DOCUMENT CHANGE REQUEST

DCR number 569	Changes required for: Qualification	Originator: S Jeffery
Date: 2010/01/15	Date sent: 2010/01/15	Organisation: ESA/ESTEC
Status: IMPLEMENTED		

Title:	RF Coaxial Connectors Type SMA 50 Ohms (Male Contact)		
Number:	3402/001	Issue:	1

Other documents affected:

3402/002-2, 3402/003-1

Page:

Table 1(a) and Figure 2(b) - addition of 3 new Variants

Paragraph:

Table 1(a) and Figure 2(b) - addition of 3 new Variants

Original wording:

Proposed wording:

Addition of new Variants as detailed in the attachment.

Justification:

Radiall's customers request to use the qualified SMA connectors but with a high temperature superior to +105degC. Radiall propose to qualify a new range of connectors usable from -65degC to +165degC, with identical materials and manufacturing processes to the existing qualified connectors except for the composition of the resin pin. The resin used to maintain the centre contact and the insulator on the body of the connector can accept a temperature of +165degC without modification of the mechanical or electrical parameters. Radiall has performed a LAT1 in accordance with ESCC 3402 Generic Specification on connectors with the high temperature resin and the results were successful.

Variants qualified to +105degC are to be kept for economic reasons: the high-temperature resin has a short working lifetime and also costs more to produce than the standard resin.

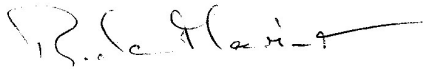
Attachments:
3402001,_002_and_003.pdf, null
Modifications:
N/A
Approval signature:

Date signed:
2010-01-15

TABLE 1(a) - TYPE VARIANTS

VARIANT	DESCRIPTION
01	Straight Plug, Solder Type, for Semi-Rigid Cable Ø2.20mm (0.085")
02	Straight Plug, Solder Type, for Semi-Rigid Cable Ø3.58mm (0.141")
03	Straight Plug with Cable Clamp, Solder Type, for Semi-Rigid Cable Ø6.35mm (0.250")
04	Straight Plug with Cable Clamp, Solder Type, for Semi-Rigid Microporous Cable Ø6.35mm (0.250")
05	Straight Plug, Crimp-Type
06	Straight Plug, Crimp-Type (50 CIS)
07	Straight Plug, Crimp or Solder Type, Cable Ø5mm/50Ω, Single Braid
08	Straight Plug, Crimp or Solder Type, Cable Ø5mm/50Ω, Double Braid
09	Right Angle Plug, Solder Type for Semi-Rigid Cable Ø2.20mm (0.085")
10	Right Angle Plug, Solder Type for Semi-Rigid Cable Ø3.58mm (0.141")
11	Not to be used
12	Right Angle Plug, Crimp Type
13	Right Angle Plug, Crimp Type
14	Right Angle Plug, Crimp Type, for Cable Ø5mm/50Ω, Double Braid
15	Square Flange Male Receptacle
16	2-Hole Flange Male Receptacle
17	Square Flange Male Receptacle
18	Male Flange Receptacle, Triplate Launcher
19	Not used
20	Male Flange Receptacle, Triplate Launcher
21	Male Flange Receptacle, Triplate Launcher
22	Square Flange Male Receptacle, Low RF Leakage
23	Square Flange Male Receptacle, Low RF Leakage
24	Square Flange Male Receptacle, Low RF Leakage
25	Square Flange Male Receptacle
26	Straight Plug, Crimp-Type
27	Square Flange Male Receptacle (Note 3)
28	2-Hole Flange Male Receptacle (Note 3)
29	Straight Plug, Solder Type for SHF 5 Cable
30	2-Hole Flange Male Receptacle
31	Not to be used
32	2-Hole Flange Male Receptacle with EMI Gasket and Glass Seal Ø Contact 0.30
33	2-Hole Flange Male Receptacle with EMI Gasket and Glass Seal Ø Contact 0.46
34	Bulkhead Receptacle with Glass Seal Ø Contact 0.30
35	Bulkhead Receptacle with Glass Seal Ø Contact 0.46
36	Hermetic Bulkhead Receptacle
37	Straight Plug, Solder Type, for SHF 3 Cable
38	Straight Plug, Solder Type, for SHF 8 Cable
39	Right Angle Plug, Solder Type, for SHF 3 Cable
40	Right Angle Plug, Solder Type, for SHF 5 Cable
41	Elbow Plug, Solder Type, for SHF 3 Cable
42	Elbow Plug, Solder Type, for SHF 5 Cable
43	Elbow Plug, Solder Type, for SHF 8 Cable
44	Right Angle Plug, Crimp Type (50 CIS) (Note 3)

NOTES

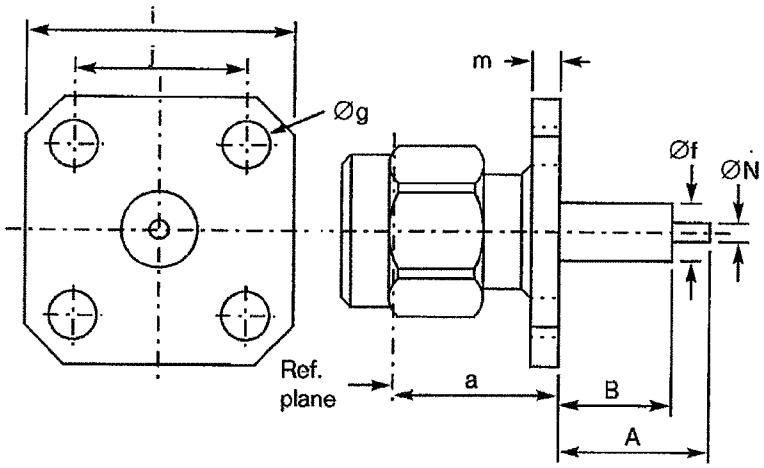
1. The Variants are described in Figure 2(b).
2. For finishes, see Para. 4.4.
3. Variants 45, 46 and 47 are High Temperature Capability versions of Variants 27, 28 and 44 respectively.

Variants 45, 46 and 47 - see next page - to be added here

45	Square Flange Male Receptacle (Note 3)
46	2-Hole Flange Male Receptacle (Note 3)
47	Right Angle Plug, Crimp Type (50 CIS) (Note 3)

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 45 – SQUARE FLANGE MALE RECEPTACLE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	9.45	9.55	
A	-	40.10	Note 1
B	-	20.00	Note 1
Øf	4.00	4.20	
Øg	2.55	2.70	4 holes
i	12.60	12.80	
j	8.59	8.69	
m	1.40	1.80	
ØN	1.25	1.30	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	$0.03\sqrt{F}$ (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

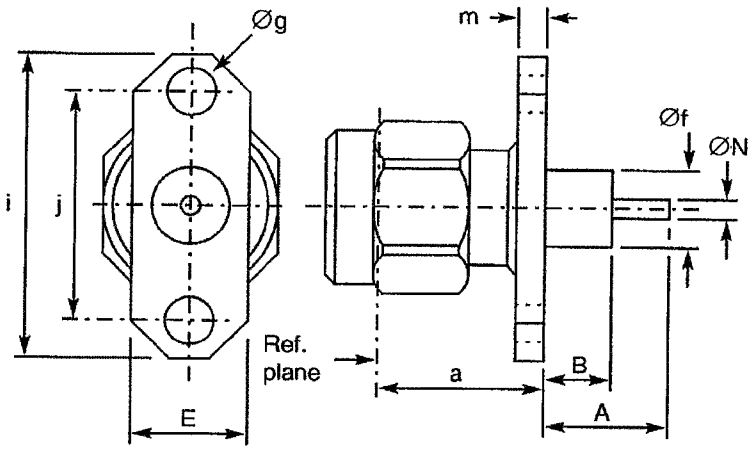
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	5.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 46 – 2 HOLE FLANGE MALE RECEPTACLE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	9.45	9.55	
A	-	40.10	Note 1
B	-	20.00	Note 1
E	5.50	5.80	
Øf	4.00	4.20	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
m	1.40	1.80	
ØN	1.25	1.30	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	$0.03\sqrt{F}$ (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

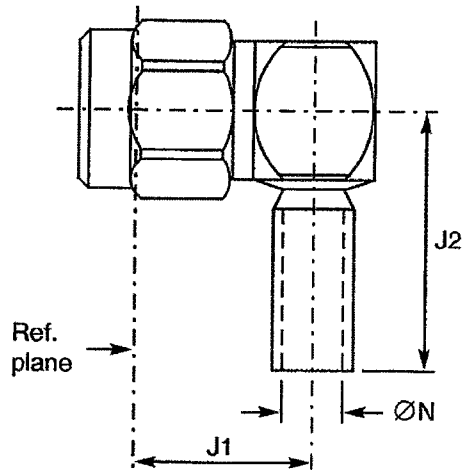
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	4.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XXX~~ 47 – RIGHT ANGLE PLUG, CRIMP TYPE (50 CIS)



SYMBOL	MILLIMETRES	
	MIN.	MAX.
J1	10.00	10.40
J2	-	16.80
ØN	2.00	2.20

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.025 x F (GHz)	-
Maximum insertion loss	0.03√F (GHz)	dB
RF leakage(1)	- [95-F(GHz)]	dB
Voltage proof	750	Vrms
Corona level	190	Vrms

Notes:
1- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	80	N
Mini cable retention torque value	2 x 180° applic, point 50 x ØN	N.cm
Maximum weigth	4.8	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Applicable	-
Soldering proof	Applicable	-
Cable used	50 CIS	-

TABLE 1(a) - TYPE VARIANTS

VARIANT	DESCRIPTION
01	Straight Jack, Solder Type, for Semi-Rigid Cable Ø2.20mm (0.085")
02	Straight Jack, Solder Type, for Semi-Rigid Cable Ø3.58mm (0.141")
03	Straight Plug with Cable Clamp, Solder Type, for Semi-Rigid Cable Ø6.35mm (0.250")
04	Straight Plug with Cable Clamp, Solder Type, for Semi-Rigid Cable Microporous Ø6.35mm (0.250")
05	Straight Jack, Crimp-Type, Square Flange
06	Straight Jack, Crimp-Type
07	Straight Jack, Crimp-Type, for Cable Ø 5mm/50Ω, Single Braid
08	Straight Jack, Crimp-Type, for Cable Ø 5mm/50Ω, Double Braid
09	Straight Jack, Solder Type, Back Mounting, 2-Hole, Flange-Mounted, for Semi-Rigid Cable Ø2.20mm (0.085")
10	Straight Jack, Solder Type, Back Mounting, 2-Hole, Flange-Mounted, for Semi-Rigid Cable Ø3.58mm (0.141")
11	Straight Jack, Crimp-Type, Square Flange
12	Straight Jack, Crimp-Type, Square Flange (50 CIS)
13	Straight Jack, Crimp- or Solder-Type, Square Flange
14	Straight Jack, Crimp- or Solder-Type, Square Flange, Double Braid Cable
15	Square Flange Receptacle, Front Mounting (Note 3)
16	2-Hole Flange Receptacle for Micro-Strip, Front Mounting
17	2-Hole Flange Receptacle, Front Mounting (Note 3)
18	2-Hole Flange Receptacle for Micro-Strip, Front Mounting (Note 3)
19	Square Flange Receptacle for Micro-Strip, Front Mounting, Off-Set Tab
20	2-Hole Flange Receptacle for Strip Line, Front Mounting
21	Square Flange Receptacle for Strip Line, Front Mounting
22	Square Flange Receptacle for Micro-Strip, Front Mounting (Note 3)
23	Bulkhead Receptacle
24	Bulkhead Receptacle with Sealing Gasket
25	Hermetic Bulkhead Receptacle
26	Hermetic Receptacle, Solder Type
27	Elbow Receptacle, Square Flange
28	Elbow Receptacle, Square Flange
29	Square Flange Receptacle (Note 3)
30	2-Hole Flange Receptacle (Note 3)
31	Square Flange Receptacle (Note 3)
32	2-Hole Flange Receptacle (Note 3)
33	Not to be used
34	Flange Receptacle, Triplate Launcher
35	Not to be used
36	Square Flange Receptacle
37	Flange Receptacle, Triplate Launcher
38	Flange Receptacle, Triplate Launcher
39	Square Flange Receptacle
40	Square Flange Receptacle, Low RF Leakage (Note 3)
41	Square Flange Receptacle, Low RF Leakage
42	Square Flange Receptacle, Low RF Leakage
43	Square Flange Receptacle, Low RF Leakage
44	Bulkhead Receptacle
45	Square Flange Receptacle for Micro-Strip

NOTES: See Page 7.

TABLE 1(a) - TYPE VARIANTS (CONT'D)

VARIANT	DESCRIPTION
46	2-Hole Flange Receptacle for Strip Line
47	2-Hole Flange Receptacle for Strip Line (Non-Captivated Centre Contact)
48	Square Flange Male Receptacle for Micro-Strip (Non-Captivated Centre Contact)
49	2-Hole Flange Receptacle
50	Square Flange Receptacle
51	Square Flange Receptacle
52	Not to be used
53	Straight Jack, Solder Type, for SHF 5 Cable
54	2-Hole Flange Receptacle, Low RF Leakage (Note 3)
55	Elbow Receptacle, Round Flange, Triplate Launcher
56	Square Flange Receptacle, Low RF Leakage
57	Round Flange Receptacle, Triplate Launcher
58	Square Flange Receptacle, Low RF Leakage
59	2-Hole Flange Male Receptacle with EMI Gasket and Glass Seal Φ Contact 0.46
60	Bulkhead Receptacle with Glass Seal Ø Contact 0.30 (Note 3)
61	Bulkhead Receptacle with Glass Seal Ø Contact 0.46 (Note 3)
62	Hermetic Bulkhead Receptacle
63	Hermetic Bulkhead Receptacle
64	Hermetic Bulkhead Receptacle
65	2-Hole Flange Male Receptacle with EMI Gasket and Glass Seal Ø Contact 0.30
66	Bulkhead Jack, Solder Type, for SHF 3 Cable
67	Bulkhead Jack, Solder Type, for SHF 8 Cable
68	Straight Jack, Solder Type, Back Mounting, Flange-Mounted, for Semi-Rigid Cable Ø2.20mm (0.085")
69	Straight Jack, Solder Type, Back Mounting, Flange-Mounted, For Semi-Rigid Cable Ø3.58mm (0.141")
70	Straight Jack, Crimp-Type, (50 CIS)
71	Elbow Receptacle, Square Flange (Solid Contact) (Note 3)
72	Square Flange Receptacle, Tab Contact, Low RF Leakage

NOTES

1. The Variants are described in Figure 2(b).
2. For finishes, see Para. 4.4.
3. See attached

TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	MAXIMUM RATINGS	UNIT	REMARKS
1	Peak Power at +25°C	Pmax	20	kW	1.0µs
2	Power	P	2.0	kW	See Figures 1(a) and 1(b)
3	Nominal Impedance	Z	50	Ω	-
4	Frequency Range	f	See Figure 2(b)	GHz	-
5	Operating Voltage	V_{op}	335	Vrms	
6	Operating Temperature Range	T_{op}	See Figure 2(b)	°C	-
7	Storage Temperature Range	T_{stg}	As per Operating Temperature Range	°C	-

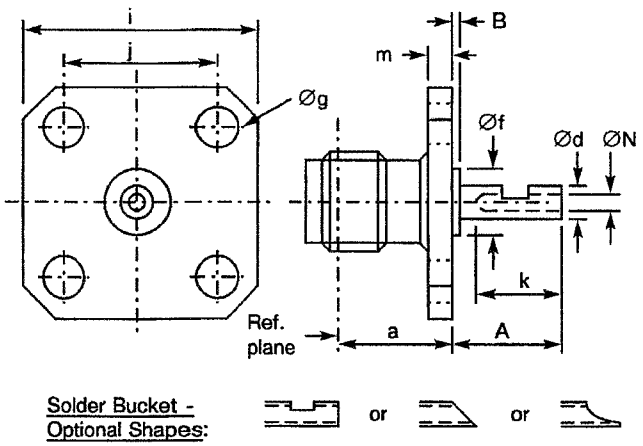
Variants 73 to 85 - See attached - to be added here

3. Variants 73 through 85 inclusive are High Temperature Capability versions of Variants 15, 17, 18, 22, 29, 30, 31, 32, 40, 54, 60, 61 and 71 respectively.

73	Square Flange Receptacle, Front Mounting (Note 3)
74	2-Hole Flange Receptacle, Front Mounting (Note 3)
75	2-Hole Flange Receptacle for Micro-Strip, Front Mounting (Note 3)
76	Square Flange Receptacle for Micro-Strip, Front Mounting (Note 3)
77	Square Flange Receptacle (Note 3)
78	2-Hole Flange Receptacle (Note 3)
79	Square Flange Receptacle (Note 3)
80	2-Hole Flange Receptacle (Note 3)
81	Square Flange Receptacle, Low RF Leakage (Note 3)
82	2-Hole Flange Receptacle, Low RF Leakage (Note 3)
83	Bulkhead Receptacle with Glass Seal Ø Contact 0.30 (Note 3)
84	Bulkhead Receptacle with Glass Seal Ø Contact 0.46 (Note 3)
85	Elbow Receptacle, Square Flange (Solid Contact) (Note 3)

Figure 2(b) – VARIANTS (CONTINUED)

Variant 73 – SQUARE FLANGE RECEPTACLE, FRONT MOUNTING



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.70	
A	-	35.00	Note 1
B	-	20.00	Note 1
Ød	1.24	1.30	
Øf	4.00	4.20	
Øg	2.55	2.70	4 holes
i	12.60	12.80	
j	8.59	8.69	
k	2.40	-	
m	1.40	1.80	
ØN	0.70	1.00	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	$0.03\sqrt{F}$ (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

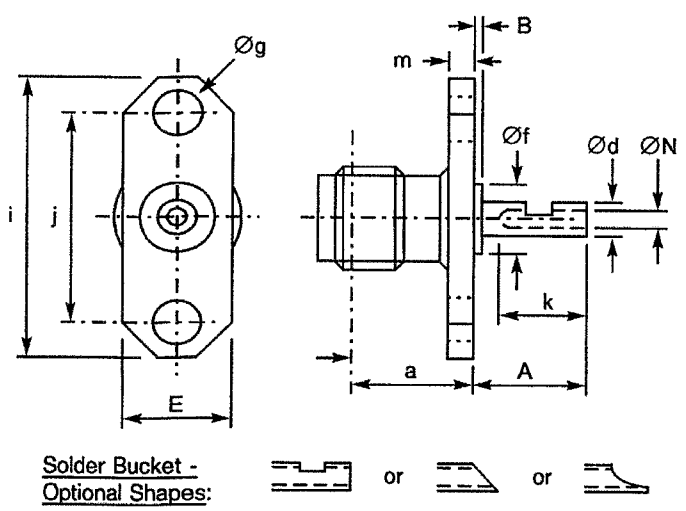
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3.0	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 74 – 2 HOLE FLANGE RECEPTACLE, FRONT MOUNTING



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.70	
A	-	35.00	Note 1
B	-	20.00	Note 1
Ød	1.24	1.30	
E	5.50	5.80	
Øf	4.00	4.20	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
k	2.40	-	
m	1.40	1.80	
ØN	0.70	1.00	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	0.03√F (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

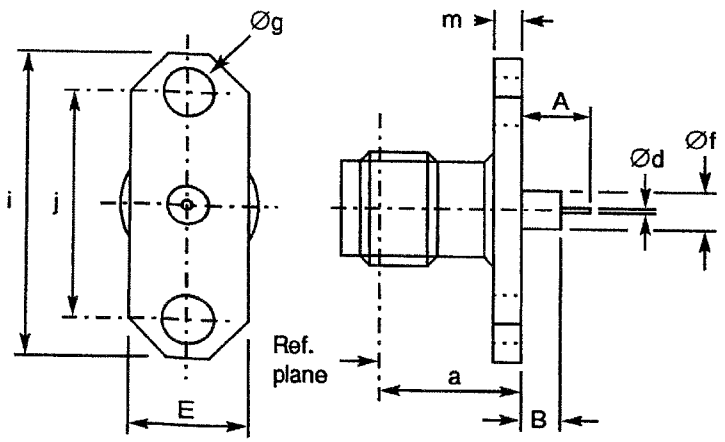
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	2.3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant 75 – 2 HOLE FLANGE RECEPTACLE FOR MICRO-STRIP, FRONT MOUNTING



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.60	
A	4.50	5.00	
B	3.05	3.30	
Ød	0.20	0.30	
E	5.50	5.80	
Øf	2.10	2.20	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.04 + 0.018 x F (GHz)	-
Maximum insertion loss (1)	0.03√F (GHz)	dB
RF leakage (1)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

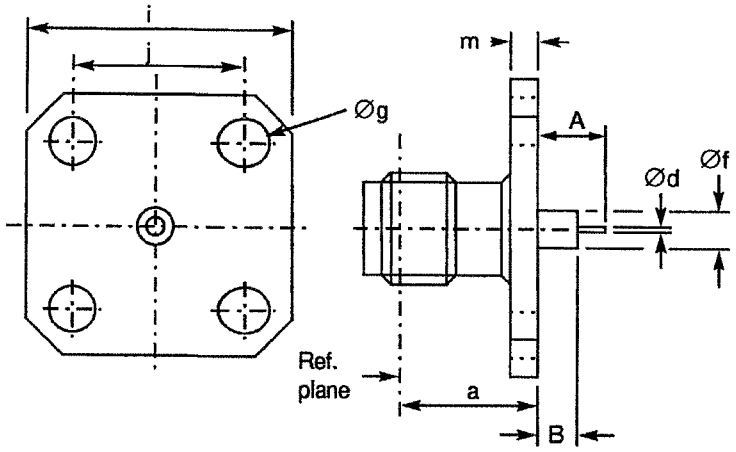
Notes:
1- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	2.3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant XX – SQUARE FLANGE RECEPTACLE FOR MICRO-STRIP, FRONT MOUNTING



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.60	
A	4.60	4.90	
B	3.05	3.30	
Ød	0.20	0.30	
Øf	2.10	2.20	
Øg	2.55	2.70	4 holes
i	12.60	12.80	
j	8.59	8.69	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.04 + 0.018 x F (GHz)	-
Maximum insertion loss (1)	0.03√F (GHz)	dB
RF leakage (1)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

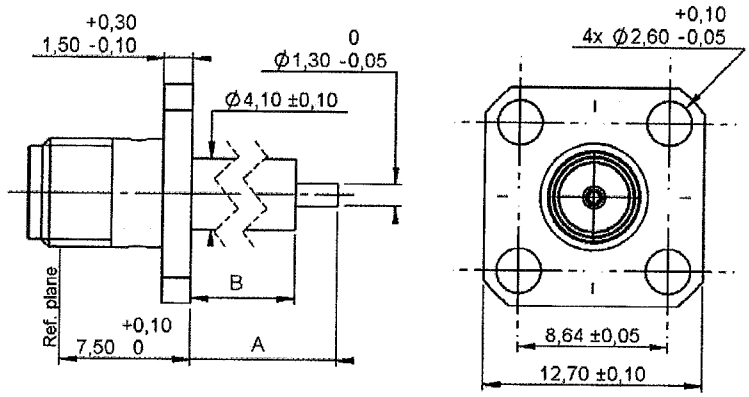
Notes:
1- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3.0	g

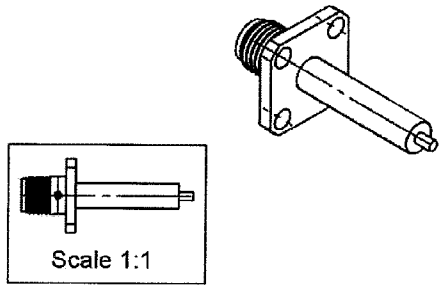
OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

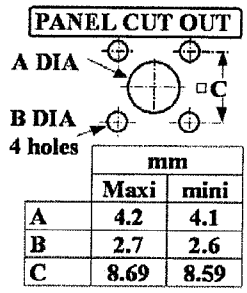
Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 77 – SQUARE FLANGE RECEPTACLE



Symbol	Millimetres		Notes
	Min.	Max.	
A	-	40.10	Note 1
B	-	20.00	Note 1





	mm	
	Maxi	mini
A	4.2	4.1
B	2.7	2.6
C	8.69	8.59

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	0.03√F (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

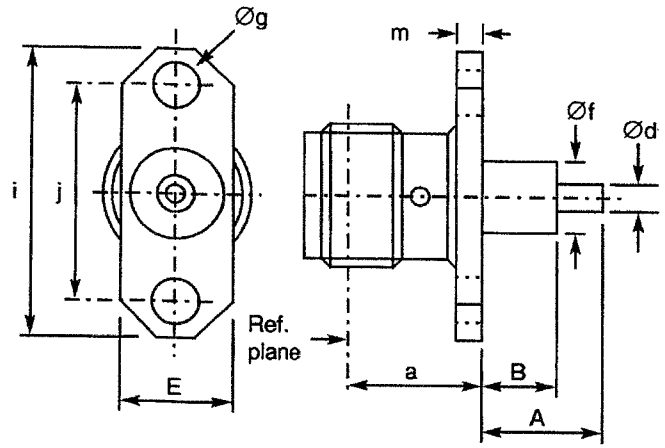
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	5.0	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant 78 – 2 HOLE FLANGE RECEPTACLE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.60	
A	-	40.10	Note 1
B	-	20.00	Note 1
Ød	1.25	1.30	
E	5.50	5.80	
Øf	4.00	4.20	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	$0.03\sqrt{F}$ (GHz)	Db
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

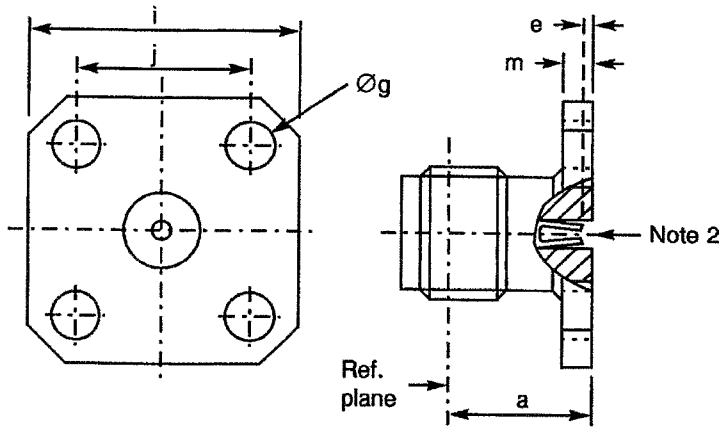
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	4.0	G

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 79 – SQUARE FLANGE RECEPTACLE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.70	
e	0.18	0.41	
Øg	2.55	2.70	4 holes
i	12.60	12.80	
j	8.59	8.69	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.06 + 0.007 x F (GHz)	-
Maximum insertion loss (1)	0.03√F (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

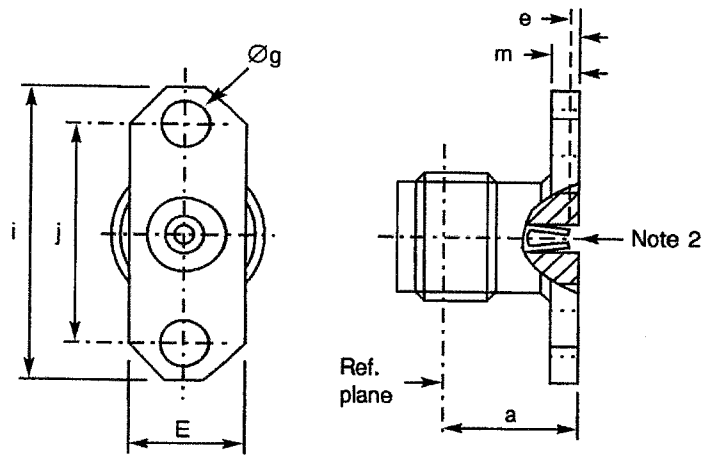
Notes:
1- For information only.
2- Contact engagement and separation forces shall be measured on the rear contact (see para. 4.3.8).

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not applicable ~~2.8~~	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 80 – 2 HOLE FLANGE RECEPTACLE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.60	
e	0.18	0.41	
E	5.50	5.80	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.06 + 0.007 x F (GHz)	-
Maximum insertion loss (1)	0.03√F (GHz)	dB
RF leakage(2)	- [95-F(GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

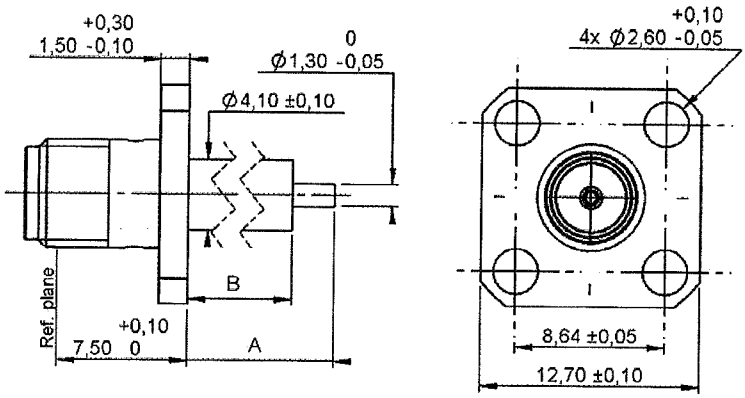
Notes:
1- For information only.
2- Contact engagement and separation forces shall be measured on the rear contact (see para. 4.3.8).

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	2.3	g

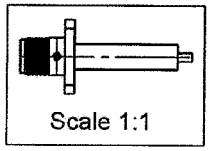
OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

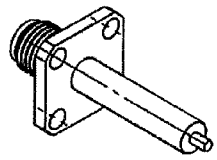
Figure 2(b) – VARIANTS (CONTINUED)

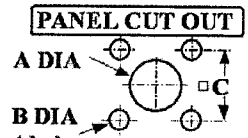
Variant 81 – SQUARE FLANGE RECEPTACLE LOW RF LEAKAGE



Symbol	Millimetres		Notes
	Min.	Max.	
A	-	35.00	Note 1
B	-	20.00	Note 1







	mm	
	Maxi	mini
A	4.2	4.1
B	2.7	2.6
C	8.69	8.59

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (2)	0.03√F (GHz)	dB
RF leakage(2)	-120 at 10 GHz	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

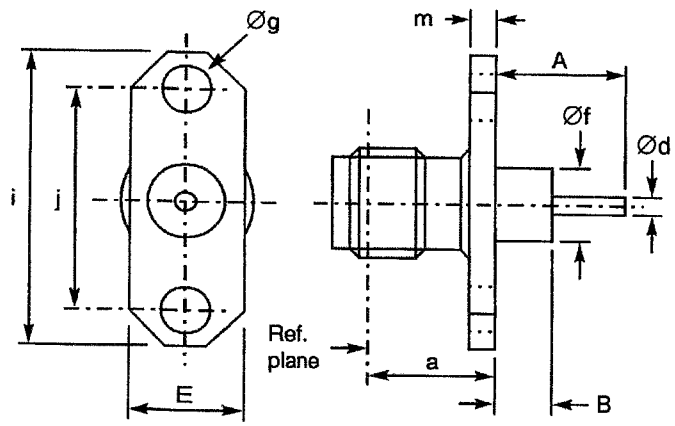
Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	4.0	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 82 – 2 HOLE FLANGE RECEPTACLE LOW RF LEAKAGE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.50	7.70	
A	-	40.10	Note 2
B	-	20.00	Note 2
Ød	1.25	1.30	
E	5.50	5.80	
Øf	4.00	4.20	
Øg	2.55	2.70	2 holes
i	15.90	16.10	
j	12.10	12.30	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.05 + 0.003 x F (GHz)	-
Maximum insertion loss (1)	0.03√F (GHz)	dB
RF leakage(2)	-120 at 10 GHz	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

Notes:

1- For information only.

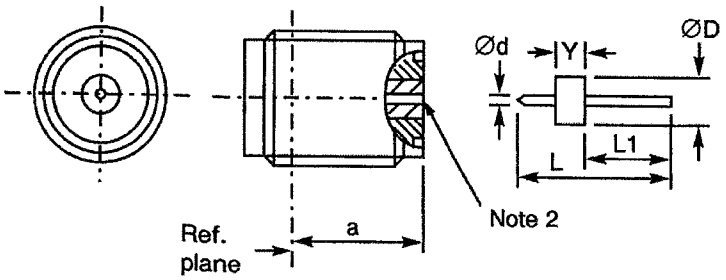
2- To specify dimensions, see Para 4.5.3

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3.3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 83 – BULKHEAD RECEPTACLE WITH GLASS SEAL Ø CONTACT 0.30



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.05	8.05	
Ød	-	0.31	
ØD	-	2.53	
L	7.80	8.20	
L1	4.45	4.70	
Y	1.55	1.65	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.06 + 0.01 x F (GHz)	-
Maximum insertion loss (1)	$0.03 \times \sqrt{F\ (GHz)}$	dB
RF leakage(1)	-70	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

Notes:

1- For information only.

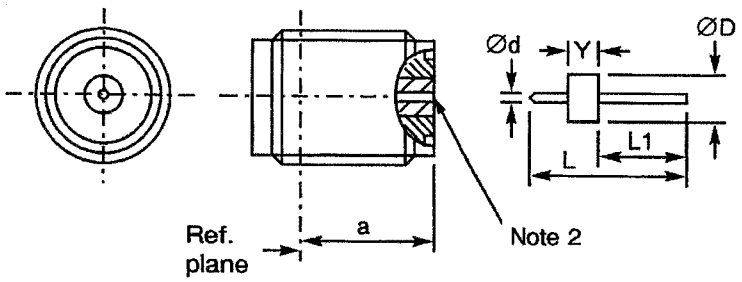
2- Accept contact Ø0.30mm

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	1.7	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	10^{-8} (seal only)	$Atm.cm^3/s$
Solderability	Applicable (contact only)	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 84 – BULKHEAD RECEPTACLE WITH GLASS SEAL Ø CONTACT 0.46



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	7.05	8.05	
Ød	-	0.47	
ØD	-	2.86	
L	7.80	8.20	
L1	4.45	4.70	
Y	1.55	1.65	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (1)	1.06 + 0.01 x F (GHz)	-
Maximum insertion loss (1)	0.03 $\times\sqrt{F\ (GHz)}$	dB
RF leakage(1)	-70	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

Notes:

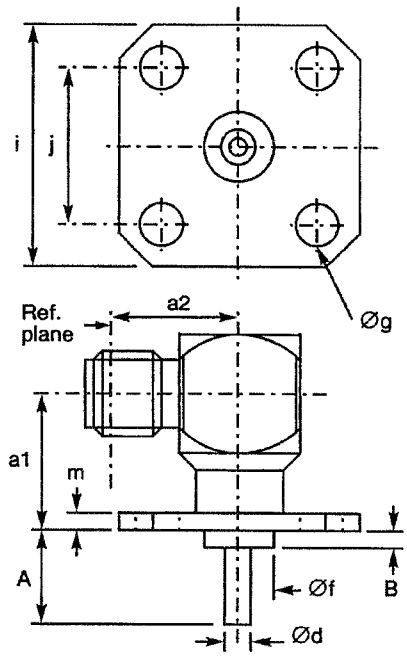
1- For information only.
2- Accept contact Ø0.46mm

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	1.7	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	10^{-8} (seal only)	$Atm.cm^3/s$
Solderability	Applicable (contact only)	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant 85 – ELBOW RECEPTACLE SQUARE FLANGE (SOLID CONTACT)



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a1	7.90	8.10	
a2	9.20	9.40	
A	-	25.00	Note 1
B	-	20.00	Note 1
Ød	1.25	1.30	
Øf	4.00	4.20	
Øg	2.55	2.70	4 holes
i	12.60	12.80	
j	8.59	8.69	
m	1.40	1.80	

All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR) (2)	1.05 + 0.01 x F (GHz)	-
Maximum insertion loss (2)	0.03√F (GHz)	dB
RF leakage(2)	-(95-F(GHZ))	dB
Voltage proof	1000	Vrms
Corona level	Not Applicable	Vrms

Notes:
1- To specify dimensions, see Para 4.5.3
2- For information only.

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	2.8	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	5.3	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	On centre contact only	-
Soldering proof	Applicable	-
Cable used	Not Applicable	-

TABLE 1(a) - TYPE VARIANTS

VARIANT	DESCRIPTION
01	Straight Adaptor, Male - Male (Note 3)
02	Straight Adaptor, Male - Female (Note 3)
03	Straight Adaptor, Female - Female (Note 3)
04	Straight Bulkhead Adaptor, Female - Female (Note 3)
05	Elbow Adaptor, Male - Female
06	T-Adaptor, Female - Female/Male
07	Hermetic Adaptor, Female - Female
08	T-Adaptor, Female - Female/Female
09	Straight Flange Adaptor, Male - Female

NOTES

1. The Variants are described in Figure 2(b).
2. For finishes, see Para. 4.4.
3. Variants 11, 12, 13 and 14 are High Temperature Capability versions of Variants 01, 02, 03 and 04 respectively.

TABLE 1(b) - MAXIMUM RATINGS

No.	CHARACTERISTICS	SYMBOL	MAXIMUM RATINGS	UNIT	REMARKS
1	Peak Power at +25°C	Pmax	20	kW	1.0µs
2	Power	P	2.0	kW	See Figures 1(a) and 1(b)
3	Nominal Impedance	Z	50	Ω	-
4	Frequency Range	f	See Figure 2(b)	GHz	-
5	Operating Voltage	V_{op}	335	Vrms	-
6	Operating Temperature Range	T_{op}	See Figure 2(b)	°C	-
7	Storage Temperature Range	T_{stg}	As per Operating Temperature Range	°C	-

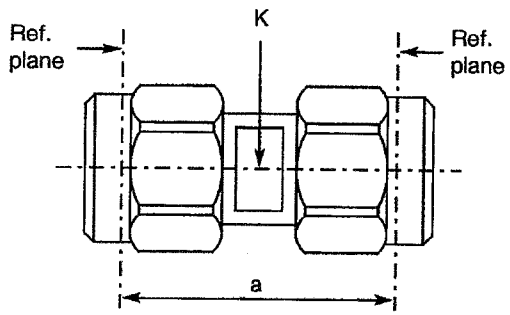
[Variants 10 to 14 inclusive - see next page - to be added here

ESCC 3402/003 Table 1(a) – Continued

10	Straight Flange Adaptor, Female – Female
11	Straight Adaptor, Male – Male (Note 3)
12	Straight Adaptor, Male – Female (Note 3)
13	Straight Adaptor, Female – Female (Note 3)
14	Straight Bulkhead Adaptor, Female – Female (Note 3)

Figure 2(b) – VARIANTS (CONTINUED)

Variant 10 – STRAIGHT ADAPTOR MALE-MALE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	14.90	15.10	
K	-	5.50	2 flats

All dimensions are in mm

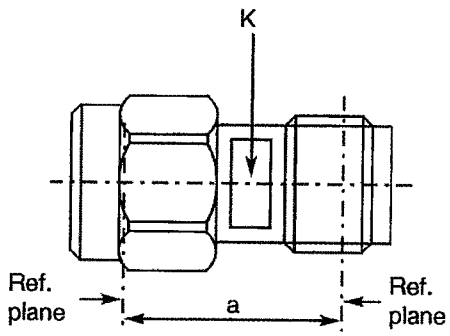
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.008 x F (GHz)	-
Maximum insertion loss	0.06√F (GHz)	dB
RF leakage	- [95 – F (GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not applicable	Vrms

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	4.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant 11 – STRAIGHT ADAPTOR MALE-FEMALE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	12.40	12.65	
K	5.40	5.50	2 flats

All dimensions are in mm

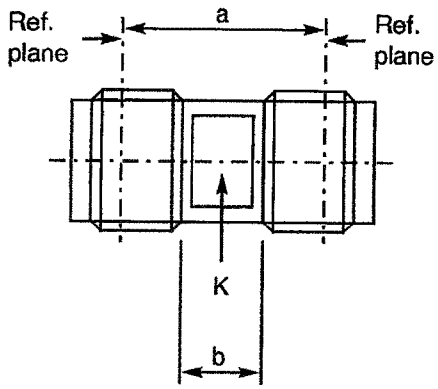
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.008 x F (GHz)	-
Maximum insertion loss	$0.06\sqrt{F}$ (GHz)	dB
RF leakage	- [95 – F (GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not applicable	Vrms

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3.5	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 12 – STRAIGHT ADAPTOR FEMALE-FEMALE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	10.10	10.30	
b	4.40	-	
K	5.40	5.50	2 flats

All dimensions are in mm

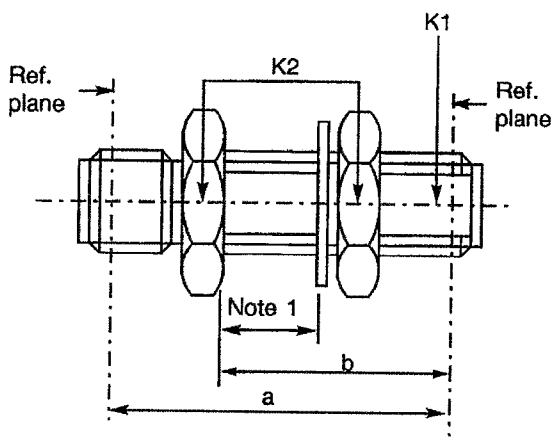
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.008 x F (GHz)	-
Maximum insertion loss	0.06√F (GHz)	dB
RF leakage	- [95 – F (GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not applicable	Vrms

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	1.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

Figure 2(b) – VARIANTS (CONTINUED)

Variant ~~XX~~ 13 – STRAIGHT BULKHEAD ADAPTOR FEMALE-FEMALE



SYMBOL	MILLIMETRES		NOTES
	MIN.	MAX.	
a	-	18.40	
b	12.50	12.85	
K1	-	6.00	1 flat
K2	-	8.00	Hex.

NOTES

1. Maximum panel thickness: 6.0mm.

All dimensions are in mm

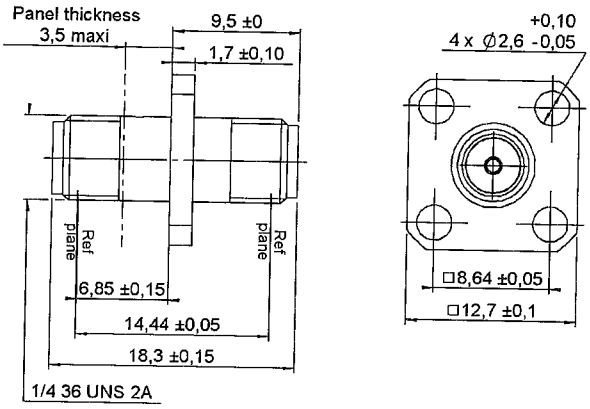
ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 18	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.008 x F (GHz)	-
Maximum insertion loss	$0.06\sqrt{F}$ (GHz)	dB
RF leakage	- [95 – F (GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not applicable	Vrms

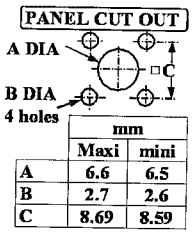
MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	3.9	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-

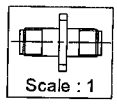
Figure 2(b) – VARIANTS (CONTINUED)

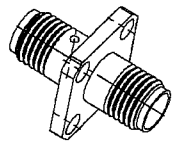
Variant 14 – STRAIGHT FLANGE ADAPTOR FEMALE-FEMALE





	mm	
	Maxi	mini
A	6.6	6.5
B	2.7	2.6
C	8.69	8.59





All dimensions are in mm

ELECTRICAL CHARACTERISTICS	VALUES	UNITS
Frequency range	0 to 12.4	GHz
Maximum voltage standing wave ration (VSWR)	1.10 + 0.008 x F (GHz)	-
Maximum insertion loss	0.06√F (GHz)	dB
RF leakage	- [95 – F (GHz)]	dB
Voltage proof	1000	Vrms
Corona level	Not applicable	Vrms

MECHANICAL CHARACTERISTICS	VALUES	UNITS
Mini centre contact retention force (axial)	27	N
Mini centre contact retention torque	Not Applicable	N.cm
Mini cable retention force	Not Applicable	N
Mini cable retention torque value	Not Applicable	N.cm
Maximum weigth	4.2	g

OTHER CHARACTERISTICS	VALUES	UNITS
Rapid change of temperature (peak)	+180	°C
Operating temperature range	-65 to +165	°C
Maxi leakage (panel sealed connectors)	Not Applicable	-
Maxi leakage (hermetic sealed connector)	Not Applicable	-
Solderability	Not Applicable	-
Soldering proof	Not Applicable	-
Cable used	Not Applicable	-