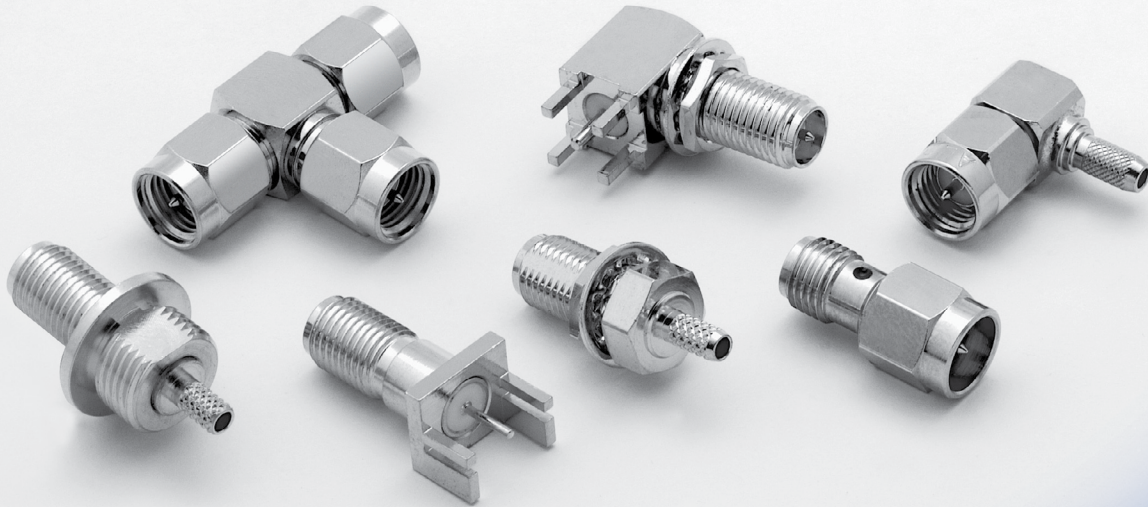


SMA Series - SA



SMA

FEATURES :

- Broadband performance DC to 18GHz
- Threaded Coupling Mechanism
- High Performance Interface
- Can be torqued for consistency
- Available for many cable variants
- Call for Stainless Steel versions

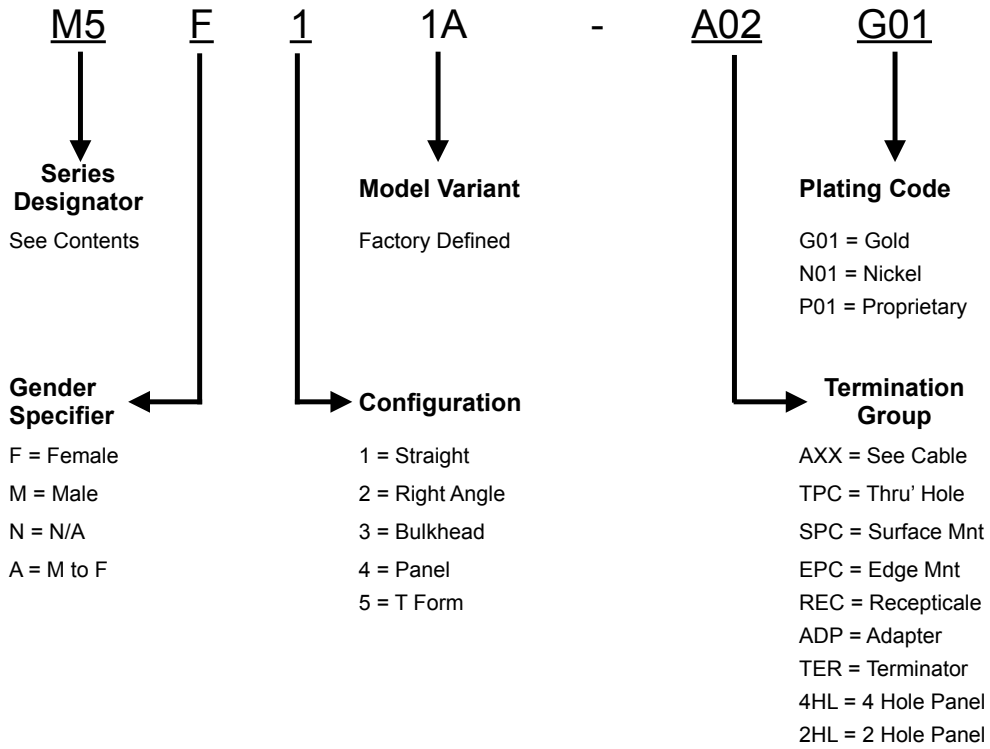
APPLICATIONS :

- Telecom Base Stations
- In-Building WiFi
- Instrumentation & Test
- Military Communications
- Wireless Network Antennas





PART NUMBER CONFIGURATION



ELECTRICAL SPECIFICATIONS

<u>Impedance</u>	<u>50 Ω</u>
<u>Frequency Range</u>	<u>0 – 12.4 GHz (flexible cable)</u>
	<u>0 – 18 GHz (semi-rigid cable)</u>
<u>Working Voltage</u>	<u>\leq 335 VRMS (flexible cable)</u>
	<u>\leq 500 VRMS (semi-rigid cable)</u>
<u>Dielectric Withstanding Voltage</u>	<u>1000 VRMS (flexible cable)</u>
	<u>1500 VRMS (semi-rigid cable)</u>
<u>VSWR</u>	<u>Straight : 1.15 max</u>
	<u>Right Angle : 1.2 max</u>
<u>Contact Resistance</u>	<u>Center Contact : \leq 2 mΩ</u>
	<u>Outer Contact : \leq 2 mΩ</u>
<u>Insulator Resistance</u>	<u>5000 MΩ min.</u>

MATERIAL SPECIFICATIONS

<u>Body and outer contacts</u>	<u>Brass, gold plated</u>
<u>Male contact</u>	<u>Brass, gold plated</u>
<u>Female contact</u>	<u>Beryllium Copper, gold plated</u>
<u>Insulator</u>	<u>PTFE</u>
<u>Crimp ferrule</u>	<u>Copper or brass, nickel or gold plated</u>

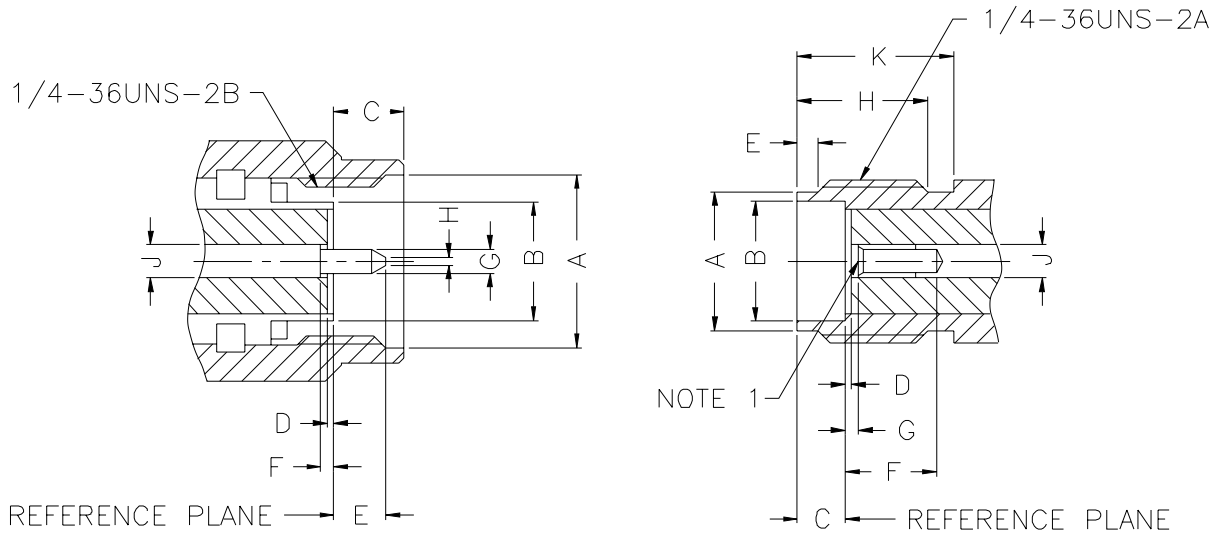
MECHANICAL SPECIFICATIONS

<u>Coupling mating torque</u>	<u>7 – 15 in-lbs (80 – 170 N-cm)</u>
<u>Cable Retention</u>	<u>60 lbs min. (flexible cable)</u>
	<u>80 lbs min. (semi-rigid cable)</u>
<u>Durability (matings)</u>	<u>500 cycles min.</u>

ENVIRONMENTAL

<u>Temperature Range</u>	<u>-65°C to +165°C</u>
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INTERFACE MATING DIMENSIONS



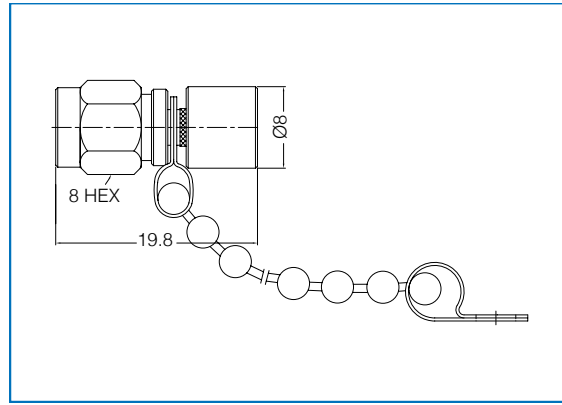
PLUG		
Letter	Millimeters	
	Minimum	Maximum
A	6.35	6.73
B	4.53	4.59
C	2.54	3.43
D	0.00	0.25
E	1.91	2.54
F	0.00	0.25
G	0.90	0.94
H	0.00	0.38
J	1.24	1.30

JACK		
Letter	Millimeters	
	Minimum	Maximum
A	5.28	5.49
B	4.60	4.67
C	1.88	1.98
D	0.00	0.25
E	0.38	1.14
F	2.92	-
G	0.00	0.25
H	4.32	-
J	1.24	1.30
K	5.54	-

Note 1 : I.D. to meet VSWR and contact resistance when mated with 0.9/0.94 mm dia. pin.

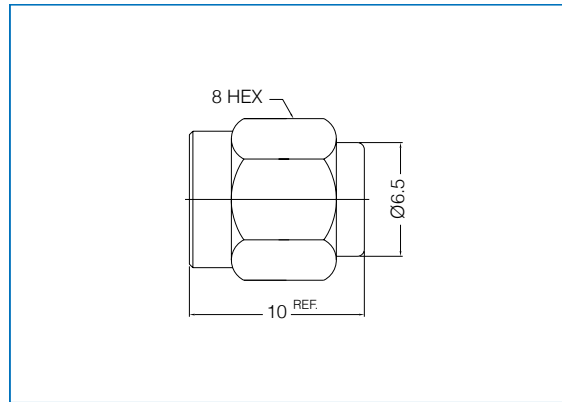
Terminator Plug with Chain
1/2 Watt

SAM11A-TERG01



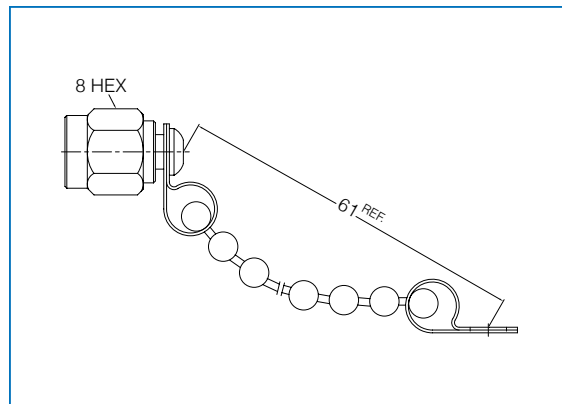
Terminator Plug
Chip Resistor 1/4Watt

SAM11B-TERG01



Male Cap with Chain

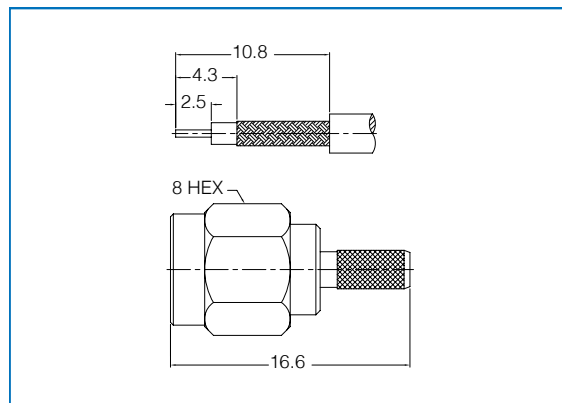
SAM11C-TERG01



Straight Plug, Crimp

SAM11A-AXXG01

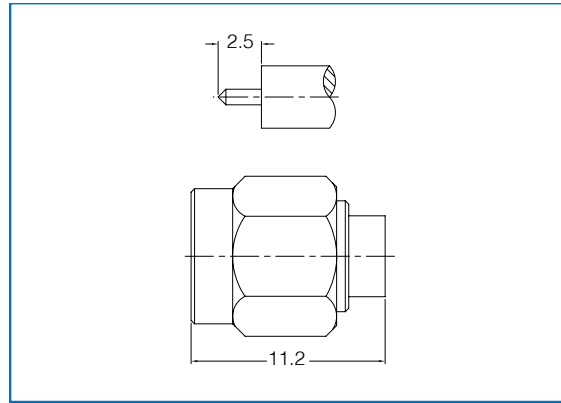
Cable group : 02, 04, 06, 07, 08, 16



Straight Plug, Solder

SAM11B-**AXX**G01

Cable group : [28](#), [29](#), [33](#)

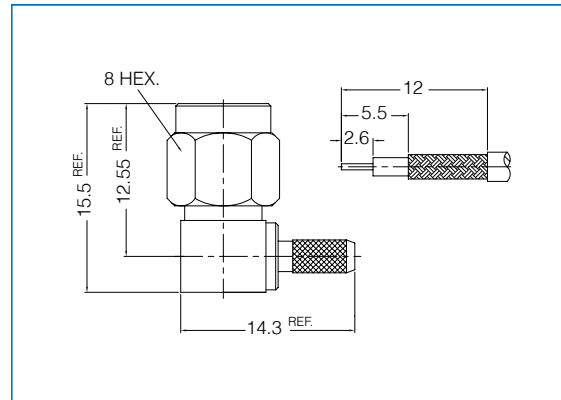


Cable Groups

Right Angle Plug, Crimp

SAM21A-**AXX**G01

Cable group : [01](#), [02](#), [04](#), [06](#), [07](#), [08](#),
[16](#), [17](#)

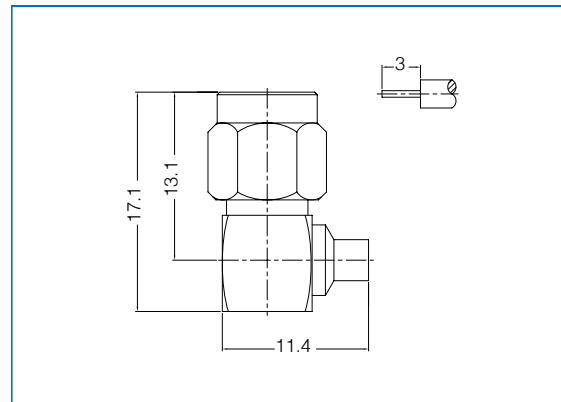


A01 - 500 - RG-178, 196
A02 - 500 - RG-174, 188A, 316, LMR100
A03 - 750 - RG-179, 187
A04 - 500 - RD-316U
A05 - 750 - RD-179U
A06 - 500 - RG-58, 58A, 58C, 141, LMR195
A07 - 500 - RG-55, 142, 223, 400
A08 - 500 - LMR200
A09 - 500 - RG-59U Plenum
A10 - 750 - RG-59, 62
A11 - 750 - Belden 1505A
A12 - 750 - Belden 8281
A13 - 750 - RG-59U Quad Shield
A14 - 750 - RG-59U Plenum

Right Angle Plug, Solder

SAM21B-**AXX**G01

Cable group : [28](#), [29](#), [33](#)

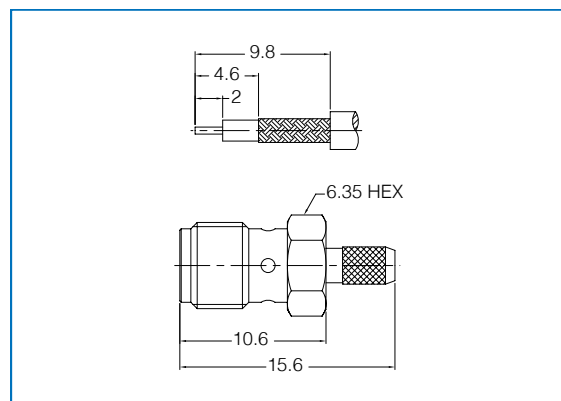


A15 - 750 - RG-6
A16 - 500 - 8X, LMR240
A17 - 500 - LMR400, Belden 9913
A18 - 500 - RG-8, 9A, 9, 213, 214
A19 - 750 - RG6U Quad
A20 - 750 - RG-11
A21 - 750 - Belden 1694A
A22 - 750 - AT&T 734A
A23 - 750 - AT&T 735A
A24 - 500 - LMR800
A25 - 750 - Belden 1695A
A26 - 750 - Belden 8218
A27 - 750 - BT-3002
A28 - 500 - 0885/0885RF, RG-405U

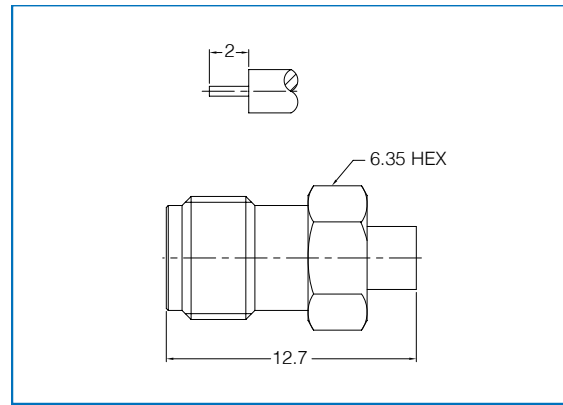
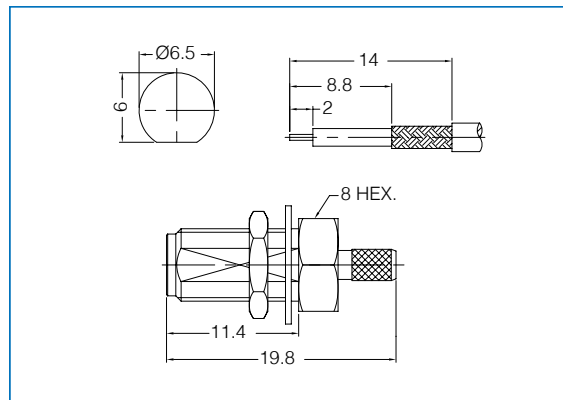
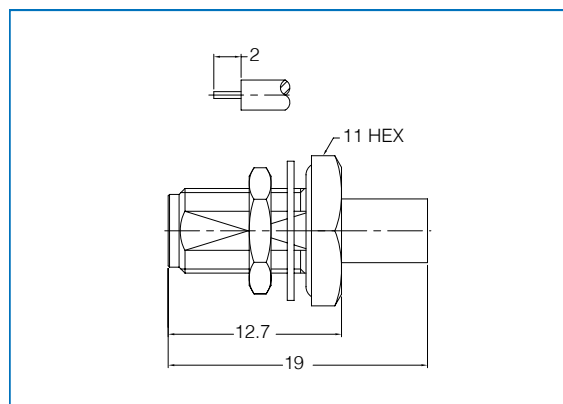
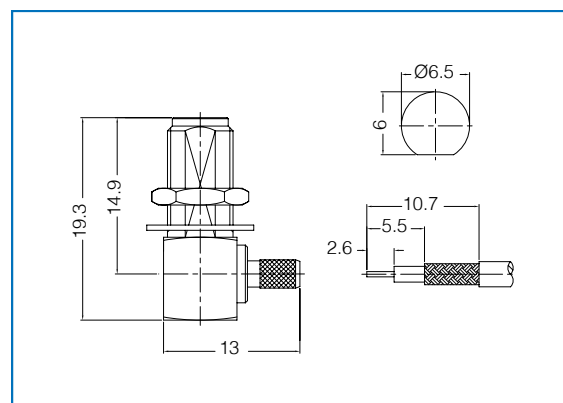
Straight Jack, Crimp

SAF11A-**AXX**G01

Cable group : [02](#), [04](#), [06](#), [07](#), [08](#), [16](#)



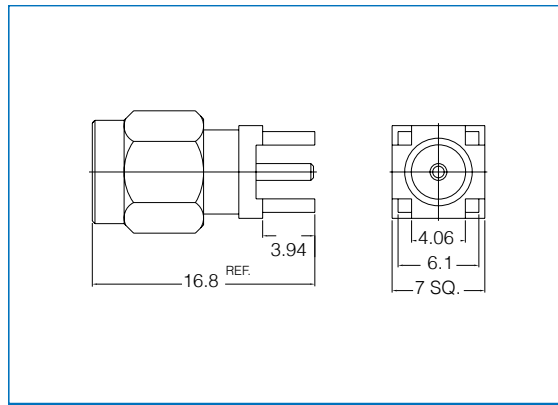
A29 - 500 - 141SR, RG-402U
A30 - 500 - 1.13mm OD micro
A31 - 500 - 1.32mm OD micro
A32 - 500 - 1.37mm OD micro
A33 - 500 - 047SR cable
A34 - 500 - FLEX 2
A35 - 750 - FLEX 3
A37 - 750 - FLEX 5
A38 - 500 - 3D-2V
A39 - 500 - 5D-2V
A40 - 500 - 8D-2V
A41 - 500 - 5D-FB, LMR300
A42 - 500 - 1/4" Superflex
A43 - 500 - 1/2" Superflex

Straight Jack, SolderSAF11B-**AXX**G01Cable group : [28](#), [29](#), [33](#)**Bulkhead Jack, Crimp**SAF31A-**AXX**G01Cable group : [02](#), [04](#), [06](#), [08](#), [16](#), [30](#),
[31](#), [32](#)**Bulkhead Jack, Solder**SAF31B-**AXX**G01Cable group : [28](#), [29](#), [33](#)**Right Angle Bulkhead Jack, Crimp**SAF32A-**AXX**G01Cable group : [01](#), [02](#), [04](#), [06](#), [07](#), [08](#)

Straight Plug, PCB Mount

SAM11A-TPCG01

* Mounting hole : "A"



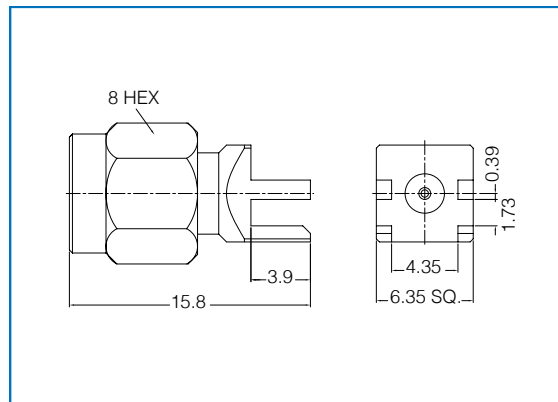
Cable Groups

A01 - 50Ω - RG-178, 196	A08 - 50Ω - LMR200	A15 - 75Ω - RG-6	A22 - 75Ω - AT&T 734A	A29 - 50Ω - 141SR - RG-402U	A37 - 75Ω - FLEX 5
A02 - 50Ω - RG-174, 188A, 316, LMR100	A09 - 50Ω - RG-59U Plenum	A16 - 50Ω - 8X - LMR240	A23 - 75Ω - AT&T 735A	A30 - 50Ω - 1.13mm OD micro	A38 - 50Ω - 3D-2V
A03 - 75Ω - RG-179, 187	A10 - 75Ω - RG-59, 62	A17 - 50Ω - LMR400, Belden 9913	A24 - 50Ω - LMR800	A31 - 50Ω - 1.32mm OD micro	A39 - 50Ω - 5D-2V
A04 - 50Ω - RD-316U	A11 - 75Ω - Belden 1505A	A18 - 50Ω - RG-8, 9A, 9, 213, 214	A25 - 75Ω - Belden 1696A	A32 - 50Ω - 1.37mm OD micro	A40 - 50Ω - 8D-2V
A05 - 75Ω - RD-179U	A12 - 75Ω - Belden 8281	A19 - 75Ω - RG6U, Quad	A26 - 75Ω - Belden 8218	A33 - 50Ω - 047SR cable	A41 - 50Ω - 5D-FB, LMR300
A06 - 50Ω - RG-58, 58A, 58C, 141, LMR195	A13 - 75Ω - RG-59U Quad Shield	A20 - 75Ω - RG-11	A27 - 75Ω - BT-3002	A34 - 75Ω - FLEX 2	A42 - 50Ω - 1/4" Superflex
A07 - 50Ω - RG-55, 142, 223, 400	A14 - 75Ω - RG-59U Plenum	A21 - 75Ω - Belden 1694A	A28 - 50Ω - 0885/0885RF, RG-405U	A35 - 75Ω - FLEX 3	A43 - 50Ω - 1/2" Superflex

Straight Plug, End Launch

SAM11A-EPCG01

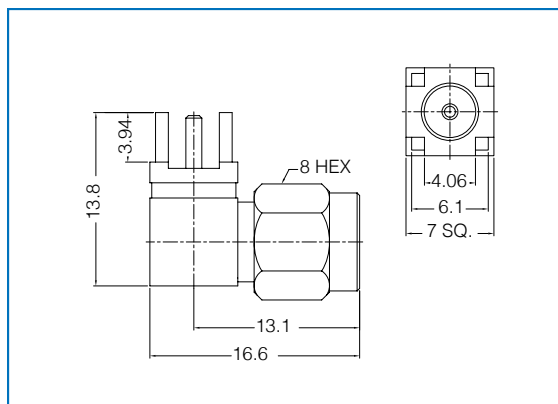
* Mounting Layout : "See Drawing"



Right Angle Plug, PCB Mount

SAM21A-TPCG01

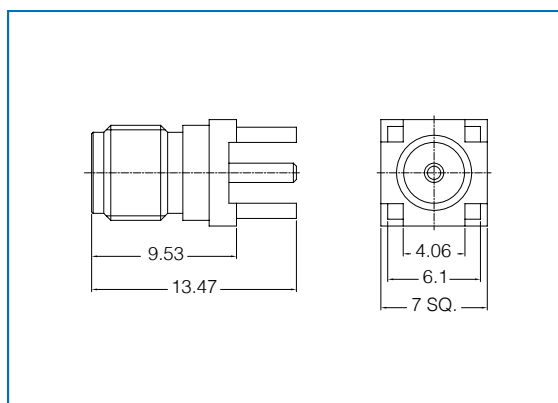
* Mounting hole : "A"



Straight Jack, PCB Mount

SAF11A-TPCG01

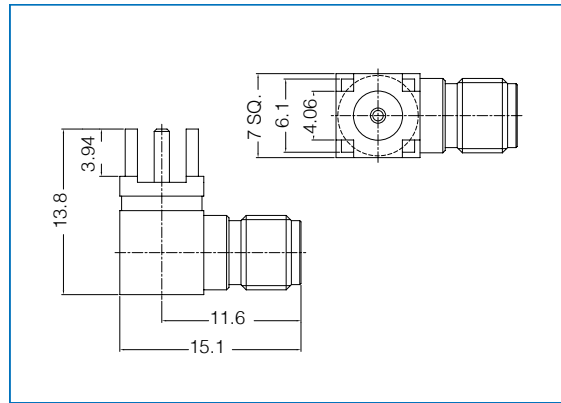
* Mounting hole : "A"



Right Angle Jack, PCB Mount

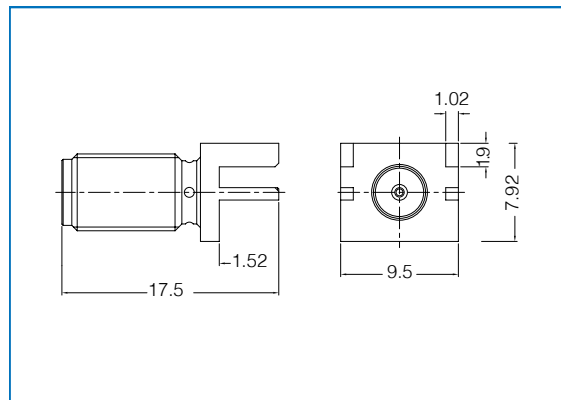
SAF21A-TPCG01

* Mounting hole : "A"

**Straight Jack, End Launch**

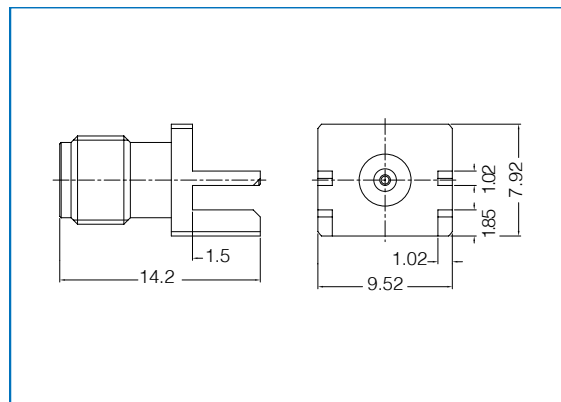
SAF11A-EPCG01

* Mounting Layout : "See Drawing"

**Straight Jack, End Launch**

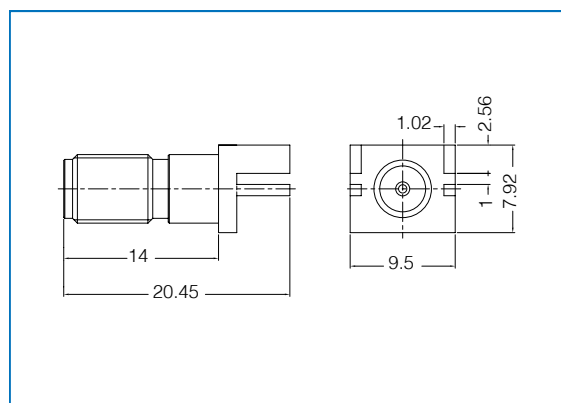
SAF12A-EPCG01

* Mounting Layout : "See Drawing"

**Straight Jack, End Launch**

SAF13A-EPCG01

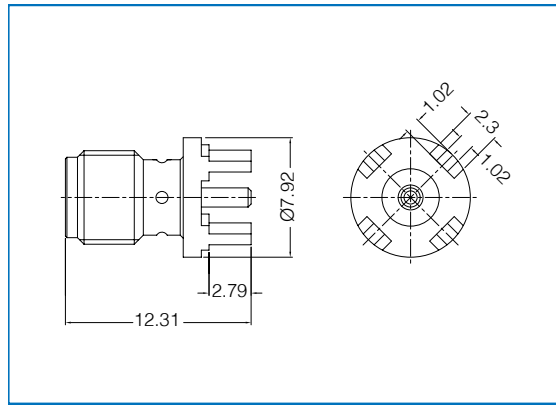
* Mounting Layout : "See Drawing"



Straight Jack, PCB Mount

SAF12A-TPCG01

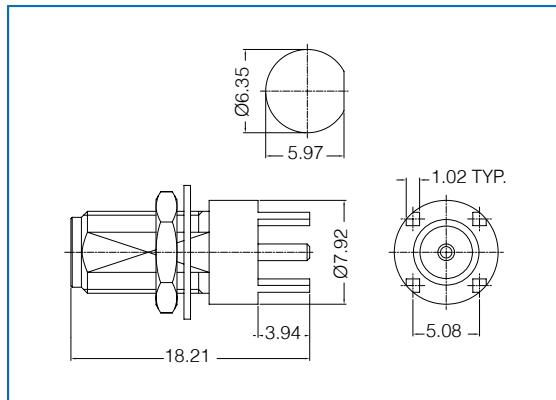
* Mounting hole : "A"



Straight Bulkhead Jack, PCB Mount

SAF31A-TPCG01

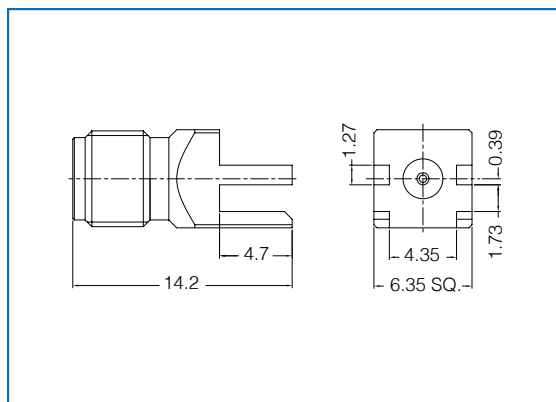
* Mounting hole : "A"



Straight Jack, End Launch

SAF12B-EPCG01

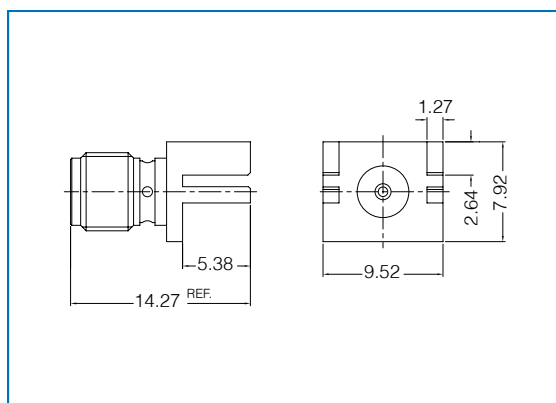
* Mounting Layout : "See Drawing"



Straight Jack, End Launch

SAF12C-EPCG01

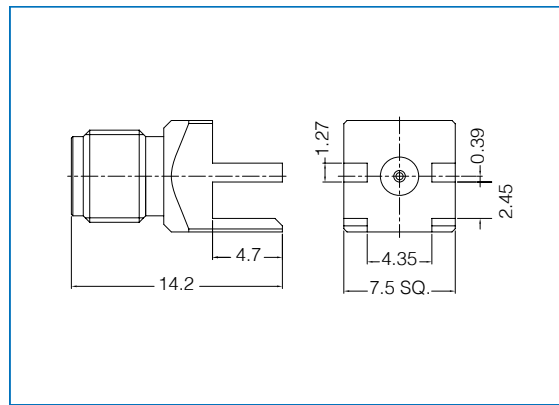
* Mounting Layout : "See Drawing"



Straight Jack, End Launch

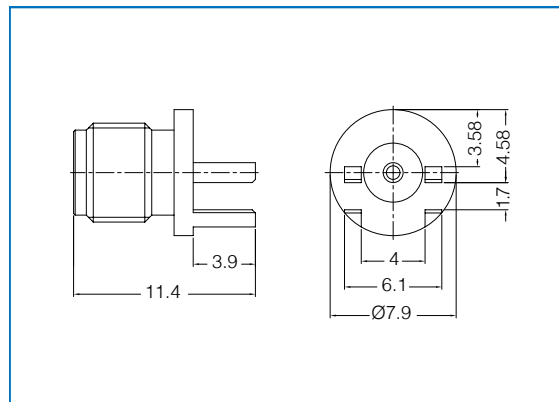
SAF12D-EPCG01

* Mounting Layout : "See Drawing"

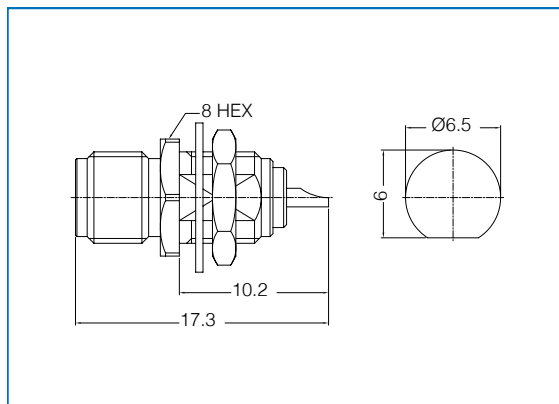
**Straight Jack, End Launch**

SAF14A-EPCG01

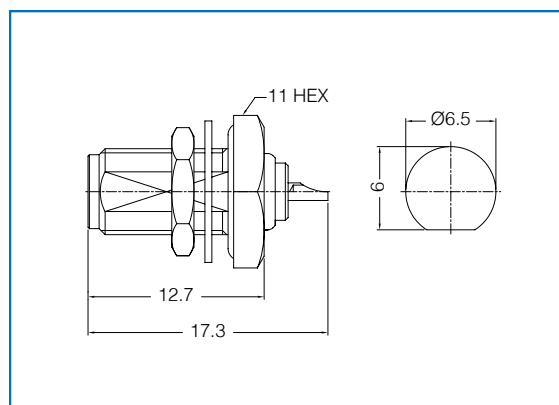
* Mounting Layout : "See Drawing"

**Bulkhead Jack Receptacle, Front Mount**

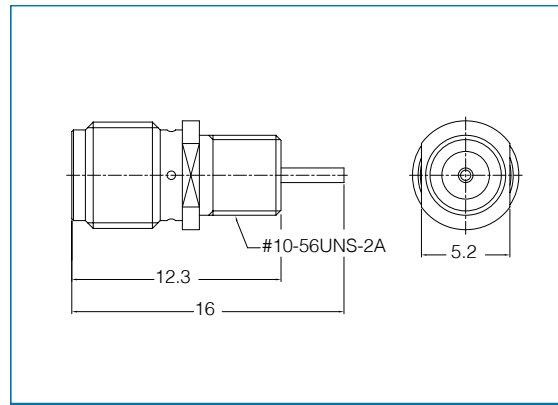
SAF31A-RECG01

**Bulkhead Jack Receptacle, Rear Mount**

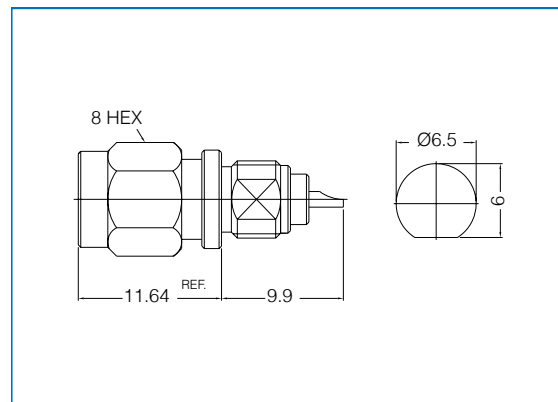
SAF32A-RECG01



**Bulkhead Jack Receptacle,
Front Mount**
SAF33A-RECG01

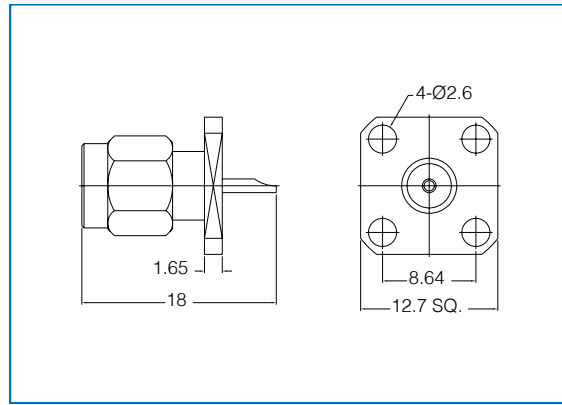


Bulkhead Plug Receptacle
SAM31A-RECG01



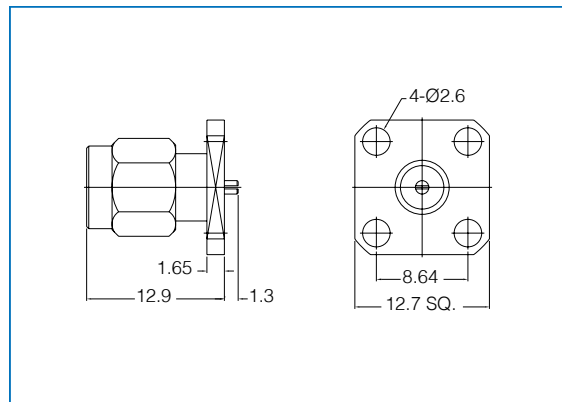
**Panel Mount Plug Receptacle,
4 Hole SQ Flange**

SAM41A-4HLG01



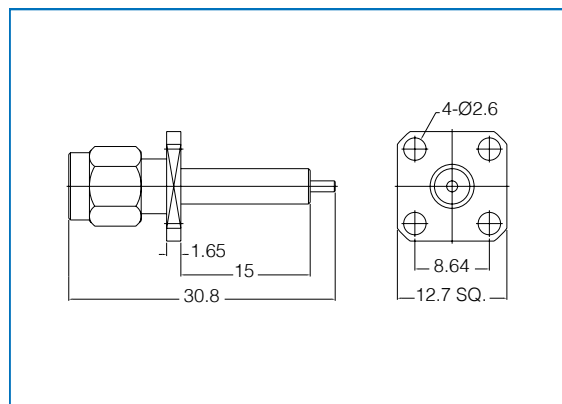
**Panel Mount Plug Receptacle,
4 Hole SQ Flange**

SAM41B-4HLG01



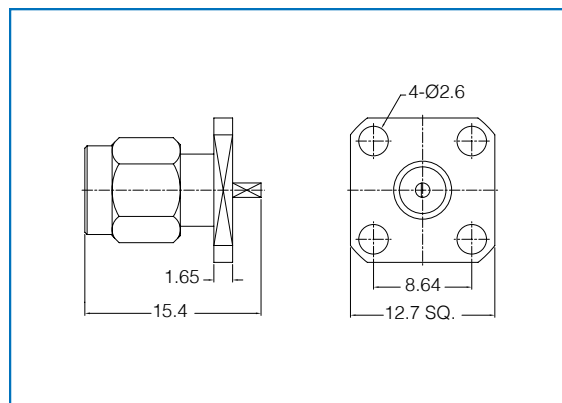
**Panel Mount Plug Receptacle,
4 Hole Flange - Exposed TFE Type**

SAM41C-4HLG01



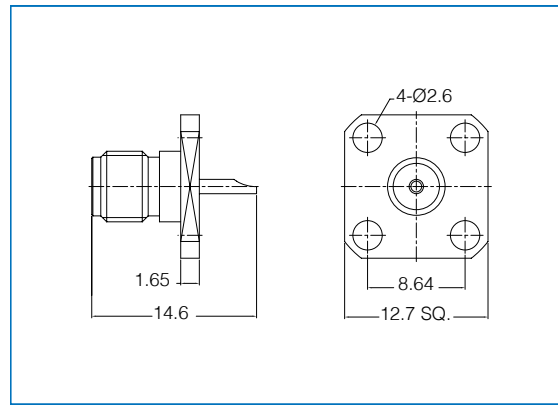
**Panel Mount Plug Receptacle,
4 Hole SQ Flange**

SAM41D-4HLG01



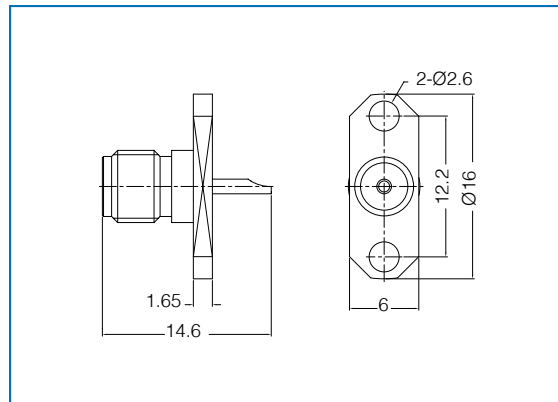
**Panel Mount Jack Receptacle,
4 Hole Flange**

SAF41A-4HLG01



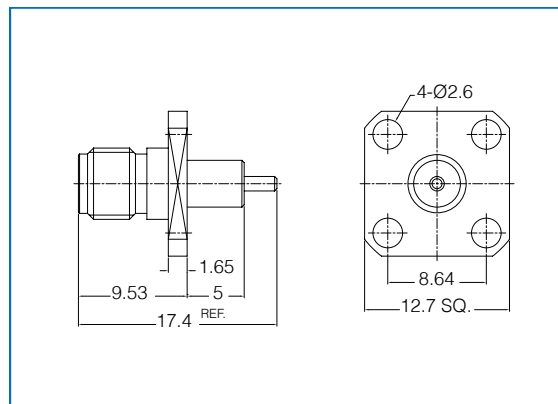
**Panel Mount Jack Receptacle,
2 Hole Flange**

SAF41A-2HLG01



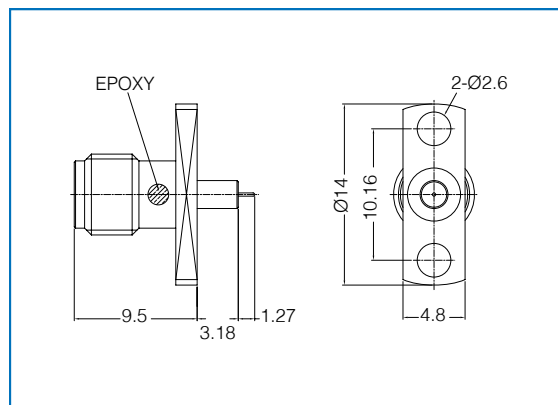
**Panel Mount Jack Receptacle,
4 Hole Flange**

SAF41B-4HLG01



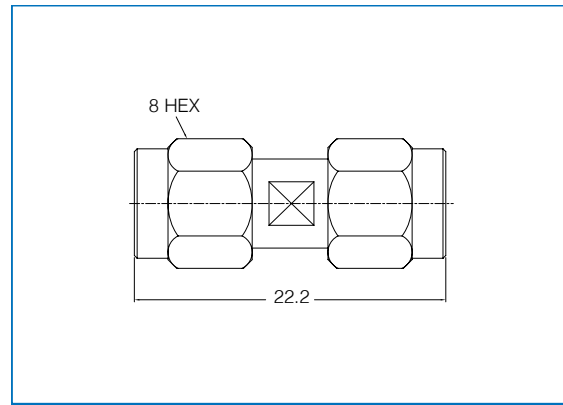
**Panel Mount Jack Receptacle,
2 Hole Flange**

SAF42A-2HLG01



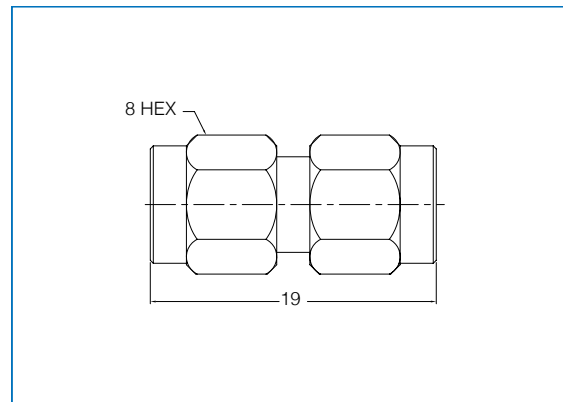
Adapter, Plug to Plug

SAM11A-ADPG01



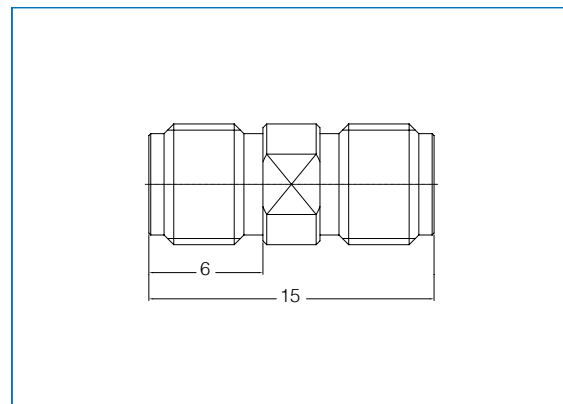
Adapter, Plug to Plug

SAM12A-ADPG01



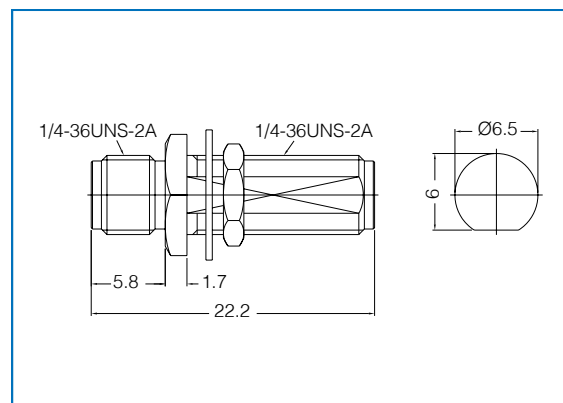
Adapter, Jack to Jack

SAF11A-ADPG01



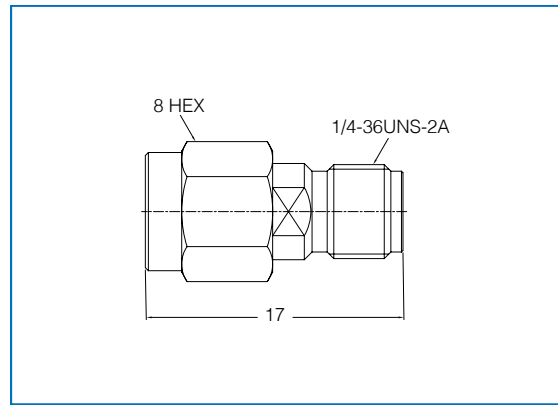
Bulkhead Adapter, Jack to Jack

SAF31A-ADPG01



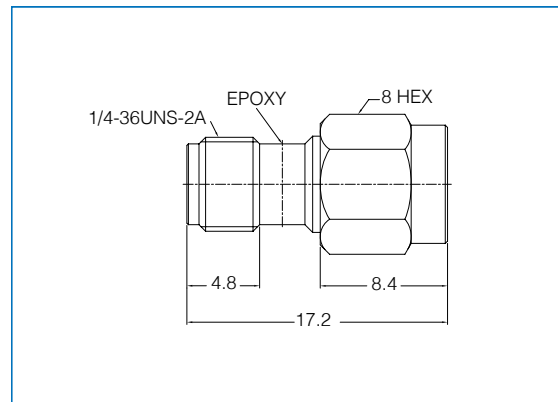
Adapter, Plug to Jack

SAA11A-ADPG01



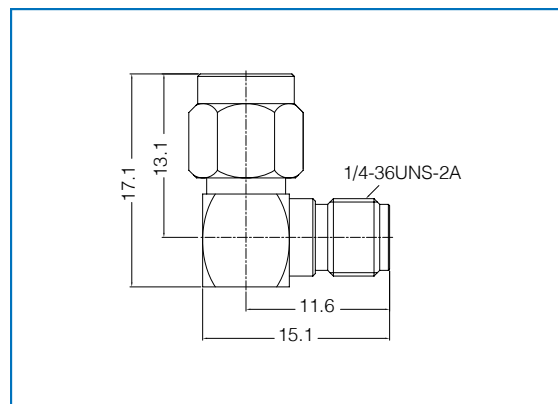
Adapter, Plug to Jack with Epoxy

SAA12A-ADPG01



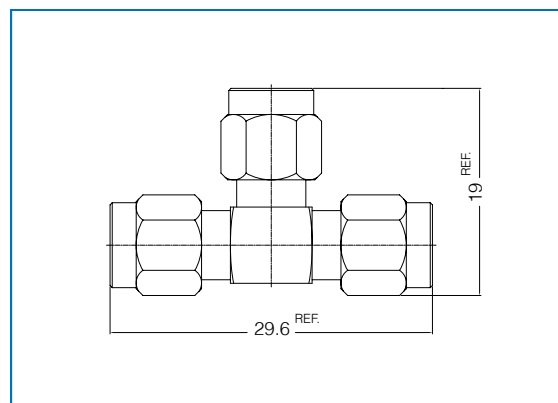
Right Angle Adapter, Plug to Jack

SAA21A-ADPG01

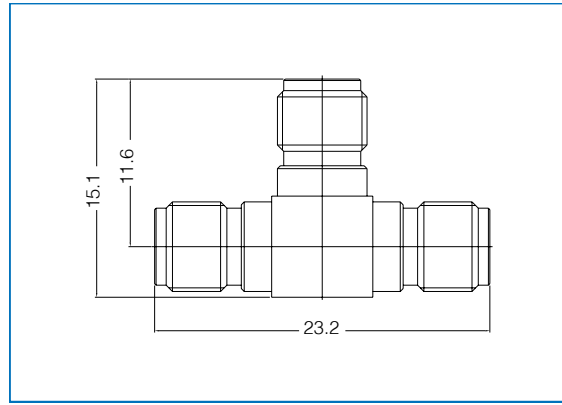


“T” Adapter, Plug to Plug to Plug

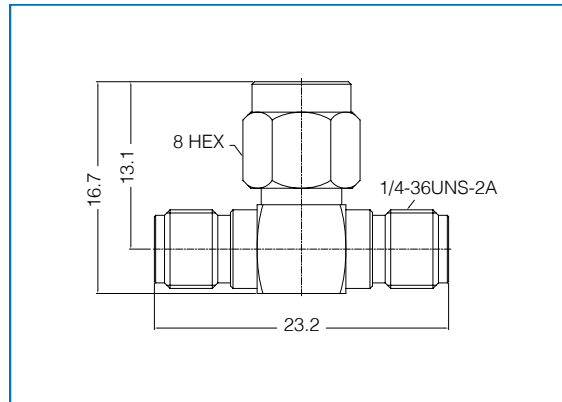
SAM51A-ADPG01



***“T” Adapter,
Jack to Jack to Jack***
SAF51A-ADPG01

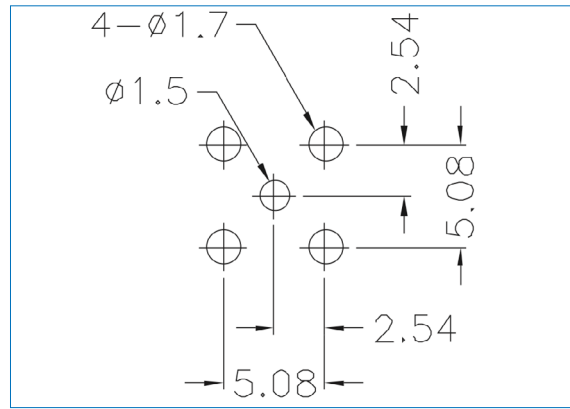


***“T” Adapter,
Jack to Plug to Jack***
SAA51A-ADPG01



PCB Layouts

Layout-A

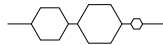




Application Chart of Crimping Dies

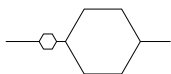


Die Set No. 1317



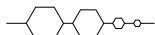
Hex Sizes : .213 / .255 / .068
Ferrule O.D. : 7.5mm / 6.5mm
Contact O.D. : 2.1mm
Cable Group : RG-58, 59, 62, 223, LMR-195, LMR-200, LMR-240
For : BNC, TNC, N, Mini-UHF

Die Set No. 1319



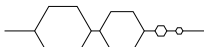
Hex Sizes : .10 / .429
Ferrule O.D. : 12.4mm
Contact O.D. : 3.0mm
Cable Group : RG-8, 11, 213, 214
For : N

Die Set No. 1346



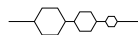
FHex Sizes : .213 / .178 / .068 / .042
ferrule O.D. : 6.5mm / 5.3mm
Contact O.D. : 2.1mm / 1.35mm
Cable Group : RG-58, 174, Belden-1855A, Belden-8218, AT&T 735A, BT-3002
For : BNC, True 75Ω BNC, TNC, N, SMA

Die Set No. 1347



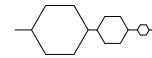
Hex Sizes : .324 / .255 / .068 / .042
Ferrule O.D. : 9.5mm / 7.5mm
Contact O.D. : 2.1mm / 1.35mm
Cable Group : RG-6, 59, Belden-8241, Belden-8281, AT&T 734A, LMR-240
For : BNC, True 75Ω BNC, TNC, N, SMA

Die Set No. 1351



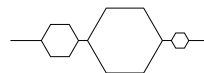
Hex Sizes : .178 / .128 / .068
Ferrule O.D. : 5.3mm / 3.9mm
Contact O.D. : 2.1mm
Cable Group : RG-174, 188, 196, 316, 179, LMR-100
For : BNC, TNC, SMA, SMB, SMC, MCX, MMCX

Die Set No. 1352



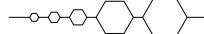
Hex Sizes : .324 / .178 / .068
Ferrule O.D. : 9.5mm / 5.3mm
Contact O.D. : 2.1mm
Cable Group : RG-174, 179, 316, LMR-100, Belden-8281, RG-6, LMR-300
For : BNC, TNC, N, SMA, SMB, SMC

Die Set No. 1353



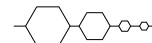
Hex Sizes : .213 / .429 / .10
Ferrule O.D. : 6.5mm / 12.4mm
Contact O.D. : 3.0mm
Cable Group : RG-58, 8, 223, LMR-195, LMR-200
For : N

Die Set No. 1355



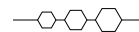
Hex Sizes : .052 / .068 / .10 / .213 / .255
Ferrule O.D. : 7.5mm / 6.5mm
Contact O.D. : 3.0mm / 2.1mm / 1.5mm
Cable Group : RG-58, 59, 62, 223, LMR-195
For : BNC, TNC, SMA, SMB, SMC, Mini-UHF, N

Die Set No. 1376



Hex Sizes : .255 / .178 / .068 / .052
Ferrule O.D. : 7.5mm / 5.3mm
Contact O.D. : 2.1mm / 1.5mm
Cable Group : RG-59, 62, 223, 174, 179, 316, LMR-100
For : BNC, TNC, N, SMA, SMB, SMC

Die Set No. 1377



Hex Sizes : .105 / .128 / .151
Ferrule O.D. : 4.4mm / 3.9mm
Contact O.D. : 3.0mm
Cable Group : RG-178, 316, 179, RD-179, RD-316, LMR-100
For : SMA, SMB, SMC, MCX, MMCX

Die Set No. 1380



Hex Sizes : .429 / .118
Ferrule O.D. : 12.4mm
Contact O.D. : 3.5mm
Cable Group : Belden-9913, LMR-400
For : BNC, TNC, N

Reflection → Conversion Table

VSWR	Rf	RL (dB)
1.010	0.005	46.06
1.020	0.0099	40.09
1.030	0.0148	36.61
1.040	0.0196	34.15
1.050	0.0244	32.26
1.060	0.0291	30.71
1.070	0.0338	29.42
1.080	0.0385	28.30
1.090	0.0431	27.32
1.100	0.0476	26.44
1.110	0.0521	25.66
1.120	0.0566	24.94
1.130	0.061	24.29
1.140	0.0654	23.69
1.150	0.0698	23.13
1.160	0.0741	22.61
1.170	0.0783	22.12
1.180	0.0826	21.66
1.190	0.0868	21.23
1.200	0.0909	20.83
1.210	0.095	20.44
1.220	0.0991	20.08
1.230	0.1031	19.73
1.240	0.1071	19.40
1.250	0.1111	19.08
1.260	0.115	18.78
1.270	0.1189	18.49
1.280	0.1228	18.22
1.290	0.1266	17.95
1.300	0.1304	17.69
1.310	0.1342	17.45
1.320	0.1379	17.21
1.330	0.1416	16.98
1.340	0.1453	16.75
1.350	0.1489	16.54
1.360	0.1525	16.33
1.370	0.1561	16.13
1.380	0.1597	15.94
1.390	0.1632	15.75

RL (dB)	Rf	VSWR
50.00	0.0032	1.006
49.00	0.0035	1.007
48.00	0.004	1.008
47.00	0.0045	1.009
46.00	0.005	1.010
45.00	0.0056	1.011
44.00	0.0063	1.013
43.00	0.0071	1.014
42.00	0.0079	1.016
41.00	0.0089	1.018
40.00	0.01	1.020
39.00	0.0112	1.023
38.00	0.0126	1.025
37.00	0.0141	1.029
36.00	0.0158	1.032
35.00	0.0178	1.036
34.00	0.02	1.041
33.00	0.0224	1.046
32.00	0.0251	1.052
31.00	0.0282	1.058
30.00	0.0316	1.065
29.00	0.0355	1.074
28.00	0.0398	1.083
27.00	0.0447	1.094
26.00	0.0501	1.106
25.00	0.0562	1.119
24.00	0.0631	1.135
23.00	0.0708	1.152
22.00	0.0794	1.173
21.00	0.0891	1.196
20.00	0.1	1.222
19.00	0.1122	1.253
18.00	0.1259	1.288
17.00	0.1413	1.329
16.00	0.1585	1.377
15.00	0.1778	1.433
14.00	0.1995	1.499
13.00	0.2239	1.577
12.00	0.2512	1.671

Rf	RL (dB)	VSWR
0.005	46.02	1.010
0.010	40.00	1.020
0.015	36.48	1.030
0.020	33.98	1.041
0.025	32.04	1.051
0.030	30.46	1.062
0.035	29.12	1.073
0.040	27.96	1.083
0.045	26.94	1.094
0.050	26.02	1.105
0.055	25.19	1.116
0.060	24.44	1.128
0.065	23.74	1.139
0.070	23.10	1.151
0.075	22.50	1.162
0.080	21.94	1.174
0.085	21.41	1.186
0.090	20.92	1.198
0.095	20.45	1.210
0.100	20.00	1.222
0.105	19.58	1.235
0.110	19.17	1.247
0.115	18.79	1.260
0.120	18.42	1.273
0.125	18.06	1.286
0.130	17.72	1.299
0.135	17.39	1.312
0.140	17.08	1.326
0.145	16.77	1.339
0.150	16.48	1.353
0.155	16.19	1.367
0.160	15.92	1.381
0.165	15.65	1.395
0.170	15.39	1.410
0.175	15.14	1.424
0.180	14.88	1.439
0.185	14.66	1.454
0.190	14.42	1.469
0.195	14.20	1.484

VSWR = Voltage Standing Wave Ratio Rf = Reflection Coefficient RL = Return Loss