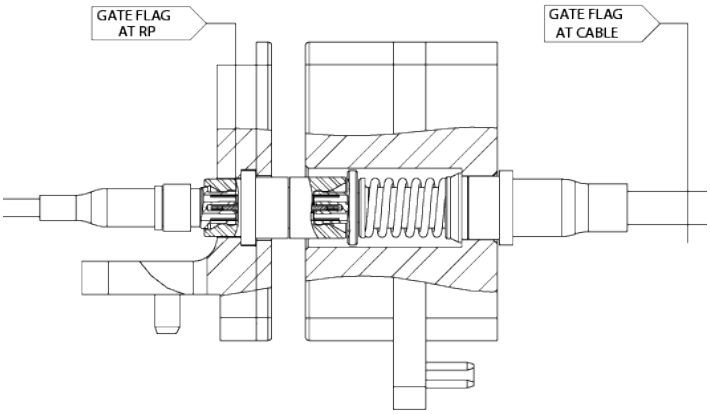


Figure 2.1
Gate Flag Position for SMPM Mated Pair Measurement

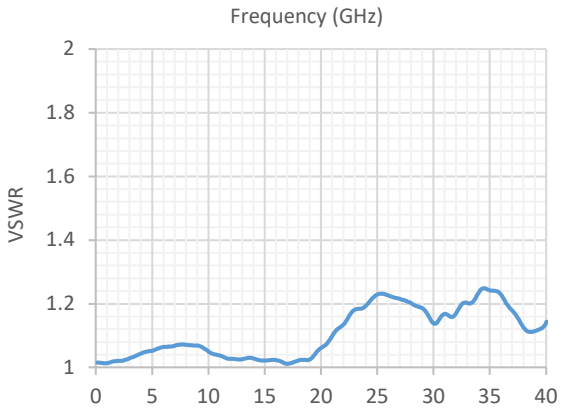


Figure 2.2
Gated VSWR Plot (typical)

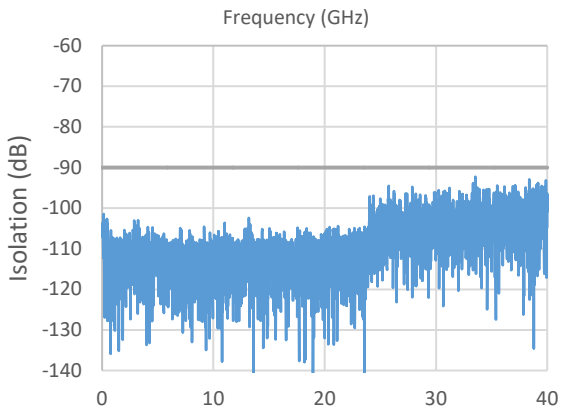


Figure 2.3
Electrical Isolation Plot (Mated Pair)

VITA 67.3 SMPS BACKPLANE MODULES

In order to support design flexibility, increased data rates and high density requirements of VPX platforms, SV Microwave has designed VITA 67.3 modules with small form-factor, high performance interface - the SMPS series. The SMPS series has been an industry standard for over 10 years and is used extensively in some of the most demanding US MIL-AERO programs. The SMPS interface has been adopted as a DLA Standard under the name SMP3. SV's SMPS contacts are compatible with the DLA open standard.

SPECIFICATIONS – VITA 67.3 SMPS (MATED PAIR)				
ELECTRICAL			**MECHANICAL**	
VSWR	2 MHz to 67 GHz	1.5:1 Max (1.35:1 typ)	Axial Travel	.079"
Insertion Loss	2 MHz to 67 GHz	.12 * √(f(GHz))	Radial Float	± .010"
Cross Talk Requirement (dB MIN)	3 MHz to 30 MHz	≥ 140 dB		
	30 MHz to 3 GHz	≥ 120 dB	Engage/Disengage Force/Contact	1.0 lbs (typ)
	3 GHz to 27 GHz	≥ 100 dB	Min Pitch (.047")	.145"
	27 GHz to 40 GHz	≥ 90 dB	Min Pitch (.086")	.155"
Power Handling	3 MHz to 30 MHz	30 dBm	Spring Force/Contact Nominal Mated Condition Full Deflection	 2.1 lbs (typ) 2.6 lbs (typ)
	30 MHz to 3 GHz	20 dBm	Mating Cycles	500 Min
	3 GHz to 40 GHz	20 dBm	Vibration	MIL-STD-810

VITA 67.3 SMPS BACKPLANE CONNECTOR MODULES

VITA 67.3 SMPS 19-Port
Backplane Connector Module
SV PN: SF9321-60093

VITA 67.3 SMPS 12-Port
Backplane Connector Module
SV PN: SF9321-60084

VITA 67.3 SMPS
Backplane Contact
For Ø.086" Cable
SV PN: 3821-40024

VITA 67.3 SMPS
Backplane Contact
For Ø.047" Cable
SV PN: 3821-40023

VITA 67.3 SMPS
Bullet Insertion/Removal Tool
SV PN: 500-38-014

VITA 67.3 SMPS
Contact Removal Tool
SV PN: 500-38-006

VITA 67.3 SMPS PLUG-IN MODULES

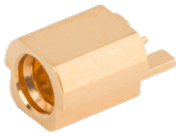
VITA 67.3 SMPS Plug-In Connector Modules slightly differ from their SMPM predecessor. These contacts have either snap-in or flange mounted features which are tightly pitched and stay aligned via precision holes in the Plug-In Connector Module.

VITA 67.3 SMPS
19-Port Plug-In
Connector Module
SV PN: SF9311-60171

VITA 67.3 SMPS
12-Port Plug-In
Connector Module
SV PN: SF9311-60166

VITA 67.3 SMPS
Plug-In Adapter
SV PN: SF1138-6020

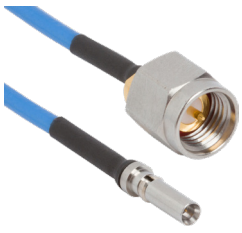
VITA 67.3 SMPS
Plug-In Contact
SV PN: SF3811-60060
(Ø.047" cable)
SV PN: SF3811-60059
(Ø.085" cable)



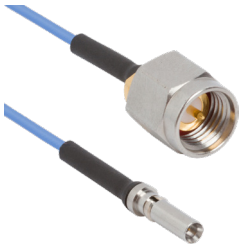
VITA 67.3 SMPS
Male Edge Launch Connector
SV PN: 3811-40004

VITA 67.3 SMPS
Female to Female
Bullet (OAL .098")
SV PN: 1138-4001

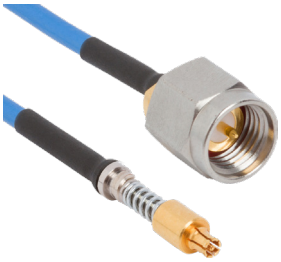
SV's VITA 67.3 product line has been extended to include SMPS fixed length cable assembly configurations. These standard items are stocking with SV's distribution partners for quick turn prototyping. Once functionality is verified, contact SV directly for customized cable solutions – whether you are looking for low loss, phase stability or phase/delay matched sets, SV can build a custom cable assembly to meet your needs.



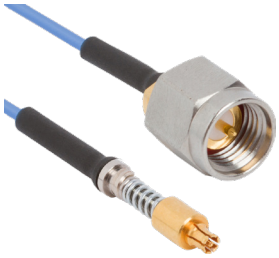
SMPS Male VITA 67.3 to
SMA Male 12" Cable Assembly
for Ø.085 Cable
SV PN: 7038-0337



SMPS Male VITA 67.3 to
SMA Male 12" Cable Assembly
for Ø.047" Cable
SV PN: 7038-0338



SMPS Female VITA 67.3 to
SMA Male 12" Cable Assembly
for Ø.085" Cable
SV PN: 7038-0370



SMPS Female VITA 67.3 to
SMA Male 12" Cable Assembly
for Ø.047" Cable
SV PN: 7038-0371

VITA 67.3 SMPS ELECTRICAL TEST DATA

Mated pair testing of Backplane and Plug-In Connector Modules confirms specification data. Below you will see our test configuration and data.

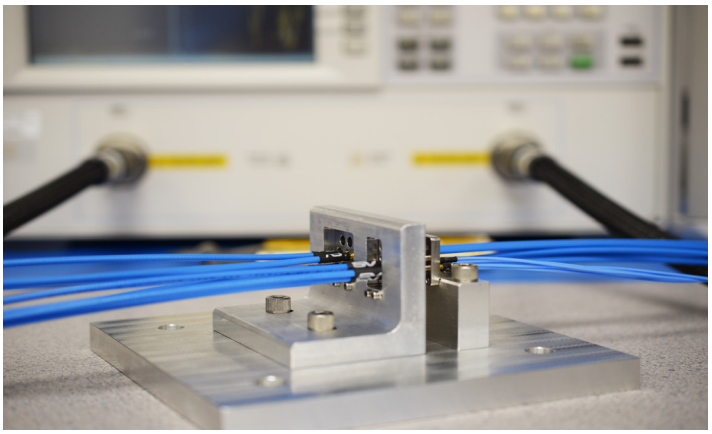


Figure 3
Test Setup for Mated Pair VITA 67.3 SMPS

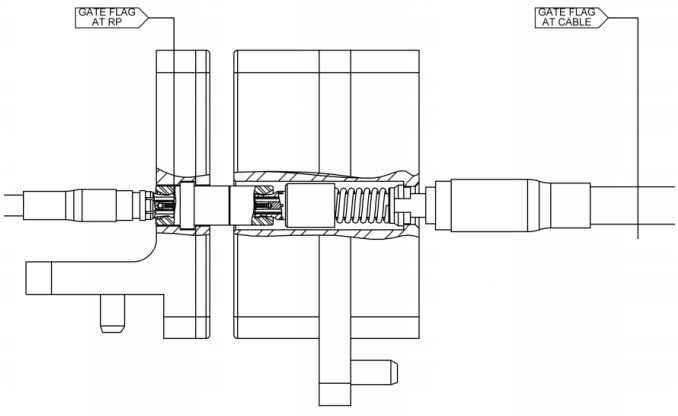


Figure 3.1
Gate flag position for SMPS Mated Pair Measurement

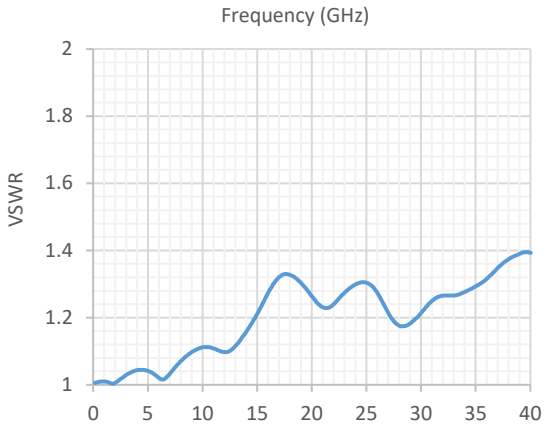


Figure 3.2
Gated VSWR Plot (typical)

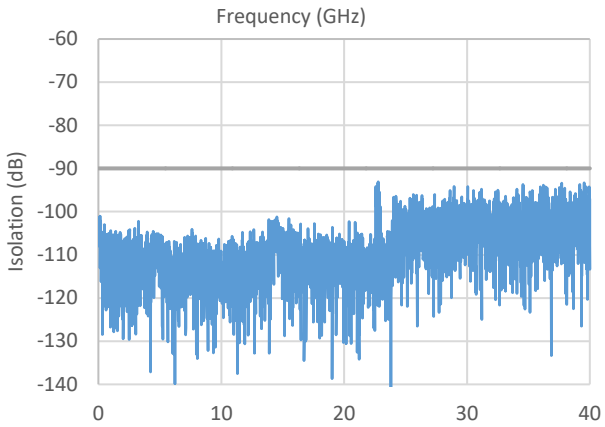


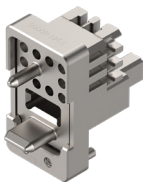
Figure 3.3
Electrical Isolation Plot (Mated Pair)

VITA 67.3 NanoRF BACKPLANE MODULES

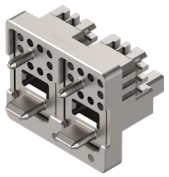
In order to support design flexibility, increased data rates and high density requirements of VPX platforms, SV Microwave has designed VITA 67.3 modules with our smallest high performance interface - the NanoRF series. The NanoRF series has been an industry standard for over 10 years and is used extensively in some of the most demanding US MIL-AERO programs. SV's NanoRF product line is the highest density solution in VITA 67.3.

SPECIFICATIONS – VITA 67.3 NanoRF (MATED PAIR)				
ELECTRICAL			MECHANICAL	
VSWR	2 MHz to 40 GHz	1.4:1 Max (1.35:1 typ)	Axial Travel	.060"
	40 GHz to 67 GHz	1.5:1 Max (1.35:1 typ)		
Insertion Loss	2 MHz to 67 GHz	.12 * √(f[GHz])	Radial Float	± .010"
Cross Talk Requirement (dB MIN)	3 MHz to 30 MHz	≥ 140 dB		
	30 MHz to 3 GHz	≥ 120 dB	Engage / Disengage Force/Contact	1.0 lbs (max)
	3 GHz to 27 GHz	≥ 100 dB	Min Pitch (Ø.047")	.110"
	27 GHz to 40 GHz	≥ 90 dB	Min Pitch (Ø.086")	.155"
Power Handling	3 MHz to 30 MHz	30 dBm	Spring Force/Contact Nominal Mated Condition Full Deflection	1.5 lbs (typ) 2.5 lbs (max)
	30 MHz to 3 GHz	20 dBm	Mating Cycles	500 Min
	3 GHz to 40 GHz	20 dBm	Vibration	MIL-STD-810

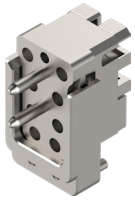
VITA 67.3 NanoRF BACKPLANE CONNECTOR & MODULES



VITA 67.3 NanoRF
10-Port Backplane
Connector Module
SV PN: 9341-80005



VITA 67.3 NanoRF
20-Port Backplane
Connector Module
SV PN: 9341-80006



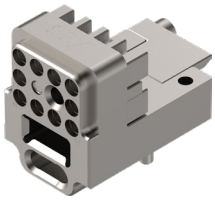
VITA 67.3 NanoRF
9-Port Backplane
Connector Module
SV PN: 9341-80007

VITA 67.3 NanoRF
Backplane Contact
For Ø.047" Cable
SV PN: 8341-40001

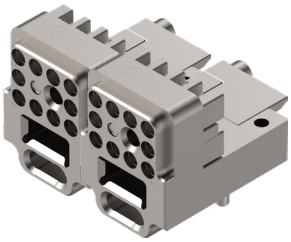
VITA 67.3 NanoRF
Backplane Contact
For Ø.085" Cable
SV PN: 8341-40002

VITA 67.3 NanoRF PLUG-IN MODULES

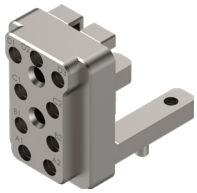
VITA 67.3 NanoRF Plug-In Connector Modules slightly differ from both SMPM and SMPS versions. These blocks have flange-mounted features which are tightly pitched and stay aligned via precision holes in the Plug-In Connector Module.



VITA 67.3 NanoRF
10-Port NanoRF + MT Fiber
Plug-in Hybrid Module
SV PN: 9351-80004



VITA 67.3 NanoRF
20-Port NanoRF + MT Fiber
Plug-in Hybrid Module
(Order 2x of part number below)
SV PN: 9351-80004

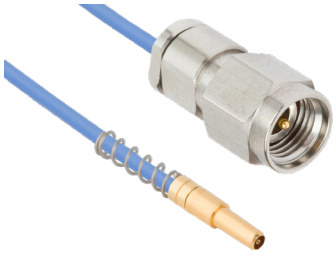


VITA 67.3 NanoRF
9-Port Plug-In Connector
Module
SV PN: 9351-80005

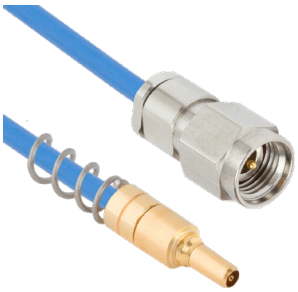
VITA 67.3 NanoRF
Plug-In Contact for
Ø.047" Cable
SV PN: 8351-40001

SV's VITA 67.3 product line has been extended to include NanoRF fixed-length cable assembly configurations. These standard items are stocking with SV's distribution partners for quick-turn prototyping. Once functionality is verified, contact SV directly for customized cable solutions – whether you are looking for low loss, phase stability or phase/delay matched sets, SV can build a custom cable to meet your needs.

NanoRF Plug-in VITA 67.3 to
2.92 Male 12" Cable
Assembly for Ø.047" Cable
SV PN: 7083-0006



NanoRF Backplane VITA 67.3 to
2.92 Male 12" Cable
Assembly for Ø.047" Cable
SV PN: 7083-0004



NanoRF Backplane VITA 67.3 to
2.92 Male 12" Cable
Assembly for Ø.085" Cable
SV PN: 7083-0005

VITA 67.3 NanoRF ELECTRICAL TEST DATA

Mated pair testing of Backplane and Plug-In Connector Modules confirms specification data. Below you will see our test configuration and data.

Figure 4
Test Setup for Mated Pair VITA 67.3 NanoRF

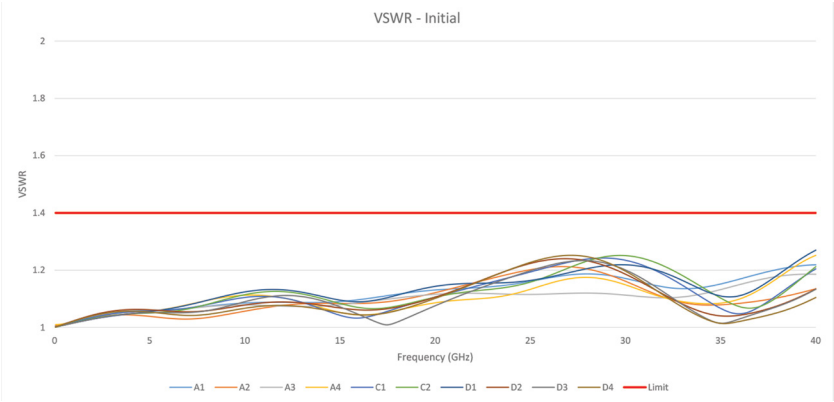


Figure 4.1
Gated VSWR Plot (typical)

Figure 4.2
Electrical Isolation Plot (Mated Pair)

VITA 66.5 MODULES – FIBER OPTIC & HYBRID

SV Microwave also manufactures a variety of hybrid VITA modules. These modules contain both VITA compliant coaxial cavities and Multi-Mode MT Ferrules in compliance with the VITA 66 standard. Our catalog of hybrid modules is highly customizable and constantly expanding. A few examples are shown below. Check our website, www.svmicrowave.com, for a full list of the latest VITA and SOSA-aligned module offerings.

Figure 5
VITA Sample Plug-in Card
Including Hybrid Coaxial and Fiber Module.
19 SMPS 67.3 Contacts/3 MT Fiber Module

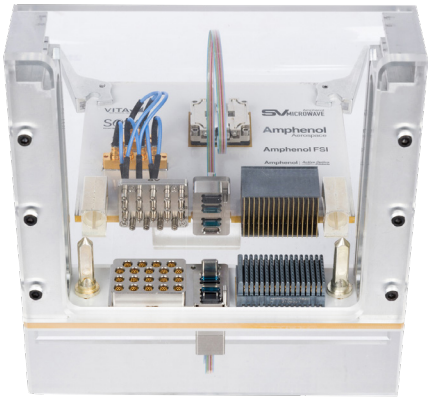


Figure 6
VITA Sample Chassis with Hybrid Coaxial
and Fiber Module.

SOSA Aligned Module Offerings

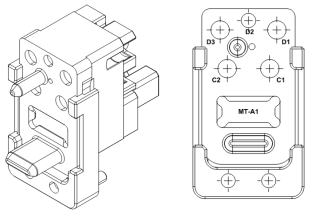
VITA 65 6.4.5.8.7
14-Port SMPM + 3 MT Fiber
Backplane Hybrid Module
SV PN: 9321-60109

VITA 65 6.4.5.8.7
14-Port SMPM + 3MT Fiber
Plug-In Hybrid Module
SV PN: 9311-60215

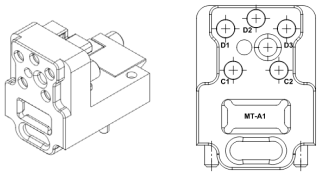
VITA 65 6.4.5.8.8
19-Port SMPS + 3MT Fiber
Backplane Hybrid Module
SV PN: 9321-60108

VITA 65 6.4.5.8.8
19-Port SMPS + 3MT Fiber
Plug-In Hybrid Module
SV PN: 9311-60214

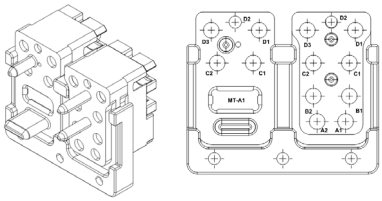
NanoRF Hybrid Modules



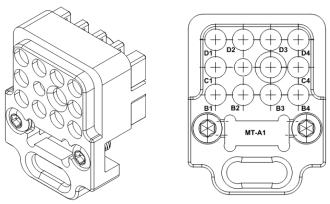
VITA 65 6.4.5.7.3
5 Port NanoRF + 1 MT Fiber
Backplane Hybrid Module
9341-80011



VITA 65 6.4.5.7.3
5 Port NanoRF + 1 MT Fiber
Plug-In Hybrid Module
9351-80007



VITA 65 6.4.5.6.9
14 Port NanoRF + 1 MT Fiber
Backplane Hybrid Module
9341-80012



VITA 65 6.4.5.7.4
10 Port NanoRF + 1 MT Fiber
Plug-In Hybrid Module
9351-80008

SOSA Aligned Modules and P/Ns

	SOSA Module Designation	VITA 65 Module Designation	Description Module Layout	Backplane/ Plug-in	Connector Module P/N	RF Contact P/N (0.047" Cable)	RF Contact P/N (0.086 Cable)
Half Width	14.6.13-1	6.4.5.7.1	9 NanoRF	Plug-In	9351-80005	8351-40001	-
				Backplane	9341-80007	8341-40001	8341-40002
	14.6.13-2	6.4.5.7.3	Style C 66.5 1 MT w/ 5 NanoRF	Plug-In	9351-80007	8351-40001	-
				Backplane	9341-80011	8341-40001	8341-40002
	14.6.13-4	6.4.5.7.4	Style C 66.5 1 MT w/10 NanoRF	Plug-In	9351-80004	8351-40001	-
				Backplane	9341-80005	8341-40001	8341-40002
	14.6.13-8	6.4.5.7.6	Style D 66.5 3MT	Plug-In	9301-80010	-	-
				Backplane	9301-80009	-	-
Full Width	14.6.11-2	6.4.5.6.3	10 SMPM	Plug-In	9311-60220	3211-60351	3211-60350
				Backplane	SF9321-60059	3221-40071	3221-40066
	14.6.11-4	6.4.5.6.4	14 SMPM	Plug-In	9311-60221	3211-60351	3211-60350
				Backplane	SF9321-60086	3221-40071	3221-40066
	14.6.11-5	6.4.5.6.7	19 SMPS	Plug-In	SF9311-60171	SF3811-60060	SF3811-60059
				Backplane	SF9321-60093	3821-40023	3821-40024
	14.6.11-10	6.4.5.6.9	2 Style C 66.5 1 MT w/ 14 NanoRF	Plug-In	9351-80007 & 9351-80005	8351-40001	-
				Backplane	9341-80012	8341-40001	8341-40002
	14.6.11-12	6.4.5.6.10	2 Style C 66.5 2 MT w/ 20 NanoRF	Plug-In	(2X) 9351-80004	8351-40001	-
				Backplane	9341-80006	8341-40001	8341-40002
	14.6.11-14	6.4.5.6.11	2 Style D 66.5 6 MT	Plug-In	(2X) 9301-80010	-	-
				Backplane	9301-80016	-	-
1-1/2 Width	14.6.14-6	6.4.5.8.4	31 SMPS	Plug-In	9311-60310	SF3811-60060	SF3811-60059
				Backplane	SF9321-60098	3821-40023	3821-40024
	14.6.14-11	6.4.5.8.7	14 SMPM w/ Style D 66.5 3 MT	Plug-In	9311-60215	3211-60351	3211-60350
				Backplane	9321-60109	3221-40071	3221-40066
	14.6.14-12	6.4.5.8.8	19 SMPS w/ Style D 66.5 3 MT	Plug-In	9311-60214	SF3811-60060	SF3811-60059
				Backplane	9321-60108	3821-40023	3821-40024

VITA/SOSA D38999 I/O OFFERING

SV can also terminate your VITA Backplane cables to a variety of multiport I/O panel solutions. Rather than cabling to individual I/O connectors, it is often advantageous to use a multiport I/O connector such as a D38999 circular or rectangular multiport for increased density and ruggedization. Below are just a few examples of the many solutions that SV has for these applications.

Figure 7
VITA Sample Chassis with 67 RF Modules Terminated to D38999 Circular Connectors with Coaxial Contacts

D38999 Circular Connectors COTS Contacts:				
Size	**Interface**	**Cable**	**Type**	**Part Number**
8	BMB	Ø.087" LL	Socket	4951-60005
			Pin	4941-60001
		Ø.141"	Socket	4951-60006
			Pin	4941-60002
12	SMPM	Ø.047"	Socket	SF3211-60153
			Pin	9321-40004
		Ø.085"	Socket	SF3211-6004
			Pin	3221-4002
16	SMPS	Ø.047"	Socket	SF9911-60001
			Pin	9921-40001
		Ø.085"	Socket	9351-40029
			Pin	9341-40043
20	SV20	Ø.047"	Socket	2051-60001
			Pin	2041-40001
20HD	SV20HD	Ø.047"	Socket	2051-60002
			Pin	2041-40002

D38999 SMPM
Socket Contact (Size 12)
For Ø.086" Cable
SV PN: SF3211-6004

D38999 SMPM
Pin Contact (Size 12)
For Ø.086" Cable
SV PN: 3221-4002

Figure 8
D38999 Connector w/ Size 8 BMB Contacts

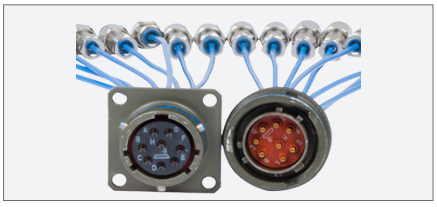
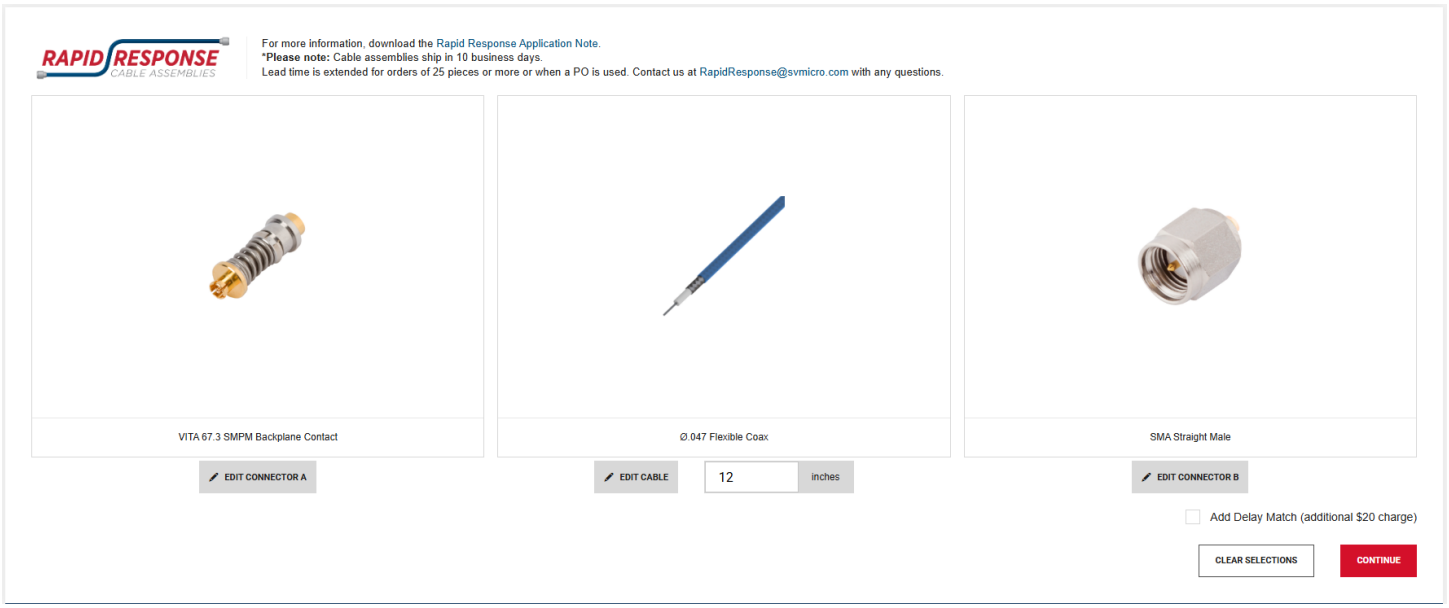
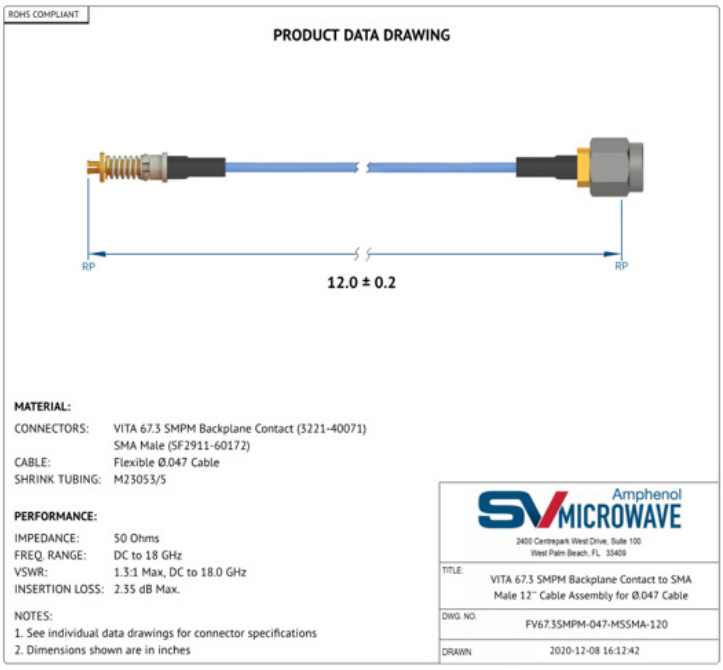


Figure 9
D32689 Connector (Amphenol's 2M) w/ SV20HD Contacts

RAPID RESONSE CABLE ASSEMBLIES

SV Microwave's Rapid Response Cable Builder offers VITA 67.1, 67.2 and 67.3 cable assemblies online. These cables are custom-made and ship within ten business days. For more information, please visit our website at https://www.svmicrowave.com/cable-builder.





APPENDIX I : VITA 67.3 SMPM BACKPLANE CONNECTOR CONTACTS INSTALLATION INSTRUCTIONS

VITA 67.3 SMPM contacts have a unique 'contact + adapter' configuration that enables them to be easily assembled and removed from the Backplane Connector Module and provide excellent radial captivation on the multiport block.

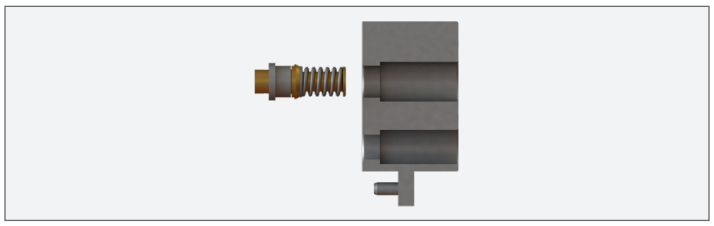


Figure 10
Contact Installation to Connector Module
(w/500-32-034 or 500-32-045)

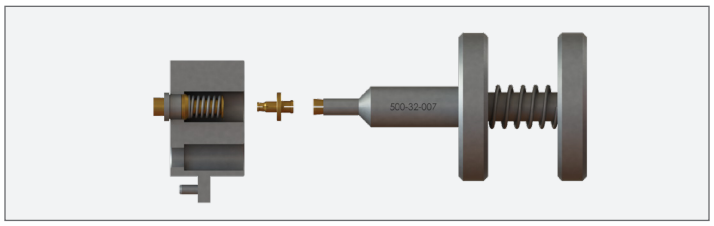


Figure 10.1
Bullet Installation to Contact. Uses Tool PN 500-32-052.

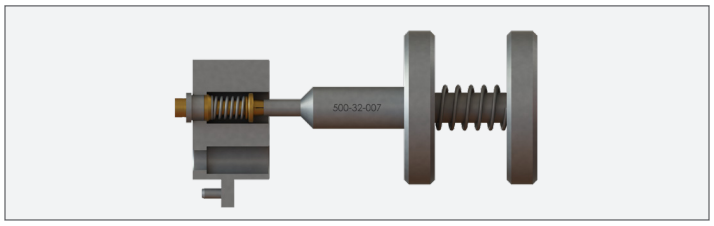


Figure 10.2
Bullet Fully Seated in Contact

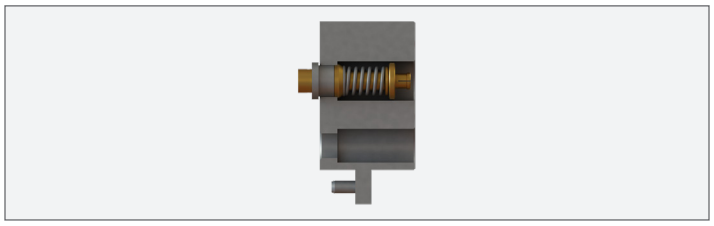


Figure 10.3
Final Assembly Connector Module + Contact + Bullet.

REMOVAL INSTRUCTIONS: VITA 67.3 SMPM

To remove the contacts (once adapters are extracted), removal tool PN 500-32-015 is used to compress the clip and plunge the contact from the housing. SV Microwave has also developed an extended length removal tool (not shown, PN 500-32-042) for deep chassis applications.

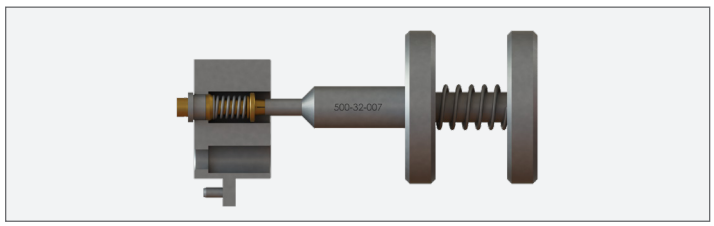


Figure 10.4
Bullet Removed From Contact. Uses Tool PN 500-32-052.

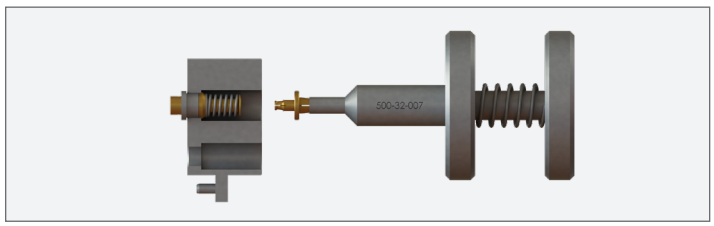


Figure 10.5
Bullet Removed From Contact

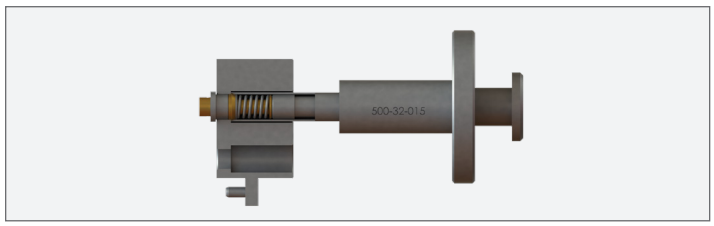


Figure 10.6
Contact Removed. Uses Tool PN 500-32-015.

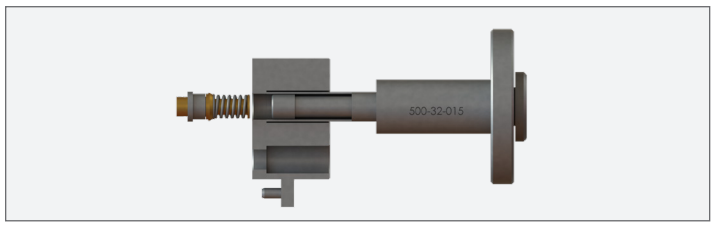
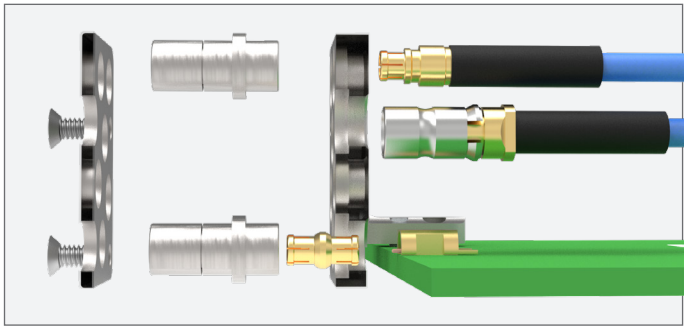


Figure 10.7
Contact Removed from Block

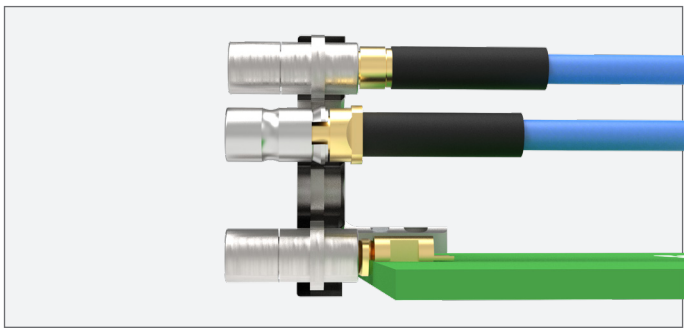
APPENDIX II : VITA 67.3 SMPM PLUG-IN CONNECTOR CONTACTS INSTALLATION INSTRUCTIONS

VITA 67.3 SMPM contacts have a unique snap-in contact or adapter configuration that enables them to be easily assembled and removed from the Plug-In Connector Module and provide excellent radial captivation on the multiport block.

Step 1 (configuration dependent):
- Edge Launch: Install bullet into adapter (1132-6116) and place 'sub-assembly' into desired port location
- Snap-In: Screw the front plate unto the main module. Pinpoint desired port location.
- Plug-In: Install adapter (1132-6116) into main module and screw the front plate unto the main module



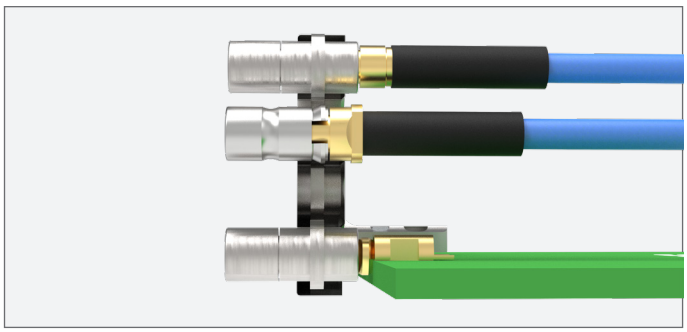
Step 2 (configuration dependent):
- Edge Launch: Screw the front plate unto the main module.
- Snap-In: Snap the cable assemble into the desired port location.
- Plug-In: Plug in cable assembly into backend of adapter 1132-6116



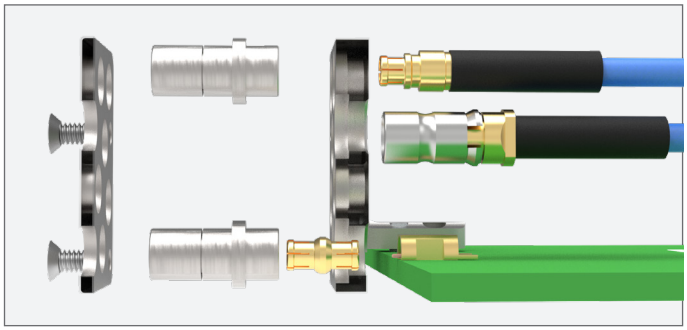
REMOVAL INSTRUCTIONS

To remove the adapter and snap-in contact, first remove the front plate. Pull the adapter out and/or use removal tool PN 500-32-044 to compress the clip and plunge the snap-in contact from the housing.

Step 1 (configuration dependent):
- Edge Launch: Unscrew the front plate from the main module.
- Snap-In: Unscrew the front plate from the main module.
- Plug-In: Pinpoint desired port location



Step 2 (configuration dependent):
- Edge Launch: Remove adapter (1132-6116) and bullet 'sub-assembly'. Note the bullet should come with the adapter.
- Snap-In: Use tool 500-32-044 to remove snap-in assembly. Push 500-32-044 over the connector until audible click is heard. Then press the plunger to push the cable out.
- Plug-In: Pull cable to remove from port location. Do not bend solder joint



APPENDIX III: VITA 67.3 SMPS BACKPLANE CONNECTOR CONTACTS INSTALLATION INSTRUCTIONS

VITA 67.3 SMPS contacts have a similar 'contact + adapter' configuration to the SMPM series. However, in the SMPS series the Female-Female bullet is replaced by a Female-Male adapter. This feature enables quick installation, removal, and centering of the contact relative to the connector module.

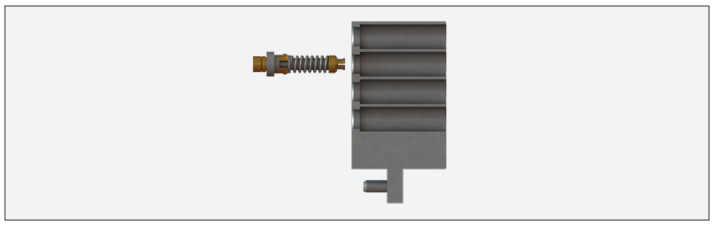


Figure 11
Contact Installation to Connector Module (by hand)
Uses Tool PN: 500-38-008

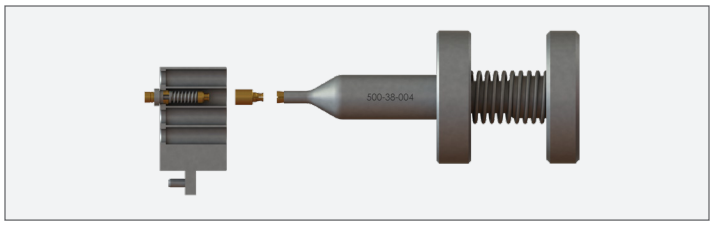


Figure 11.1
Bullet Installation to Contact. Uses Tool PN 500-38-004.

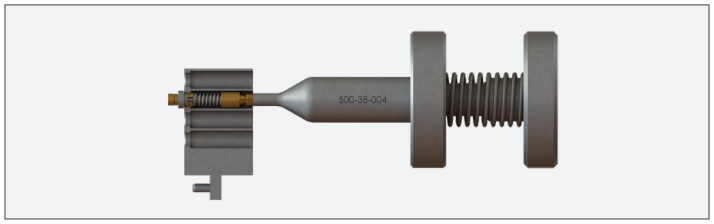


Figure 11.2
Bullet Fully Seated in Contact Uses Tool PN: 500-38-014

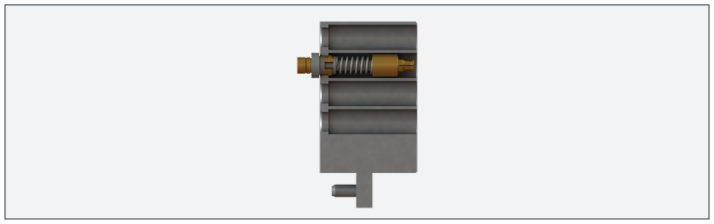


Figure 11.3
Final Assembly. Connector Module + Contact + Bullet

REMOVAL INSTRUCTIONS:

To remove the contacts use removal tool 500-32-007, then removal tool 500-38-006 is used to compress the clip and expel the contact from the housing.

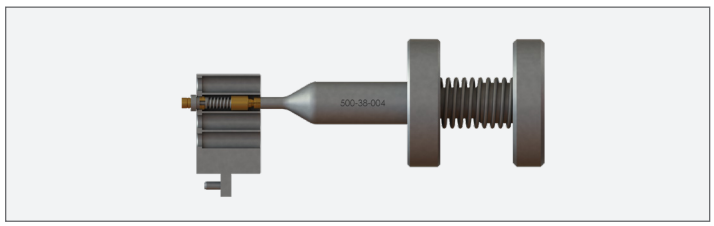


Figure 11.4
Bullet Removed From Contact. Uses Tool PN 500-32-007.

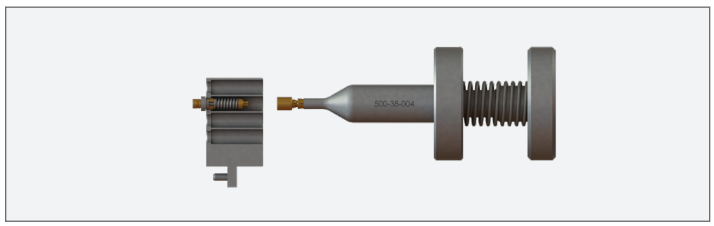


Figure 11.5
Bullet Removed From Contact

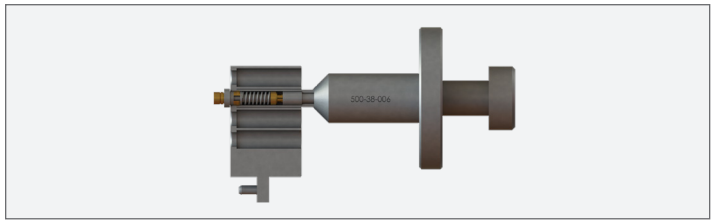


Figure 11.6
Contact Removed. Uses Tool PN 500-38-006.

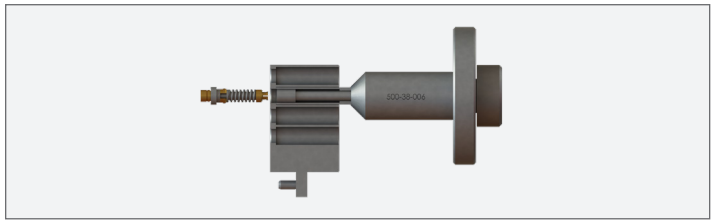
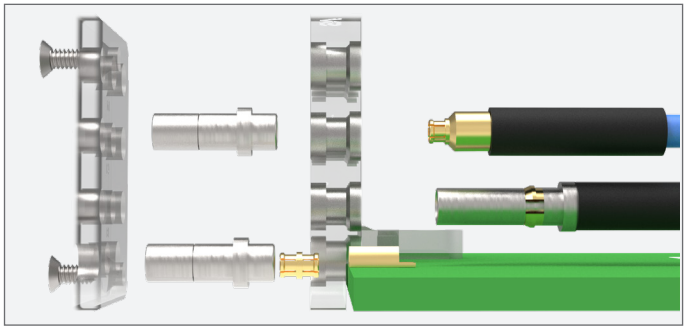


Figure 11.7
Contact Removed from Block

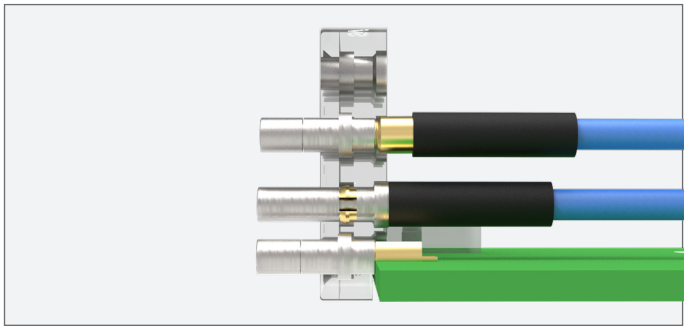
APPENDIX IV : VITA 67.3 SMPS PLUG-IN CONNECTOR CONTACTS INSTALLATION INSTRUCTIONS

VITA 67.3 SMPS contacts have a unique snap-in contact or adapter configuration that enables them to be easily assembled and removed from the Plug-In Connector Module and provide excellent radial captivation on the multiport block.

Step 1 (configuration dependent):
- Edge Launch: Install bullet into adapter (SF1138-6020) and place 'sub-assembly' into desired port location
- Snap-In: Screw the front plate unto the main module. Pinpoint desired port location.
- Plug-In: Install adapter (SF1138-6020) into main module and screw the front plate unto the main module



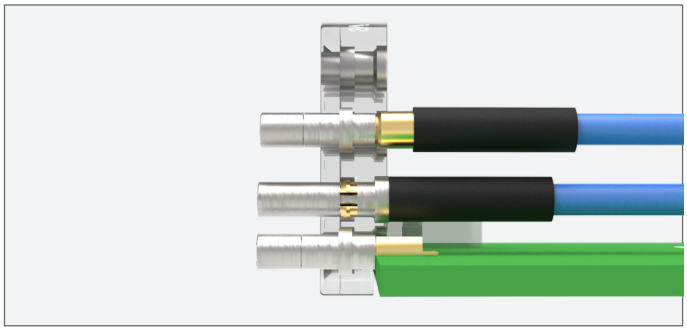
Step 2 (configuration dependent):
- Edge Launch: Screw the front plate unto the main module.
- Snap-In: Snap the cable assemble into the desired port location.
- Plug-In: Plug in cable assembly into backend of adapter SF1138-6020



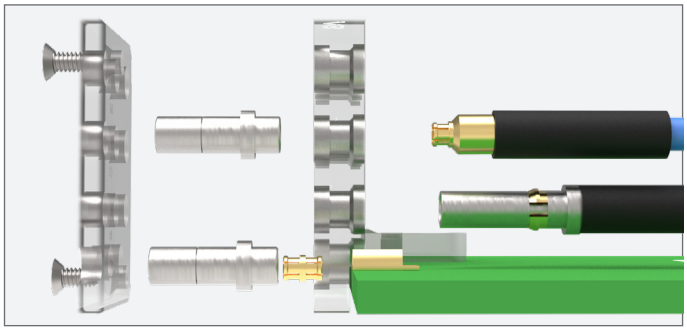
REMOVAL INSTRUCTIONS:

To remove the adapter and snap-in contact, first remove the front plate. Pull the adapter out and/or use removal tool PN 500-38-006 to compress the clip and plunge the snap-in contact from the housing.

Step 1 (configuration dependent):
- Edge Launch: Unscrew the front plate from the main module.
- Snap-In: Unscrew the front plate from the main module.
- Plug-In: Pinpoint desired port location

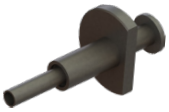
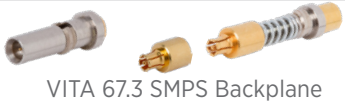
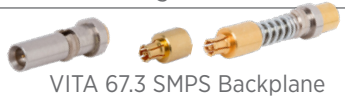


Step 2 (configuration dependent):
- Edge Launch: Remove adapter (SF1138-6020) and bullet 'sub-assembly'. Note the bullet should come with the adapter.
- Snap-In: Use tool 500-38-006 to remove snap-in assembly. Push 500-38-006 over the connector until audible click is heard. Then press the plunger to push the cable out.
- Plug-In: Pull cable to remove from port location. Do not bend solder joint



APPENDIX V: VITA 67.3 TOOL OVERVIEW

SV Microwave has developed a suite of VITA 67.3 tools that simplify the task of installing and removing both contacts and cable assemblies from an embedded systems application. The table below provides an overview to help determine which tool should be used for each of SV's VITA 67.3 products.

Tool PN	For Use With	Description
 SMPS Female VITA 67.3 Bullet Insertion Removal Tool, 10 inch 500-38-015	 SMPS Female to SMPS Male VITA 67.3 Adapter 1138-4048	This tool installs and uninstalls the removable adapter from the VITA 67.3 SMPM Backplane contact. This long tool (10 inches) is suitable for use when your Backplane is already installed in a chassis.
 SMPS Female VITA 67.3 Bullet Insertion Removal Tool, 10 inch 500-38-014	 SMPS Female to SMPS Male VITA 67.3 Adapter 1138-4048	This tool installs and uninstalls the removable adapter from the VITA 67.3 SMPM Backplane contact. This shorter tool is suitable when your Backplane is not yet installed in a chassis.
 SMPM Female VITA 67.3 Bullet Insertion Removal Tool, 10 inch 500-32-053	 SMPM Female to SMPS Female VITA 67.3 Backplane Adapter 1132-4096	This tool installs and uninstalls the removable adapter from the VITA 67.3 SMPS Backplane contact. This shorter tool is suitable when your Backplane is not yet installed in a chassis.
 SMPM Female VITA 67.3 Bullet Insertion Removal Tool 500-32-052	 SMPM Female to SMPS Female VITA 67.3 Backplane Adapter 1132-4096	This tool installs and uninstalls the removable adapter from the VITA 67.3 SMPS Backplane contact. This long tool (10 inches) is suitable for use when your Backplane is already installed in a chassis.
 SMPM VITA 67.3 Cable Installation Tool 500-32-045	 VITA 67.3 SMPM Cable Assemblies	Designed to install both 0.047" and 0.085" cable assemblies into Backplane and Plug-In Modules. Both 500-32-045 and 500-32-034 accomplish the same task but have been developed to provide the operator with different cable handling options.
 SMPM VITA 67.3 Cable Installation Tool 500-32-034	 All VITA 67.3 SMPM Cable Assemblies	Designed to install both 0.047" and 0.085" cable assemblies into Backplane and Plug-In Modules. Both 500-32-045 and 500-32-034 accomplish the same task but have been developed to provide the operator with different cable handling options.
 500-32-015	 Female VITA 67.3 SMPM Backplane Contact	Designed to remove both 0.047" and 0.085" cable assemblies from a Backplane Module.
 500-32-044	 Male VITA 67.3 SMPM Plug-In Contact	Designed to remove both 0.047" and 0.085" cable assemblies from a Plug-In Module.
 500-38-006	 VITA 67.3 SMPS Backplane and Plug-In Contacts	Designed to remove both 0.047" and 0.085" cable assemblies from a Backplane or Plug-In Module.
 500-38-008	 VITA 67.3 SMPS Backplane and Plug-In Contacts	Designed to install both 0.047" and 0.085" cable assemblies into a Backplane or Plug-In Module.

APPENDIX VI
PLUG-IN CABLE AND CONNECTOR ROUTING OPTIONS

This Appendix has been included to illustrate some pictorial examples showing routing options for terminating backplane and Plug-In modules

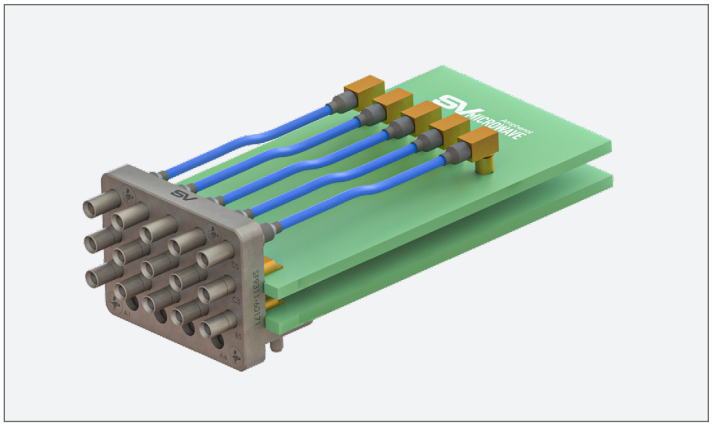


Figure 12
Stacked Circuit Boards

Stacking circuit boards can achieve the highest signal density. Cards can be stacked and aligned with the connector rows. In this example with a 19-Port VITA 67.3 SMPS Plug-In Module, there are four rows for stacked circuit boards.

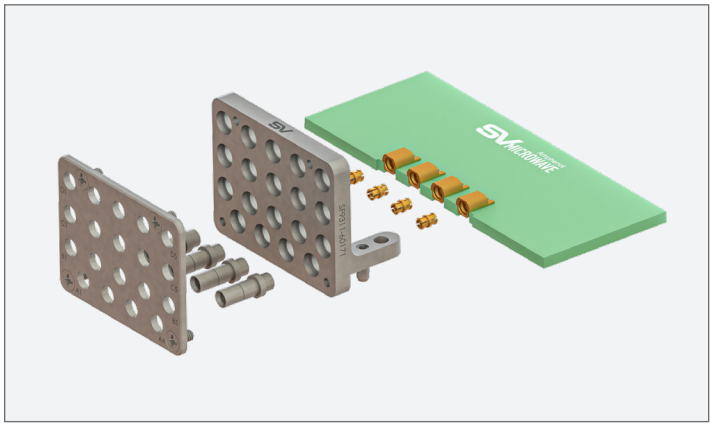


Figure 13
Direct Edge Launch

In this Plug-In Module, adapter contacts (SF1138-6020) are used with SMPS adapters ("bullets", PN 1138-4001) and SMPS Edge Launch connectors (3285-6001) to launch the signal directly from the module to the PCB.

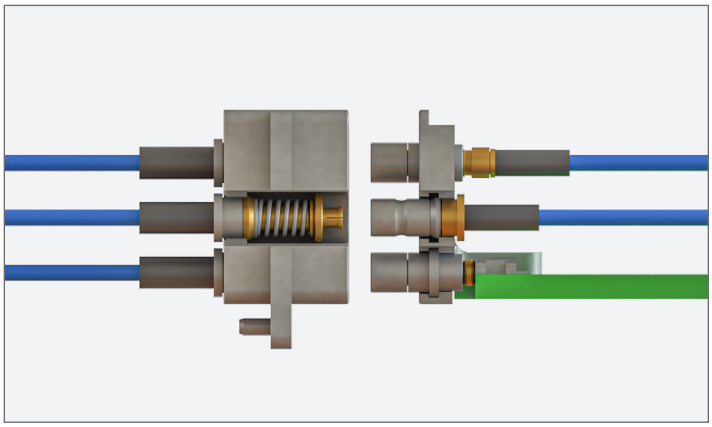


Figure 14
Cable to Cable with Adapter Mated Set

In this mated set of VITA 67.3 SMPM modules, the modules are cabled on both sides. The Backplane module uses a standard SMPM contact (3221-40066). The top and bottom port locations of the Plug-In module are using adapter 1132-6116, connecting to a cabled connector or edge launch. The middle port location is using snap-in SMPM cable contact (3211-60351) terminated to Ø.047" flex cable.

APPENDIX VII: BACKPLANE CABLE ROUTING OPTIONS

This Appendix has been included to illustrate some pictorial examples showing routing options for terminating backplane modules. Examples show the difference between Ø.047" cable, Ø.085", and a Right Angle cable launch.

Typical inside radius (cable dependent):

- Ø.047 = R .100" Min.
- Ø.085 = R .250" Min

Right Angle connectors available with Ø.047" and Ø.085" termination options.

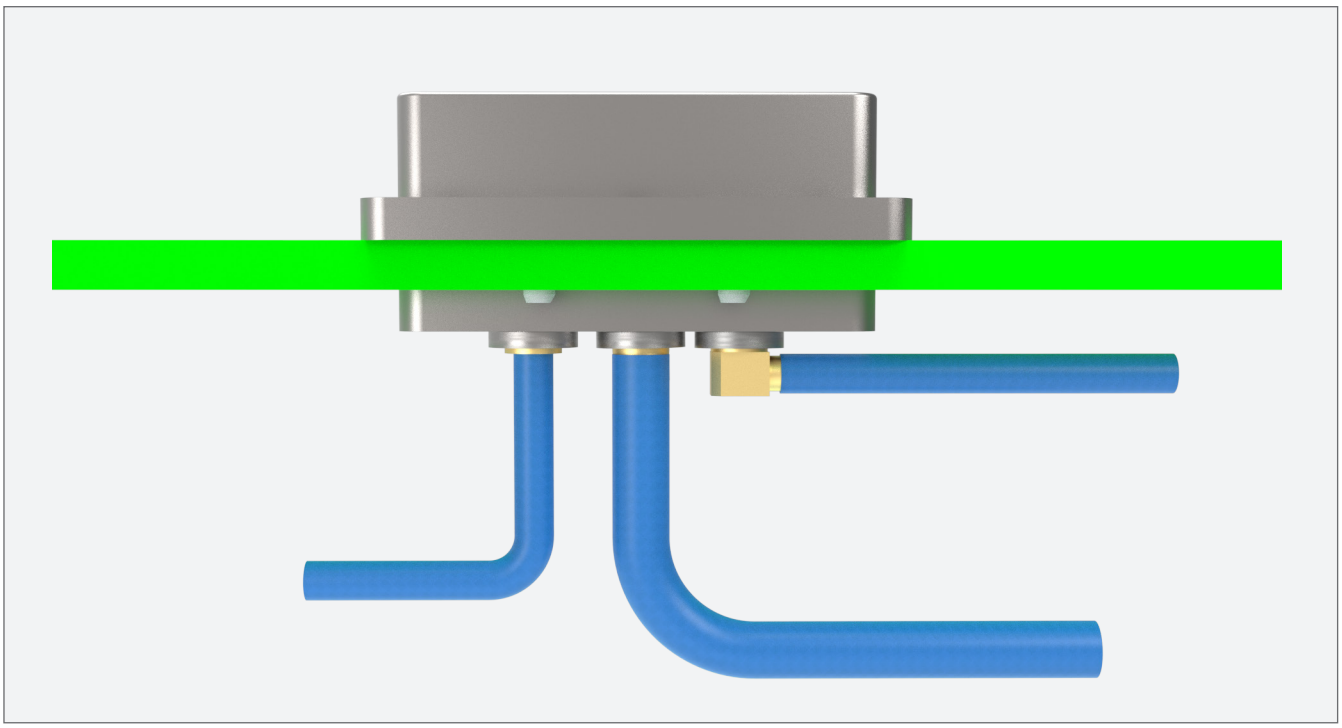


Figure 15
Backplane Routing Options

APPENDIX IX: VITA 67.1 AND 67.2 OVERVIEW

The VITA 67.1 and 67.2 Open VPX standards have enjoyed growing popularity in recent years as they are adopted by an increasing number of DOD programs. SV Microwave, as a leader in the development of 67.1 and 67.2, continues to support these important products both directly and through a wide product offering in our distribution channel. Key features include:

- Populated Plug-In Connector Modules inter-mate with Backplane Connector Modules across multiple qualified manufacturers
- Plug-In Connector Modules must be populated by that manufacturer's Plug-In Contact

VITA 67.1 SMPM
4-Port (1/2 width) Backplane
Connector Module
SV PN: SF1132-6037

VITA 67.2 SMPM
8-Port (full width) Backplane
Connector Module
SV PN: SF1132-6036

VITA 67.1 SMPM
4-Port (1/2 width) Plug-In
Connector Module
SV PN: SF9321-60015

VITA 67.2 SMPM
8-Port (full width) Plug-In
Connector Module
SV PN: SF9321-60013

VITA 67.1/67.2 SMPM
Plug-In Contact
For Ø.047" Cable
SV PN: 3221-40019

VITA 67.1/67.2 SMPM
Plug-In Contact
For Ø.085" Cable
SV PN: 3221-40022

SMPM Female VITA 67.1/67.2 to
SMA Male Cable Assembly
For Ø.085" Cable
SV PN: 7032-6729-060 (6")
SV PN: 7032-6729-120 (12")

SMPM Female VITA 67.1/67.2 to
SMA Male Cable Assembly
For Ø.047" Cable
SV PN: 7032-6728-060 (6")
SV PN: 7032-6728-120 (12")

VITA 67.1/67.2 SMPM
Contact Removal Tool
SV PN: 500-32-022

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