Amphenol
SV MICROWAVE®
RF Connectors & Components

SMP Coaxial Connectors

# SMP Coaxial Connectors

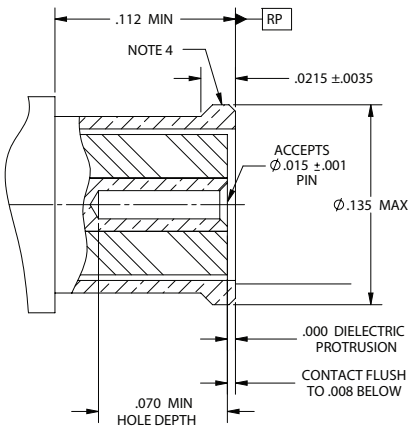
# SMP Connectors
## Interface

SV Microwave offers a complete line of SMP connectors that conform to DSCC 94007, 94008 and MIL-STD-348. The SMP connector was developed to meet an industry need for a smaller high frequency compact design that incorporated ease of use and functionality. The SMP bullet is the heart of this unique design.

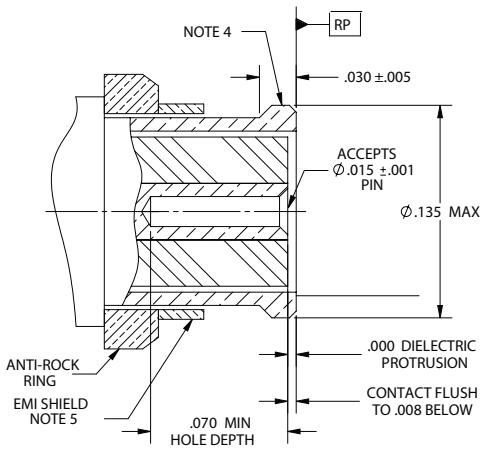
The bullet is designed to allow joining of two R.F. Modules by captivating the bullet between the two shrouds. This mounting method allows for higher density of connectors and by design the SMP bullet allows for misalignment to compensate for tolerance stack up. With significant withdraw forces on the full detent shroud, the SMP has become a standard for quick and effective interconnects using both semi-rigid and flexible cables. The "Push-on" design allows the installer to mate connectors without the need for threads or wrenches. Today's industry requires both innovation and flexibility and the SMP connector meets that challenge.

## Interface Mating Dimensions

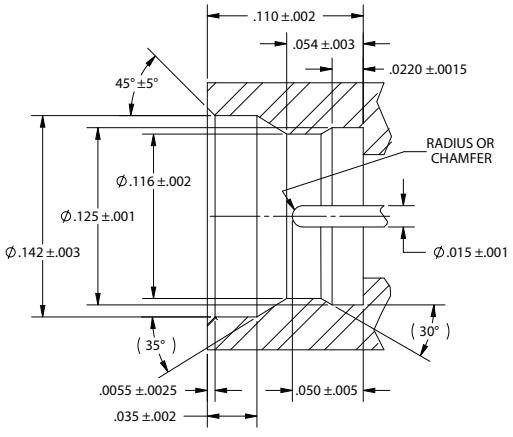
### Socket (Adapter)




### Socket (Cable)




### Shroud (Full Detent)




1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Interface shall meet the force to engage and disengage requirements in accordance with the appropriate DSCC drawing.
4. Form and dimension of outer conductor to meet electrical and mechanical requirements.
5. EMI shield configuration optional: Shall not prevent proper engagement of detent required. To meet mechanical and electrical requirements of DSCC drawing 94008.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# SMP Connectors - Specifications

## Material and Finish

| | |
|---|---|
| Bullet Adapter Body | Beryllium Copper per ASTM B196, Copper Alloy UNS C17300, Temper TD04<br>Gold per ASTM B488, Type II, Code C, Class 1.27 over Nickel per AMS-QQ-N-290 Class 1 |
| Shroud (Hermetically Sealed with Corning® 7070 Glass) | Kovar® per ASTM-F15, Stainless Steel per AMS 5640, Alloy UNS S30300<br>Free Machining Type 303, Condition A, Passivated per AMS-QQ-P-35, Type II<br>Gold per ASTM B488, Type II, Code C, Class 1.27 over Nickel per AMS-QQ-N-290 Class 1 |
| Shroud Non-Hermetic | Stainless per AMS 5640, Alloy UNS S30300<br>Free Machining Type 303, Condition A, Passivated per AMS-QQ-P-35, Type II<br>Gold per ASTM B488, Type II, Code C, Class 1.27 over Nickel per AMS-QQ-N-290 Class 1 |
| Center Contact (Socket) | Beryllium Copper per ASTM B196, Copper Alloy UNS C17300, Temper TD04<br>Gold per ASTM B488, Type II, Code C, Class 1.27 over Nickel per AMS-QQ-N-290 Class 1 |
| Insulator | Teflon per ASTM D1710 |

## Electrical

| | | |
|---|---|---|
| Frequency | DC to 40 GHz | |
| Nominal Impedance | 50 Ohms | |
| VSWR | **Bullets** | **Cable Connectors** |
| | 1.10:1 max.: DC to 23 GHz | 1.20:1 max.: DC to 18 GHz |
| | 1.15:1 max.: 23 to 26.5 GHz | 1.35:1 max.: 18 to 26.5 GHz |
| | 1.30:1 max.: 26.5 to 40 GHz | 1.40:1 max.: 26.5 to 40 GHz |
| Insertion Loss (Adapters) | .10 dB x √f (where f = GHz) dB | |
| Insertion Loss (Cable Connectors) | .12 dB x √f (where f = GHz) dB | |
| Voltage Rating | 335 VRMS max. at sea level | |
| RF Leakage (Fully mated) | –80 dB min. DC to 3 GHz<br>–65 dB min. from 3 to 26.5 GHz | |
| Temperature Rating | -65°C to +165°C | |
| Dielectric Withstanding Voltage | 500 VRMS min. at sea level | |
| Insulation Resistance | 5,000 megohms min. | |
| Center Contact (Socket) Resistance | 6.0 milliohms max. | |
| Outer Contact Resistance | 2.0 milliohms max. | |

## Mechanical

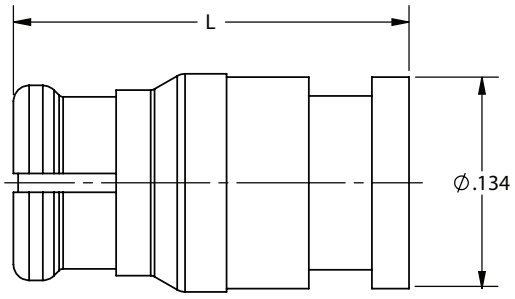
| | |
|---|---|
| Captivation – Center Contacts (Adapters and Right Angle Connectors Only) | |
| Axial Force | 1.5 lbs. min. |
| Mating Forces | |
| Force to Engage | Full detent 15.0 lbs. max.; limited detent 10.0 lbs. max.; smooth bore 2.0 lbs. max. |
| Force to Disengage | Full detent 5.0 lbs. max.; limited detent 2.0 lbs. max.; smooth bore 0.5 lbs. max. |
| Durability (Mating Cycles) | |
| Adapters | Full detent 100 max.; limited detent 500 max.; smooth bore 1,000 max. |
| Cable Connectors | 100 cycles |
| Axial Displacement | .000/.010 inch (.00/.254 mm) |
| Radial Misalignment | ± .010 inch (.254 mm); ± .020 inch (.508 mm) DSCC 94007ZSP-6SC only |

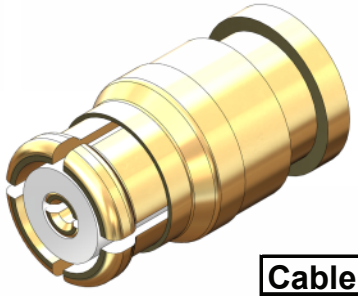
## Environmental

| | |
|---|---|
| Shock | MIL-STD-202, Method 213, Condition I (100 Gs) |
| Vibration | MIL-STD-202, Method 204, Condition D (20 Gs) |
| Barometric Pressure (Altitude) | MIL-STD-202, Method 105, Condition C (70,000 ft.) (190 VRMS) |
| Thermal Shock | MIL-STD-202, Method 107, Condition B (High Temperature +165°C) |

# SMP Cable Connectors

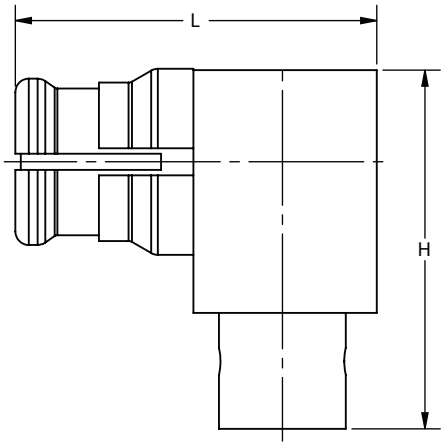
## Straight Female

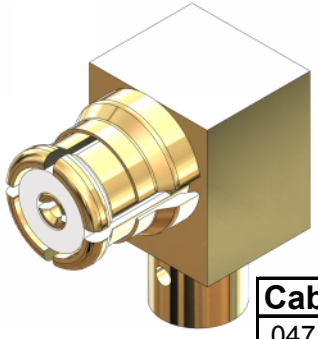


| Cable | DSCC P/N | P/N | OAL |
|---|---|---|---|
| .047 | 94008ZCG-2 | 1203-4000 | .265 |
| .085 | 94008ZCG-1 | 1204-4000 | .265 |
| RG-178 | -- | 1221-4004 | .250 |
| RG-316 | -- | 1221-4005 | .300 |

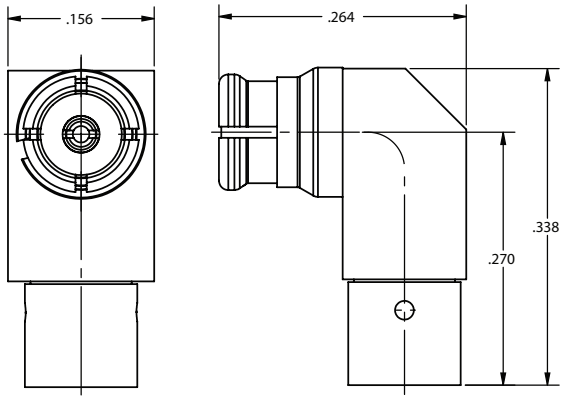
## Right Angle Female

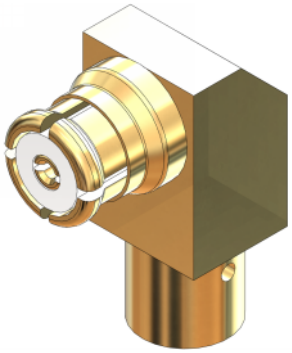


| Cable | DSCC P/N | P/N | L | H |
|---|---|---|---|---|
| .047 | 94008ZCG-4 | 1213-4007 | .265 | .220 |
| .085 | 94008ZCG-3 | 1214-4001 | .270 | .240 |
| RG-178 | -- | 1222-4006 | .268 | .266 |
| RG-316 | -- | 1221-4006 | .268 | .338 |

## Swept Right Angle Female



| Cable | P/N |
|---|---|
| .047 | 1222-4004 |
| .085 | 1222-4005 |

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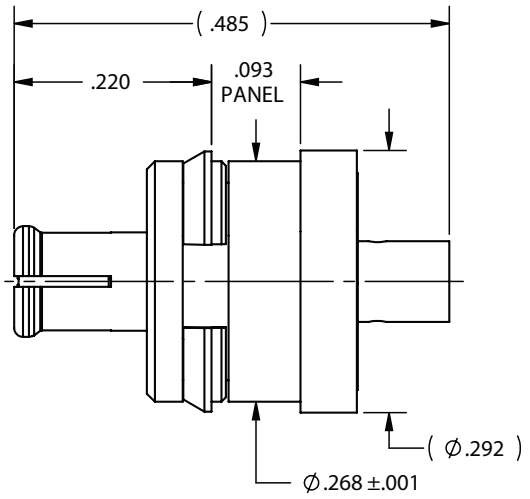
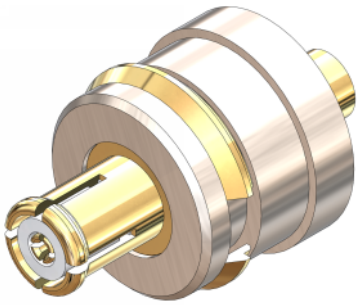
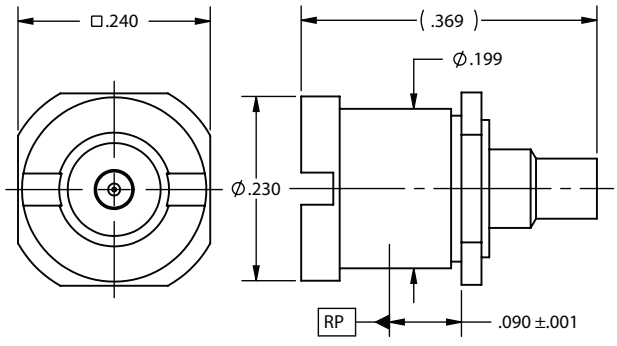
## Straight Female, Snap in Panel, Float Mount

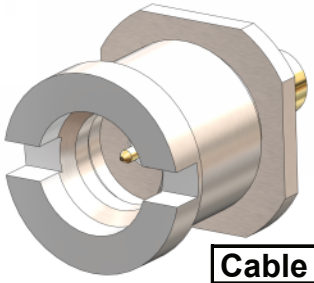


| Cable | P/N |
|---|---|
| .047 | 1221-6001 |
| .085 | 1204-6000 |

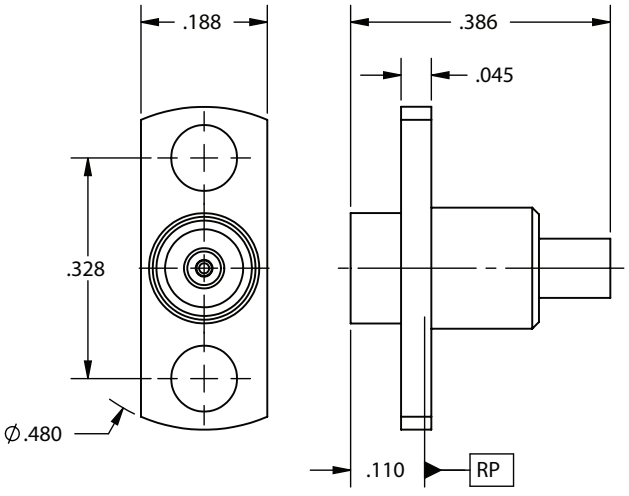
## Straight Male, Bulkhead Mount

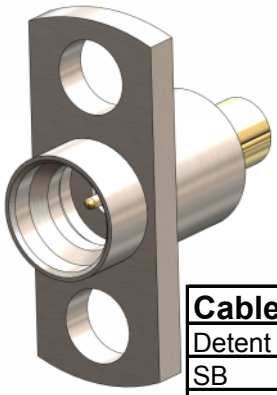


| Cable | .047 | .085 |
|---|---|---|
| Detent | P/N | P/N |
| CM | SF1211-6060 | SF1211-6063 |
| LD | SF1211-6059 | SF1211-6062 |
| FD | SF1211-6058 | SF1211-6061 |

## Straight Male, Two Hole Flange Mount



| Cable | .047 | .085 |
|---|---|---|
| Detent | P/N | P/N |
| SB | SF1211-6022 | SF1211-6023 |
| LD | SF1211-6021 | SF1211-6024 |
| FD | SF1233-6000 | SF1211-6025 |

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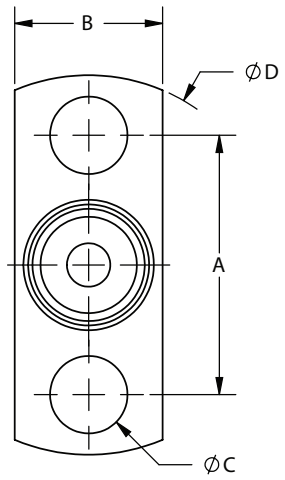
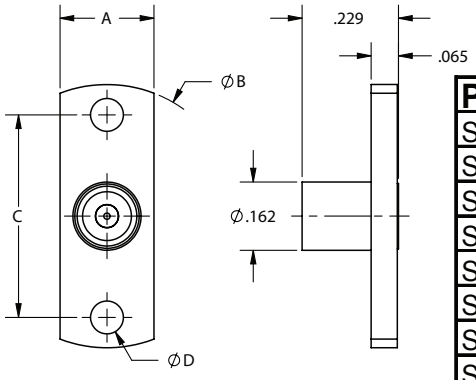
## Male Shroud, Two Hole Flange Mount, No Contact



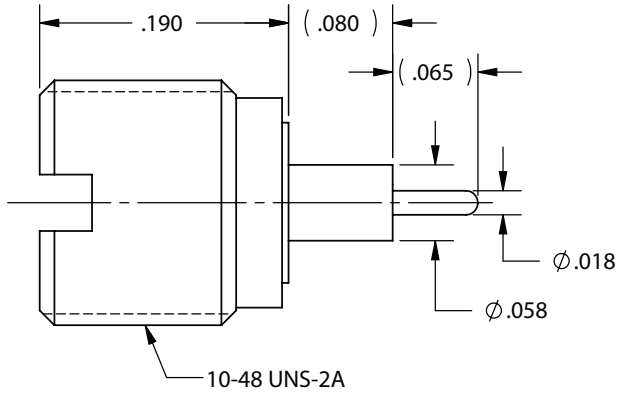

| P/N | DSCC P/N | Detent | DIM A | DIM B | DIM C | DIM D |
|---|---|---|---|---|---|---|
| SF1254-6000 | 94007ZSP-3 | FD | .328 | .187 | .098 | .480 |
| SF1254-6001 | 94007ZSP-3L | LD | .328 | .187 | .098 | .480 |
| SF1254-6002 | -- | SB | .328 | .187 | .098 | .480 |
| SF1254-6003 | 94007ZSP-4 | FD | .481 | .223 | .102 | .625 |
| SF1254-6004 | 94007ZSP-4L | LD | .481 | .223 | .102 | .625 |
| SF1254-6005 | -- | SB | .481 | .223 | .102 | .625 |
| SF1254-6006 | 94007ZSP-5 | FD | .282 | .165 | .073 | .400 |
| SF1254-6007 | 94007ZSP-5L | LD | .282 | .165 | .073 | .400 |
| SF1254-6008 | -- | SB | .282 | .165 | .073 | .400 |

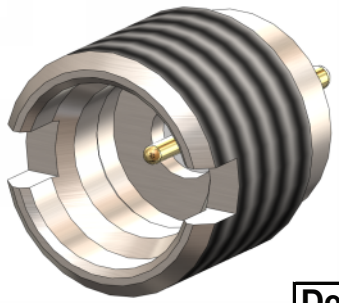
## Straight Male Two Hole Flange Mount, Field Replaceable, Accepts .012" Pin




| P/N | Detent | DIM A | DIM B | DIM C | DIM D | DIM E |
|---|---|---|---|---|---|---|
| SF1211-66069 | FD | .116 | .165 | .625 | .400 | .102 |
| SF1211-66070 | LD | .120 | .165 | .625 | .400 | .102 |
| SF1211-66071 | SB | .125 | .165 | .625 | .400 | .102 |
| SF1211-66072 | FD | .116 | .190 | .625 | .400 | .102 |
| SF1211-66073 | LD | .120 | .190 | .625 | .400 | .102 |
| SF1211-66074 | SB | .125 | .190 | .625 | .400 | .102 |
| SF1211-66075 | FD | .116 | .190 | .485 | .350 | .102 |
| SF1211-66076 | LD | .120 | .190 | .485 | .350 | .102 |
| SF1211-66077 | SB | .125 | .190 | .485 | .350 | .102 |

## Straight Male Thread-In, .018" Contact



| Detent | P/N |
|---|---|
| SB | SF1211-66114 |
| LD | SF1211-66113 |
| FD | SF1279-6001 |

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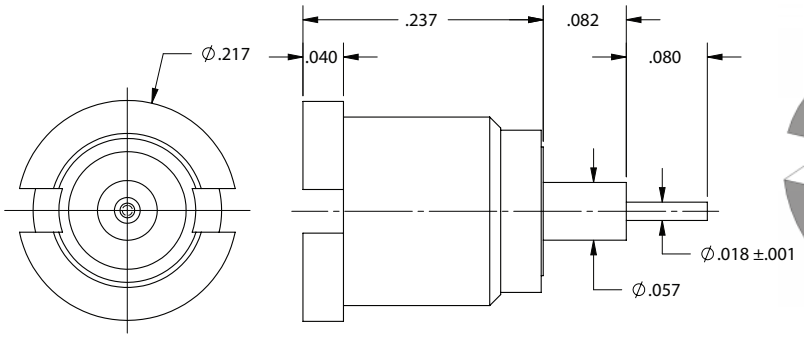
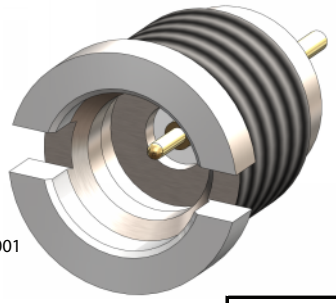
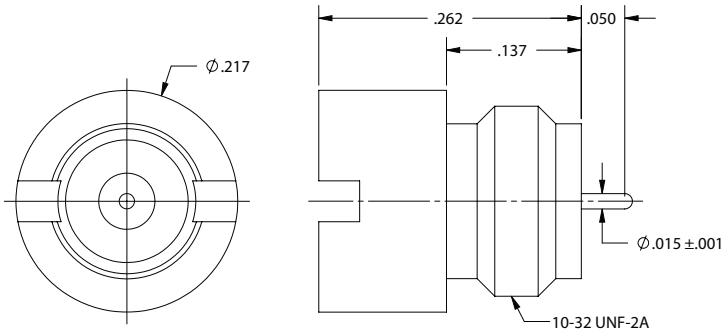
## Straight Male Thread-In Terminal, .018" Contact

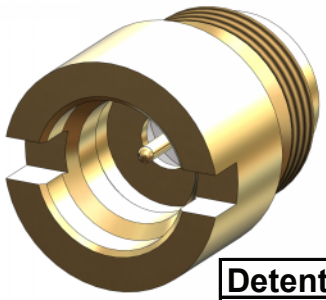


| Detent | P/N |
|---|---|
| SB | SF1211-6037 |
| LD | SF1211-6036 |
| FD | SF1211-6035 |

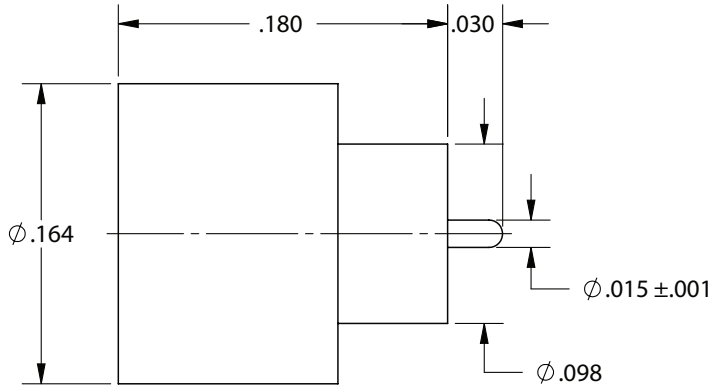
## Straight Male Thread-In Hermetic, .015" Contact

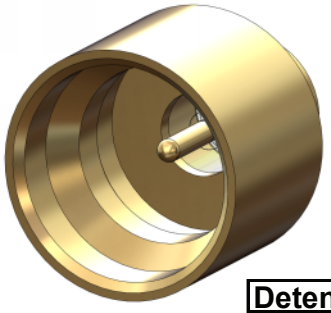


| Detent | P/N |
|---|---|
| SB | 1211-40008 |
| LD | 1279-4002 |
| FD | 1279-4001 |

## Male Solder In Hermetic, .015" Contact



| Detent | P/N |
|---|---|
| SB | 1211-6043 |
| LD | 1211-6042 |
| FD | 1211-6041 |

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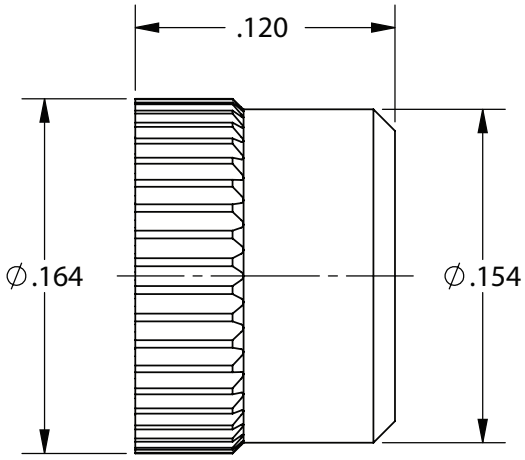
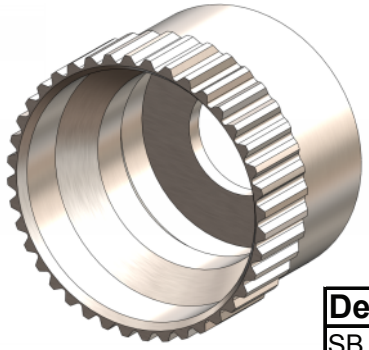
# SMP Connectors

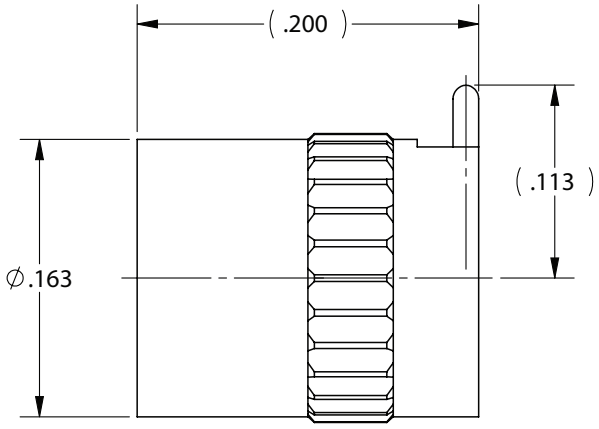
## Male Press In Shroud, No Contact

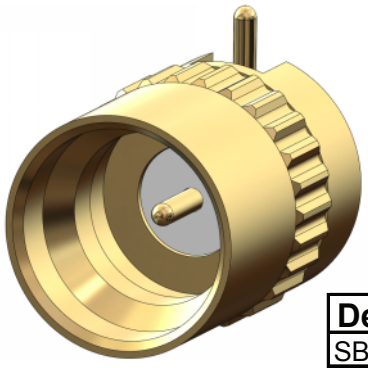


| Detent | P/N |
|---|---|
| SB | SF1211-66102 |
| LD | SF1211-66101 |
| FD | SF1211-66100 |

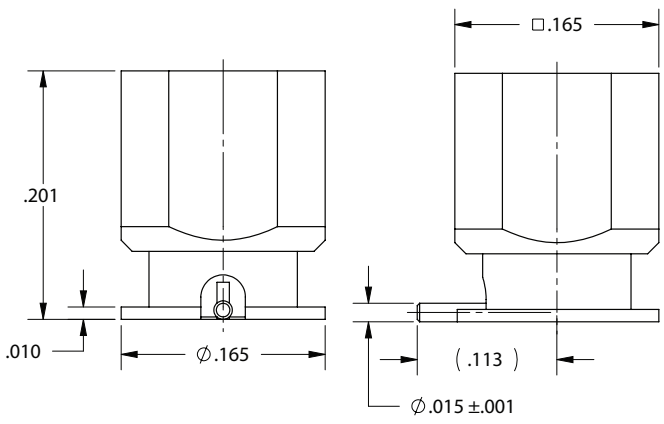
## Male Press In, R/A Contact

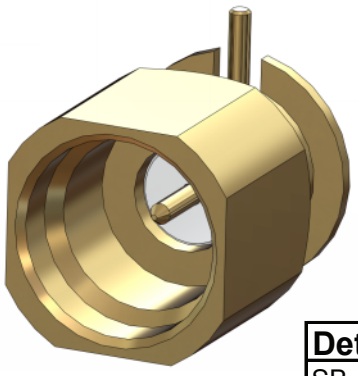


| Detent | P/N |
|---|---|
| SB | 1211-66127 |
| LD | 1211-66126 |
| FD | 1211-4000 |

## Male Surface Mount, R/A Contact



| Detent | P/N |
|---|---|
| SB | 1211-40001 |
| LD | 1211-40004 |
| FD | 1211-40003 |

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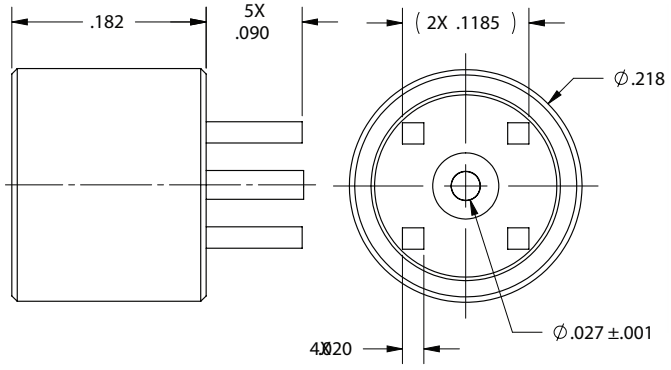
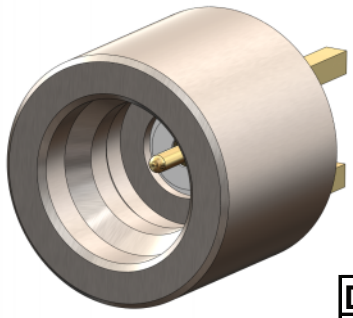
# SMP Connectors

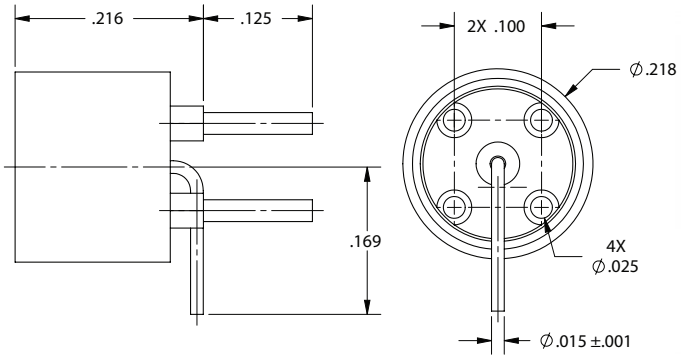
## Male PCB Mount, 4 Leg, Straight Contact

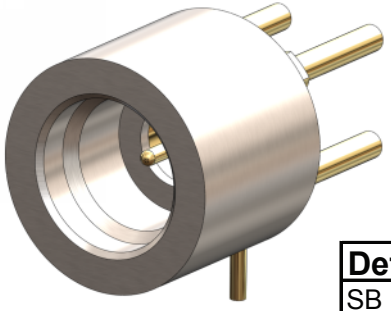


| Detent | P/N |
|---|---|
| SB | SF1211-6045 |
| LD | SF1211-6044 |
| FD | SF1287-6001 |

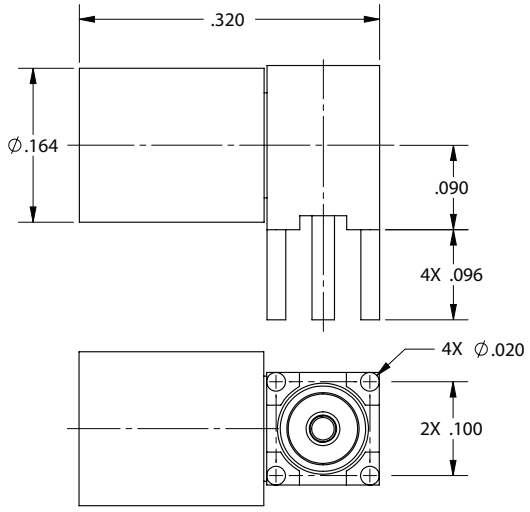
## Male PCB Mount, 4 Leg, Right Angle Contact

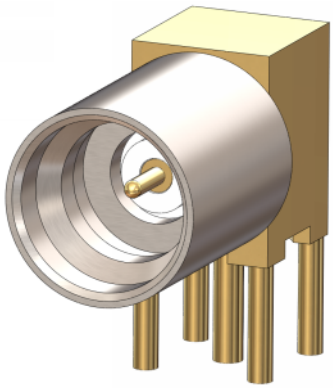


| Detent | P/N |
|---|---|
| SB | SF1211-40002 |
| LD | SF1211-40006 |
| FD | SF1211-40007 |

## Male Right Angle Body, PCB Mount, 4 Leg, Straight



| Detent | P/N |
|---|---|
| SB | SF1212-6002 |
| LD | SF1212-6001 |
| FD | SF1212-6000 |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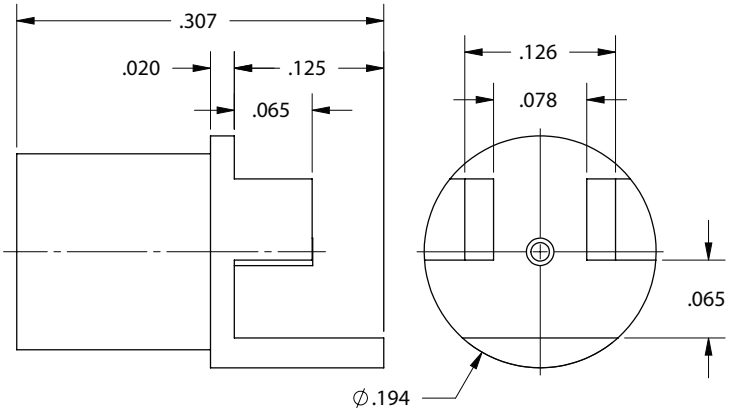
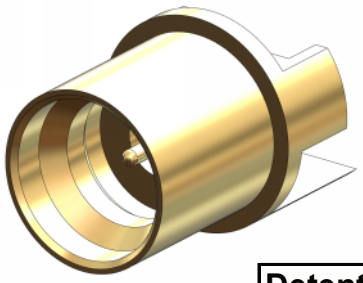
# SMP Connectors

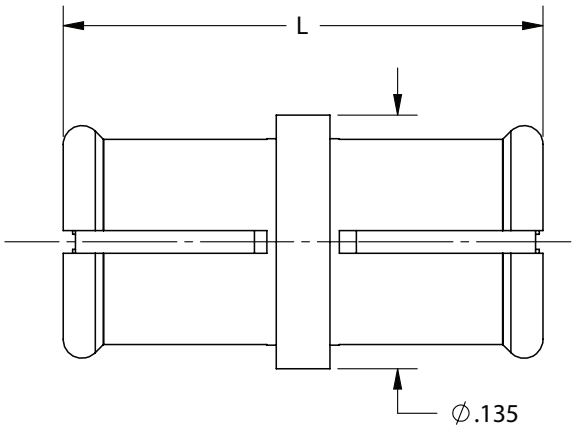
## Straight Male PCB Edge Mount, .015" Contact

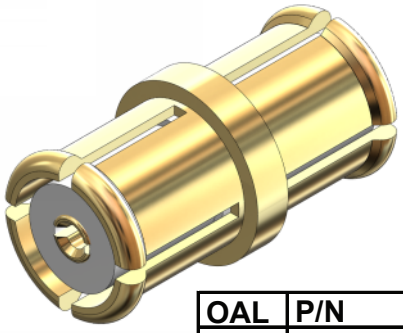


| Detent | P/N |
|---|---|
| SB | 1285-6004 |
| LD | 1285-6003 |
| FD | 1285-6002 |

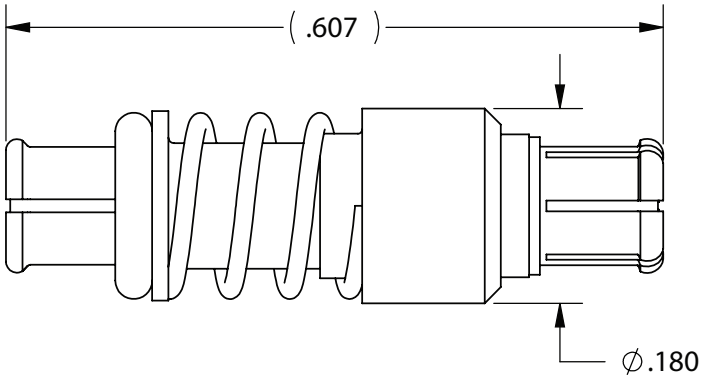
## Female to Female Bullet

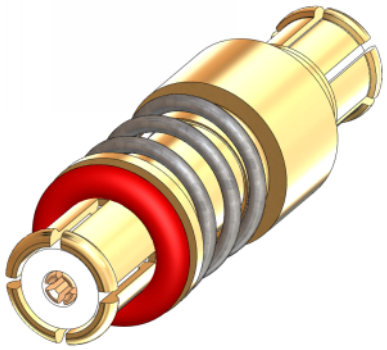


| OAL | P/N | DSCC P/N |
|---|---|---|
| .254 | 1290-4008 | 94007ZCG-1 |
| .395 | 1290-4009 | 94007ZCG-2 |
| .769 | 1290-4007 | -- |

## Female to Female Bullet, Spring Loaded



| OAL | P/N |
|---|---|
| .604 | 1112-4019 |

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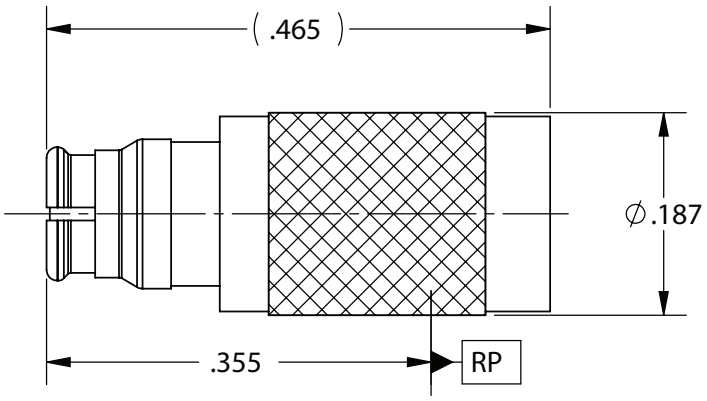
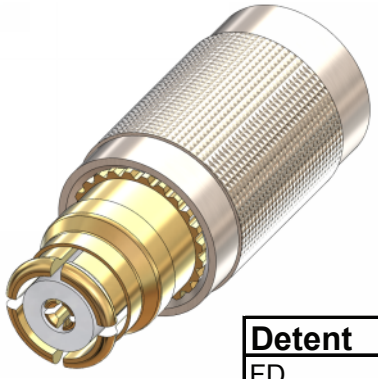
# SMP Adapters

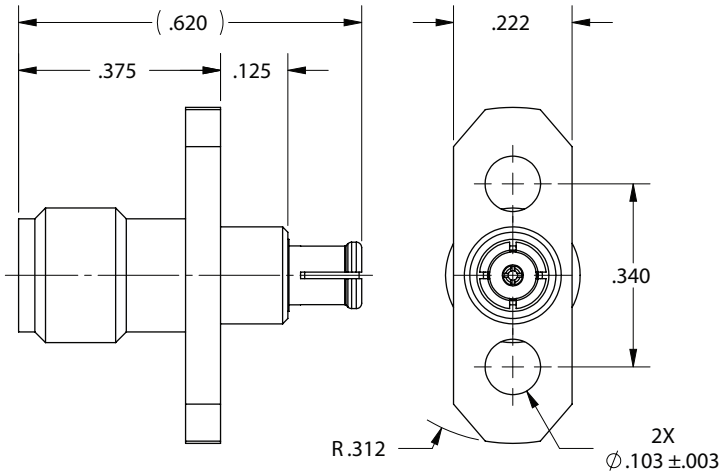
## Male to Female Adapter

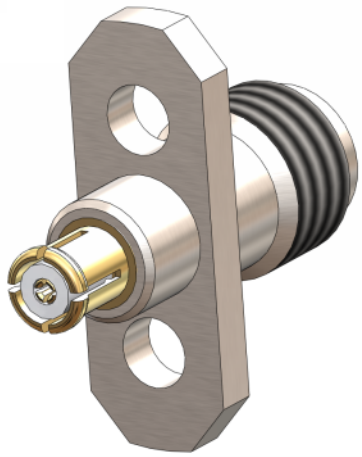


| Detent | P/N |
|---|---|
| FD | 1112-4009 |
| LD | 1112-4011 |
| SB | 1112-4012 |

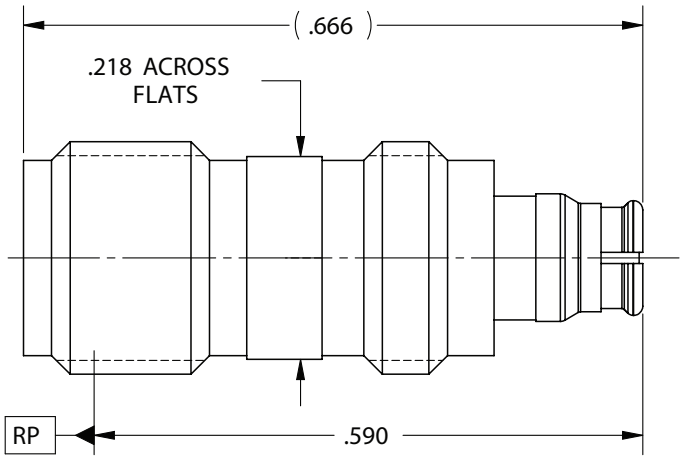
## SMP Female to SMA Female, 2 Hole Flange

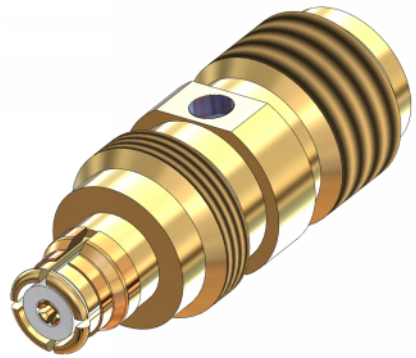


| P/N |
|---|
| SF1112-6011 |

## SMP Female to SMA Female, Thread-In



| P/N |
|---|
| 1112-4018 |

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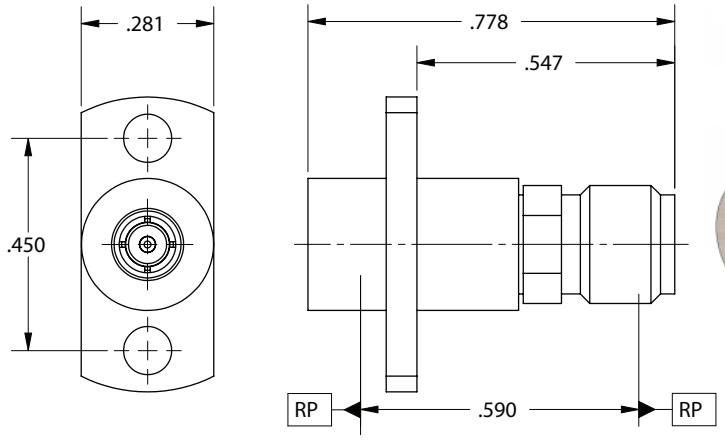
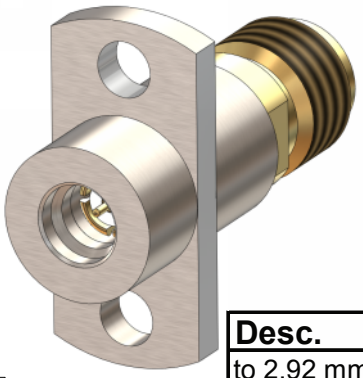
# SMP Adapters

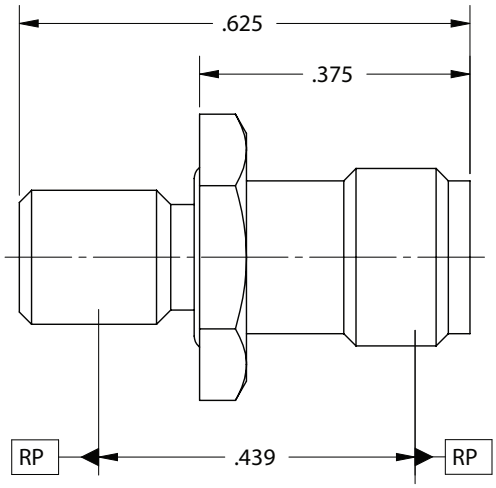
## SMP Male LD Adapter, 2 Hole Flange Mount

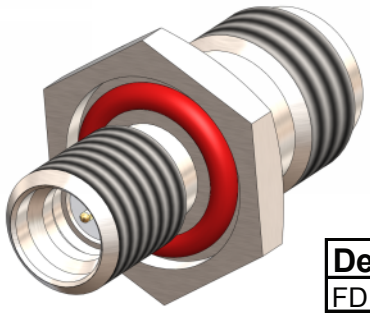


| Desc. | P/N |
|---|---|
| to 2.92 mm Female | SF1112-6027 |
| to SMA Female | SF1112-6028 |
| to 3.5 mm Female | SF1112-6029 |

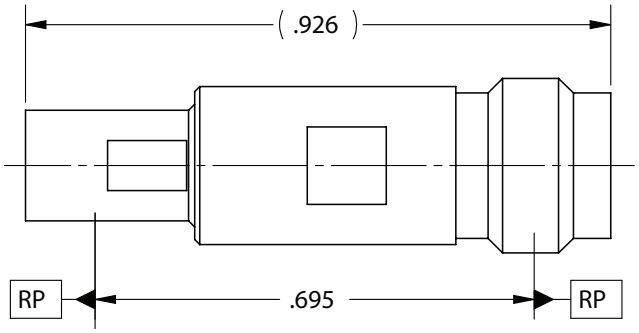
## SMP Male to SMA Female, Thread-In Panel Mount

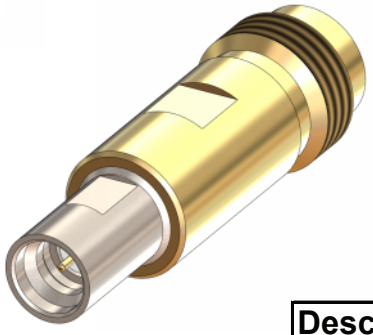


| Detent | P/N |
|---|---|
| FD | SF1112-6036 |
| LD | SF1112-6034 |
| SB | SF1112-6035 |

## SMP to 2.4mm Female, Adapter



| Desc. | P/N |
|---|---|
| SMP Male FD | 1116-6014 |
| SMP Female | 1116-6012 |

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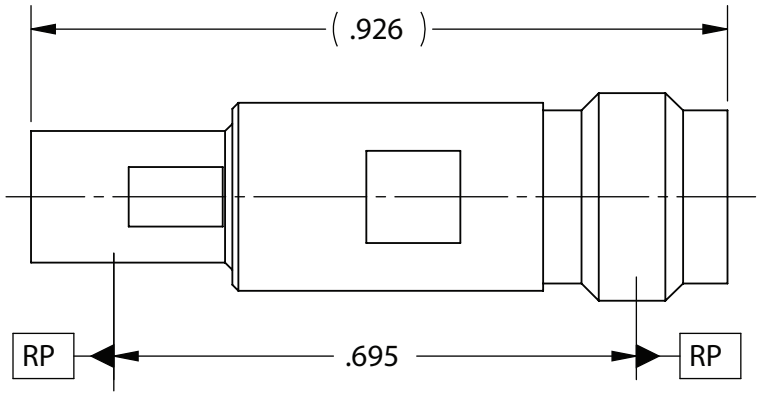
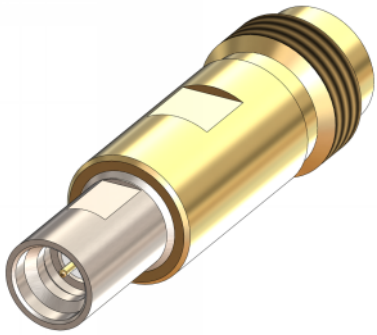
# SMP Adapters

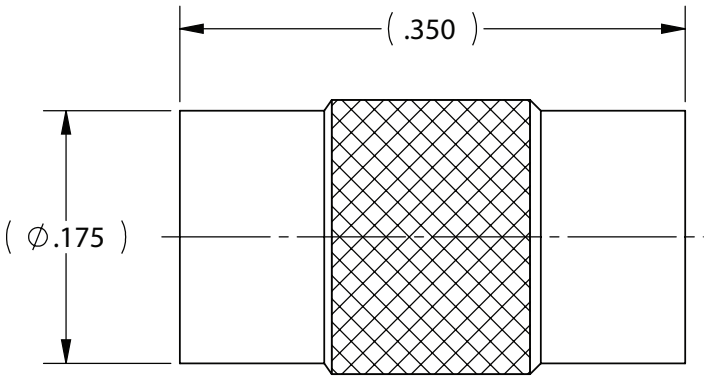
## SMP Male to 2.92mm Female

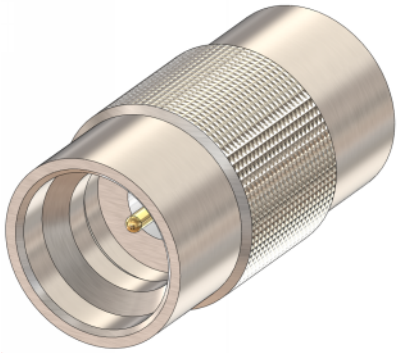


| Detent | SV P/N |
|---|---|
| SB | SF1112-6031 |

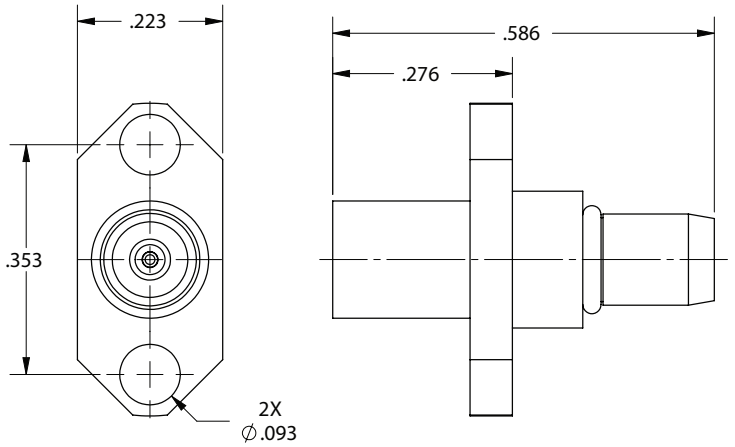
## SMP Male FD to SMPM Male FD

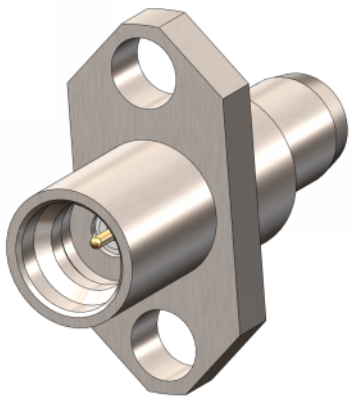


| P/N |
|---|
| SF1132-6029 |

## SMP Male FD to BMMA Male, 2 Hole Flange Mount



| P/N |
|---|
| SF1114-6013 |

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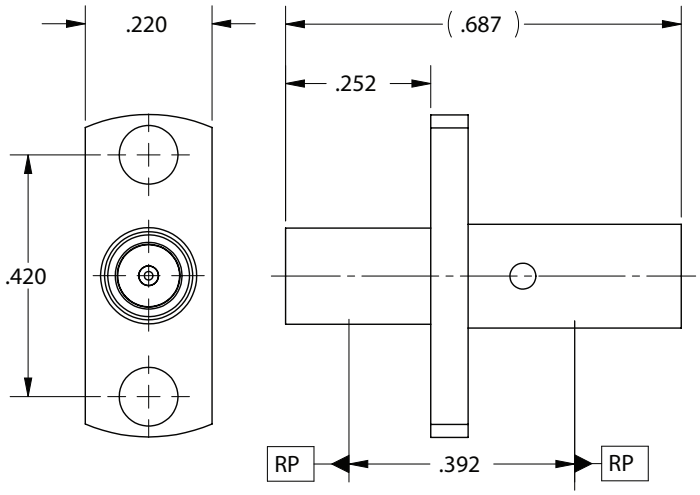
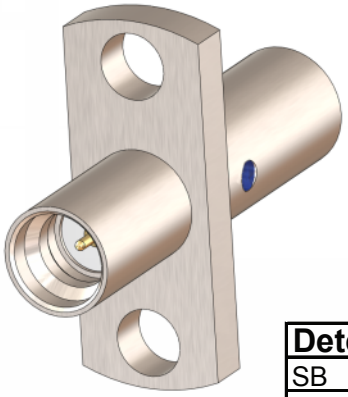
# SMP Adapters

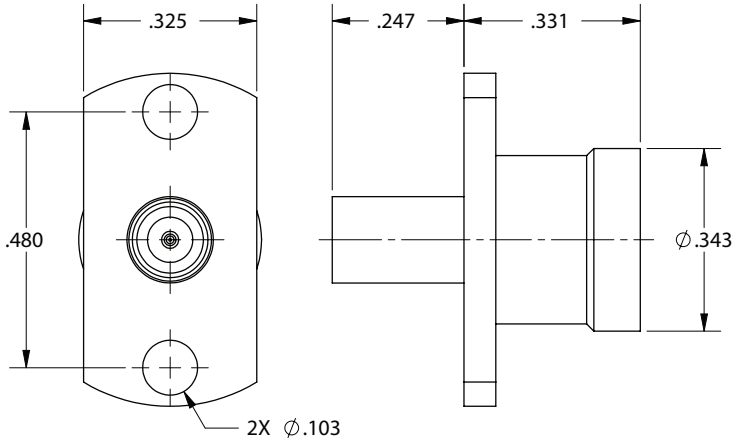
## SMP Male to BMZ Female, Two Hole Flange

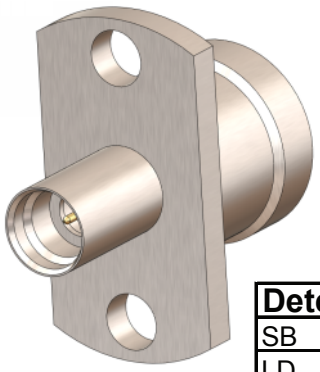


| Detent | P/N |
|---|---|
| SB | SF1112-6010 |
| LD | SF1112-6058 |
| FD | SF1112-6008 |

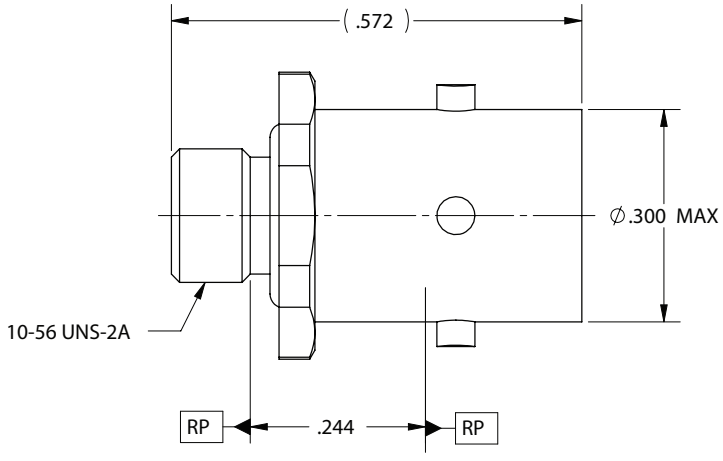
## SMP Male to SVMS Male SB, Two Hole Flange Mount

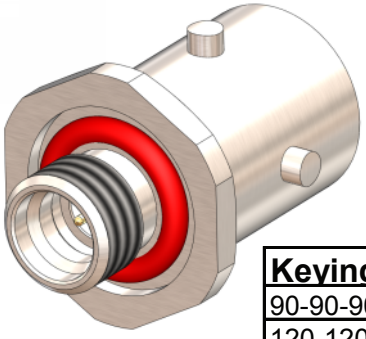


| Detent | P/N |
|---|---|
| SB | SF1112-6033 |
| LD | SF1112-6059 |
| FD | SF1112-6060 |

## SMP Male LD to ZMA Female, Thread-In



| Keying | P/N |
|---|---|
| 90-90-90-90 | SF1112-6037 |
| 120-120-120 | SF1112-6038 |
| 110-110-140 | SF1112-6039 |
| 130-130-100 | SF1112-6040 |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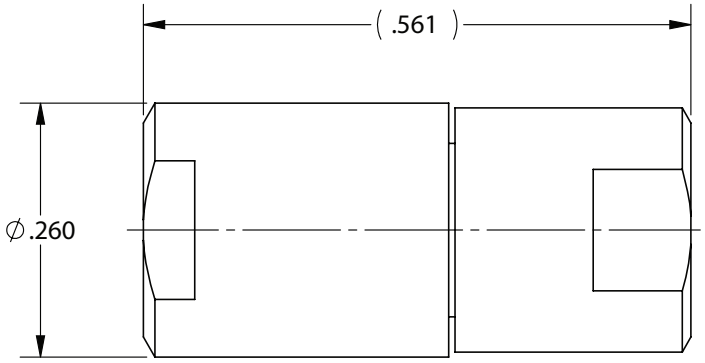
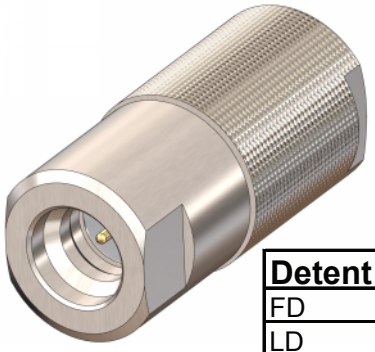
# SMP Components

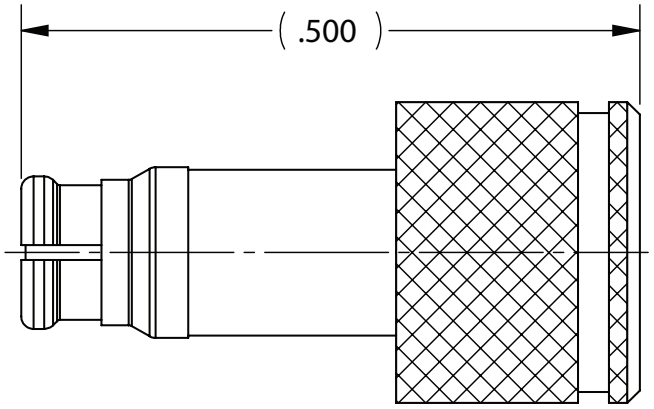
## SMP Male Terminations

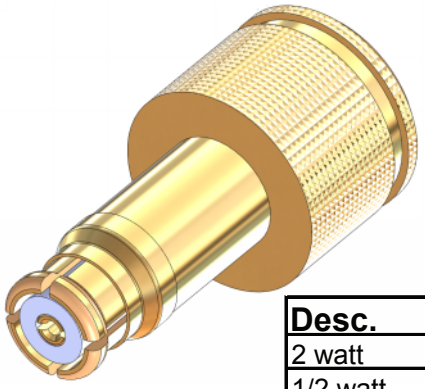


| Detent | P/N |
|---|---|
| FD | SF8012-6009 |
| LD | SF8012-6101 |
| SB | SF8012-6102 |
| CM | SF8012-6103 |

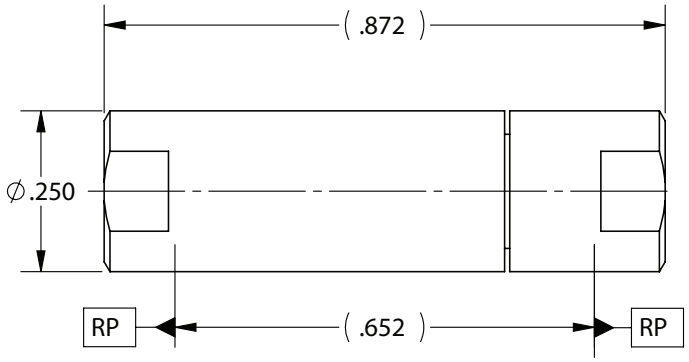
## SMP Female Terminations and Short



| Desc. | P/N |
|---|---|
| 2 watt | 8012-4003 |
| 1/2 watt | 8012-4006 |
| Short | 8012-4008 |

## SMP Attenuators



| Desc. | P/N |
|---|---|
| Male to Male, FD | SF0912-6305 |
| Male FD to Female | SF0912-6308 |
| QPL, Male to Male, FD | M3933/27-XX |

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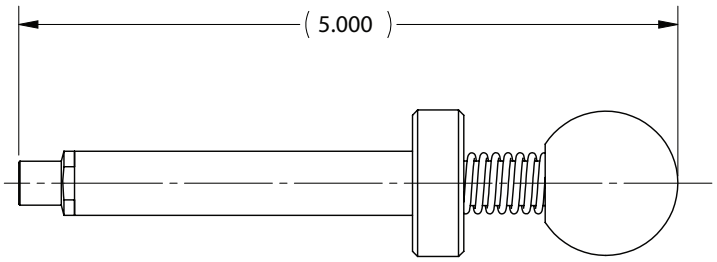
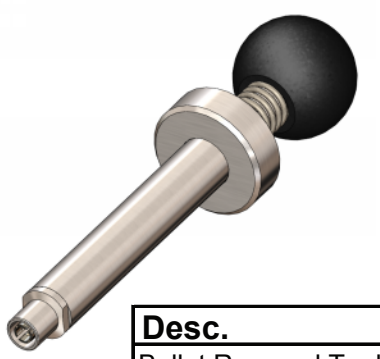
# SMP Tools

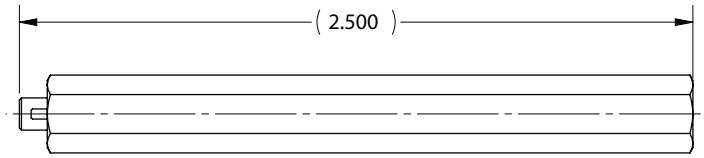
## SMP Removal Tools

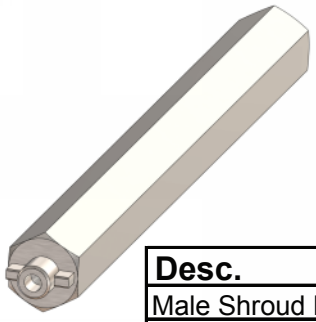


| Desc. | P/N |
|---|---|
| Bullet Removal Tool | 500-12-000 |
| Spring Bullet Removal Tool | 500-12-017 |
| Male Panel Removal | 500-12-018 |

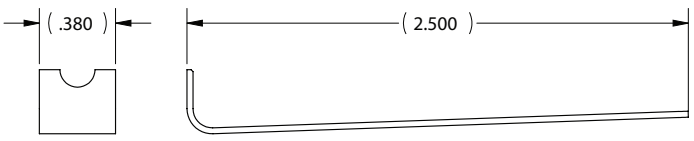
## SMP Drivers

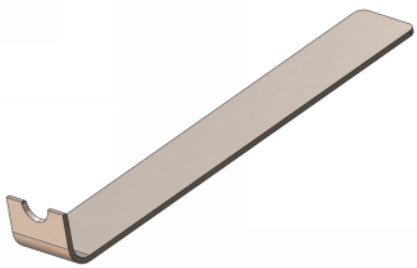


| Desc. | P/N |
|---|---|
| Male Shroud Driver, CM | 500-12-014 |
| Male Shroud Driver, SB | 500-12-013 |
| Male Shroud Driver, LD | 500-12-012 |
| Male Shroud Driver, FD | 500-12-011 |

## SMP Female Cable Removal Tool



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