

SMP/SMPM/SMPS

High Performance

Connectors to 65 GHz



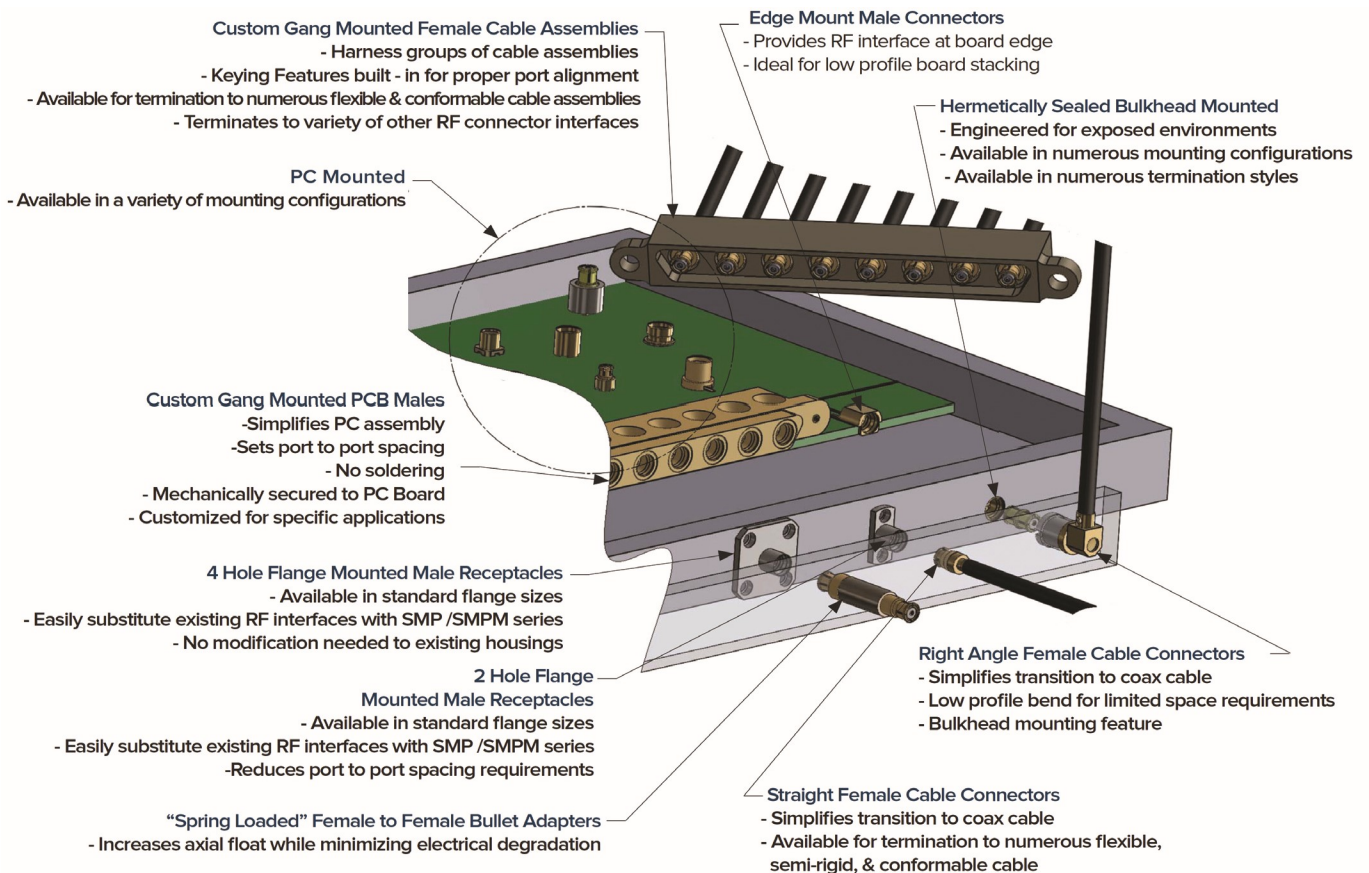
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sales@deltarf.com

Applications

SMP/SMPM Application Notes

SMP, SMPM & SMPS connectors are excellent choices for PC board to board interconnects, as well as module to module interconnects. The unique interface constructions allow for minimal electrical degradation when maximum misalignment occurs. Their overall profile allows for system designers to fit these interconnects in to tighter packaging than the majority of micro-miniature RF connectors. Both the SMP, SMPM & SMPS come in a variety of configurations, each with specific features for whatever engineering challenge a designer is facing.

Delta took this into consideration when developing this catalog and provides any combination of configuration to meet our customers' needs. Whether you are interfacing in an exposed environment, increasing package density, reducing weight or improving performance at higher frequencies, Delta's complete line of SMP / SMPM / SMPS connectors provides a solution. Current applications utilizing the SMP /SMPM / SMPS connectors include Military / Aerospace, Medical, Networking and Telecommunications.



General Description

SMP Connectors DC - 40 GHz

Delta Electronics Manufacturing offers a full line of SMP connectors. These high performance Sub-miniature Modular Plug-in style microwave connectors allow devices to be connected in a modular fashion, without the need for cables or threaded coupling mechanisms. Central to the SMP design is the floating female to female “Bullet” adapter. This adapter, available in different lengths, provides the axial and radial float required for the blind-mate, plug-in functionality of the interface. The adapter is mated between two males connectors allowing simultaneous multiple microwave interconnects with a minimum center to center spacing of .170 of an inch. This series is ideal for high density module to module or board to board interconnects.

Delta’s SMP series is designed in accordance with DSCC 94007, 94008 and Mil-STD-348A.

The **SMP** interface is available in (3) levels of retention:

Full Detent (FD) for maximum retention

Limited Detent (LD) for medium retention

Smooth Bore (SB) for minimum retention

Also available, for applications requiring maximum self alignment during mating:

Catchers Mitt (CM) offers a wide angle of entry & the absolute minimum retention.

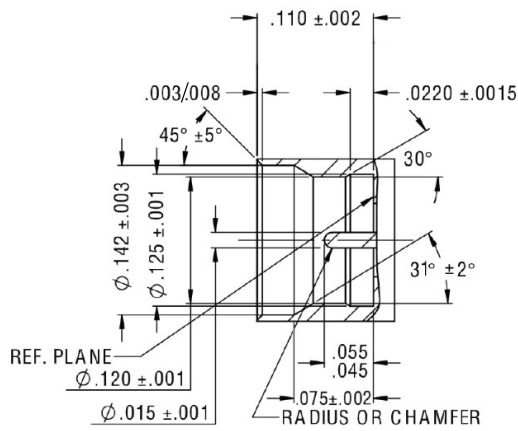
Delta’s Spring Loaded “Bullet” design offers increased axial & radial float while maintaining the full mechanical properties of the standard bullet. (see page 12 for details).



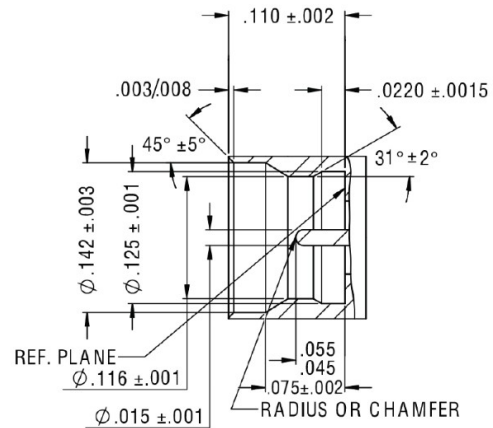
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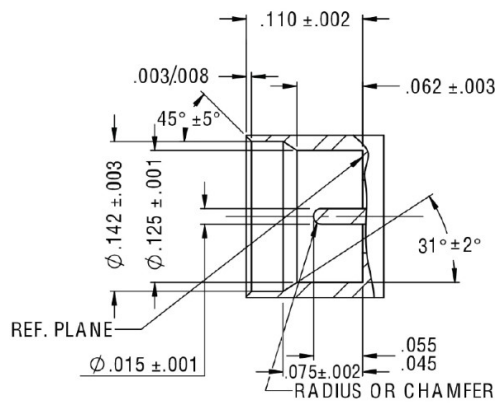
SMP Interfaces



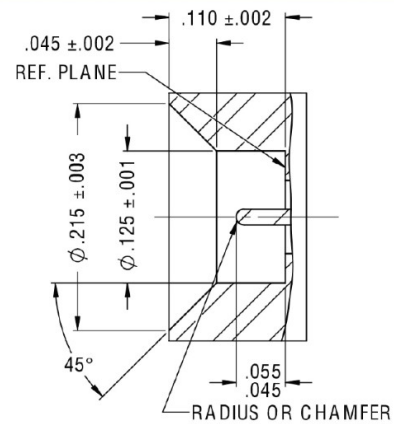
SMP (Limited Detent) Male
PER MIL-STD-348B - Figure 326.3



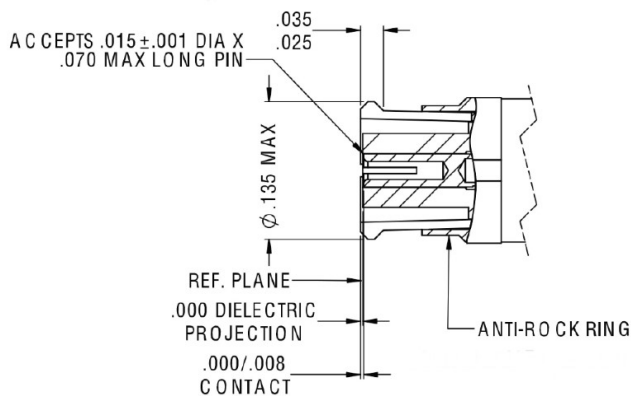
SMP (Full Detent) Male
PER MIL-STD-348B - Figure 326.2



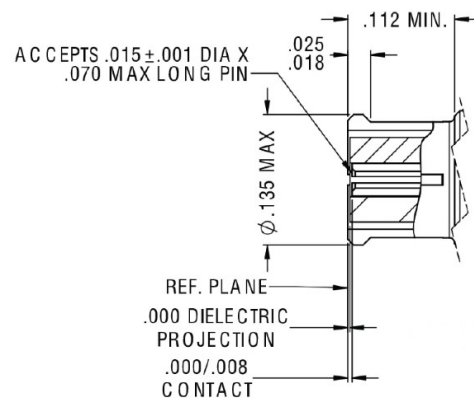
SMP (Smooth Bore) Male
PER MIL-STD-348B - Figure 326.4



SMP (Catchers Mitt) Male
PER MIL-STD-348B - Figure 326.5



SMP Female (Cabled)
PER MIL-STD-348B - Figure 326.1a



SMP Female (Uncabled)
PER MIL-STD-348B - Figure 326.1

SMP Electrical & Mechanical Specifications*

Electrical Specifications:

Nominal Impedance: 50 ohms
Frequency Range: DC-40 GHz
Typical VSWR: 1.20 Max thru 26.5 GHz ; 1.5 Max thru 40 GHz
Insulation Resistance: 5,000 megohms
DWV (@sea level) : 500 Vrms
Power Handling: (@sea level & ambient temperature) : 120W – 5.5f (frequency)
RF Leakage: -80db to 3 GHz, -65db to 26.5 GHz

Mechanical Specifications:

Durability: 100 min (FD) ; 500 min (LD) ; 1000 (SB & CM)
Force to Engage: 9.0 lbs typ (FD) ; 7.0 lbs typ (LD) ; 5.0 lbs typ (SB & CM)
Force to Disengage: 7.0 lbs typ (FD) ; 5.0 lbs typ (LD) ; 0.5 lbs typ (SB & CM)
Contact Retention: 2 lbs min.
Minimum Center Line to Center Line Spacing: .156”
Radial Misalignment: +/- .010”
Axial Misalignment: .010” Max

Materials:

Bodies/Shrouds: Beryllium Copper Per ASTM B196 and/or ASTM B197 or Stainless Steel type 303, Condition A
Outer Contacts: Beryllium Copper Per ASTM B196 or ASTM B197
Center Contacts: Beryllium Copper Per ASTM B196 or ASTM B197
Insulators: PTFE Fluorocarbon per ASTM D1710

Finishes:

Bodies: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290 or Passivated per AMS-QQ-P-35

Contacts: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290

Environmental Specifications:

Temperature Range: -65° C to +165° C

Shock: Meets MIL-STD-202 Method 213, Condition I

Vibration: Meets MIL-STD-202 Method 204, Condition D

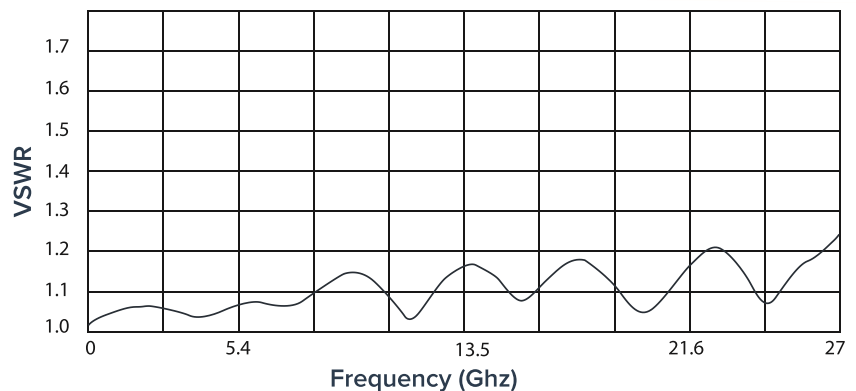
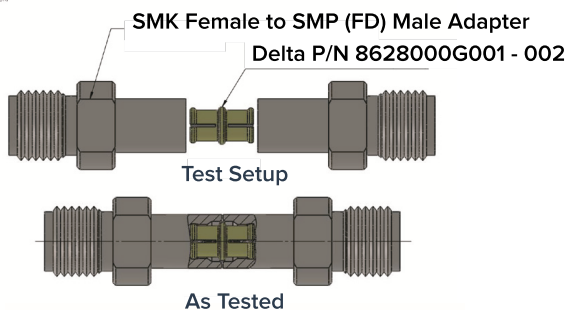
Altitude: Meets MIL-STD-202, Method 105 Condition C

Thermal Shock: Meets MIL-STD-202, Method 107 Condition B

Delta Electronics Manufacturing's SMP interfaces are in accordance with DSCC 94007, 94008 and MIL-STD-348A.

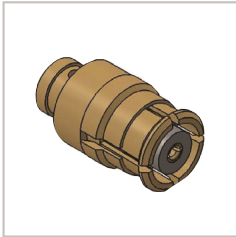
*These specifications are typical and may not apply to all connectors. Detailed specifications for individual connectors are available upon request.

SMP Test Data

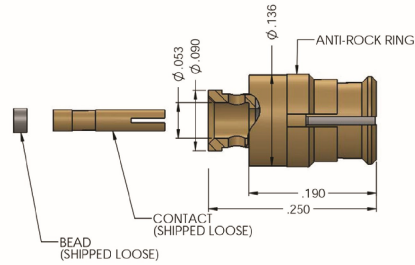


SMP “Bullet” adapter tested using an SMK (2.92) female to a SMP male and a 2.92 calibration kit. The adapters are gated out and the VSWR plot shown is representative of the “Bullet” adapter only. These results are typical and valid only for connectors set up for testing in the configuration shown. Other circuitry characteristics will affect the VSWR of the completed component.

Direct Solder Females

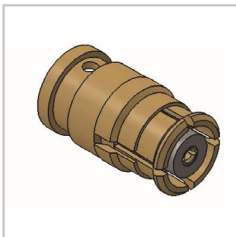


Assembly Procedure
For trim code please
contact the factory.

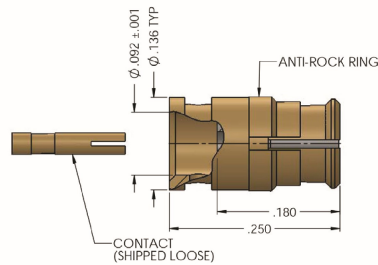


8608111G001-001

Direct Solder Female for .047 Dia S/R Cable

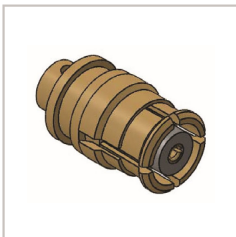


Assembly Procedure
Trim Code: N/01

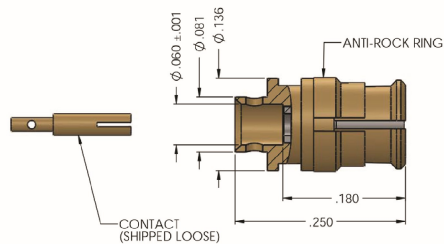


8608094G001-000

Direct Solder Female for .085 Dia S/R Cable

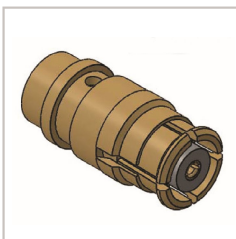


Assembly Procedure
Trim Code: N/01

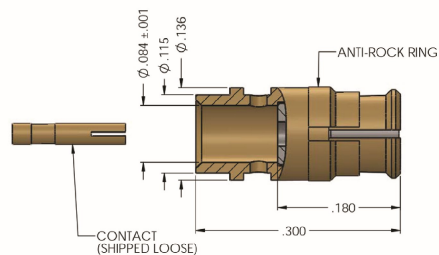


8608038G001-000

Direct Solder Female for RG 178 Cable



Assembly Procedure
Trim Code: N/01

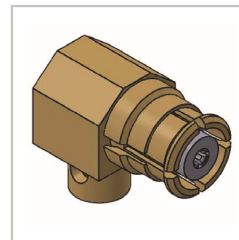
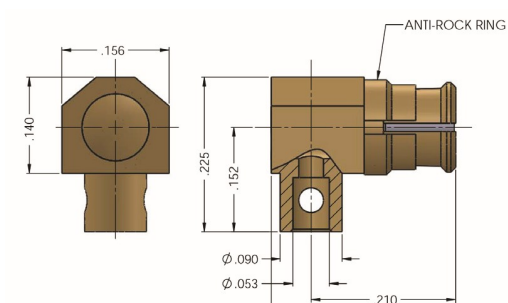


8608037G001-000

Direct Solder Female for RG 316 Cable

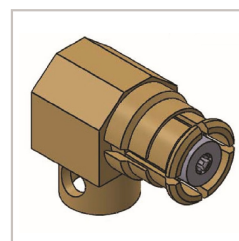
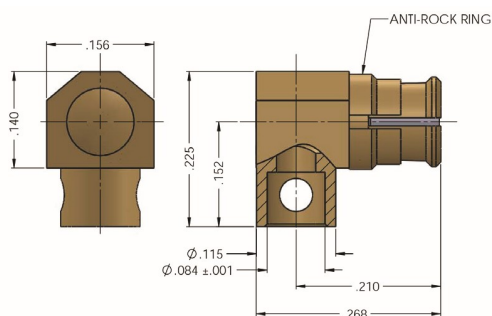
See Page 33-35 for Assembly Instructions

Cable Mount Male & Female - Direct Solder



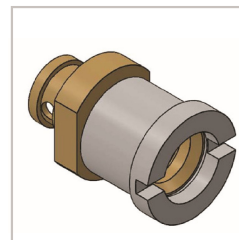
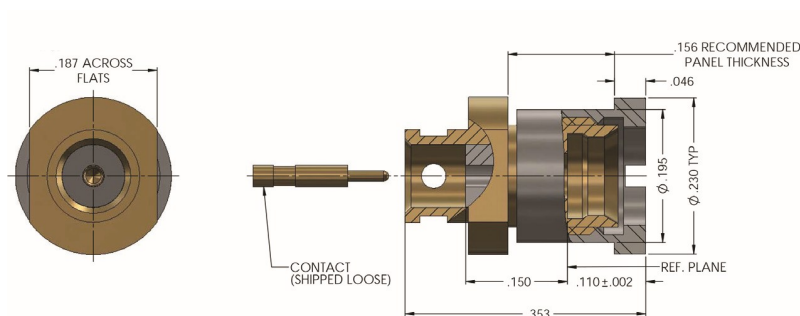
Assembly Procedure
Trim Code: J/05

8676111G001-000
R/A Female for .047 Dia S/R Cable



Assembly Procedure
Trim Code: J/05

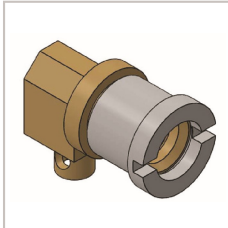
8676037G001-000
R/A Female RG 316 Cable



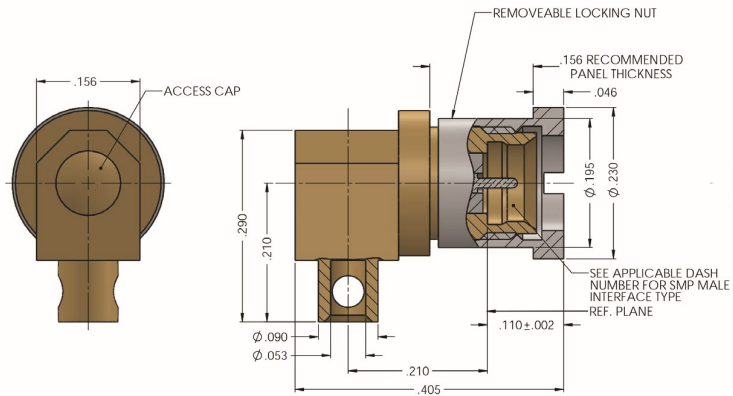
Assembly Procedure
Trim Code: N/01

8601094G001-000
Direct Solder Panel Mount FD Male for .085 Dia S/R Cable
See Pages 33-35 for Assembly Instructions

Right Angle Cable Mount Males

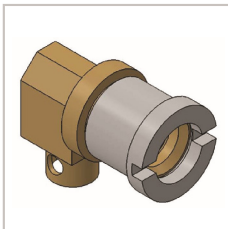


Dash Number	Interface Type
-003	CM
-002	SB
-001	LD
-000	FD

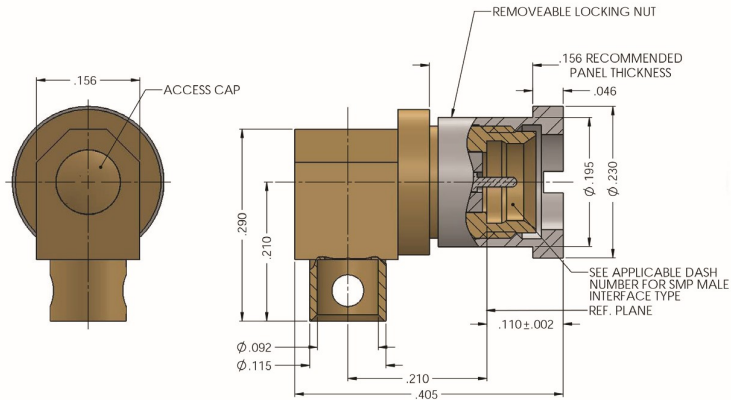


867211G001-XXX
 R/A Male for .047 Dia S/R Cable

Assembly Procedure
 Trim Code: J/05

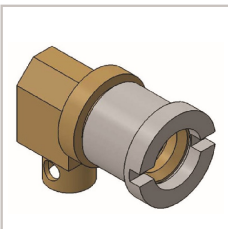


Dash Number	Interface Type
-003	CM
-002	SB
-001	LD
-000	FD

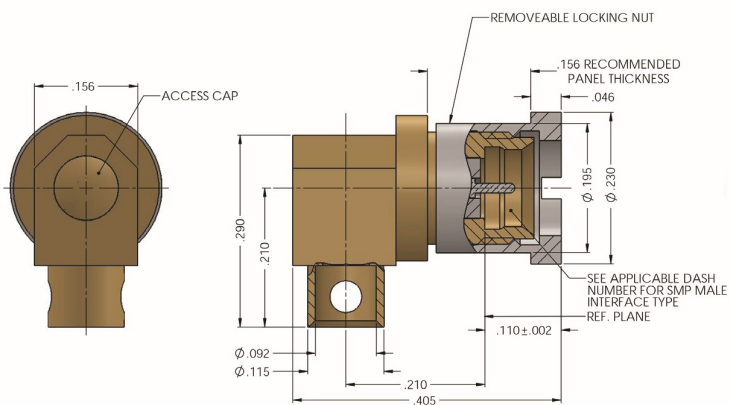


8672094G001-XXX
 R/A Male for .085 S/R Cable

Assembly Procedure
 Trim Code: J/05



Dash Number	Interface Type
-003	CM
-002	SB
-001	LD
-000	FD

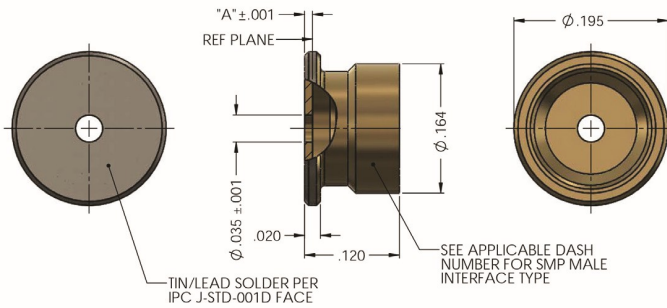


8672037G001-XXX
 R/A Male for RG 316 Cable

Assembly Procedure
 Trim Code: J/05

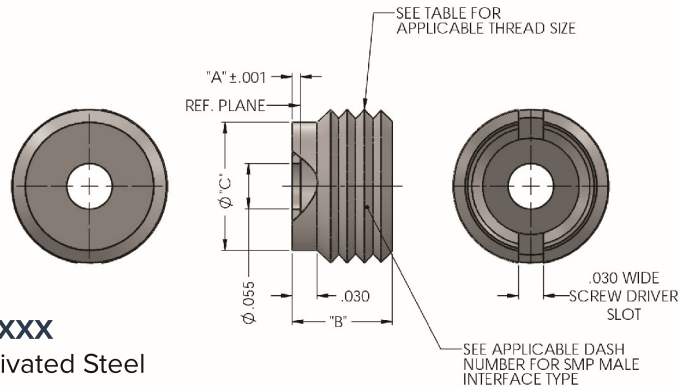
See Pages 33-35 for Assembly Instructions

Shrouds



8600000G003-XXX
Solder-On Shroud

Dash Number	Dimensions		Interface Type
	A	B	
-012	.040	.150	SB
-011	.040	.150	LD
-010	.040	.150	FD
-009	.030	.140	SB
-008	.030	.140	LD
-007	.030	.140	FD
-006	.020	.130	SB
-005	.020	.130	LD
-004	.020	.130	FD
-003	.010	.120	SB
-002	.010	.120	LD
-001	.010	.120	FD



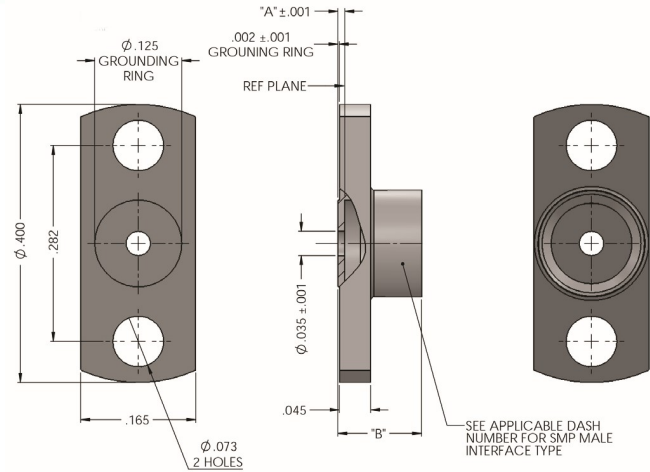
8624000K910 - XXX
Thread-In Shroud - Passivated Steel

Delta P/N	Dimensions			Thread	SMP Interface Type
	A	B	C		
8624000K910-016	.040	.150	.190	12-56-UNS-2A	Catcher's Mitt
8624000K910-015	.030	.140	.190	12-56-UNS-2A	Catcher's Mitt
8624000K910-014	.020	.130	.190	12-56-UNS-2A	Catcher's Mitt
8624000K910-013	.010	.120	.190	12-56-UNS-2A	Catcher's Mitt
8624000K910-012	.040	.150	.154	10-48-UNS-2A	Smooth Bore
8624000K910-011	.040	.150	.154	10-48-UNS-2A	Limited Detent
8624000K910-010	.040	.150	.154	10-48-UNS-2A	Full Detent
8624000K910-009	.030	.140	.154	10-48-UNS-2A	Smooth Bore
8624000K910-008	.030	.140	.154	10-48-UNS-2A	Limited Detent
8624000K910-007	.030	.140	.154	10-48-UNS-2A	Full Detent
8624000K910-006	.020	.130	.154	10-48-UNS-2A	Smooth Bore
8624000K910-005	.020	.130	.154	10-48-UNS-2A	Limited Detent
8624000K910-004	.020	.130	.154	10-48-UNS-2A	Full Detent
8624000K910-003	.010	.120	.154	10-48-UNS-2A	Smooth Bore
8624000K910-002	.010	.120	.154	10-48-UNS-2A	Limited Detent
8624000K910-001	.010	.120	.154	10-48-UNS-2A	Full Detent

Please contact the factory for mounting instructions. - See page 10 for accessory pins.

Shrouds - Flange Mount

Dash Number	Dimensions		Interface Type
	A	B	
-012	.040	.150	SB
-011	.040	.150	LD
-010	.040	.150	FD
-009	.030	.140	SB
-008	.030	.140	LD
-007	.030	.140	FD
-006	.020	.130	SB
-005	.020	.130	LD
-004	.020	.130	FD
-003	.010	.120	SB
-002	.010	.120	LD
-001	.010	.120	FD



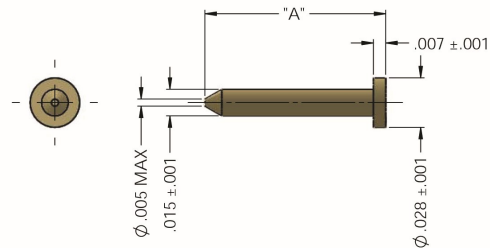
8659000K910 - XXX

Shroud, 2 Hole Panel Mount - Passivated Steel

Accessory Pins

Dash Number	Dimensions	Interface Type
	A	
-03	.132 ± .001	.062
-02	.117 ± .001	.047
-01	.102 ± .001	.032

Please contact the factory for additional pin variations.

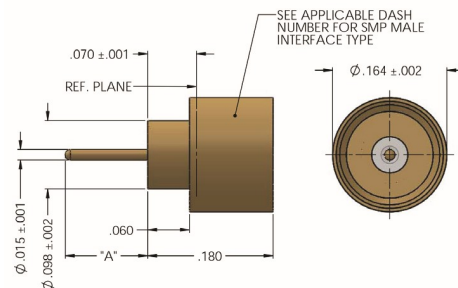


81-10384 -XX - AU

SMP Accessory Pin

Solder-In Hermetically Sealed Male

Dash Number	Dimensions	Interface Type
	A	
-039	.090	SB
-038	.070	SB
-037	.050	SB
-036	.030	SB
-035	.090	LD
-034	.070	LD
-033	.050	LD
-032	.030	LD
-031	.090	FD
-030	.070	FD
-029	.050	FD
-028	.030	FD

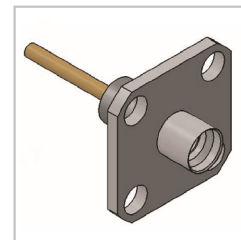
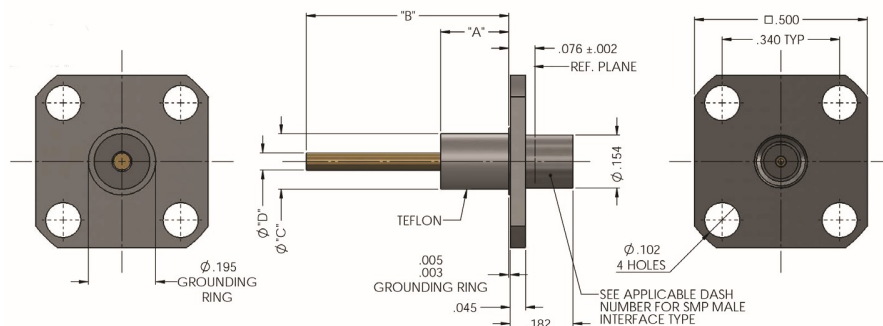


8624000G918 - XXX

Solder-In Hermetically Sealed Male, Extended Post Contact

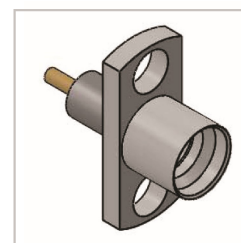
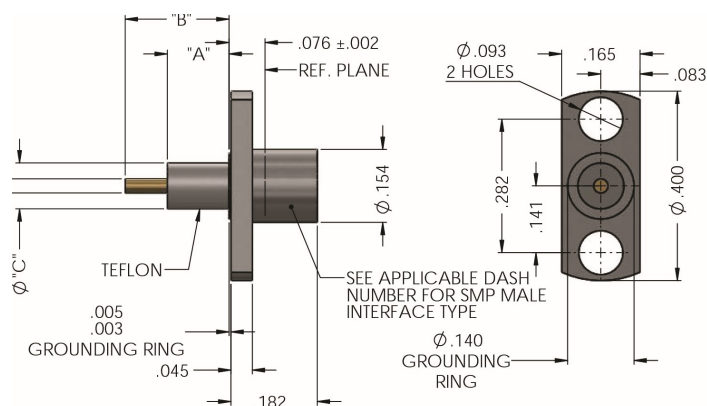
Please contact the factory for mounting instructions.

Panel Mounts



8659000K051 - XXX
Panel Mount, 4 Hole, Male
Passivated Steel

Delta P/N	Dimensions				SMP Interface Type
	A	B	C	D	
8659000K051-009	.040	.070	.056	.018	Smooth Bore
8659000K051-008	.040	.070	.056	.018	Full Detent
8659000K051-007	.040	.070	.056	.018	Limited Detent
8659000K051-006	.150	.250	.097	.030	Smooth Bore
8659000K051-005	.150	.250	.097	.030	Full Detent
8659000K051-004	.150	.250	.097	.030	Limited Detent
8659000K051-003	.197	.393	.161	.050	Smooth Bore
8659000K051-002	.197	.393	.161	.050	Full Detent
8659000K051-001	.197	.393	.161	.050	Limited Detent



8659000K911 - XXX
Panel Mount, 2 Hole, Male
Passivated Steel

Delta P/N	Dimensions				SMP Interface Type
	A	B	C	D	
8659000K911-010	.040	.070	.056	.018	Smooth Bore
8659000K911-009	.040	.070	.056	.018	Full Detent
8659000K911-008	.040	.070	.056	.018	Limited Detent
8659000K911-007	.150	.250	.097	.030	Smooth Bore
8659000K911-006	.150	.250	.097	.030	Full Detent
8659000K911-005	.150	.250	.097	.030	Limited Detent

Please contact the factory for mounting instructions.

PCB Mount Males

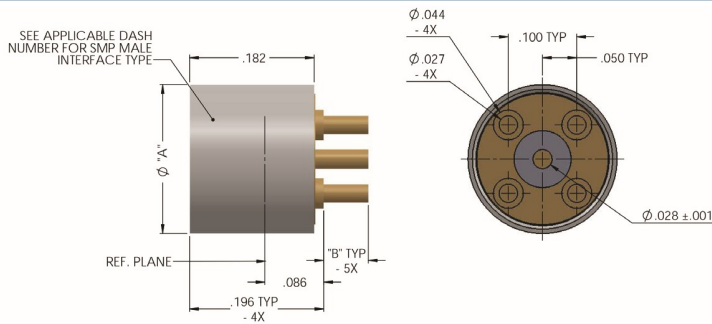


Figure 1
8668000G001 - XXX
PCB Feed Through

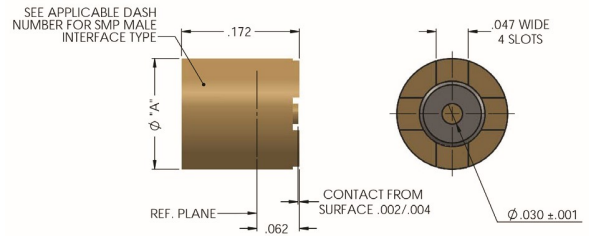
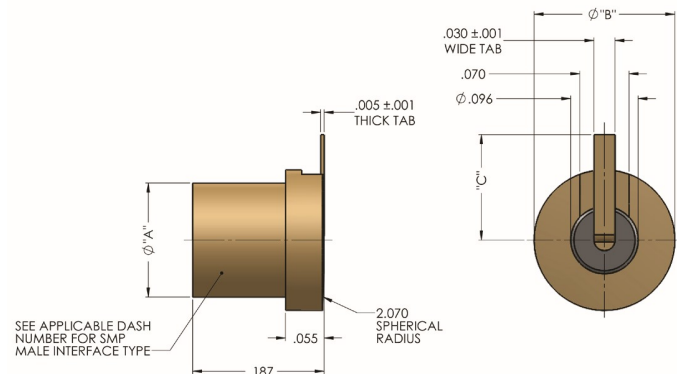


Figure 2
8668000G91P - XXX
Surface Mount

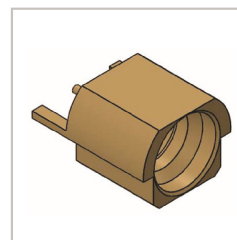
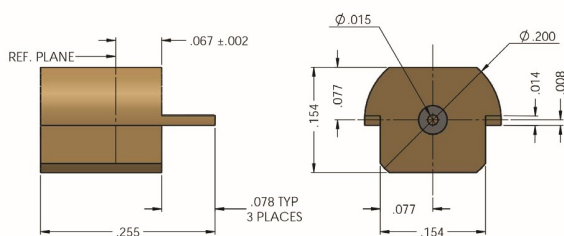
Figure	Delta P/N	Dimensions		SMP Interface Type
		A	B	
1	8668000G001-025	.235	.140	Catcher's Mitt
	8668000G001-024	.218	.140	Smooth Bore
	8668000G001-023	.218	.140	Full Detent
	8668000G001-022	.218	.140	Limited Detent
	8668000G001-021	.235	.100	Catcher's Mitt
	8668000G001-020	.218	.100	Smooth Bore
	8668000G001-019	.218	.100	Full Detent
	8668000G001-018	.218	.100	Limited Detent
	8668000G001-017	.235	.079	Catcher's Mitt
	8668000G001-016	.218	.079	Smooth Bore
	8668000G001-015	.218	.079	Full Detent
	8668000G001-014	.218	.079	Limited Detent
2	8668000G91P-017	.235		Catcher's Mitt
	8668000G91P-016	.218		Smooth Bore
	8668000G91P-015	.218		Full Detent
	8668000G91P-014	.218		Limited Detent

Dash Number	Dimensions			Interface Type
	A	B	C	
-013	.235	.275	.200	CM
-012	.162	.200	.150	SB
-011	.162	.200	.150	FD
-010	.162	.200	.150	LD



8667000G91P - XXX
Surface Mount Male - Right Angle Tab Contact
Please contact the factory for mounting instructions.

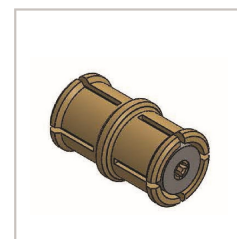
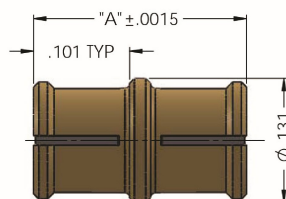
Edge Mount Males



Delta P/N	SMP Interface Type
8668000G911-003	Smooth Bore
8668000G911-002	Full Detent
8668000G911-001	Limited Detent

8668000G911- XXX
Edge Mount PCB Male

Female to Female “Bullet Adapters



Delta P/N	Dimensions
	A
8628000G001-016	.344
8628000G001-015	.314
8628000G001-014	.270
8628000G001-013	.254
8628000G001-012	.224

Please contact the factory for additional lengths.

8628000G001 - XXX
Female to Female “Bullet” Adapters

Please contact the factory for mounting instructions.

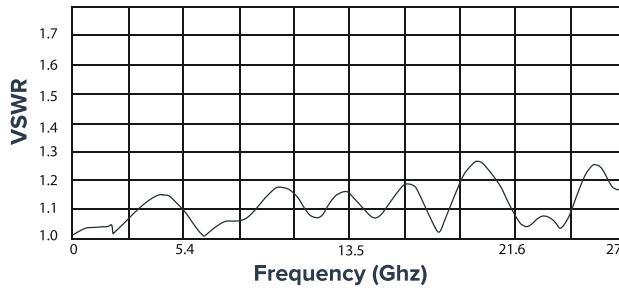
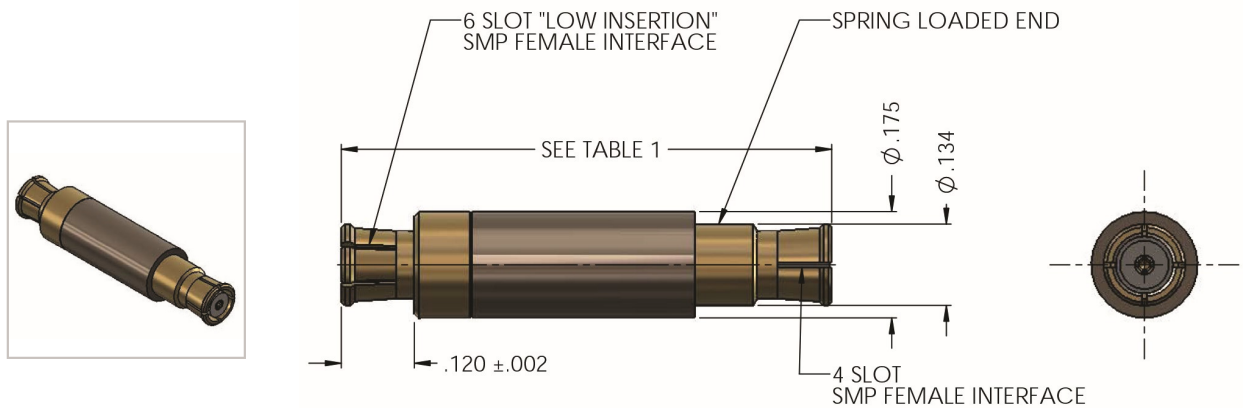
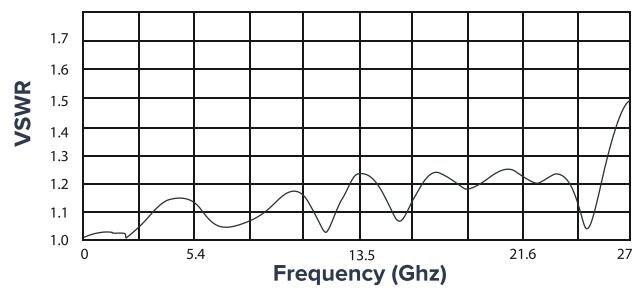
Spring Loaded - SMP Female to Female “Bullet” Adapter

Feature:

- Increased axial & radial float
- One side has as a low insertion SMP interface
- High compression load on interfaces

Benefit:

- Enhanced self alignment during mating
- Consistently un-mate from the same end
- Improved VSWR at higher frequencies

VSWR
Uncompressed

Compressed

VSWR: 1.5:1 Max

Frequency Range: DC - 26.5 GHz

Float: Axial .075 / Radial .015

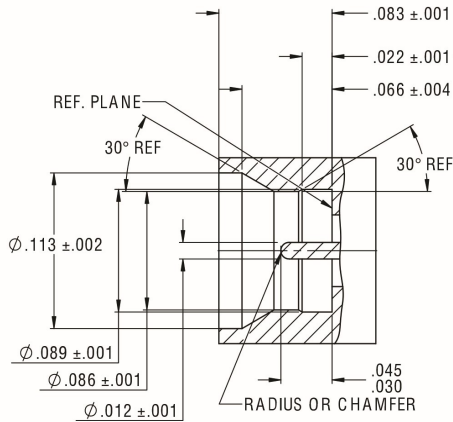
Delta P/N	Uncompressed Length	Fully Compressed Length
8628000G911-005	1.075	1.000
8628000G911-004	.675	.600

Please contact the factory for additional lengths.

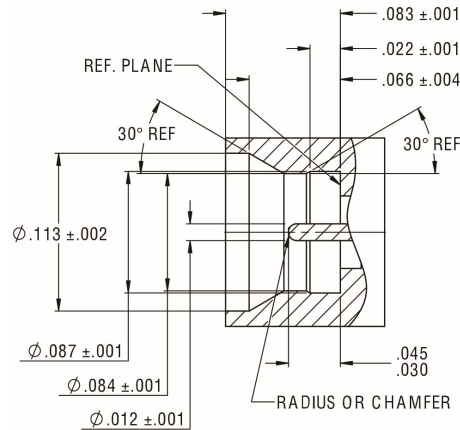
8628000G911 - XXX

Spring Loaded Female to Female “Bullet” Adapter

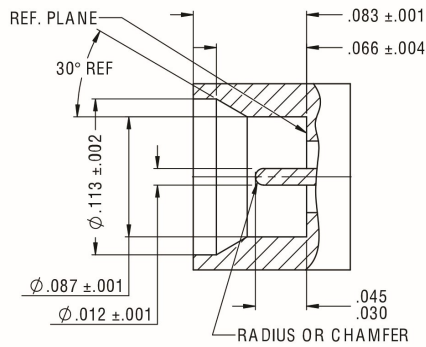
SMPM Interfaces



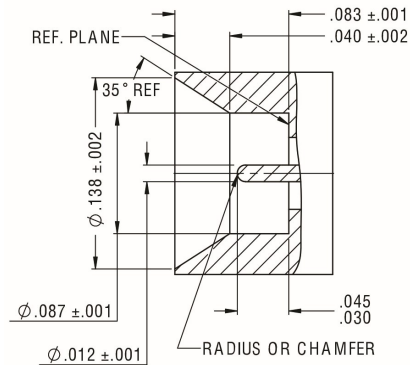
SMPM (Limited Detent) Male



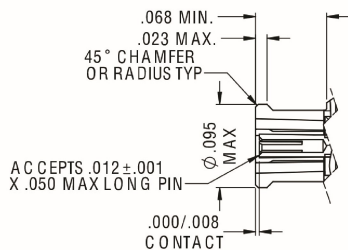
SMPM (Full Detent) Male
PER MIL-STD-348A - Figure 328.2



SMPM (Smooth Bore) Male
PER MIL-STD-348A - Figure 328.3



SMPM (Catchers Mitt) Male



SMPM Female
PER MIL-STD-348A - Figure 328.1

SMPM Connectors DC - 65 GHz

Similar in functionality to the SMP series, the SMPM series is 30% smaller in size and offers an operational frequency range of DC to 65 GHz. Center to center mounting spacing is also reduced to .125 of an inch. This gives the SMPM series a distinct advantage in higher density module to module and board to board microwave applications.

For higher frequency board to board applications that require the minimum distance between boards, Delta offers a unique low profile "Bulletless" design - see Delta # 8869000G001-001 on page 19 for details.

Electrical and Mechanical Specifications*

Electrical Specifications:

Nominal Impedance: 50 ohms

Frequency Range: DC-65 GHz

Typical VSWR: 1.20 Max thru 26.5 GHz ; 1.5 Max thru 65 GHz

Insulation Resistance: 5,000 megohms

DWV (@sea level): 500 Vrms

Power Handling (@ sea level & ambient temp):

90W – 5.5f (frequency)

RF Leakage: -80db to 3 GHz, -65db from 3 to 65 GHz

Mechanical Specifications:

Durability: 100 min (FD) ; 250 min (LD) ; 500 (SB & CM)

Force to Engage: 5.0 lbs typ (FD) ; 3.5 lbs typ (LD) ; 2 lbs typ (SB & CM)

Force to Disengage: 6.0 lbs typ (FD) ; 4.0 lbs typ (LD) ; 1.5 lbs typ (SB & CM)

Contact Retention: 2 lbs min.

Minimum Center Line to Center Line Spacing:

.125" (CM - .145")

Radial Misalignment: +/- .010"

Axial Misalignment: .010" Max

Materials:

Bodies/Shrouds: Beryllium Copper Per ASTM B196 and/or ASTM B197 or Stainless Steel type 303, Condition A

Outer Contacts: Beryllium Copper Per ASTM B196 or ASTM B197

Center Contacts: Beryllium Copper Per ASTM B196 or ASTM B197

Insulators: PTFE Fluorocarbon per ASTM D1710

Finishes:

Bodies: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290 or Passivated per AMS-QQ-P-35

Contacts: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290

Environmental Specifications:

Temperature Range: -65° C to +165° C

Shock: Meets MIL-STD-202 Method 213, Condition I

Vibration: Meets MIL-STD-202 Method 204, Condition D

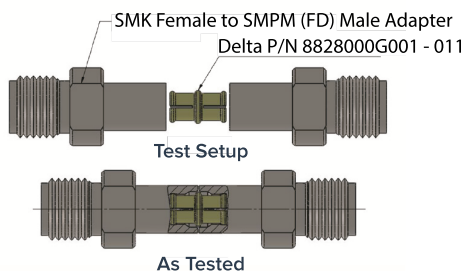
Altitude: Meets MIL-STD-202, Method 105 Condition C

Thermal Shock: Meets MIL-STD-202, Method 107 Condition B

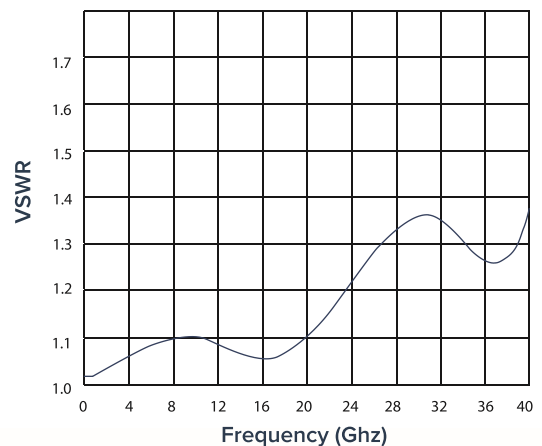
Delta Electronics Manufacturing's SMPM interfaces conform to MIL-STD-348A as well as industry standards for this series and are completely intermateable with other manufacturers SMPM series connectors.

*These specifications are typical and may not apply to all connectors. Detailed specifications for individual connectors are available upon request.

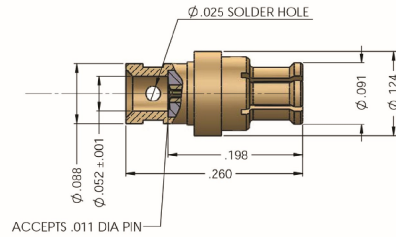
SMPM Test Data



SMPM "Bullet" adapter tested using an SMK (2.92) female to SMPM male and a 2.92 calibration kit. The adapters are gated out and the VSWR plot shown is representative of the "Bullet" adapter only. These results are typical and valid only for connectors set up for testing in the configuration shown. Other circuitry characteristics will affect the VSWR of the completed component.

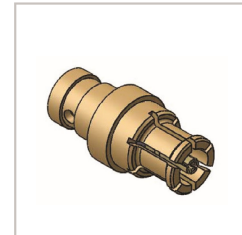


Direct Solder Females

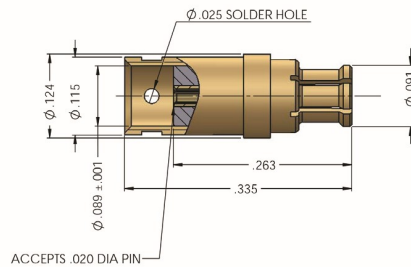


8808111G003 - 000

Female, Direct Solder "One Step" for .047 Semi Rigid Cable

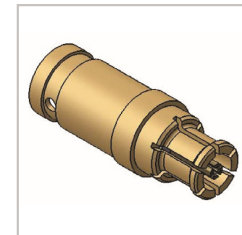


Assembly Procedure
Trim Code: **P/01**

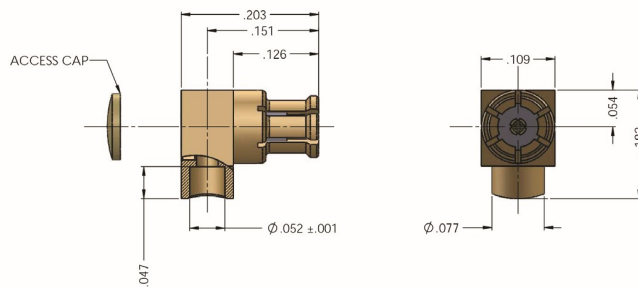


8808094G001 - 003

Female, Direct Solder "One Step" for .085 Semi Rigid Cable

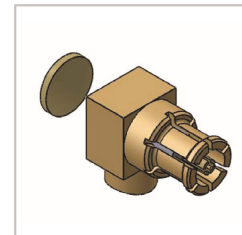


Assembly Procedure
Trim Code: **P/01**

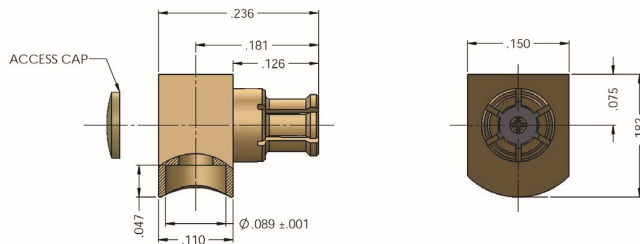


8876111G003 - 000

R/A Female, Direct Solder for .047 Semi Rigid Cable

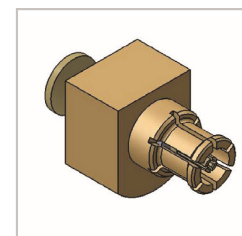


Assembly Procedure
Trim Code: **J/05**

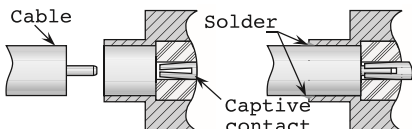


8876094G003 - 000

R/A Female, Direct Solder for .085 Semi Rigid Cable



Assembly Procedure
Trim Code: **J/05**

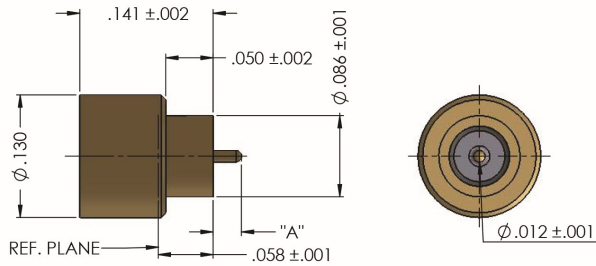


Delta One-Step Cable Attachment for Semi-Rigid Cable

Delta "One - Step" connectors feature captivated contacts and insulators to allow rapid, easy assembly to semi-rigid cable - simply trim the cable jacket and dielectric flush, chamfer the center conductor, insert into the connector, and solder the jacket to the connector body.

See page 33-35 for Assembly Instructions.

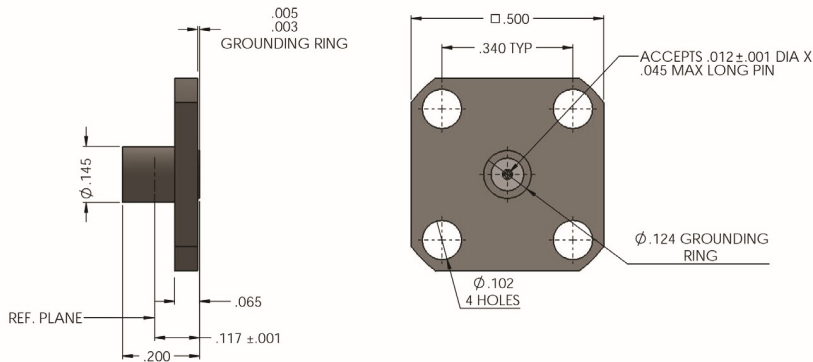
Hermetically Sealed Solder-In Male



8824000G918 - XXX
Hermetically Sealed
Solder-In Male - Extended Pin

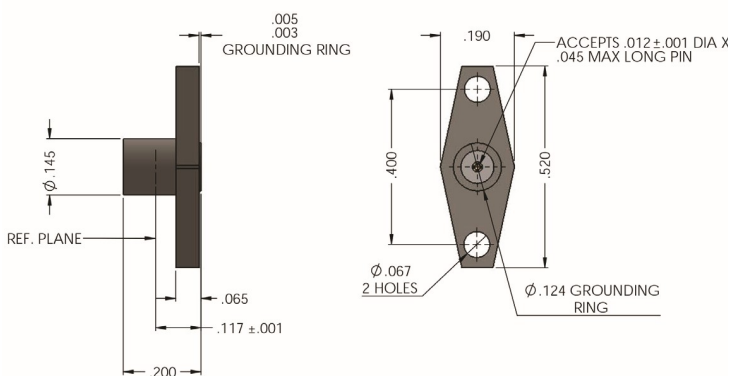
Dash Number	Dimensions	Interface Type
	A	
-027	.090	LD
-026	.090	SB
-025	.090	FD
-024	.070	LD
-023	.070	SB
-022	.070	FD
-021	.050	LD
-020	.050	SB
-019	.050	FD
-018	.030	LD
-017	.030	SB
-008	.030	FD

Field Replaceable Panel Mounts - Accepts .012 Dia. Pin



Dash Number	Interface Type
-003	LD
-002	SB
-001	FD

8859000K051 - XXX
Panel Mount - 4 Hole Male
Passivated Steel



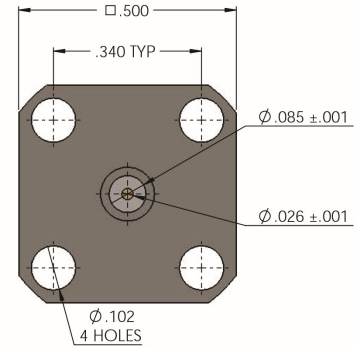
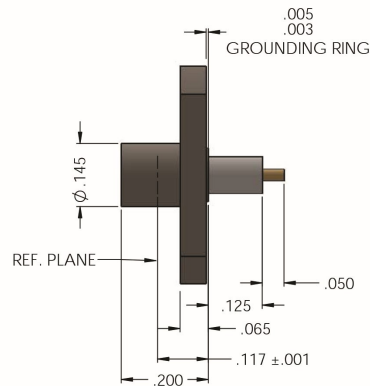
Dash Number	Interface Type
-002	LD
-001	SB
-000	FD

8859000K911 - XXX
Panel Mount - 2 Hole Male
Passivated Steel

Please contact the factory for mounting instructions.

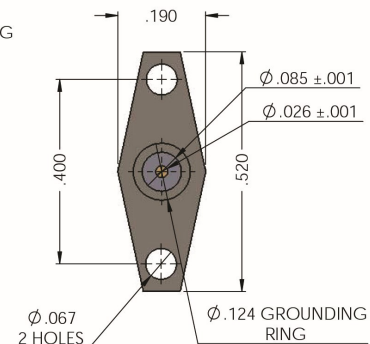
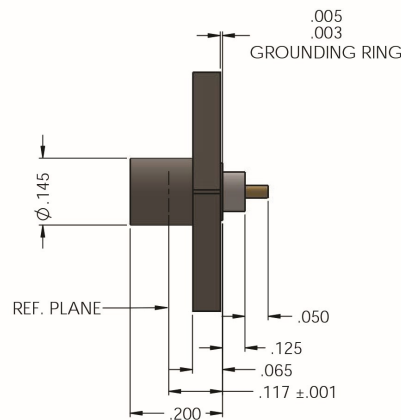
Panel Mounts - Extended Teflon & Pin

Dash Number	Interface Type
-006	LD
-005	SB
-004	FD



8859000K051 - XXX
Panel Mount - 4 Hole Male
Passivated Steel

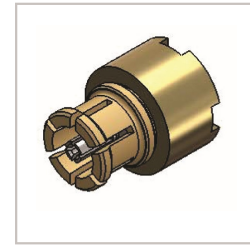
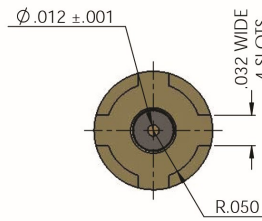
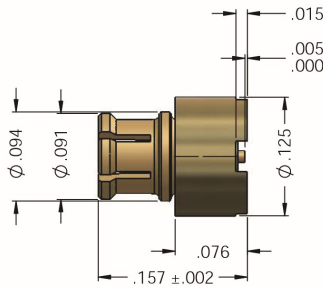
Dash Number	Interface Type
-005	LD
-004	SB
-003	FD



8859000K911 - XXX
Panel Mount - 2 Hole Male
Passivated Steel

Please contact the factory for mounting instructions.

Surface/Float Mount Female



8869000G001 - 001

Surface/Float Mount Female - Post Contact

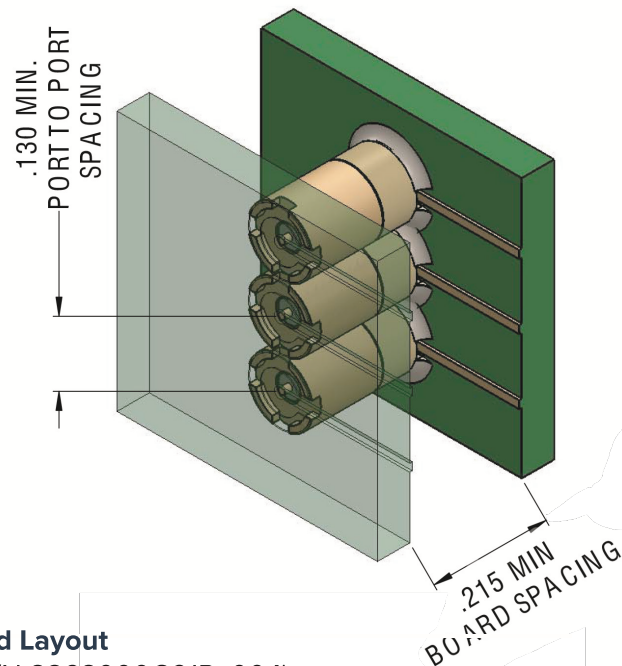
Engineered Solutions

Today's market for low-profile board to board RF interconnects is demanding tighter spacing requirements. Delta offers engineered solutions for this market demand by supplying the lowest profile SMPM connector on the market today. Our unique design assists in reducing the overall package size, and offers the lowest industry package cost. Both the male and female connectors are surface mounted, with an offset center pin to allow for easy assembly to the PCB.

The design eliminates the need for a "Bullet" adapter between the two male SMPM connectors. The SMPM female has been incorporated into the PC Board mounted housing requiring only two connectors for the complete interconnect.

Excellent electrical and mechanical performance is still maintained when maximum misalignment conditions occur. Both connectors have a fully captivated center contact eliminating the need for any secondary soldering operation of the contact. The female connector may be mated with any other SMPM male housing. If further reduction in board spacing is needed, designers can choose from a number of shroud and pin assemblies Delta offers.

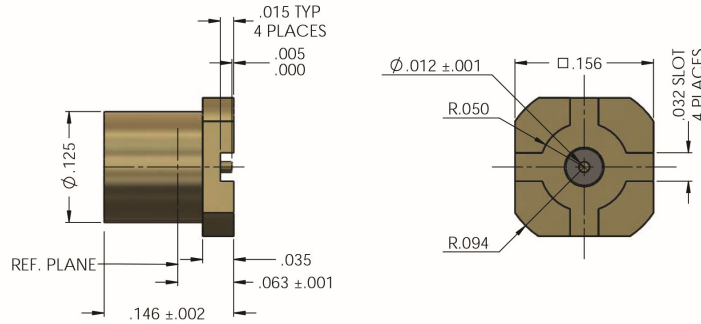
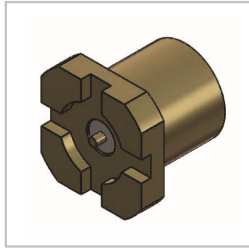
Simplification of the assembly and overall cost reduction makes the low profile surface mount SMPM female a simple solution.



Typical Board Layout
(Shown mated with Delta P/N 8868000G91P- 004)

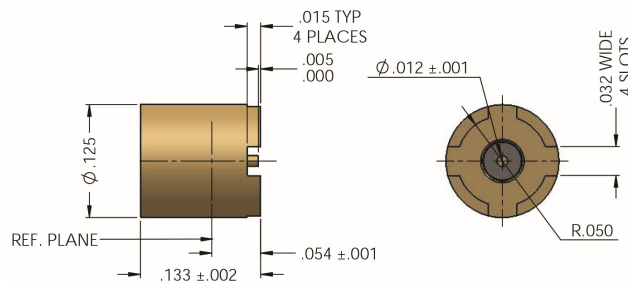
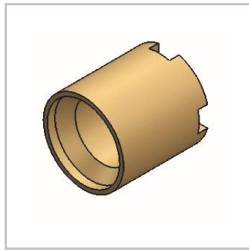
Please contact the factory for mounting instructions.

Surface Mount Males



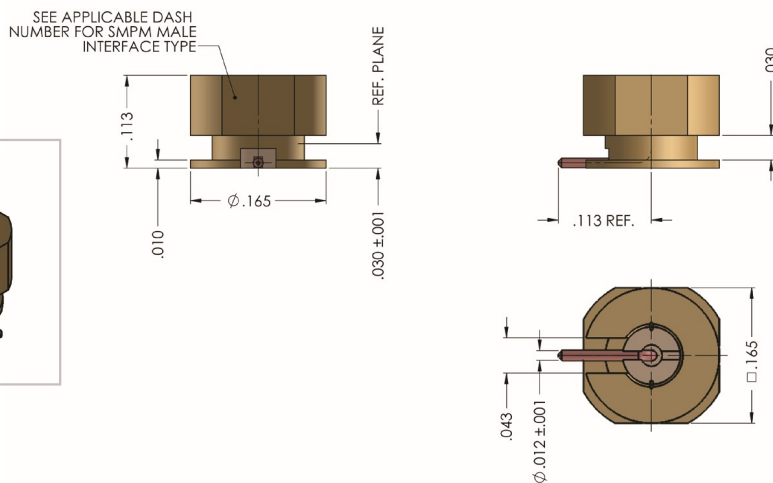
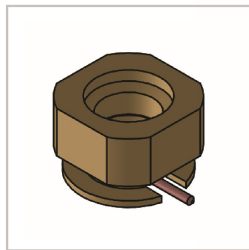
Dash Number	Interface Type
-007	LD
-006	SB
-005	FD

8868000G001 - XXX
 Surface Mount Male, Post Contact



Dash Number	Interface Type
-006	LD
-005	FD
-004	SB

8868000G91P - XXX
 Surface Mount Male, Post Contact



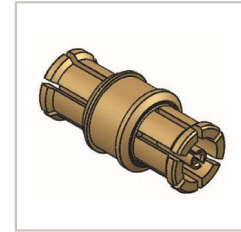
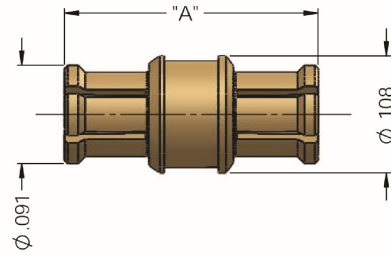
Dash Number	Interface Type
-013	CM
-012	SB
-011	FD
-010	LD

8868000G91P - XXX
 Surface Mount Male, Right Angle Post Contact

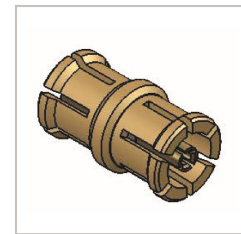
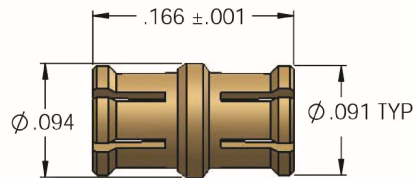
Please contact the factory for mounting instructions.

Female to Female Bullet Adapters

Dash Number	Interface Type
-011	.236
-004	.315
-003	.290
-002	.265
-001	.210



8828000G001 - XXX
Female to Female "Bullet" Adapters



8828000G001 - 014
Female to Female "Bullet" Adapters
Low Profile

Please contact the factory for mounting instructions.



Delta's Bullet Adapters

Delta's SMP, SMPM and SMPS are made in a variety of different lengths both solid and spring loaded.

If you need a defined length, tell us what you want/need and we'll provide a solution to your request.

We excel at developing cost-effective customized designs to meet your specific need. Don't settle, reach out to Delta to receive exactly what you require.

Delta's SMPS Bullets

Delta's smallest member of our SMPM family is the SMPS.

SMPS Connectors DC-18 GHz (Economical Line)

DC - 65 GHz (High Frequency Line).



Delta's SMPS

SMPS Connectors DC-18 GHz (Economical Line) DC - 65 GHz (High Frequency Line)

Similar in functionality to the SMPM series, the SMPS series is 30% smaller than the SMPM series. While the SMPS construction allows for higher frequencies up to 65 GHz, Delta recognized applications where low interface board-board interconnects were in demand typically did not range above 18 GHz. For this reason Delta has developed 2 lines – The Economical Line (E-Line) and HF Line of SMPS. For higher frequency applications ranging above 40 GHz, tightly tolerance components and extreme handling and processing is required. The end result is a higher manufacturing cost.

The SMPS series has a center to center mounting spacing of .078 of an inch and a minimum board to board spacing of .125" when utilizing its smallest bullet adapter (.098") and shrouds

(.015 board to reference plane). Board mounts are supplied in numerous configurations – surface mount, thru mount and edge mount and bullets lengths range from .098 to .500" in length for the standard product offerings. Contact Delta today with your design requirements and our engineering team will offer you to most cost effective solution.

SMPS Electrical & Mechanical Specifications

Electrical Specifications:

Nominal Impedance: 50 ohms

Frequency Range: DC-65 GHz

Typical VSWR: 1.20 Max thru 26.5 GHz ; 1.5 Max thru 65 GHz

Insulation Resistance: 3,500megohms

DWV (@sea level): 250 Vrms

RF Leakage: -80db to 3 GHz, -65db from 3 to 65 GHz

Mechanical Specifications:

Durability: 100 min (FD) ; 250 min (LD) ; 500 (SB & CM)

Force to Engage: 4 lbs typ (FD) ; 2 lbs typ (SB & CM)

Force to Disengage: 6.0 lbs typ (FD) ; 3 lbs typ (SB & CM)

Contact Retention: 1.5 lbs min.

Minimum Center Line to Center Line Spacing: .078"

Radial Misalignment: +/- .010"

Axial Misalignment: .010" Max

Materials:

Bodies/Shrouds: Beryllium Copper Per ASTM B196 and/or ASTM B197 or Stainless Steel type 303, Condition A .

Outer Contacts: Beryllium Copper Per ASTM B196 or ASTM B197 .

Center Contacts: Beryllium Copper Per ASTM B196 or ASTM B197 .

Insulators: PTFE Fluorocarbon per ASTM D1710 or Torlon per MIL-P-46179

Finishes:

Bodies: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290 or Passivated per AMS-QQ-P-35 .

Contacts: Gold Plate per MIL-G-45204, over Nickel Plate per SAE AMS-QQ-N-290

Environmental Specifications:

Temperature Range: -65° C to +165° C

Shock: Meets MIL-STD-202 Method 213, Condition I

Vibration: Meets MIL-STD-202 Method 204, Condition D

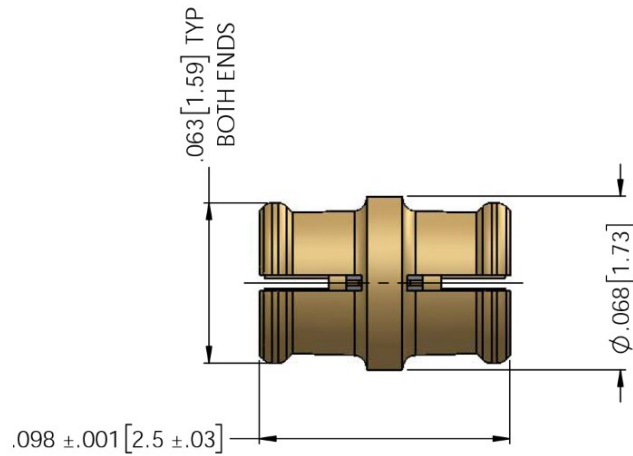
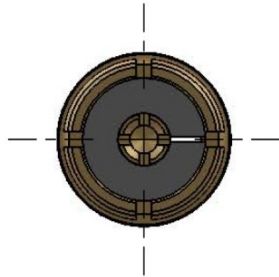
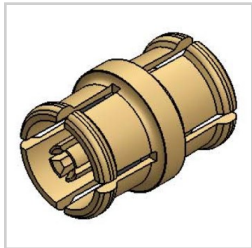
Altitude: Meets MIL-STD-202, Method 105 Condition C

Thermal Shock: Meets MIL-STD-202, Method 107 Condition B

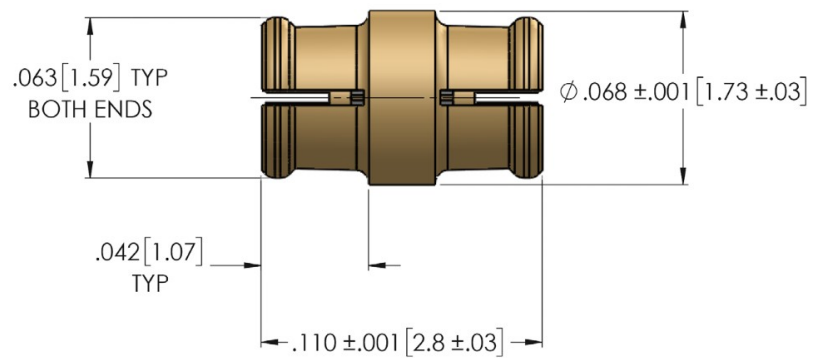
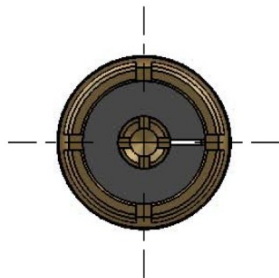
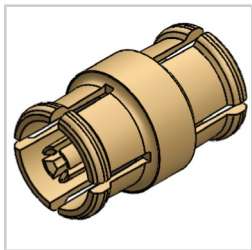
*These specifications are typical and may not apply to all connectors. Detailed specifications for individual connectors are available upon request.



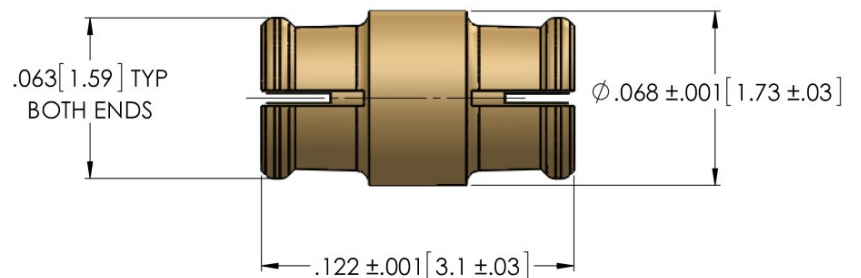
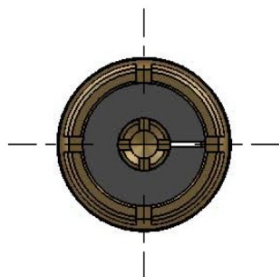
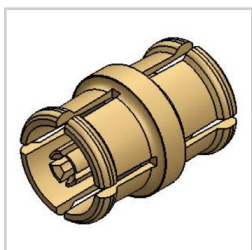
Female to Female Bullet Adapters



9328000G001-001
Female to Female Bullet Adapter

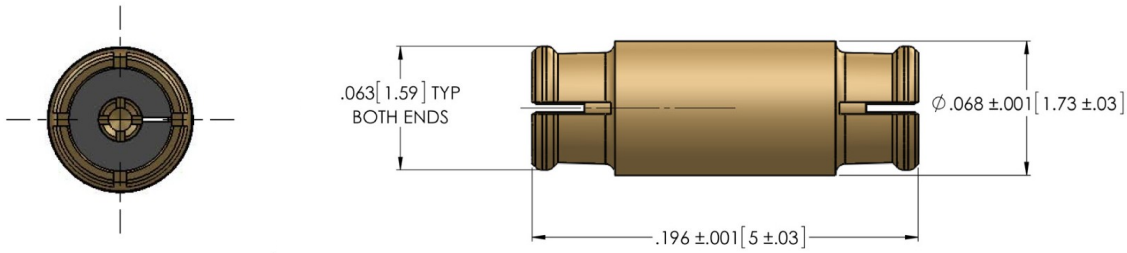


9328000G001-012
Female to Female Bullet Adapter

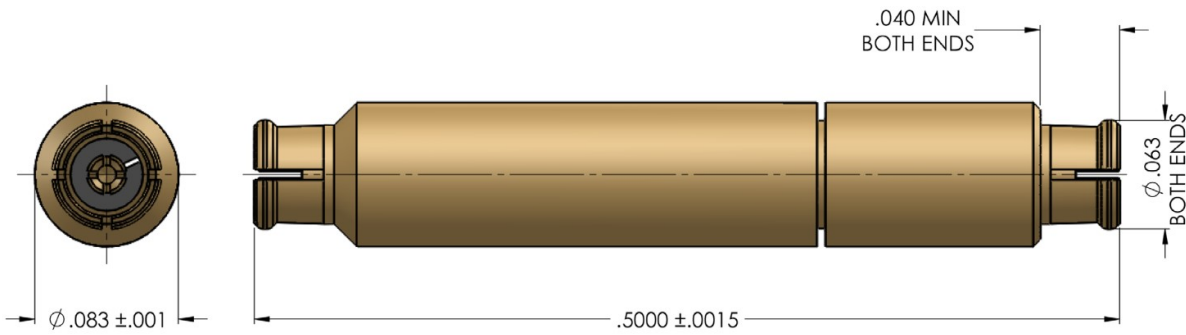
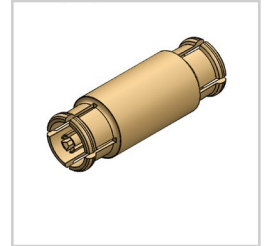


9328000G001-006
Female to Female Bullet Adapter

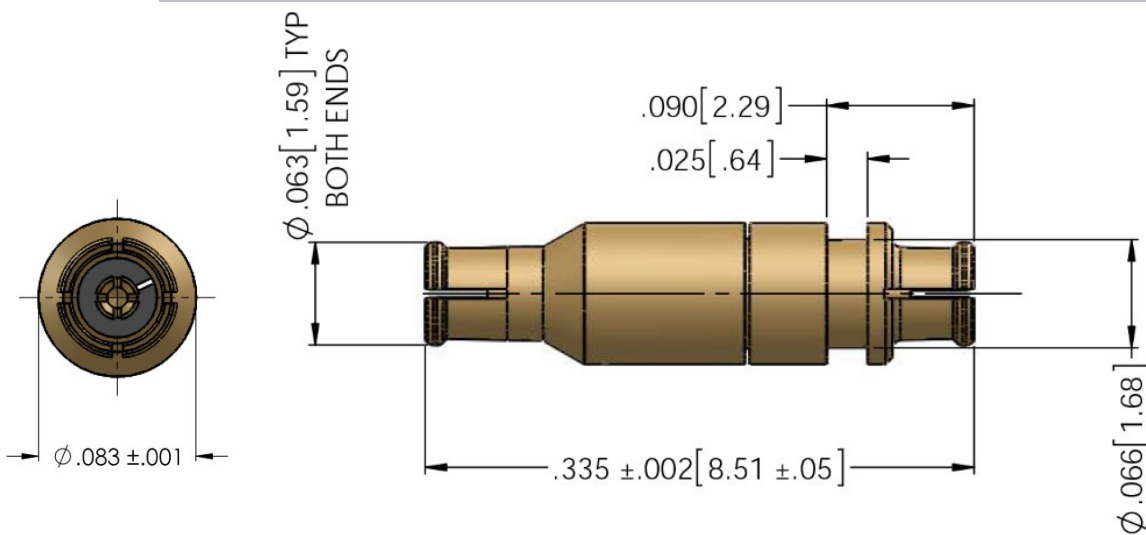
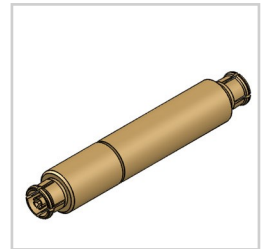
Female to Female Bullet Adapters



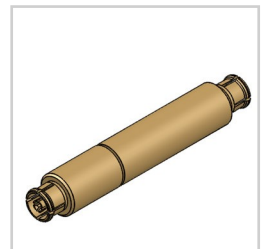
9328000G001-007
Female to Female Bullet Adapter



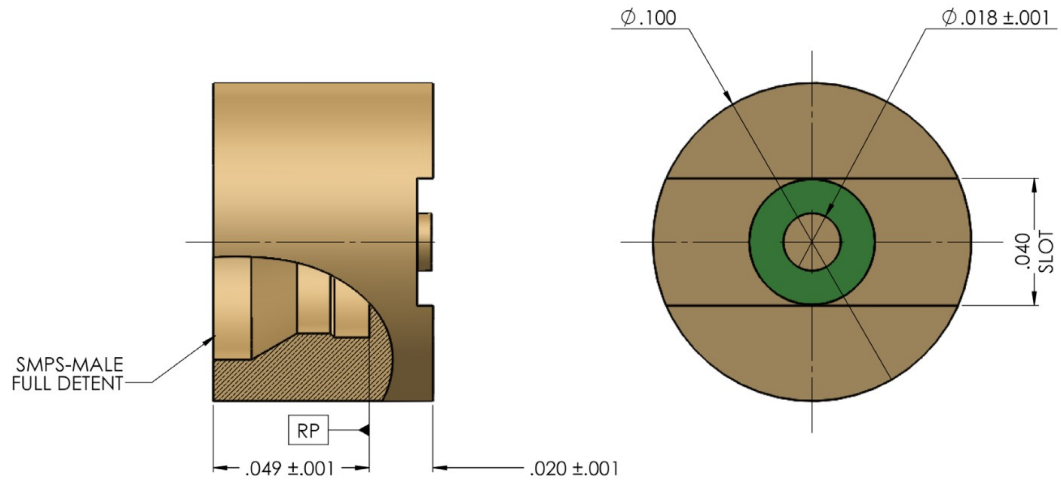
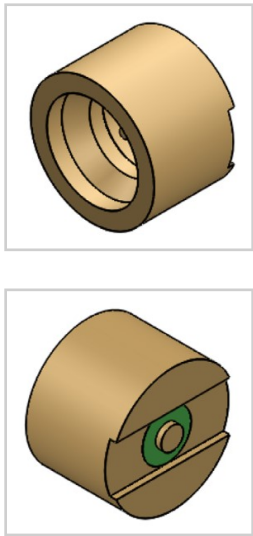
9328000G001-008
Female to Female Bullet Adapter



9328000G001-000
Female to Female Bullet Adapter

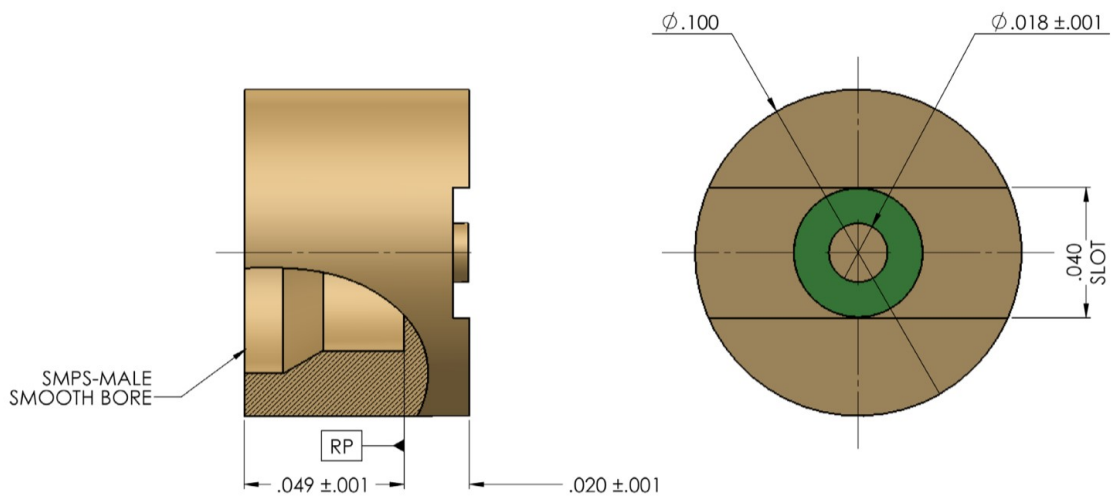
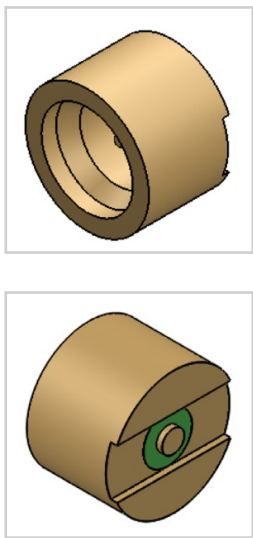


Surface Mount Males



9368000G91P-006

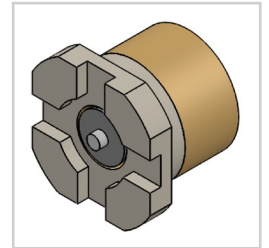
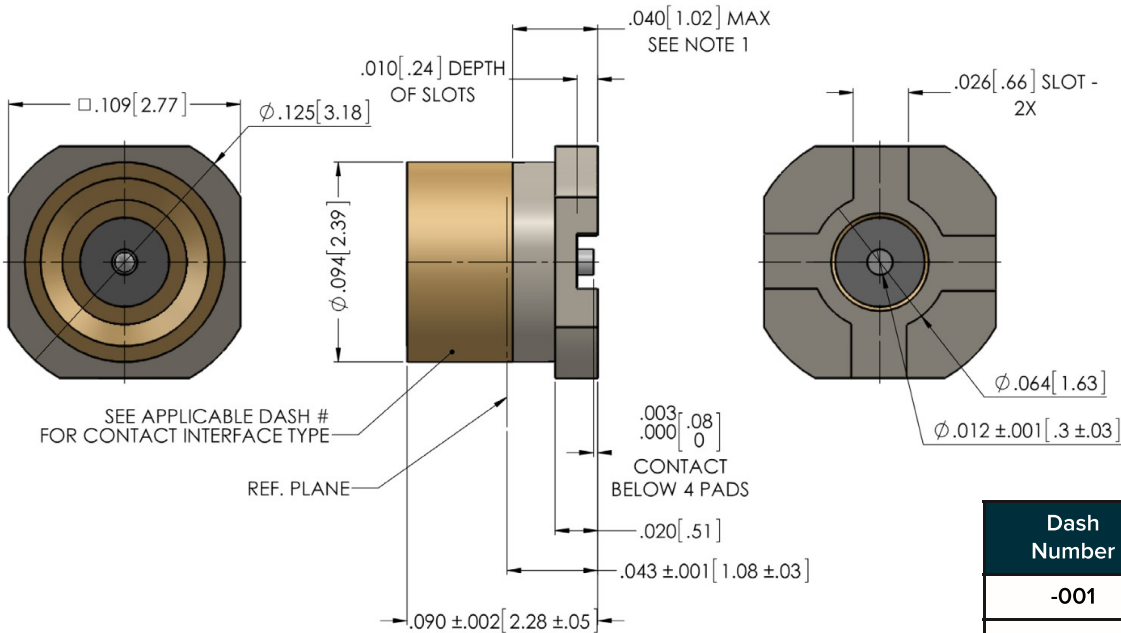
Straight PCB Surface Mount Receptacle
Full Detent



9368000G91P-007

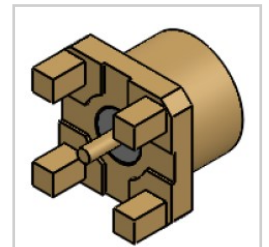
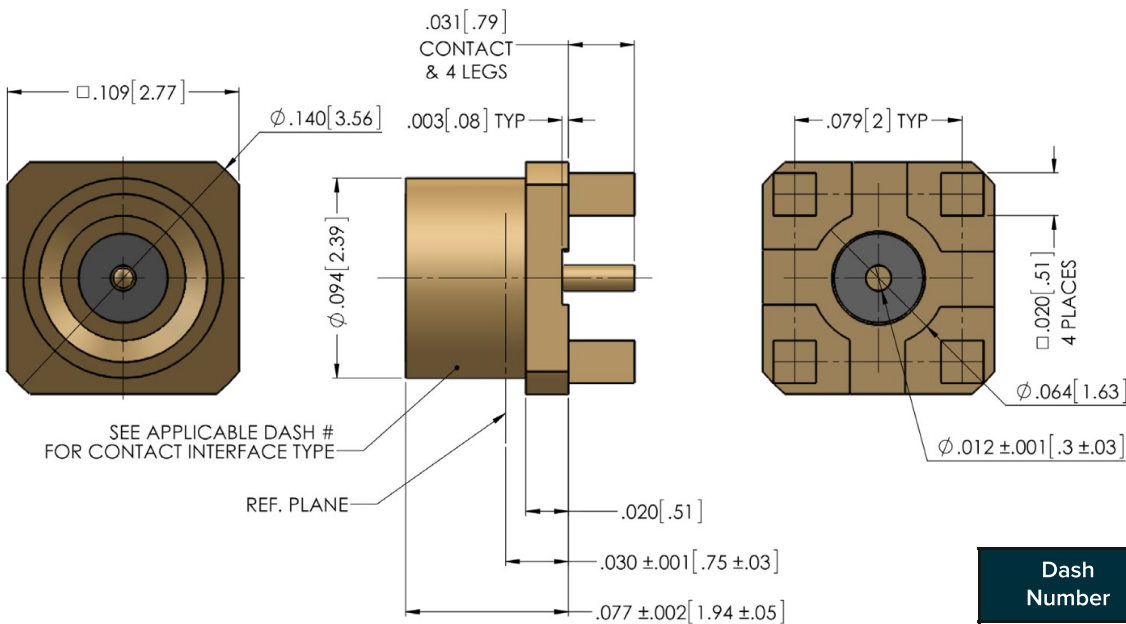
Straight PCB Surface Mount Receptacle
Smooth Bore

PCB Mounts



Dash Number	Interface
-001	Full Detent (FD)
-002	Smooth Bore (SB)

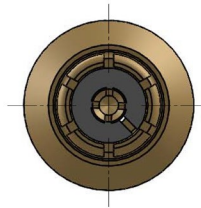
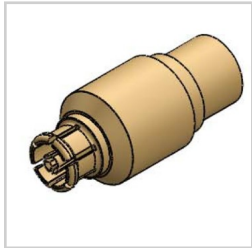
9368000G001-*
PCB Mount Male - Post Contact



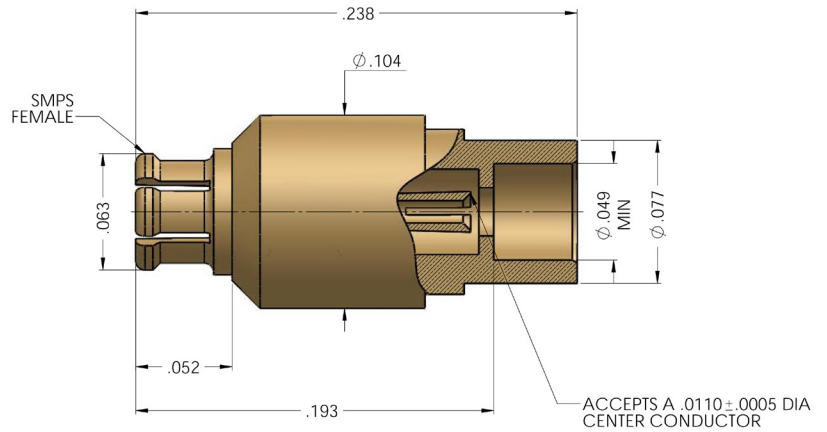
Dash Number	Interface
-003	Smooth Bore (SB)
-004	Full Detent (FD)

9368000G001-*
PCB Mount Male - Post Contact

Cable Connectors

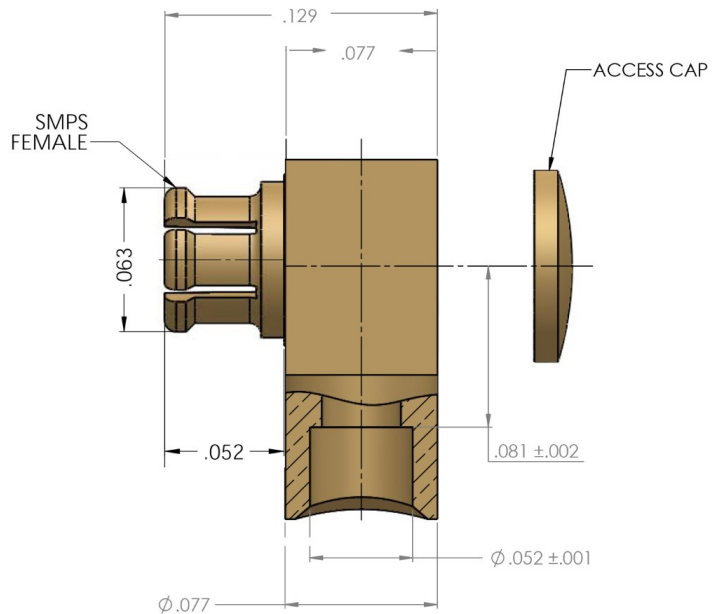
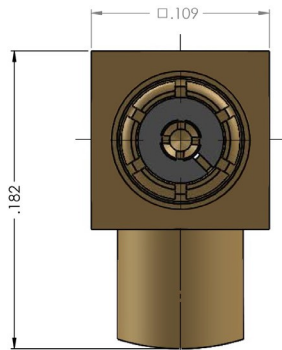
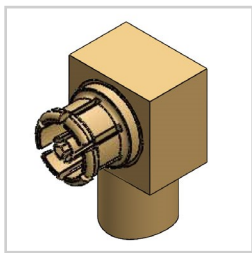


SM
FEMALE



9308000G003-000

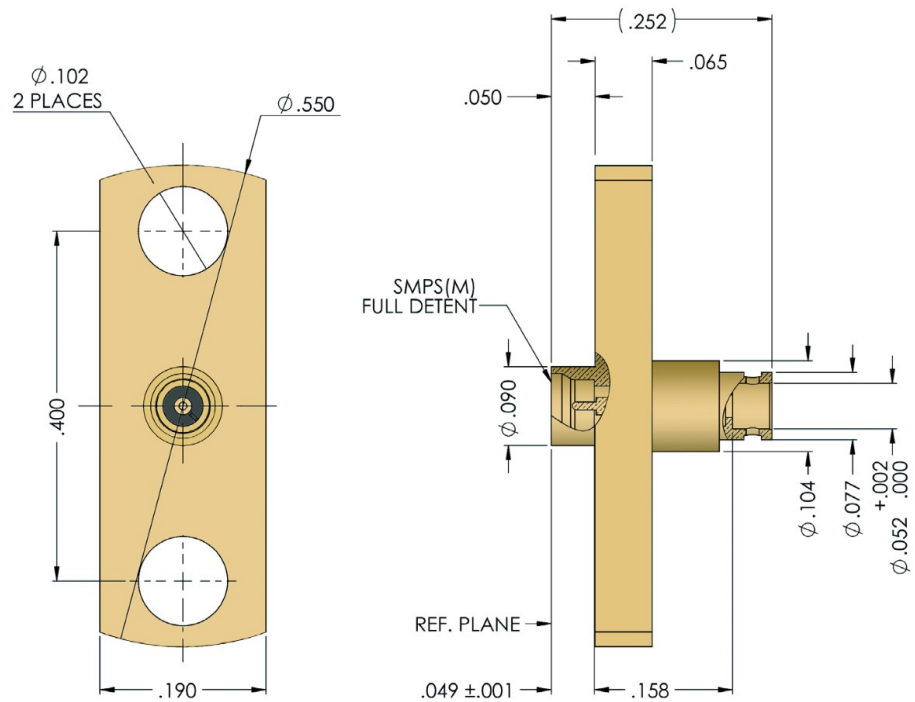
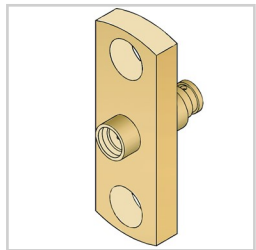
Direct Solder Female
.047 SR or Flex Cable



9376111G003-001

Right Angle Direct Solder
.047 SR or Flex Cable

Cable Connectors



937211G913-000

Panel Mount Direct Solder Male
Full Detent .047 SR Cable

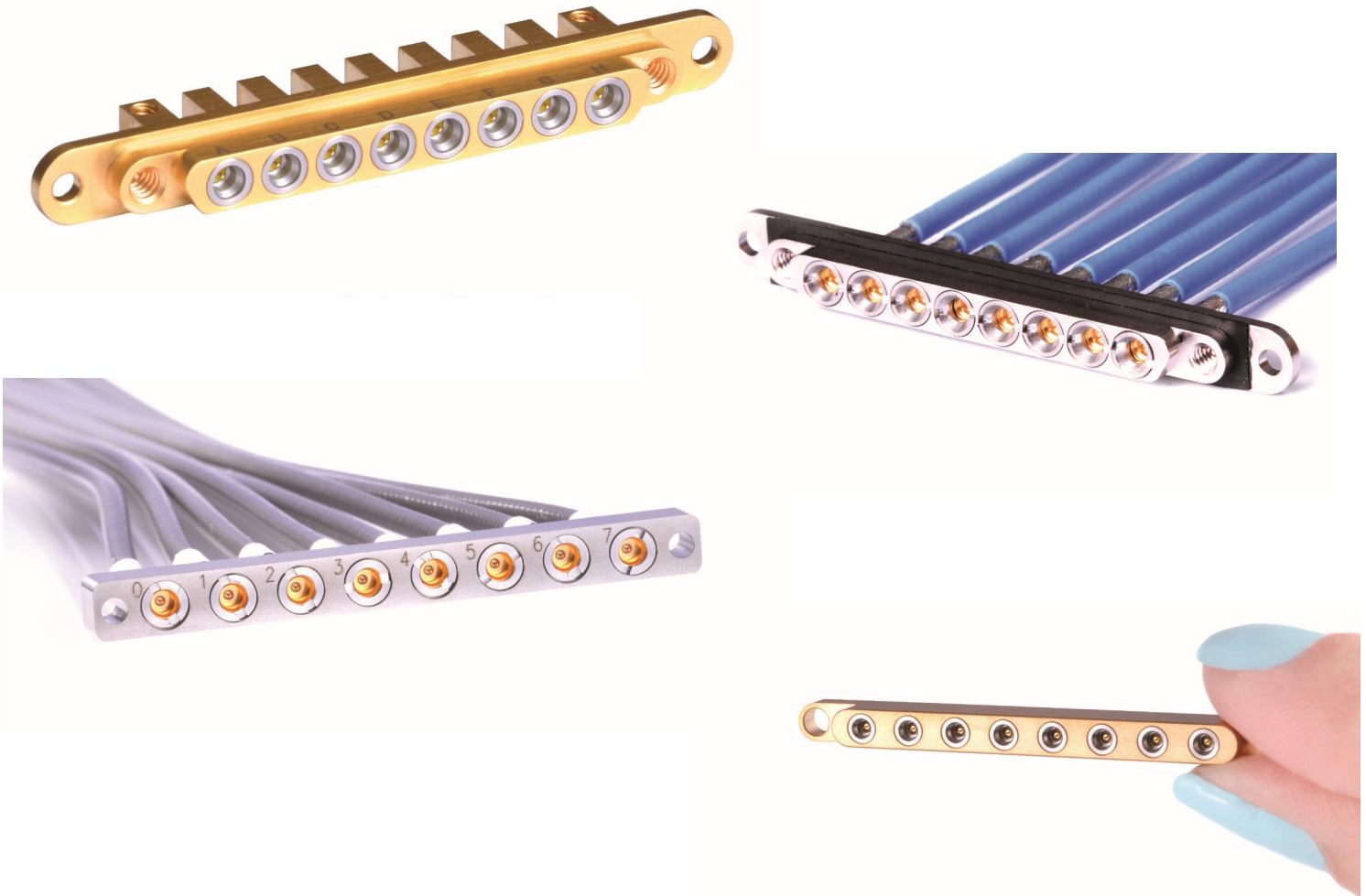


Please contact the factory for mounting instructions.

Gang Mounts

SMP, SMPM & SMPS Gang-Mount Solutions:

At Delta we specialize in gang-mounting any push-on connector interface.



- ▶ Any number of ports.
- ▶ Any termination type- PCB, edge- launch, surface or cable mount.
- ▶ Weather sealed interfaces & mounting hardware for external applications.
- ▶ Horizontal milling capabilities to support quick turn to market.

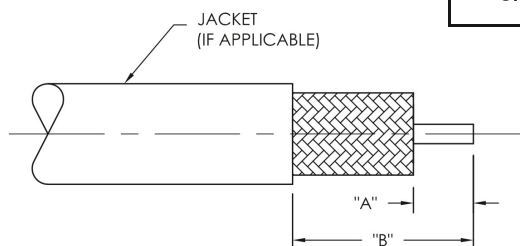


Automated Tin/Lead Dipping For SMP, SMPM & SMPS....

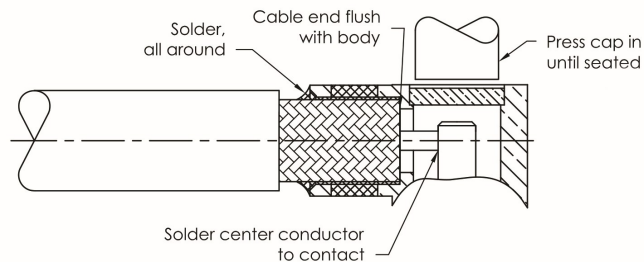
Our customized Automated Tin/Lead Dipping Equipment enables high volume processing of our SMP, SMPM and SMPS printed circuit board mount products. The finished connector is of high quality, with a consistent tin/lead flowed finish. Experience the Delta Difference!!!

Assembly Procedure "J"

Trim Codes		
J/05	A	B
	.062 ± .010	.187 ± .010



1. Trim cable to dimensions shown. Remove any burrs from outer and center conductor.

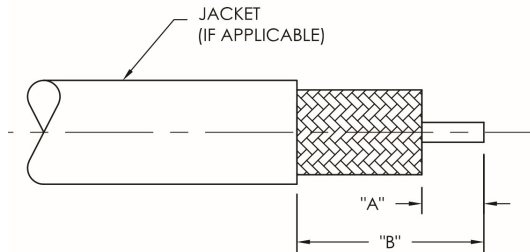


2. Insert cable into body, making sure center conductor is inserted in slot in contact. Solder cable jacket to body, keeping end of cable flush with step in body as shown. Solder center conductor to contact and press cap into body until fully seated.

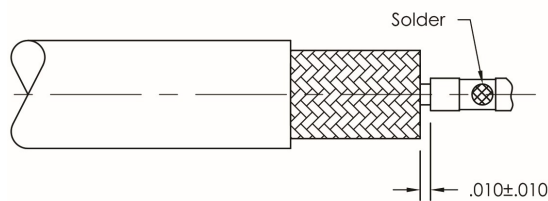
Proper assembly technique is important to the overall performance of the cable assemblies.

Assembly Procedure "N"

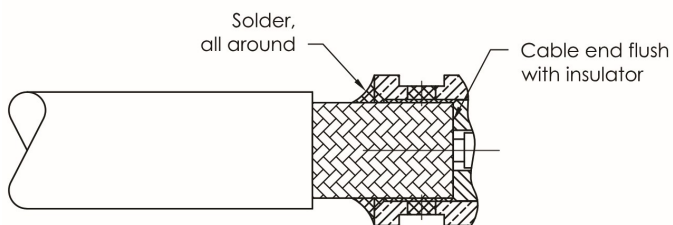
Trim Codes		
N/01	A	B
	.062 ± .010	.187 ± .010



1. Trim cable to dimensions shown. Remove any burrs from outer and center conductor.



2. Solder contact to center conductor. Fixturing to maintain gap as shown. Remove any excess solder from outside contact.

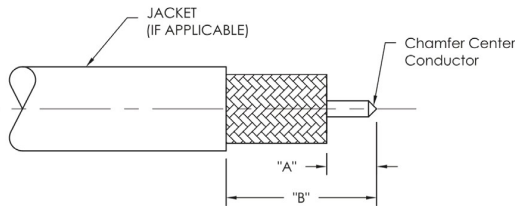


3. Insert cable into body and solder cable jacket to body keeping end of cable flush with insulator as shown.

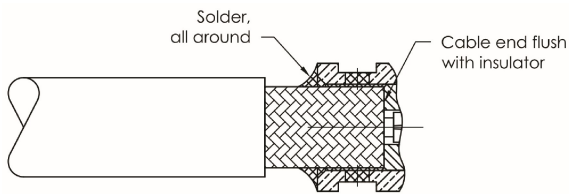
Proper assembly technique is important to the overall performance of the cable assemblies.
 Please contact Delta Electronics for additional information.

Assembly Procedure "P"

Trim Codes		
P/01	A	B
	.062 ± .010	.187 ± .010



1. Trim cable to dimensions shown. Remove any burrs from outer and center conductor.



2. Insert cable into body and solder cable jacket to body, keeping end of cable flush with insulator as shown.

Proper assembly technique is important to the overall performance of the cable assemblies.
Please contact Delta Electronics for additional information.

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