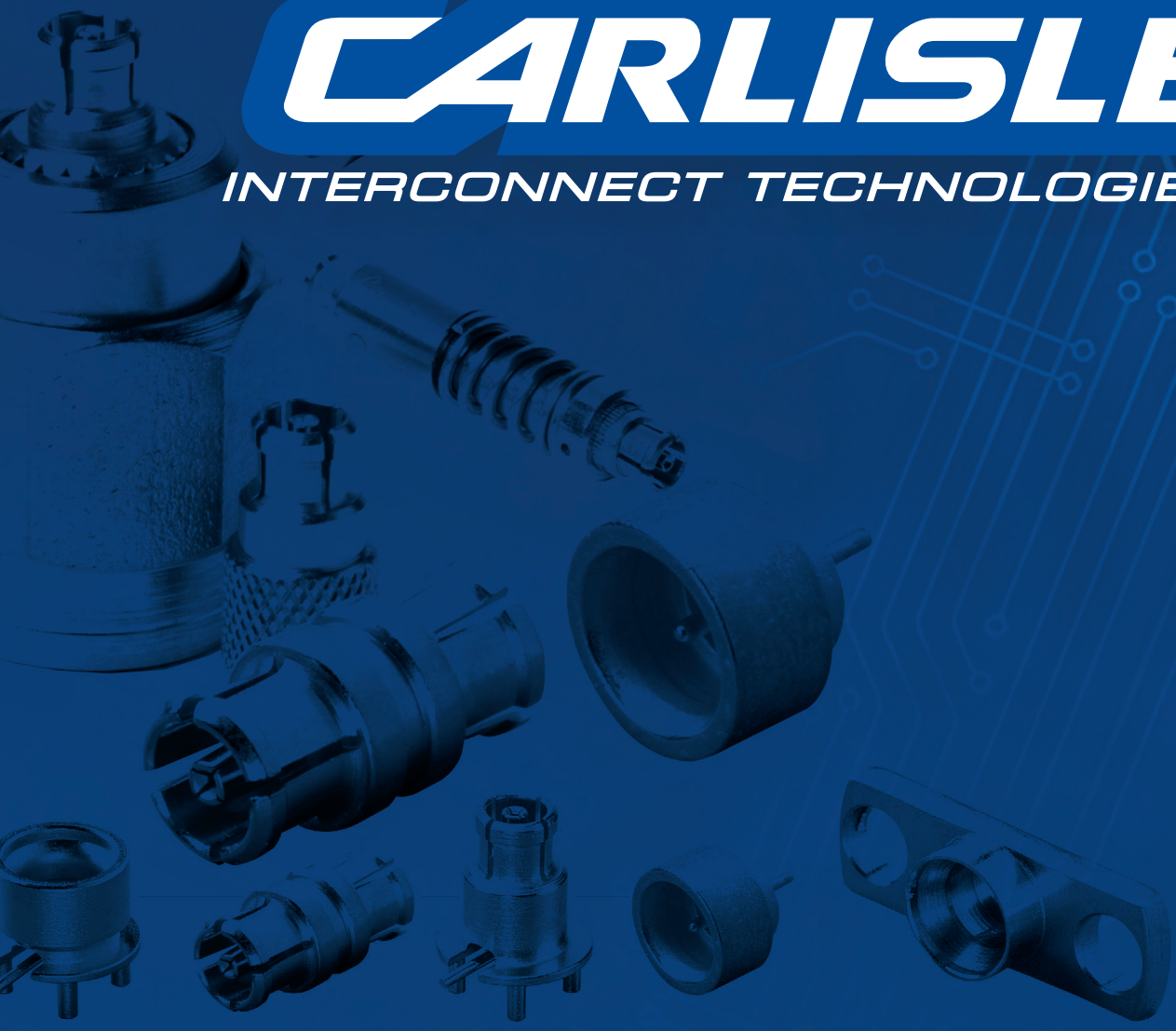
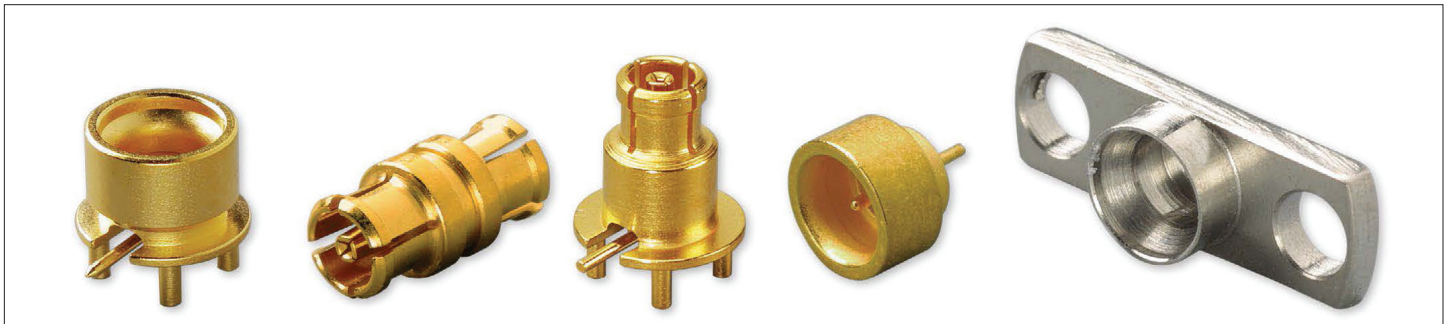
CARLISLE®
INTERCONNECT TECHNOLOGIES



SMPM®
Interconnect Series

SMPM® Interconnect Series



SMPM® Connector Product Line

INTRODUCTION

Carlisle Interconnect Technologies (CarlisleIT) designed the SMPM Connector product line to further improve package density of RF/Microwave systems. With an interface about 30% smaller than its predecessor, the SMPM Connector is now an industry standard (as outlined in the MIL-STD-348 document) for RF/Microwave applications and has enabled design engineers to increase design performance and complexity while improving form factor.

The durable construction and ability to tolerate radial and axial misalignment allow for a blindmate interconnect solution capable of withstanding multiple engagement/disengagement cycles without degradation in electrical performance.

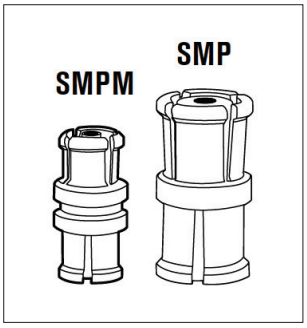
Due to its high-frequency performance and blindmate configuration, the SMPM Connector is a standard interface in many applications including:

- Antennas
- Broadband
- Wireless
- Military
- Instrumentation

FEATURES

- DC - 65 GHz frequency range
- 50 Ω impedance
- Blindmate configuration
- MIL-PRF-39012 compliant
- Ability to withstand radial/axial misalignment
- Board-mount, field-replaceable, bullets, hermetic, and cable connector configurations
- Custom connectors available

SPECIFICATIONS



The SMPM Connector is about 30% smaller than its predecessor, the SMP Connector.

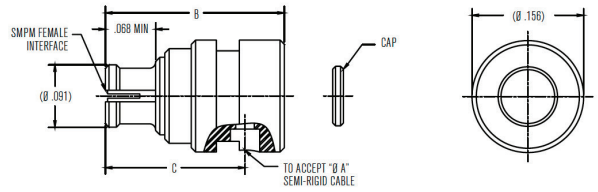
Left: SMPM Female to 2.92 mm Male Adapter (P123-1CCSF) Right: SMPM Female to .047" Cable (P107-1CC)

Parameter		Specifications
Impedance		50 Ω
Frequency Range		DC - 65 GHz
VSWR		1.02 + 0.012 x F (GHz)
Insertion Loss		0.04 x √F (GHz)
DWV		325 Vrms
Insulation Resistance		5000 MΩ (min)
RF High Pot		190 Vrms @ 5 MHz
Force to Engage	Detent	6.5 lb. (max)
	Smooth Bore	2.5 lb. (max)
Force to Disengage	Detent	4 lb. (min)
	Smooth Bore	1.5 lb. (min)
Radial Misalignment		+/- .010"
Axial Misalignment		0.000/0.010"
Temperature Range		-55 °C to 165 °C
Thermal Shock		MIL-STD-202, Method 107, Cond C
Moisture Resistance		MIL-STD-202, Method 106, except step 7b
Corrosion		MIL-STD-202. Method 101, Cond B
Vibration		MIL-STD-202, Method 204, Cond D
Shock		MIL-STD-202, Method 213, Cond I

SMPM Interconnect Series Configurations

CABLE CONNECTORS

SMPM Female Right Angle for Semi-Rigid and Semi-Flex Cable/P105



P/N	Ø A	B	C
-1CC	.047"	.250"	.195"
-2CC	.085"	.250"	.195"
-3CC	.047" Low Loss	.178"	.126"

SMPM Female Straight Connector for Semi-Rigid and Semi-Flex Cable/P107

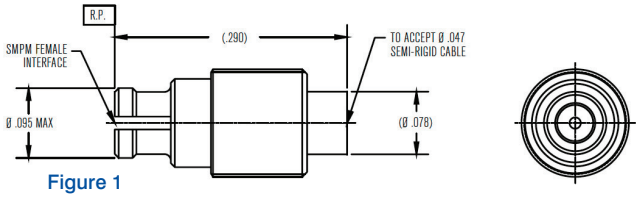


Figure 1

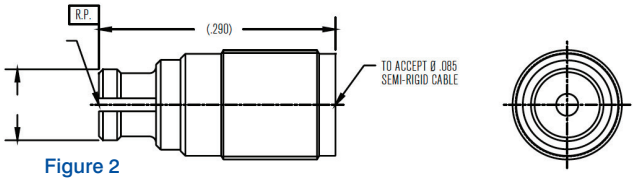
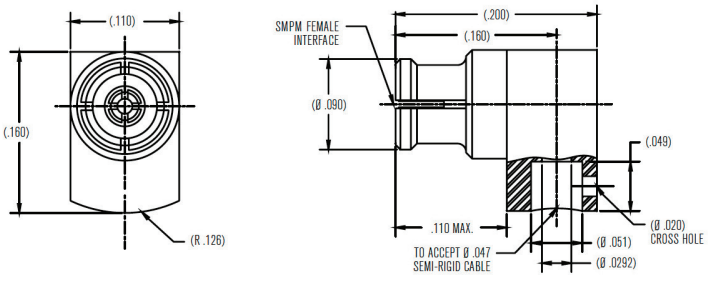


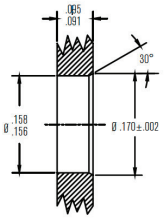
Figure 2

P/N	Figure(s)	Cable Type
-1CC	1	.047" Semi-Rigid/Semi-Flex
-2CC	2	.085" Semi-Rigid/Semi-Flex

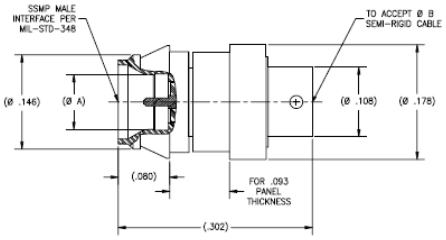
SMPM Female Right Angle for 0.047" Semi-Rigid and Semi-Flex Cable/P148-1CC



SMPM Male Snap-In Panel-Mount Connector for Semi-Rigid and Semi-Flex Cable/P155

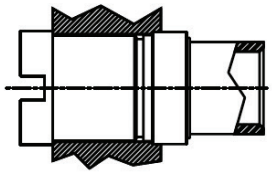


Mounting Panel
Scale: None

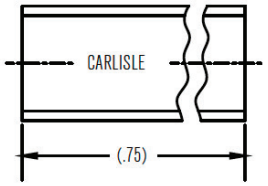


P/N	(Ø A)	Interface	Ø B Cable
-1CCSF	(.088")	Smooth Bore	.086" Semi-Rigid/Semi-Flex
-2CCSF	(.085")	Detent	.086" Semi-Rigid/Semi-Flex
-3CCSF	(.088")	Smooth Bore	.047" Semi-Rigid/Semi-Flex
-4CCSF	(.085")	Detent	.047" Semi-Rigid/Semi-Flex

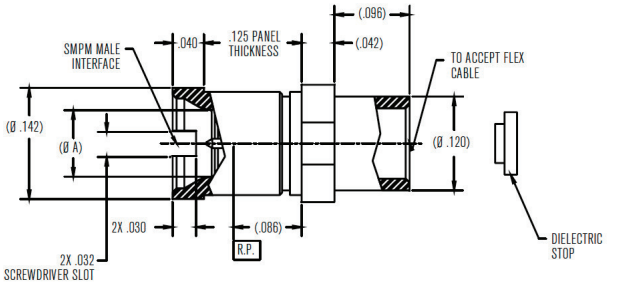
SMPM Male Straight Panel-Mount Connector for 0.086" Flexible Cable/P156



Connector Installed View



Recommended Mounting Panel

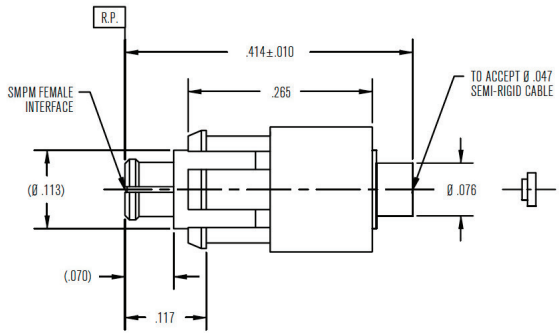


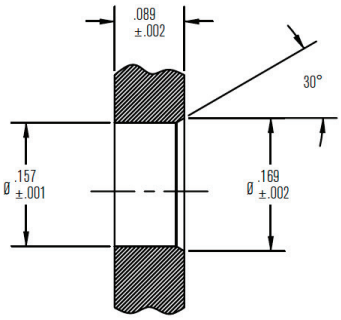
P/N	Interface	(Ø A)	Cable Type
-1CCSF	Detent	(.0845")	HFE100D, .085" Semi-Rigid/Semi-Flex
-2CCSF	Smooth Bore	(.0875")	

SMPM Interconnect Series Configurations Cont'd.

CABLE CONNECTORS CONT'D.

SMPM Female Snap-In Panel-Mount Connector for Semi-Rigid and Semi-Flex Cables/P172-1CC

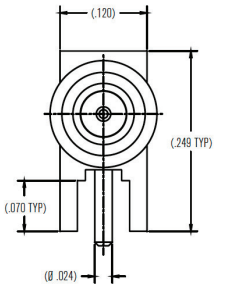


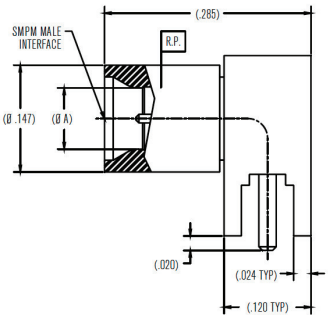


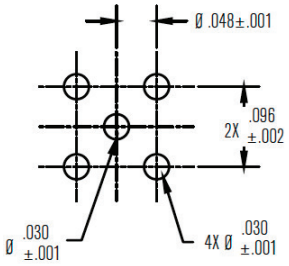
Recommended Mounting Hole

PCB CONNECTORS

SMPM Male Right Angle PCB Mount/P303







P/N	Interface	(Ø A)
-1CC	Detent	(.084")
-2CC	Smooth Bore	(.088")

SMPM Male Straight Surface Mount/P311

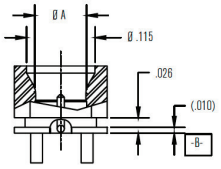
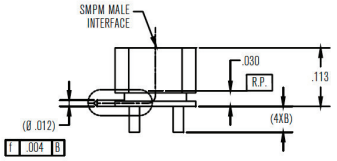


Figure 1



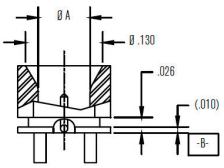
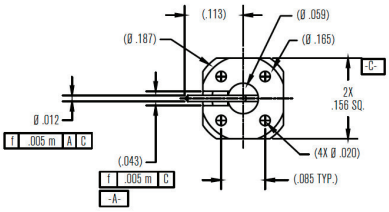


Figure 2



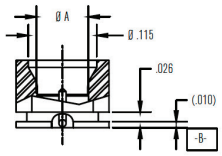
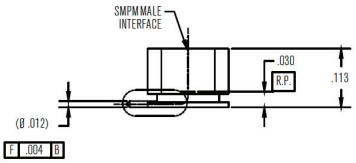


Figure 3



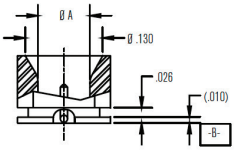
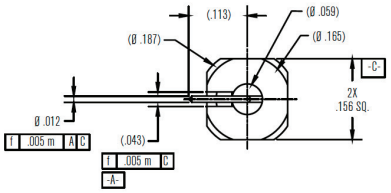
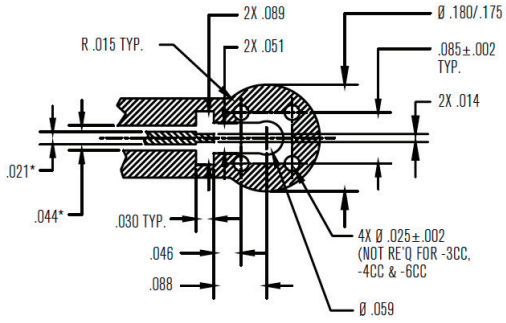


Figure 4





Mounting Hole Pattern

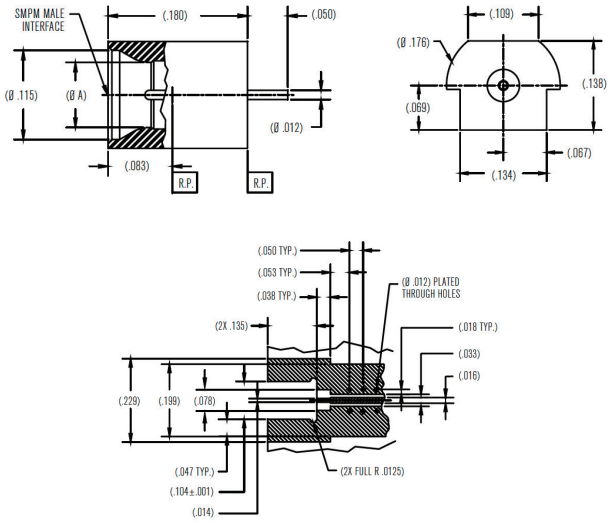
*Dimensions shown are for Rogers 4350 PCB material. These dimensions may vary depending on PCB material used.

P/N	Ø A	B	Interface	Figure
-1CC	.085"	.05"	Detent	1
-2CC	.088"	.05"	Non-Detent	1
-3CC	.085"	NR	Detent	3
-4CC	.088"	NR	Detent	3
-5CC	.088"	.050"	Catcher's Mitt	2
-6CC	.088"	NR	Catcher's Mitt	4

SMPM Interconnect Series Configurations Cont'd.

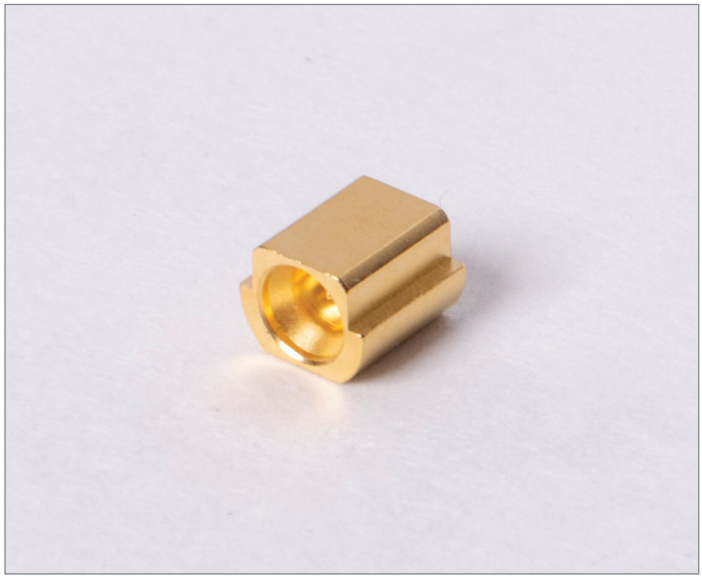
PCB CONNECTORS CONT'D.

SMPM Male Straight Edge-Mount Connector/P319



Recommended PCB Cutout Scale: 6/1

P/N	Interface	(Ø A)
-1CC	Detent	(.085")
-2CC	Smooth Bore	(.088")



P319-1CC

PANEL MOUNT

SMPM Male Thread-In Panel Mount/P121

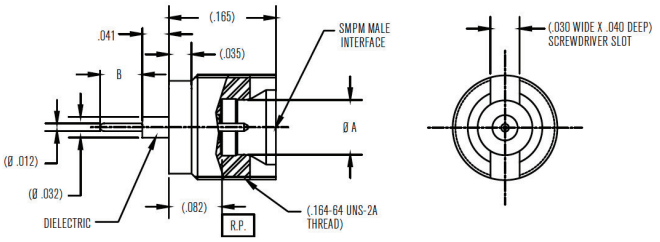


Figure 1

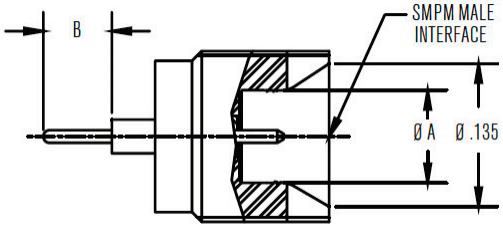
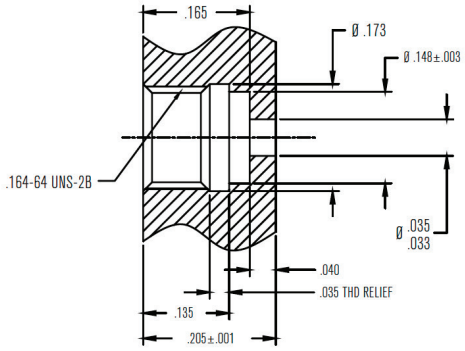


Figure 2



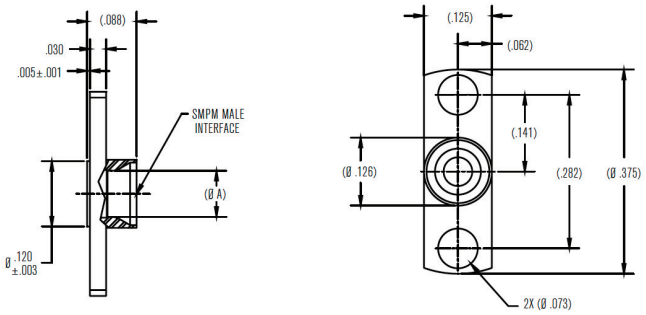
Recommended Mounting Hole

P/N	Ø A	B	Interface	Figure
-1CCSF	.0840"/.0850"	.015"	Detent	1
-2CCSF	.0860"/.0880"	.015"	Smooth Bore	1
-3CCSF	.0840"/.0850"	.065"	Detent	1
-4CCSF	.0860"/.0880"	.065"	Smooth Bore	1
-5CCSF	.0860"/.0880"	.015"	Catcher's Mitt	2
-6CCSF	.0860"/.0880"	.065"	Catcher's Mitt	2

SMPM Interconnect Series Configurations Cont'd.

PANEL MOUNT CONT'D.

SMPM Male 2-Hole Flange Mount/P203



P/N	Interface	(Ø A)
-1SF	Full Detent	(.0840")
-2SF	Smooth Bore	(.0880")

SHROUDS

SMPM Male Thread-In Shroud/P202

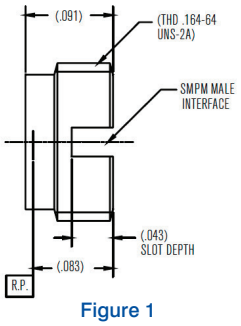


Figure 1

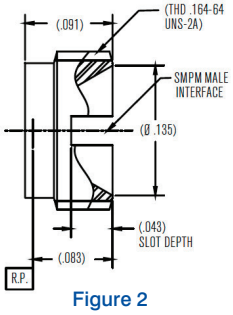
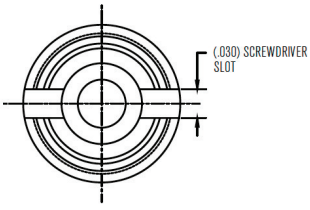
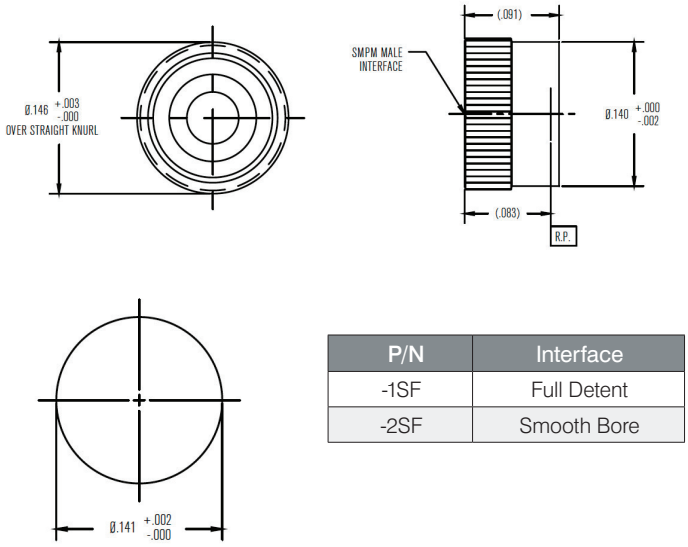


Figure 2



P/N	Interface	Figure
-1CCSF	Detent	1
-2CCSF	Smooth Bore	1
-3CCSF	Catcher's Mitt	2

SMPM Male Press-In Shroud/P205

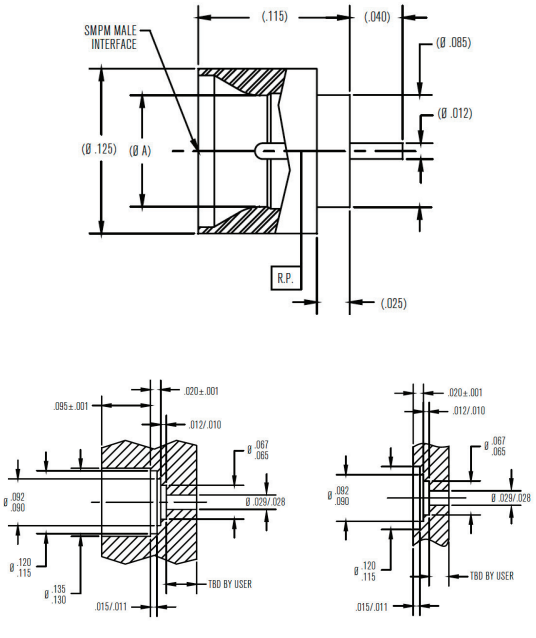


Recommended Mounting Hole

P/N	Interface
-1SF	Full Detent
-2SF	Smooth Bore

HERMETICS

SMPM Male Straight Hermetic Termination/P122

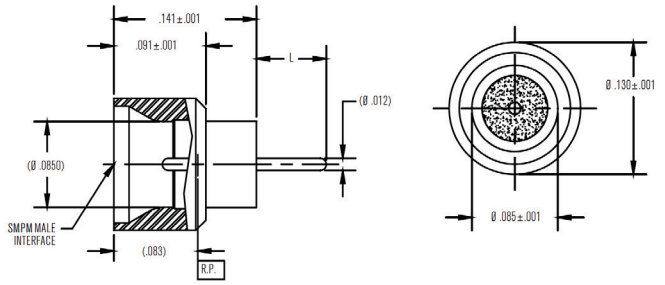


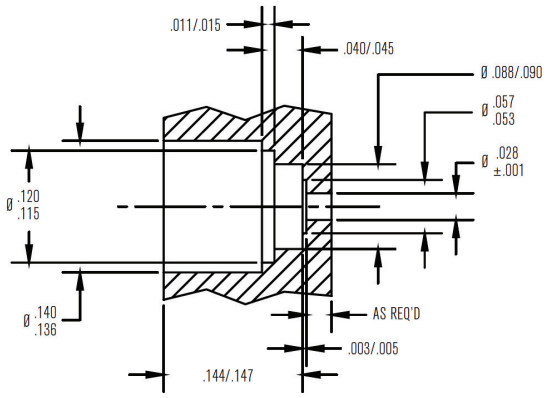
P/N	Interface	(Ø A)
-3CC	Detent	(.084")
-4CC	Smooth Bore	(.088")

SMPM Interconnect Series Configurations Cont'd.

HERMETICS CONT'D.

SMPM Male with Detent, Straight Solder-In Hermetic/P154





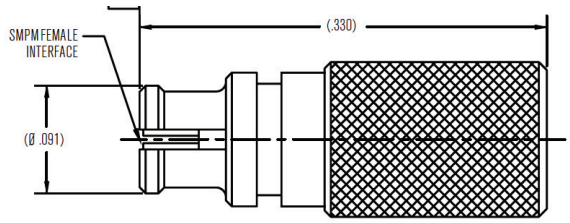
Recommended Mounting Hole Scale 10:1

P/N	Interface	P/N	Interface
-1CC	.030"	-12CC	.085"
-2CC	.035"	-13CC	.090"
-3CC	.040"	-14CC	.095"
-4CC	.045"	-15CC	.100"
-5CC	.050"	-16CC	.105"
-6CC	.055"	-17CC	.110"
-7CC	.060"	-18CC	.115"
-8CC	.065"	-19CC	.120"
-9CC	.070"	-20CC	.125"
-10CC	.075"	-21CC	.130"
-11CC	.080"	-22CC	.135"

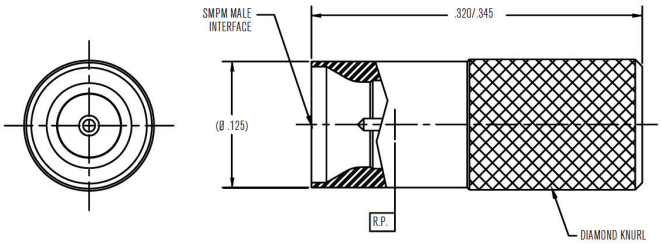
SMPM Male with Detent, Straight Solder-In Hermetic (P154)

SHORTS

SMPM Female Short/P170-1CC



SMPM Male Short/P180

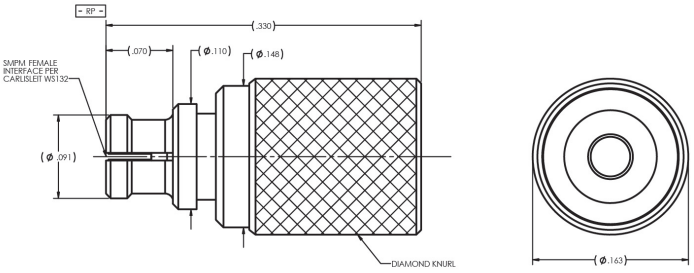


P/N	Interface
-1CCSF	Detent
-2CCSF	Smooth Bore

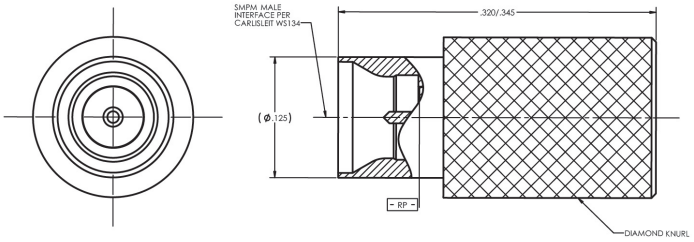
SMPM Interconnect Series Configurations Cont'd.

LOADS

SMPM Female 50 Ω Termination/P109-1CC



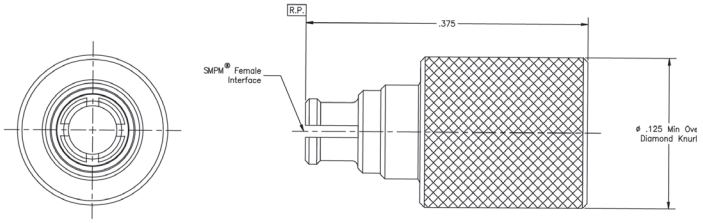
SMPM Male 50 Ω Termination/P110



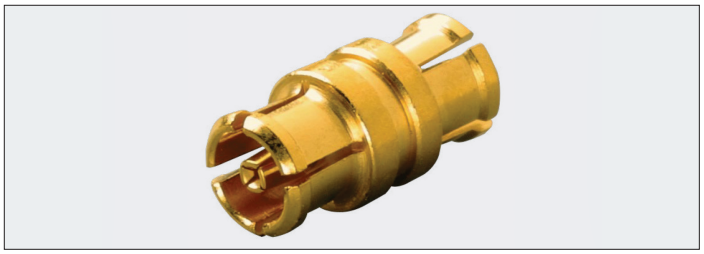
P/N	Interface
-1CCSF	Detent
-2CCSF	Smooth Bore

OPENS

SMPM Female Open/P171-1



BULLETS/ADAPTERS



SMPM Female to SMPM Female Bullet (P101-1CC)

SMPM Female to SMPM Female Bullet/P101

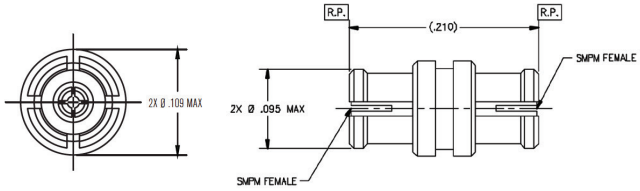


Figure 1

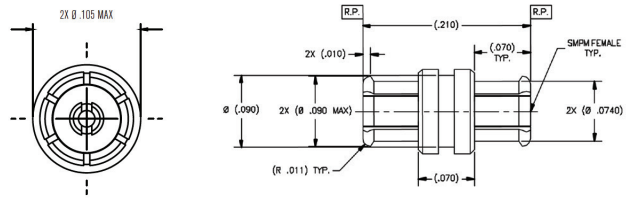
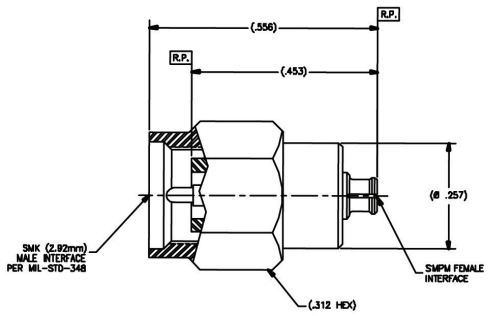


Figure 2

P/N	Figure	Other
-1CC	1	4-Slot Body
-2CC	2	6-Slot Body

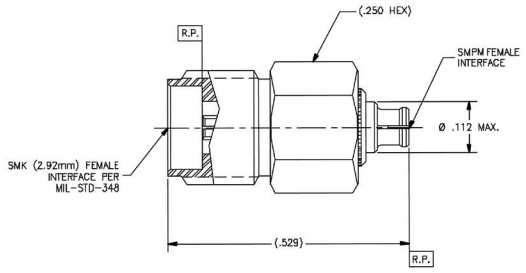
SMPM Female to SMK (2.92 mm) Male Straight Adapter/P123-1CCSF



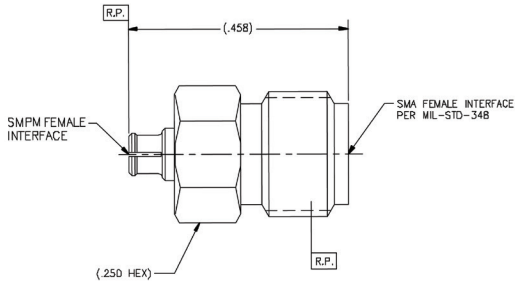
SMPM Interconnect Series Configurations Cont'd.

BULLETS/ADAPTERS CONT'D.

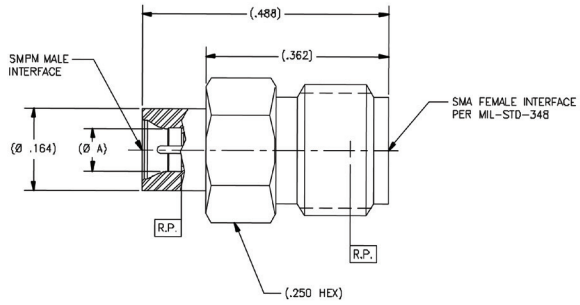
SMPM Female to SMK (2.92 mm) Male Straight Adapter/P125-1CCSF



SMPM Female to SMA Female Straight Adapter/P127

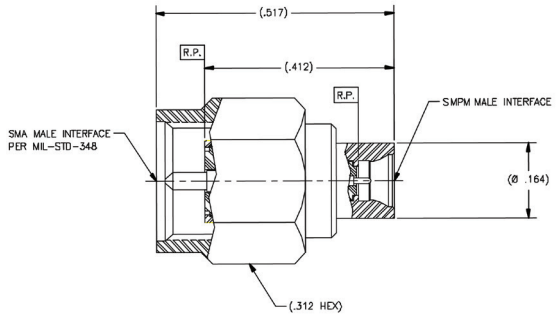


SMPM Male to SMA Female Straight Adapter/P128



P/N	Interface	(Ø A)
-1CCSF	Detent	(.085"/.084")
-2CC	Non-Detent	(.088"/.087")

SMPM Male to SMA Male Straight Adapter/P130



P/N	Interface
-1CCSF	Detent
-2CCSF	Smooth Bore

SMPM Female to SMPM Female Spring-Loaded Bullet/P138

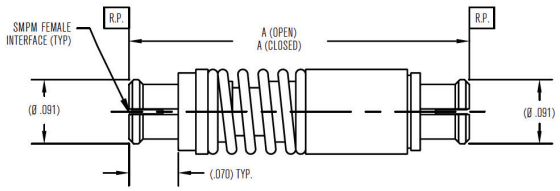


Figure 1

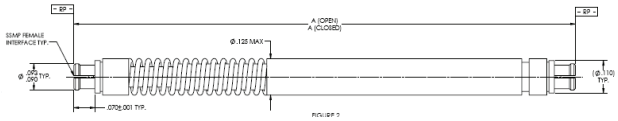


Figure 2

P/N	A (Open)	A (Close)	Figure
-1CCSF	(.515")	(.490")	1
-2CCSF	(.490")	(.465")	1
-3CCSF	(.465")	(.440")	1
-5CCSF	(.552")	(.502")	1
-6CCSF	(.600")	(.550")	1
-7CCSF	(.427")	(.387")	2

Spring-Loaded Bullet

SMPM Interconnect Series Configurations Cont'd.

MATERIALS & FINISHES

Dielectric	Specification
Virgin PTFE Fluorocarbon	ASTM D 1710 and ASTM D 1457
Polyamide-Imide	ASTM D5204 Group 2 Class 1
Glass	Corning 7070 or Equivalent

Finish	Specification
Gold (75u in. Typ)	ASTM-B488 Type 1, Class 1.25
Nickel (100u in. Typ)	SAE AMS-QQ-N-290
Passivation	ASTM A967

Metal	Specification
BeCu (Beryllium Copper)	ASTM B 196 and/or ASTM B 197
Brass	ASTM B 36, B121, B16, B16M
Stainless Steel	ASTM A484/ A582 or A555/581
Iron-Nickel-Cobalt	ASTM F-15

ORDERING INFORMATION

Configuration	Part Number*	Description	Options
Cable Connectors	P105	SMPM Female • Right Angle • For Semi-Rigid & Semi-Flex Cables	See page 2 for options.
	P107	SMPM Female • Straight • For Semi-Rigid & Semi-Flex Cables	
	P148-1CC	SMPM Female • Right Angle • For 0.047" Semi-Rigid & Semi-Flex Cables	
	P155	SMPM Male • Snap-In Panel-Mount • For Semi-Rigid & Semi-Flex Cables	
	P156	SMPM Male • Straight Panel-Mount • For 0.086" Flexible Cable	
	P172-1CC	SMPM Female • Snap-In Panel-Mount • For Semi-Rigid & Semi-Flex Cables	See page 3 for options.
PCB Connectors	P303	SMPM Male • Right Angle PCB Mount	See page 3 for detents.
	P311	SMPM Male • Straight Surface-Mount	
	P319	SMPM Male • Straight Edge-Mount	See page 4 for detents.
Panel Mount	P121	SMPM Male • Thread-In Panel-Mount	See page 4 for detents.
	P203	SMPM Male • 2-Hole Flange-Mount	See page 5 for detents.
Shrouds	P202	SMPM Male • Thread-In	See page 5 for detents.
	P205	SMPM Male • Press-In	
Hermetics	P122	SMPM Male • Straight Hermetic Termination	See page 5 for detents and pin styles.
	P154	SMPM Male • With Detent • Straight Solder-In	See page 6 for detents and pin styles.
Shorts	P170-1CC	SMPM Female	See page 6 for detents.
	P180	SMPM Male	
Loads	P109-1CC	SMPM Female • 50 Ω Termination	See page 7 for detents.
	P110	SMPM Male • 50 Ω Termination	
Opens	P171-1	SMPM Female	See page 7 for detents.
Bullets/ Adapters	P101	SMPM Female to SMPM Female • Bullet	See page 7 for 4-slot & 6-slot CC designs.
	P123-1CCSF	SMPM Female to SMK/2.92 mm Male • Straight Adapter	See page 7 for detents.
	P125-1CCSF	SMPM Female to SMK/2.92 mm Female •Straight Adapter	See page 8 for detents.
	P127	SMPM Female to SMA Female • Straight Adapter	
	P128	SMPM Male to SMA Female • Straight Adapter	
	P130	SMPM Male to SMA Male • Straight Adapter	
	P138	SMPM Female to SMPM Female • Spring-Loaded Bullet	

* Part numbers have a suffix based on the option selected. Please refer to outline drawings for more information.

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- TPM - Total Preventative Maintenance
- Culture
- Supply Chain
- Environment
- Safety
- Quality
- Delivery
- Cost

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