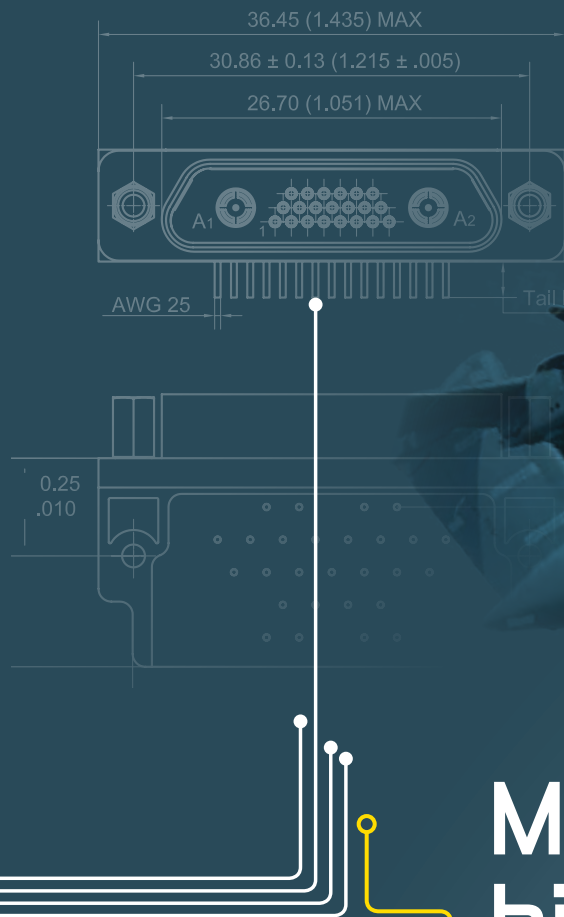




Miniature high performance twist pin connectors

Micro-D & Nano-D,
Rectangular & Circular



RECTANGULAR MICRO-D CONNECTORS

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● D-Line® connector mating guide	23
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MIL-DTL-83513

Micro-D QPL - CAGE CODE: OKOJ2

M83513 /01 & /02

● Solder cup connector - Metal shell	38
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M83513 /03 & /04

● Pigtail connector - Metal shell	40
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M83513 /16 TO /21

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M83513 /22 TO /27

● PCB connector - Straight - 0.100" pitch - Metal shell	54
● PCB layout for QPL Straight - 0.100" pitch	56

M83513 /28 TO /33

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GENERAL INFORMATION

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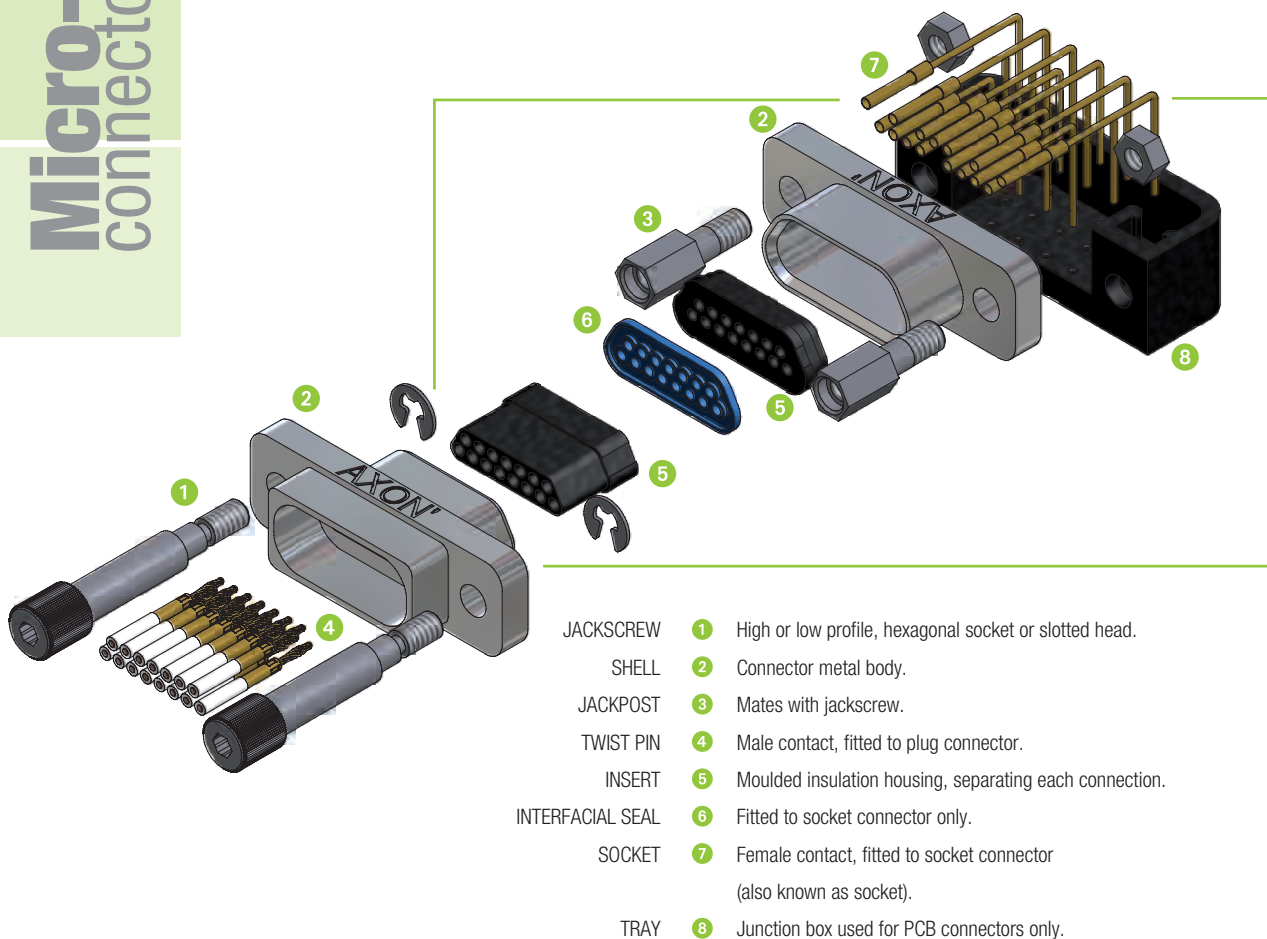


GENERAL
INFORMATION

Rectangular
Micro-D connectors

Micro-D connectors

GLOSSARY OF TERMS



- | | | |
|------------------|---|--|
| JACKSCREW | 1 | High or low profile, hexagonal socket or slotted head. |
| SHELL | 2 | Connector metal body. |
| JACKPOST | 3 | Mates with jackscrew. |
| TWIST PIN | 4 | Male contact, fitted to plug connector. |
| INSERT | 5 | Moulded insulation housing, separating each connection. |
| INTERFACIAL SEAL | 6 | Fitted to socket connector only. |
| SOCKET | 7 | Female contact, fitted to socket connector (also known as socket). |
| TRAY | 8 | Junction box used for PCB connectors only. |

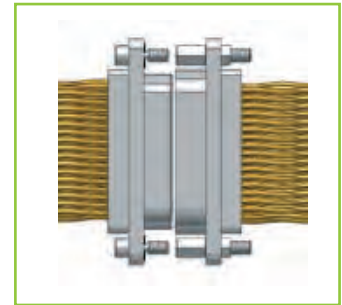
- | | | |
|------------------------|---|---|
| Standard connector | ● | Manufactured to the standard dimensions and specifications. |
| Special connector | ● | A standard connector modified to meet specific requirements. |
| Custom made connector | ● | Designed to meet specific customer requirements. |
| Connector saver | ● | Used to reduce wear and tear on equipment and systems while testing. |
| BR connector | ● | Board Right Angle connector. |
| CBR connector | ● | Condensed Board Right Angle connector. |
| BS connector | ● | Board Straight connector. |
| Strip connector | ● | Single row plastic connector with 1.27 mm spacing (.050"). |
| Pigtail connector | ● | Connector with insulated or uninsulated wires. |
| Cord | ● | Cable harness with 2 connectors only. |
| Jumper/ Extension cord | ● | Cord with 1 plug and 1 receptacle connector of the same number of ways. |
| Harness | ● | Multi-branched cable assembly. |
| LCP | ● | Liquid Crystal Polymer. |
| Potting | ● | Epoxy compound used as an encapsulant. |
| Solder cup connector | ● | Connector with solder type contacts, usually used for prototyping. |

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

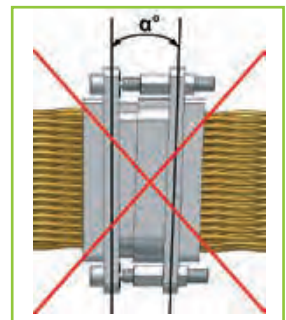
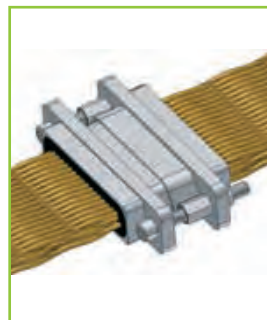
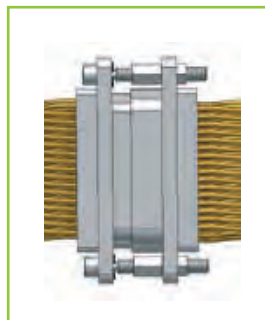
CONNECTOR MATING GUIDE



- 1- Align both connectors and start to insert the male D-shape into the female one.



- 2- Screw each jackscrew down alternately by no more than approximately one turn. This is essential to ensure correct mating.



- 3- Tighten both jackscrews to the recommended torque values set out below.



RECOMMENDED TORQUE VALUES

- MICRO-D 9 to 69 way jackscrew: 0,28 N.m / 2.5 inch-pounds.
- MICRO-D 100 way jackscrew: 0,51 N.m / 4.5 inch-pounds.
- MICRO-D PCB mounting screws (inside threaded inserts):
9 to 69 way with 2-56 UNC 2A screws: 0.14 N.m / 1.25 inch-pounds
100 way with 4-40 UNC 2A screws: 0.34 N.m / 3 inch-pounds
- NANO-D 9 to 51 way jackscrew: 0,11 N.m / 1 inch-pounds.

Micro-D
connectors

GENERAL CHARACTERISTICS

per MIL-DTL-83513*

AXON's range of Micro-D connectors which is covered by the MIL-DTL-83513* standard, is ideally suited to equipment and applications where weight, miniaturisation and long term performance are required. It is available:

- in 10 contact arrangements (9 to 100 contacts) for rectangular Micro-D connectors,
- and 2 to 40 contacts for microstrips.

► Electrical & mechanical characteristics

CHARACTERISTIC	SPECIFICATION	TEST METHOD
CURRENT RATING	3 A max.	EIA-364-70
CONTACT RESISTANCE	8 mΩ max.	EIA-364-06
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{dc}	EIA-364-21
DIELECTRIC WITHSTANDING VOLTAGE - SEA LEVEL 0 m - ALTITUDE 21 km (70,000 ft)	600 V _{ac} 150 V _{ac}	EIA-364-20
CONTACT ENGAGING AND SEPARATION FORCE	170 g max. (6 oz) 14 g min. (0.5 oz)	EIA-364-37
CONNECTOR MATING AND DE-MATING FORCE	283 g (10 oz) x number of contacts max.	EIA-364-13
CONTACT RETENTION	2.26 kg (5 lbs) for 5 seconds min.	EIA-364-29
DURABILITY	500 mating cycles min.	EIA-364-09
TEMPERATURE RANGES - STANDARD - HIGH TEMP	-55°C / +150°C -55°C / +200°C	
VIBRATION	20 g's - No discontinuity >1μs	EIA-364-28 - TEST CONDITION IV
SHOCK	50 g's - No discontinuity >1μs	EIA-364-27 - TEST CONDITION E
SALT SPRAY	48 hours	EIA-364-26 - TEST CONDITION B
HUMIDITY	Insulation resistance > 1MΩ	EIA-364-31 - METHOD IV

► Material & Finish

COMPONENT	MATERIAL	FINISH
MALE CONTACT (TWIST PIN)	COPPER AND BERYLLIUM COPPER	GOLD PLATING IN ACCORDANCE WITH ASTM-B488, TYPE II, CLASS 1 (1.27μm (0.00005") MIN), CODE C
FEMALE CONTACT	COPPER ALLOY	OVER NICKEL UNDERPLATE IN ACCORDANCE WITH SAE-AMS-QQ-N-290 CLASS 2 (1.27μm (0.00005") TO 3.81μm (0.00015"))
SOLDER CUP	BRASS	GOLD PLATING OVER NICKEL UNDERPLATING
METAL SHELL	ALUMINIUM ALLOY, TYPE 6061	YELLOW CHROMATE OVER CADMIUM IN ACCORDANCE WITH SAE-AMS-QQ-P-416, TYPE II, CLASS 3 ELECTROLESS NICKEL PLATING IN ACCORDANCE WITH SAE-AMS2404, CLASS 4, .0005 INCH MIN. BLACK ZINC NICKEL OVER NICKEL UNDERPLATE
	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
PLASTIC SHELL / INSERT / PCB TRAY	LIQUID CRYSTAL POLYMER, 30% LOADED GLASS FIBRE POLYESTER, 94V0, IN ACCORDANCE WITH MIL-M-24519 (200°C)	
INTERFACIAL SEAL	FLUOROSILICONE RUBBER	
HARDWARE	STAINLESS STEEL, 300 SERIES	PASSIVATION IN ACCORDANCE WITH SAE-AMS2700
ENCAPSULANT	EPOXY RESIN	
INSULATED WIRE	PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH NEMA-HP3 PTFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/11 ETFE INSULATED SILVER PLATED COPPER IN ACCORDANCE WITH SAE-AS22759/33	
UNINSULATED WIRE	GOLD PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551 TIN PLATED SOLID COPPER WIRE IN ACCORDANCE WITH A-A-59551	

*: ISSUE G AT TIME OF GOING TO PRESS

REACH & RoHS COMPLIANCE

► RoHS compliance

AXON' CABLE has been pro-actively implementing measures for many years to ensure compliance with the European Directive 2011/65/EU which came into force on 21st July 2011. The Directive prohibits the use of Hazardous Substances such as lead, mercury, hexavalent chromium, cadmium, bromine compounds (PBB and PBDE) and various phthalates. It relates to all components of products which are used in the manufacture of electrical and electronic equipment.

As a cable and connector manufacturer, AXON' has taken actions to ensure compliance with directive 2000/53/EC applicable since 21st October 2000.

COMPONENT SPECIFIC RoHS COMPLIANCE

COMPONENT	MATERIAL	FINISH	RoHS STATUS
PIN CONTACT (TWIST PIN)	COPPER + BERYLLIUM COPPER	GOLD	RoHS Compliant
SOCKET CONTACT	COPPER ALLOY	GOLD	RoHS Compliant
PLASTIC SHELL	LIQUID CRYSTAL POLYMER	N/A	RoHS Compliant
METAL SHELL	ALUMINIUM ALLOY TYPE 6061	YELLOW CHROMATE OVER CADMIUM	RoHS Compliant *
	* ELECTROLESS NICKEL & BLACK ZINC NICKEL ARE THE BEST RoHS ALTERNATIVES		
	ALUMINIUM ALLOY TYPE 6061	ELECTROLESS NICKEL	RoHS Compliant
	ALUMINIUM ALLOY TYPE 6061	BLACK ZINC NICKEL	RoHS Compliant
	STAINLESS STEEL 300 SERIES	PASSIVATION	RoHS Compliant
PLASTIC INSERT / PCB TRAY	LIQUID CRYSTAL POLYMER	N/A	RoHS Compliant
INTERFACIAL SEAL	FLUOROSILICONE RUBBER	N/A	RoHS Compliant
HARDWARE	STAINLESS STEEL 300 SERIES	PASSIVATION	RoHS Compliant
"STANDARD" SERIES PCB TERMINATION	SOLID COPPER WIRE	GOLD	RoHS Compliant
	SOLID COPPER WIRE	NOT LEADED TIN 97% MAX TIN	RoHS Compliant
MIL VERSION PCB TERMINATION	SOLID COPPER WIRE	LEADED TIN 97% MAX TIN	RoHS Compliant
ENCAPSULANT	EPOXY RESIN 150°C VERSION	N/A	RoHS Compliant
	EPOXY RESIN 200°C VERSION	N/A	RoHS Compliant

► Application of REACH

The new EU regulation on the Registration, Evaluation, Authorisation and restriction of Chemicals (REACH) came into force in June 2007. The regulation concerns the authorised use of chemicals. It requires manufacturers and importers to register substances and their use with the European Chemical Agency (ECHA).

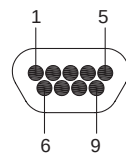
AXON' CABLE is known as a "downstream user" with respect to the REACH regulation, and a manufacturer of "Articles". AXON' CABLE products are not intended to release any undesired substance under normal and reasonable operations of use.

To this day AXON' CABLE have not identified any component containing any SVHC in their product range.

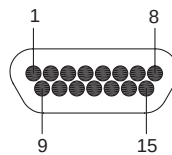
CONTACT ARRANGEMENTS

► Mating face of male rectangular connector

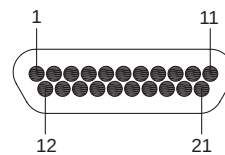
- 1.27 mm (.050") contact spacing.
- 1.09 mm (.043") spacing between rows.



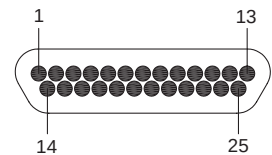
9 CONTACTS



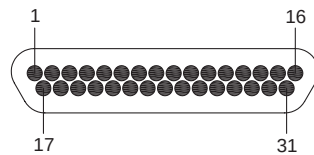
15 CONTACTS



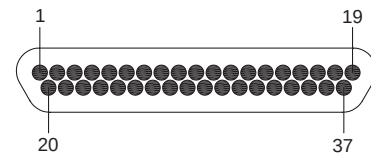
21 CONTACTS



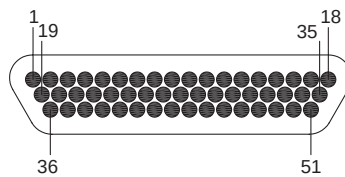
25 CONTACTS



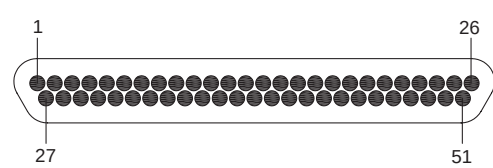
31 CONTACTS



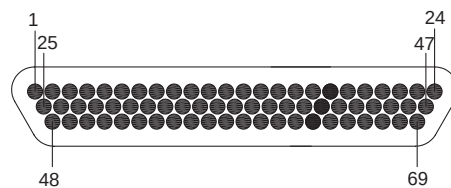
37 CONTACTS



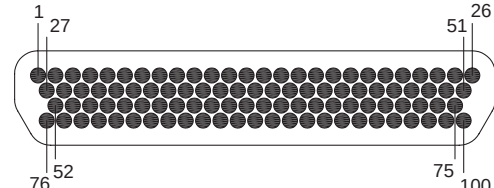
51 CONTACTS



51 CONTACTS DOUBLE ROW (51DR)



69 CONTACTS



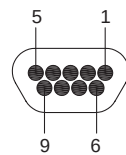
100 CONTACTS

120 CONTACTS: SEE PAGE 178 OR 302
OTHER CONTACT ARRANGEMENTS AVAILABLE ON REQUEST

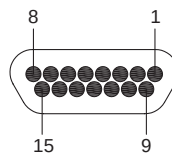
CONTACT ARRANGEMENTS

► Mating face of female rectangular connector

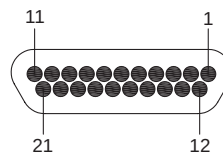
- 1.27 mm (.050") contact spacing.
- 1.09 mm (.043") spacing between rows.



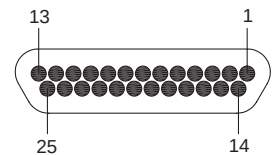
9 CONTACTS



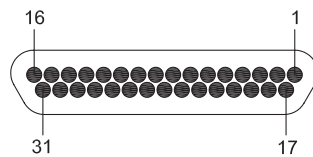
15 CONTACTS



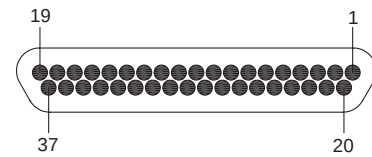
21 CONTACTS



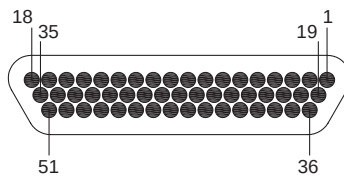
25 CONTACTS



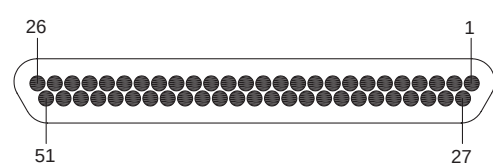
31 CONTACTS



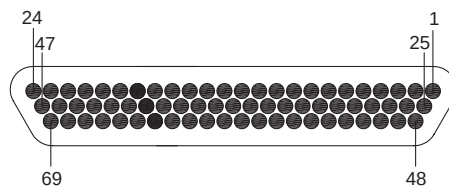
37 CONTACTS



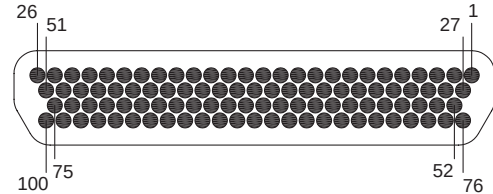
51 CONTACTS



51 CONTACTS DOUBLE ROW (51DR)



69 CONTACTS



100 CONTACTS

120 CONTACTS: SEE PAGE 178 OR 302
OTHER CONTACT ARRANGEMENTS AVAILABLE ON REQUEST

Micro-D
connectors

MICRO-D WEIGHTS

MICRO-D ALUMINIUM CONNECTOR WEIGHTS IN GRAMS ¹								
NB OF CONTACT	GENDER	SOLDER CUP ²	PIGTAIL ³	PCB CBR .100" pitch ⁴	PCB CBR .075" pitch ⁴	PCB BR .100" pitch ⁴	PCB BS .100" pitch ⁴	PCB BS .075" pitch ⁴
9	MALE	1.8	1.6	3.6	3.6	5.5	4.2	3.9
	FEMALE	1.8	1.6	3.6	3.5	5.5	4.2	3.9
15	MALE	2.4	2.1	4.4	4.4	6.7	4.8	4.7
	FEMALE	2.3	2.0	4.3	4.3	6.6	4.7	4.6
21	MALE	3.0	2.6	5.2	5.0	7.5	5.9	5.4
	FEMALE	2.9	2.5	5.1	4.9	7.4	5.8	5.3
25	MALE	3.4	2.9	5.6	5.5	7.9	6.3	5.8
	FEMALE	3.2	2.7	5.5	5.4	7.8	6.2	5.7
31	MALE	3.9	3.3	7.1	6.3	9.2	7.4	6.6
	FEMALE	3.8	3.2	6.9	6.1	9.0	7.2	6.4
37	MALE	4.6	3.9	8.1	7.2	10.7	8.6	7.4
	FEMALE	4.4	3.7	7.8	6.9	10.4	8.3	7.1
51DR	MALE	5.9	5.0	10.1	9.1	13.6	12.1	8.4
	FEMALE	5.7	4.7	10.0	8.9	13.4	12.0	8.3
51	MALE	5.3	4.6	10.4	9.0	13.6	9.4	8.1
	FEMALE	5.2	4.4	10.1	8.7	13.4	9.1	7.8
69	MALE	6.9	5.9	13.5	11.1	15.1	13.3	9.7
	FEMALE	6.4	5.5	13.0	10.6	14.6	12.8	9.2
100	MALE	9.5	7.2	25.0	19.7	26.8	24.0	18.4
	FEMALE	8.9	6.5	24.3	19.0	26.1	23.3	17.7

MICRO-D STAINLESS STEEL WEIGHT ADDERS IN GRAMS ¹			
NB OF CONTACT	GENDER	SOLDER CUP & PIGTAIL	PCB
9	MALE	2.2	1.8
	FEMALE	2.1	1.7
15	MALE	2.6	2.1
	FEMALE	2.5	2.0
21	MALE	3.0	2.4
	FEMALE	2.8	2.3
25	MALE	3.2	2.6
	FEMALE	3.0	2.5
31	MALE	3.6	3.0
	FEMALE	3.4	2.7
37	MALE	4.0	3.3
	FEMALE	3.8	3.0
51DR	MALE	4.9	4.0
	FEMALE	4.6	3.7
51	MALE	4.1	3.4
	FEMALE	3.7	3.0
69	MALE	4.7	3.8
	FEMALE	4.2	3.4
100	MALE	6.3	5.3
	FEMALE	5.7	4.7

NOTES

1 - NOMINAL WEIGHT SHOWN. ADD 10% FOR MAXIMUM WEIGHT.

2 - SOLDER CUPS: CONNECTOR WEIGHT DOES NOT INCLUDE THE HARDWARE WEIGHT.

3 - PIGTAILS: CONNECTOR WEIGHT DOES NOT INCLUDE HARDWARE AND WIRE WEIGHTS. SEE TABLE PAGE 29 FOR WIRE WEIGHT CALCULATION.

4 - PCB CONNECTORS: NOMINAL WEIGHT INCLUDES THE HARDWARE WEIGHT.

WIRE CODES

Nominal dimensions are used throughout this chapter.

► Solid uninsulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT g/m	CONDUCTOR					
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm ² (sq in)	RESISTANCE Ω/100m (Ω/ 1000 ft)
G	GPC2501	1.45	GOLD PLATED COPPER	25	1x0.455 1x.018	0.455 .018	0.163 .000252	11 33.5
T	TPCL2401	1.81	TIN PLATED COPPER	24	1x0.510 1x.0201	0.510 .0201	0.205 .000317	9 27.4
T (FOR PCB)	GPC2501 RoHS SOLDER DIPPED TIN	1.81	GOLD PLATED COPPER AND TIN LEAD-FREE (97% TIN MAX.)	24	1x0.510 1x.0201	0.510 .0201	0.205 .000317	11 33.5

► Insulated wires

WIRE CODE	WIRE DESIGNATION	WEIGHT g/m	CONDUCTOR						INSULATION		TEMPERATURE RATING	VOLTAGE RATING
			MATERIAL	AWG	CONSTRUCTION mm (inch)	Ø mm (inch)	AREA mm ² (sq in)	RESISTANCE Ω/100m (Ω/ 1000 ft)	MATERIAL	Ø mm (inch)		
1	E 2607	2.70	SPC **	26	7x0.160 7x.0063	0.480 .0189	0.141 .000219	12.8 39.0	EXTRUDED PTFE	1.00 .039	-90°C/ +200°C	600 V _{AC}
3	M22759/11-26*	2.82	SPC **	26	19x0.102 19x.0040	0.504 .020	0.154 .000239	12.6 38.4	EXTRUDED PTFE	0.96 .038	-90°C/ +200°C	600 V _{AC}
4	E 2619	3.00	SPC **	26	19x0.102 19x.0040	0.504 .020	0.154 .000239	12 36.6	EXTRUDED PTFE	1.00 .039	-90°C/ +200°C	600 V _{AC}
6	E 2807	2.00	SPC **	28	7x0.127 7x.0050	0.381 .015	0.088 .000136	20.1 61.3	EXTRUDED PTFE	0.90 .035	-90°C/ +200°C	600 V _{AC}
8	E 3007	1.50	SPC **	30	7x0.102 7x.0040	0.304 .012	0.057 .000088	31 94.5	EXTRUDED PTFE	0.80 .031	-90°C/ +200°C	600 V _{AC}
A	E 2407	3.60	SPC **	24	7x0.203 7x.0080	0.609 .024	0.228 .000353	8 24.4	EXTRUDED PTFE	1.10 .043	-90°C/ +200°C	600 V _{AC}
C	E 2419	4.10	SPC **	24	19x0.127 19x.0050	0.634 .025	0.239 .000370	7.6 23.2	EXTRUDED PTFE	1.15 .045	-90°C/ +200°C	600 V _{AC}
E	M22759/33-26	2.08	HIGH STRENGTH SPCA ***	26	19x0.102 19x.0040	0.483 .019	0.154 .000239	14.7 44.8	CROSSLINKED EXTRUDED MODIFIED ETFE	0.81 .032	-90°C/ +200°C	600 V _{AC}
F	E 2607*	2.70	SPC **	26	7x0.160 7x.0063	0.480 .0189	0.141 .000219	12.8 39.0	EXTRUDED PTFE	1.00 .039	-90°C/ +200°C	600 V _{AC}

*: ONLY FOR COLOUR CODE V

**: SILVER PLATED COPPER

***: SILVER PLATED COPPER ALLOY

Micro-D
connectors

COLOUR CODES

► Colour codes F and L

All the wires have the same colour.
Available with all wire types.

COLOUR CODE	COLOUR
F	YELLOW
L	WHITE

OTHER COLOURS AVAILABLE ON REQUEST.

► Colour code W

Also called 10 colour repeat. (10 colours repeated in sequence)
as per MIL-DTL-83513. Available with all wire types.

PIN NUMBER	MIL-STD-681 NUMBER	COLOUR
1	0	BLACK
2	1	BROWN
3	2	RED
4	3	ORANGE
5	4	YELLOW
6	5	GREEN
7	6	BLUE
8	7	VIOLET
9	8	GREY
10	9	WHITE
11	0	BLACK
12	1	BROWN
13	2	RED
14	3	ORANGE
15	4	YELLOW
16	5	GREEN
17	6	BLUE
18	7	VIOLET
19	8	GREY
20	9	WHITE
21	0	BLACK

► Colour code V

Only available with 2607 AWG wires (Micro-D wire code F) and 2619 AWG wires (Micro-D wire code 3).

Colours and coloured stripes as per MIL-STD-681 system (except the appropriate colour code is the contact number minus 1).

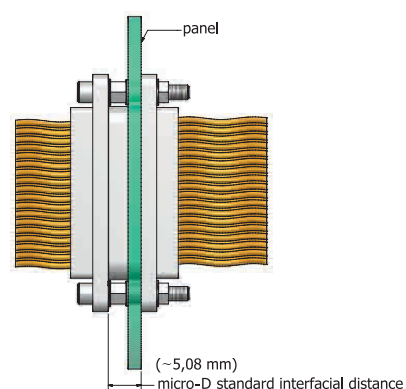
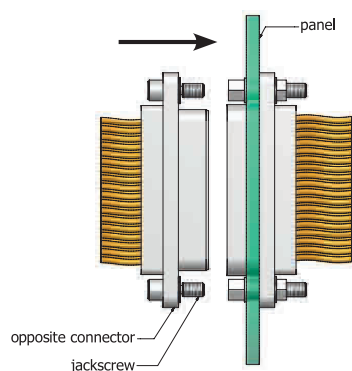
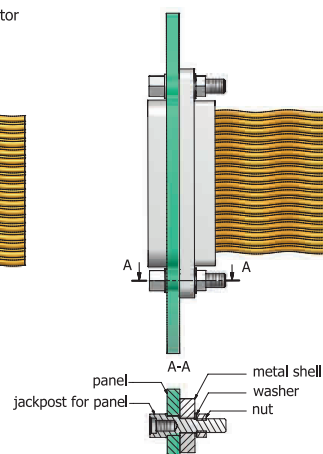
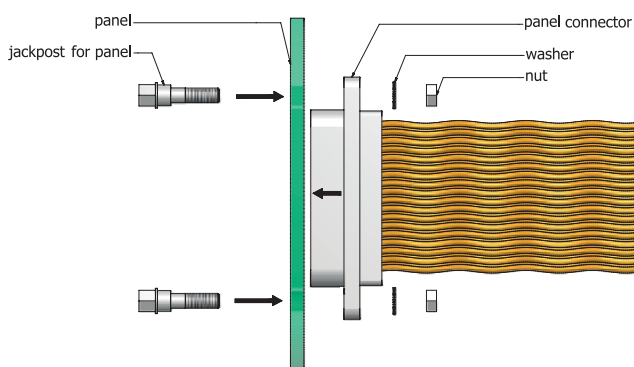
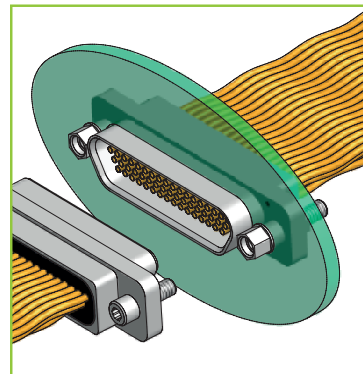
Only available for Micro-D connectors with 51 contacts or less.

CONTACT NUMBER	MIL-STD-681 NUMBER	BASE COLOUR	FIRST STRIPE	SECOND STRIPE
1	0	BLACK	-	-
2	1	BROWN	-	-
3	2	RED	-	-
4	3	ORANGE	-	-
5	4	YELLOW	-	-
6	5	GREEN	-	-
7	6	BLUE	-	-
8	7	VIOLET	-	-
9	8	GREY	-	-
10	9	WHITE	-	-
11	90	WHITE	BLACK	-
12	91	WHITE	BROWN	-
13	92	WHITE	RED	-
14	93	WHITE	ORANGE	-
15	94	WHITE	YELLOW	-
16	95	WHITE	GREEN	-
17	96	WHITE	BLUE	-
18	97	WHITE	VIOLET	-
19	98	WHITE	GREY	-
20	901	WHITE	BLACK	BROWN
21	902	WHITE	BLACK	RED
22	903	WHITE	BLACK	ORANGE
23	904	WHITE	BLACK	YELLOW
24	905	WHITE	BLACK	GREEN
25	906	WHITE	BLACK	BLUE
26	907	WHITE	BLACK	VIOLET
27	908	WHITE	BLACK	GREY
28	912	WHITE	BROWN	RED
29	913	WHITE	BROWN	ORANGE
30	914	WHITE	BROWN	YELLOW
31	915	WHITE	BROWN	GREEN
32	916	WHITE	BROWN	BLUE
33	917	WHITE	BROWN	VIOLET
34	918	WHITE	BROWN	GREY
35	923	WHITE	RED	ORANGE
36	924	WHITE	RED	YELLOW
37	925	WHITE	RED	GREEN
38	926	WHITE	RED	BLUE
39	927	WHITE	RED	VIOLET
40	928	WHITE	RED	GREY
41	934	WHITE	ORANGE	YELLOW
42	935	WHITE	ORANGE	GREEN
43	936	WHITE	ORANGE	BLUE
44	937	WHITE	ORANGE	VIOLET
45	938	WHITE	ORANGE	GREY
46	945	WHITE	YELLOW	GREEN
47	946	WHITE	YELLOW	BLUE
48	947	WHITE	YELLOW	VIOLET
49	948	WHITE	YELLOW	GREY
50	956	WHITE	GREEN	BLUE
51	957	WHITE	GREEN	VIOLET

Micro-D connectors

REAR PANEL MOUNTING GUIDE

- 2 sizes of hardware: one version for all shell sizes for 9 to 69 way and a separate version for the 100 way shell size.
- 1 kit consists of 2 posts, 2 washers and 2 nuts.
- Material: 300 series stainless steel passivated.

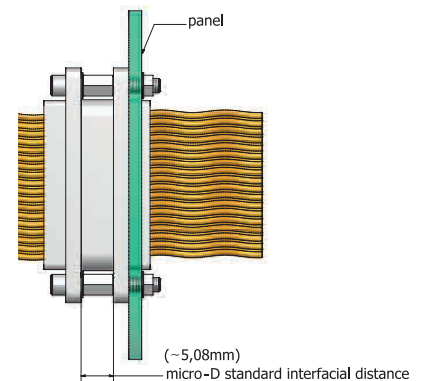
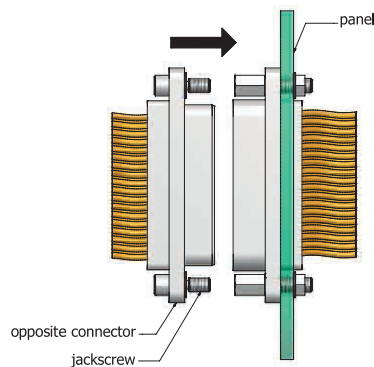
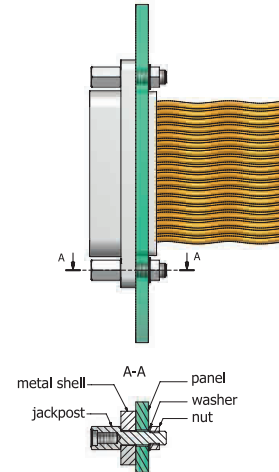
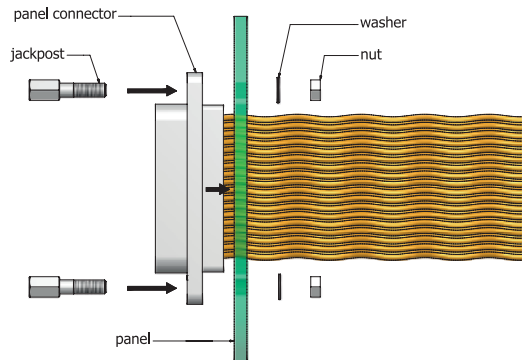
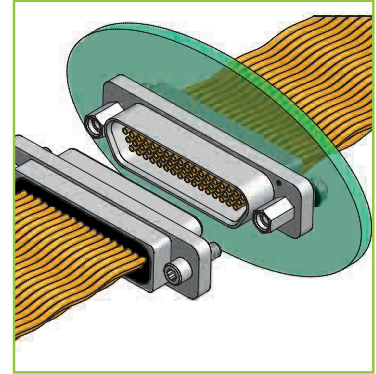


Dimensions are given in millimetres (inches).

HARDWARE CODE	Px	P1	P2	P3	P4	P5
PANEL THICKNESS -0.0 / +0.2 (-.000 / +.008)	mm	0.8	1.2	1.6	2	2.4
	inch	.031	.047	.062	.079	.094
KIT PART NUMBER	9-69 way	MDAHMP01	MDAHMP02	MDAHMP03	MDAHMP04	MDAHMP05
	100 way	MDAHMP11	MDAHMP12	MDAHMP13	MDAHMP14	MDAHMP15
DIM. A	mm	0.7	1.1	1.5	1.9	2.3
	inch	.028	.043	.059	.075	.091

FRONT PANEL MOUNTING GUIDE

- 2 sizes of hardware: one version for all shell sizes for 9 to 69 way and a separate version for the 100 way shell size.
- 1 kit consists of 2 posts, 2 washers and 2 nuts.
- Material: 300 series stainless steel passivated.

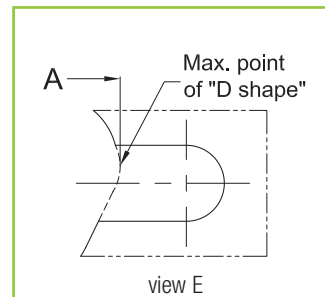


KIT PART
NUMBER

9-69 way	MDAHM507
100 way	MDAHM517

PANEL CUTOUTS

► Metal shell & Plastic shell

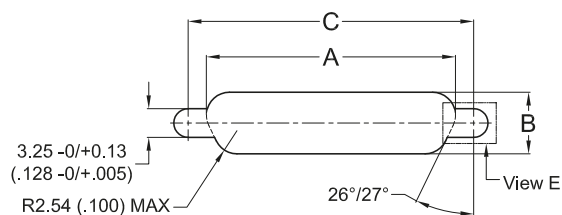
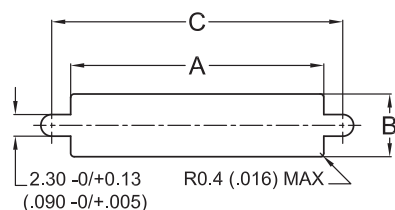


9 TO 69 CONTACTS

**FIGURE 1
FRONT MOUNT**

**FIGURE 2
REAR MOUNT**

Dimensions are in millimetres (inches).



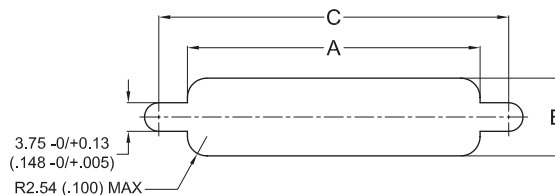
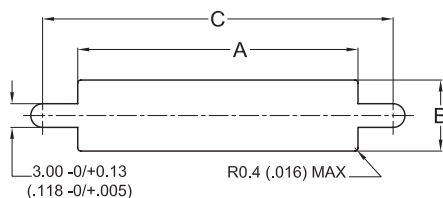
► Metal shell

100 CONTACTS

**FIGURE 1
FRONT MOUNT**

**FIGURE 2
REAR MOUNT**

Dimensions are in millimetres (inches).



► Dimensions

Dimensions are in millimetres (inches)

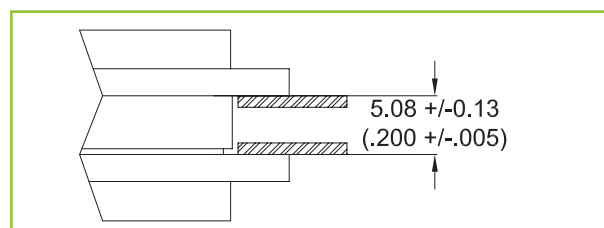
LAYOUT	FIGURE N°	A -0/ +0.1 (-0 /+.004)	B -0/ +0.1 (-0 /+.004)	C -0/ +0.13 (-0 /+.005)	A -0/ +0.1 (-0 /+.004)	B -0/ +0.1 (-0 /+.004)	C -0/ +0.13 (-0 /+.005)
				METAL SHELLS			
					PLASTIC SHELLS		
9	1	10.26 (.404)	6.96 (.274)	14.48 (.570)	10.46 (.412)	4.50 (.177)	14.48 (.570)
	2	10.36 (.408)	6.55 (.258)	14.48 (.570)	9.78 (.385)	5.66 (.223)	14.48 (.570)
15	1	14.07 (.554)	6.96 (.274)	18.29 (.720)	14.27 (.562)	4.50 (.177)	18.29 (.720)
	2	14.20 (.559)	6.55 (.258)	18.29 (.720)	13.59 (.535)	5.66 (.223)	18.29 (.720)
21	1	17.88 (.704)	6.96 (.274)	22.10 (.870)	18.08 (.712)	4.50 (.177)	22.10 (.870)
	2	18.00 (.709)	6.55 (.258)	22.10 (.870)	17.40 (.685)	5.66 (.223)	22.10 (.870)
25	1	20.42 (.804)	6.96 (.274)	24.64 (.970)	20.62 (.812)	4.50 (.177)	24.64 (.970)
	2	20.55 (.809)	6.55 (.258)	24.64 (.970)	19.94 (.785)	5.66 (.223)	24.64 (.970)
31	1	24.23 (.954)	6.96 (.274)	28.45 (1.120)	24.43 (.962)	4.50 (.177)	28.45 (1.120)
	2	24.36 (.959)	6.55 (.258)	28.45 (1.120)	23.75 (.935)	5.66 (.223)	28.45 (1.120)
37	1	28.04 (1.104)	6.96 (.274)	32.26 (1.270)	28.24 (1.112)	4.50 (.177)	32.26 (1.270)
	2	28.17 (1.109)	6.55 (.258)	32.26 (1.270)	27.56 (1.085)	5.66 (.223)	32.26 (1.270)
51 DR	1	36.93 (1.454)	6.96 (.274)	41.15 (1.620)	-	-	-
	2	37.03 (1.458)	6.55 (.258)	41.15 (1.620)	-	-	-
51	1	26.77 (1.054)	8.00 (.315)	31.00 (1.220)	26.97 (1.062)	5.71 (.225)	31.00 (1.220)
	2	26.90 (1.059)	7.64 (.301)	31.00 (1.220)	26.29 (1.035)	6.73 (.264)	31.00 (1.220)
69	1	34.39 (1.354)	8.00 (.315)	38.62 (1.520)	-	-	-
	2	34.49 (1.358)	7.64 (.301)	38.62 (1.520)	-	-	-
100	1	36.73 (1.446)	9.25 (.364)	45.85 (1.805)	-	-	-
	2	37.06 (1.459)	10.31 (.406)	45.85 (1.805)	-	-	-

GENERAL
INFORMATION

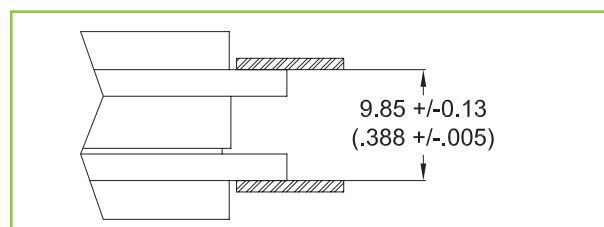
Rectangular
Micro-D connectors

► Panel mounting dimensions

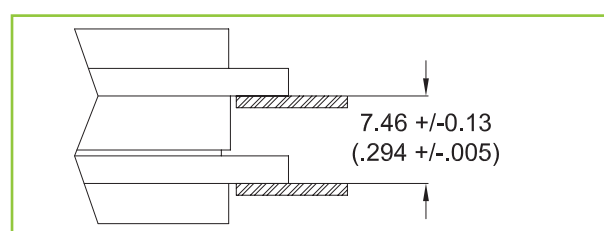
Dimensions are in millimetres (inches).



Rear mount of male and female connectors.



Front mount of male and female connectors.



Front mount of male connector and rear mount of female connector, or vice versa.

MIL-DTL-83513 CONNECTORS

Micro-D QPL - CAGE CODE: OKOJ2

M83513 /01 & /02

- Solder cup connector - Metal shell 38

M83513 /03 & /04

- Pigtail connector - Metal shell 40

M83513 /06 & /07

- Solder cup connector - Plastic shell 42

M83513 /08 & /09

- Pigtail connector - Plastic shell 44

M83513 /10 TO /15

- PCB connector - Narrow profile - Right angle
0.100" pitch - Metal shell 46
- PCB layout for QPL narrow profile 48

M83513 /16 TO /21

- PCB connector - Standard profile - Right angle
0.100" pitch - Metal shell 50
- PCB layout for QPL standard profile 52

M83513 /22 TO /27

- PCB connector - Straight - 0.100" pitch - Metal shell 54
- PCB layout for QPL Straight - 0.100" pitch 56

M83513 /28 TO /33

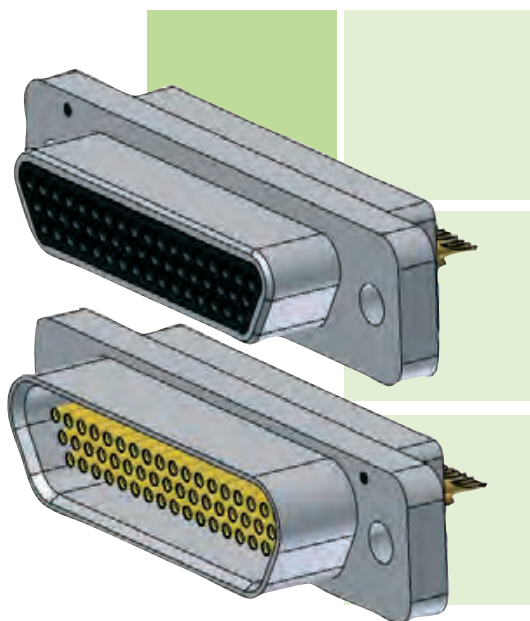
- PCB connector - Straight - 0.075" pitch - Metal shell 58
- PCB layout for QPL Straight - 0.075" pitch 60

MILITARY CROSS REFERENCE CHART 417



MIL-DTL-83513
CONNECTORS

Rectangular
Micro-D connectors



MIL-DTL-83513 /01 & /02

SOLDER CUP CONNECTOR

METAL SHELL

- Metal shell recommended for environmental and EMI applications.
- Ideal for prototyping or where pigtail type connectors cannot be used.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

01-

G

N

SERIES

M83513/: QPL series.

TYPE

- 01-: Pin connector, metal shell.
02-: Socket connector, metal shell.

NUMBER OF CONTACTS

- A: 9.
B: 15.
C: 21.
D: 25.
E: 31.
F: 37.
G: 51.
H: 100.

See pages 26 & 27 for contact arrangements.

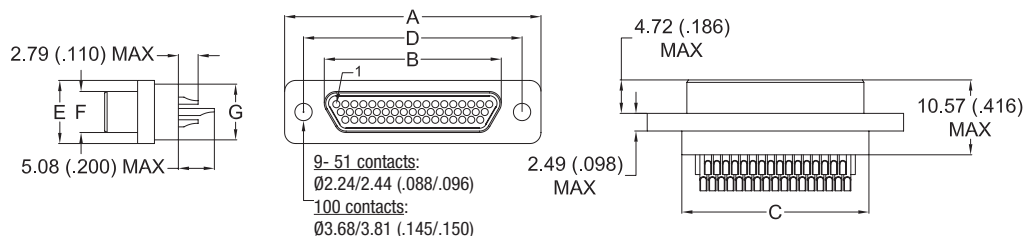
SHELL FINISH

- C: Cadmium plating.
N: Nickel plating.
P: Passivated stainless steel.

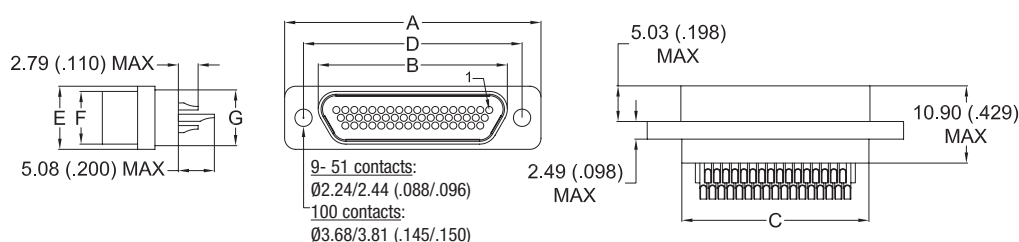
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



MIL-DTL-83513
CONNECTORS

Rectangular
Micro-D connectors

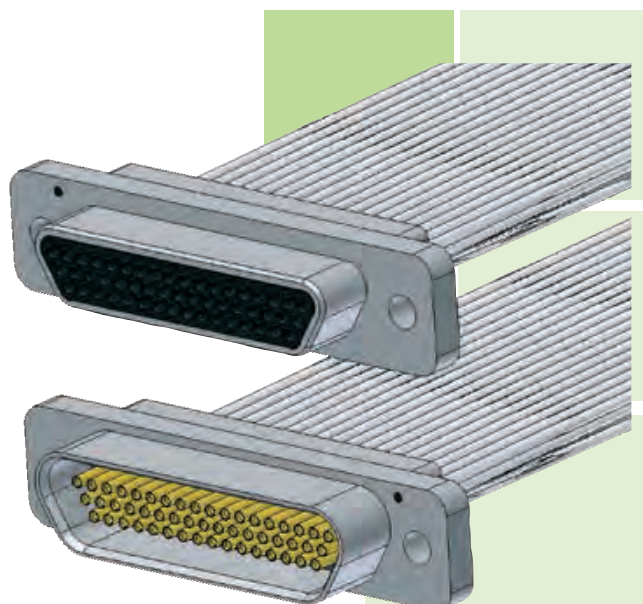
	A ± 0.25 (±.010)	B max.		C -0.46/+0.25 (-.018/+.010)	D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max.		G max.
		Male	Female				Male	Female	
9 P / 9 S	19.69 .775	8.48 .334	10.16 .400	9.91 .390	14.35 .565	7.57 .298	4.69 .185	6.35 .250	6.86 .270
15 P / 15 S	23.50 .925	12.29 .484	14.00 .551	13.72 .540	18.16 .715	7.57 .298	4.69 .185	6.35 .250	6.86 .270
21 P / 21 S	27.31 1.075	16.10 .634	17.81 .701	17.53 .690	21.97 .865	7.57 .298	4.69 .185	6.35 .250	6.86 .270
25 P / 25 S	29.85 1.175	18.64 .734	20.35 .801	20.07 .790	24.51 .965	7.57 .298	4.69 .185	6.35 .250	6.86 .270
31 P / 31 S	33.66 1.325	22.45 .884	24.16 .951	23.88 .940	28.32 1.115	7.57 .298	4.69 .185	6.35 .250	6.86 .270
37 P / 37 S	37.47 1.475	26.26 1.034	27.96 1.101	27.69 1.090	32.13 1.265	7.57 .298	4.69 .185	6.35 .250	6.86 .270
51 P / 51 S	36.20 1.425	24.99 .984	26.70 1.051	26.42 1.040	30.86 1.215	8.66 .341	5.79 .228	7.44 .293	7.87 .310
100 P / 100 S	54.86 2.160	35.15 1.384	38.86 1.451	36.37 1.432	45.72 1.800	9.75 .384	6.88 .271	8.46 .333	9.14 .360

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 Vdc
DIELECTRIC WITHSTANDING VOLTAGE	Sea Level: 600 VAC Altitude 21 km (70,000 ft): 150 VAC
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μs
SHOCK	50g's – No discontinuity > 1 μs

MATERIAL & FINISH	
SHELL	Aluminium alloy 6061 or 300 series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
SOLDER CUP	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin

SEE PAGE 24 FOR MORE INFORMATION



MIL-DTL-83513 /03 & /04

PIGTAIL CONNECTOR

METAL SHELL

- Metal shell recommended for environmental and EMI applications.
- Supplied pre-wired and fully potted.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

03-

G

01

N

SERIES

M83513/: QPL series.

TYPE

03-: Pin connector, metal shell.

04-: Socket connector, metal shell.

NUMBER OF CONTACTS

A: 9.

B: 15.

C: 21.

D: 25.

E: 31.

F: 37.

G: 51.

H: 100.

See pages 26 & 27 for contact arrangements.

WIRE TYPE

M22759/11-26 ■

PTFE Insulated.

01: 46 cm (18") white.

02: 92 cm (36") white.

03: 46 cm (18")

10 colour repeat.

04: 92 cm (36")

10 colour repeat.

13: 183 cm (72") white.

14: 183 cm (72")

10 colour repeat.

See page 30 for colour codes & page 29 for wire types.

M22759/33-26 ■

Irradiated ETFE insulated.

09: 46 cm (18") white.

10: 92 cm (36") white.

11: 46 cm (18")

10 colour repeat.

12: 92 cm (36")

10 colour repeat.

15: 183 cm (72") white.

16: 183 cm (72")

10 colour repeat.

SOLID UNINSULATED ■

05: 13 mm (0.5") gold plated.

06: 26 mm (1") gold plated.

07: 13 mm (0.5") tin plated.

08: 26 mm (1") tin plated.

SHELL FINISH

C: Cadmium plating.

N: Nickel plating.

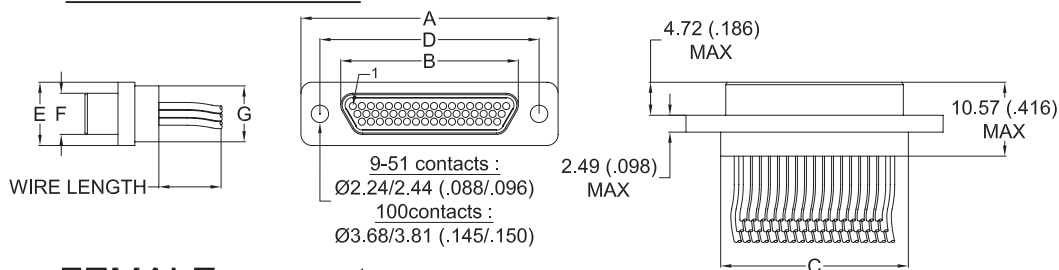
P: Passivated stainless steel.

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

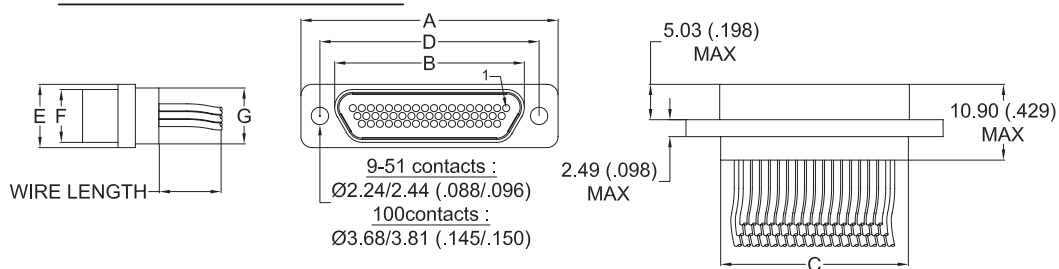
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



MIL-DTL-83513
CONNECTORS

Rectangular
Micro-D connectors

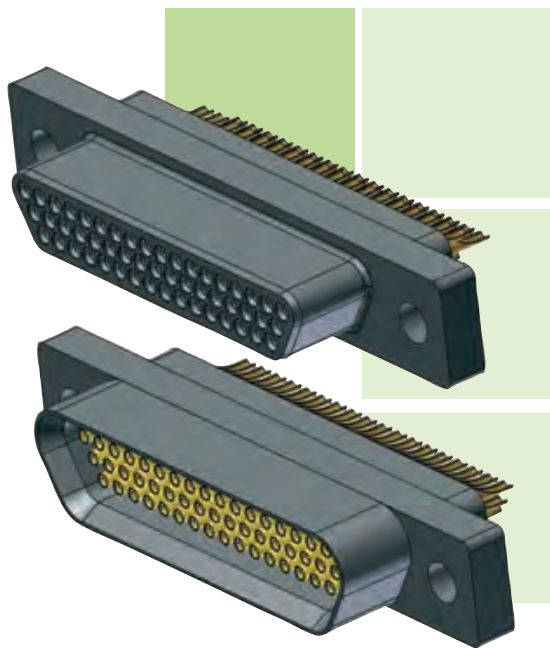
	A ± 0.25 (±.010)	B max.		C -0.46/+0.25 (-.018/+.010)	D ± 0.13 (±.005)	E ± 0.25 (±.010)	F max.		G max.
		Male	Female				Male	Female	
9 P / 9 S	19.69 .775	8.48 .334	10.16 .400	9.91 .390	14.35 .565	7.57 .298	4.69 .185	6.35 .250	6.86 .270
15 P / 15 S	23.50 .925	12.29 .484	14.00 .551	13.72 .540	18.16 .715	7.57 .298	4.69 .185	6.35 .250	6.86 .270
21 P / 21 S	27.31 1.075	16.10 .634	17.81 .701	17.53 .690	21.97 .865	7.57 .298	4.69 .185	6.35 .250	6.86 .270
25 P / 25 S	29.85 1.175	18.64 .734	20.35 .801	20.07 .790	24.51 .965	7.57 .298	4.69 .185	6.35 .250	6.86 .270
31 P / 31 S	33.66 1.325	22.45 .884	24.16 .951	23.88 .940	28.32 1.115	7.57 .298	4.69 .185	6.35 .250	6.86 .270
37 P / 37 S	37.47 1.475	26.26 1.034	27.96 1.101	27.69 1.090	32.13 1.265	7.57 .298	4.69 .185	6.35 .250	6.86 .270
51 P / 51 S	36.20 1.425	24.99 .984	26.70 1.051	26.42 1.040	30.86 1.215	8.66 .341	5.79 .228	7.44 .293	7.87 .310
100 P / 100 S	54.86 2.160	35.15 1.384	36.86 1.451	36.37 1.432	45.72 1.800	9.75 .384	6.88 .271	8.46 .333	9.14 .360

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 Vdc
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 Vac Altitude 21 km (70,000 ft): 150 Vac
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 Mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μs
SHOCK	50g's – No discontinuity > 1 μs

MATERIAL & FINISH	
SHELL	Aluminium alloy 6061 or 300 Series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin

SEE PAGE 24 FOR MORE INFORMATION



MIL-DTL-83513 /06 & /07

SOLDER CUP CONNECTOR

PLASTIC SHELL

- Ideal for prototyping
or where pigtail type connectors
cannot be used.

CAGE CODE: 0K0J2

IDENTIFICATION CODE

M83513/

06-

G

SERIES

M83513/: QPL series.

TYPE

06-: Pin connector, plastic shell.

07-: Socket connector, plastic shell.

NUMBER OF CONTACTS

A: 9.

B: 15.

C: 21.

D: 25.

E: 31.

F: 37.

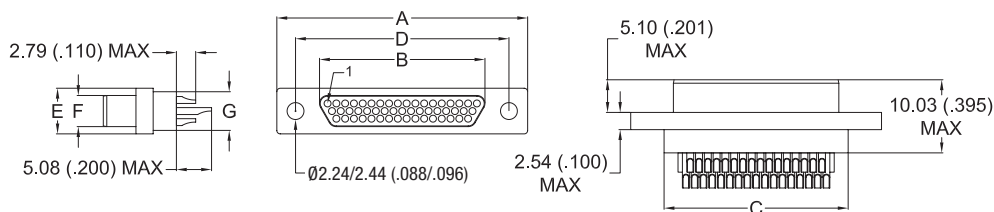
G: 51.

See pages 26 & 27 for contact arrangements.

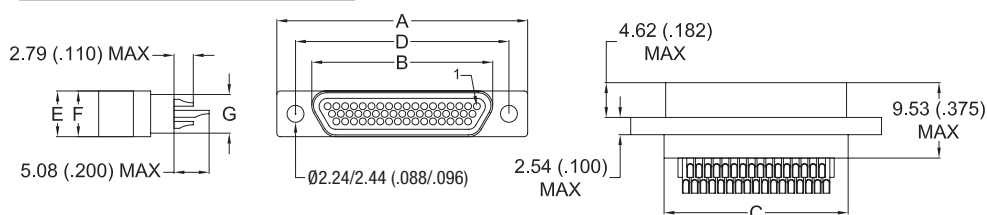
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



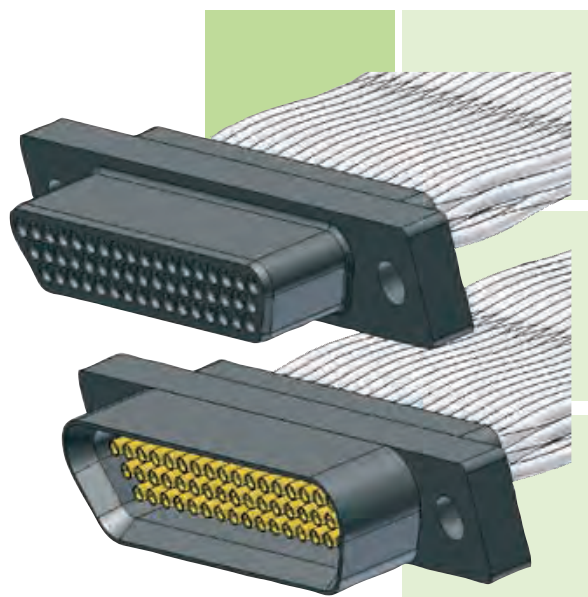
	A ± 0.25 (±.010)	B max.		C -0.46/+0.25 (-.018/+.010)	D ± 0.13 (±.005)	E max.	F max.		G max.
		Male	Female				Male	Female	
9 P / 9 S	19.76 .778	7.41 .292	9.65 .380	10.11 .398	14.35 .565	5.53 .218	3.40 .134	5.53 .218	4.39 .173
15 P / 15 S	23.57 .928	11.22 .442	13.46 .530	13.92 .548	18.16 .715	5.53 .218	3.40 .134	5.53 .218	4.39 .173
21 P / 21 S	27.38 1.078	15.03 .592	17.27 .680	17.73 .698	21.97 .865	5.53 .218	3.40 .134	5.53 .218	4.39 .173
25 P / 25 S	29.92 1.178	17.57 .692	19.81 .780	20.27 .798	24.51 .965	5.53 .218	3.40 .134	5.53 .218	4.39 .173
31 P / 31 S	33.73 1.328	21.38 .842	23.62 .930	24.08 .948	28.32 1.115	5.53 .218	3.40 .134	5.53 .218	4.39 .173
37 P / 37 S	37.54 1.478	25.19 .992	27.43 1.080	27.89 1.098	32.13 1.265	5.53 .218	3.40 .134	5.53 .218	4.39 .173
51 P / 51 S	36.27 1.428	23.92 .942	26.16 1.030	26.62 1.048	30.86 1.215	6.60 .260	4.50 .177	6.60 .260	5.59 .220

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 Vdc
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 Vac Altitude 21 km (70,000 ft): 150 Vac
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 Kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μs
SHOCK	50g's – No discontinuity > 1 μs

MATERIAL & FINISH	
MOULDED SHELL	Liquid Crystal Polymer (LCP)
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
SOLDER CUP	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin

SEE PAGE 24 FOR MORE INFORMATION



MIL-DTL-83513 /08 & /09

PIGTAIL CONNECTOR

PLASTIC SHELL

- Supplied pre-wired and fully potted.

CAGE CODE: 0K0J2

IDENTIFICATION CODE

M83513/

08-

G

01

SERIES

M83513/: QPL series.

TYPE

08-: Pin connector, plastic shell.

09-: Socket connector, plastic shell.

NUMBER OF CONTACTS

A: 9.

B: 15.

C: 21.

D: 25.

E: 31.

F: 37.

G: 51.

See pages 26 & 27 for contact arrangements.

WIRE TYPE

M22759/11-26 ■

PTFE Insulated.

01: 46 cm (18") white.

02: 92 cm (36") white.

03: 46 cm (18")

10 colour repeat.

04: 92 cm (36")

10 colour repeat.

13: 183 cm (72") white.

14: 183 cm (72")

10 colour repeat.

See page 30 for colour codes & page 29 for wire type.

M22759/33-26 ■

Irradiated ETFE insulated.

09: 46 cm (18") white.

10: 92 cm (36") white.

11: 46 cm (18")

10 colour repeat.

12: 92 cm (36")

10 colour repeat.

15: 183 cm (72") white.

16: 183 cm (72")

10 colour repeat.

SOLID UNINSULATED ■

05: 13 mm (0.5") gold plated.

06: 26 mm (1") gold plated.

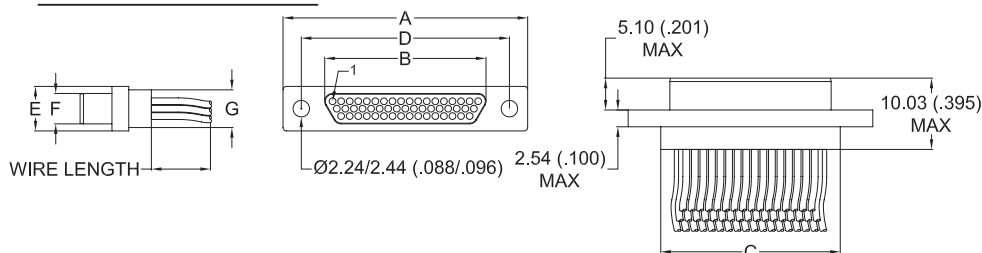
07: 13 mm (0.5") tin plated.

08: 26 mm (1") tin plated.

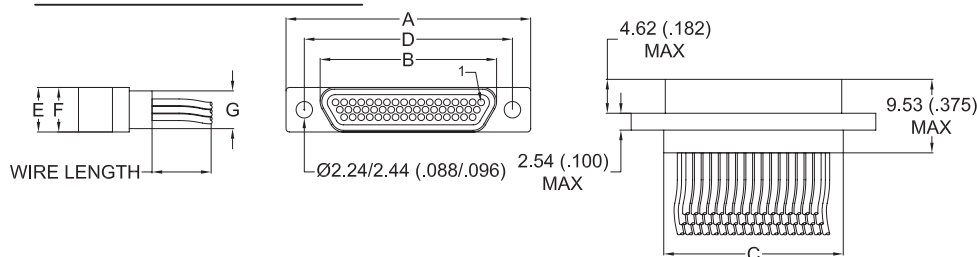
DIMENSIONS

Dimensions are in millimetres (inches).

MALE connector



FEMALE connector



MIL-DTL-83513
CONNECTORS

Rectangular
Micro-D connectors

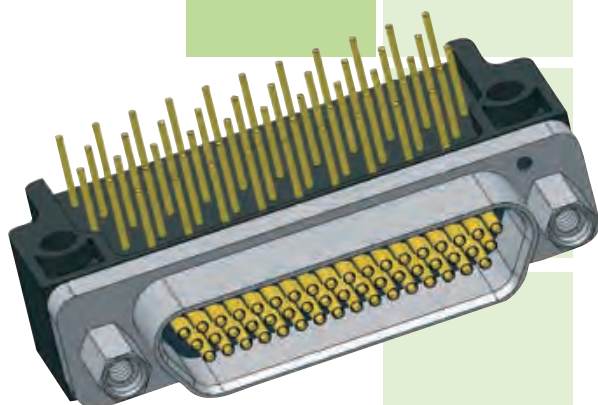
	A ± 0.25 (±.010)	B max.		C -0.46/+0.25 (-.018/+.010)	D ± 0.13 (±.005)	E max.	F max.		G max.
		Male	Female				Male	Female	
9 P / 9 S	19.76 .778	7.41 .292	9.65 .380	10.11 .398	14.35 .565	5.53 .218	3.40 .134	5.53 .218	4.39 .173
15 P / 15 S	23.57 .928	11.22 .442	13.46 .530	13.92 .548	18.16 .715	5.53 .218	3.40 .134	5.53 .218	4.39 .173
21 P / 21 S	27.38 1.078	15.03 .592	17.27 .680	17.73 .698	21.97 .865	5.53 .218	3.40 .134	5.53 .218	4.39 .173
25 P / 25 S	29.92 1.178	17.57 .692	19.81 .780	20.27 .798	24.51 .965	5.53 .218	3.40 .134	5.53 .218	4.39 .173
31 P / 31 S	33.73 1.328	21.38 .842	23.62 .930	24.08 .948	28.32 1.115	5.53 .218	3.40 .134	5.53 .218	4.39 .173
37 P / 37 S	37.54 1.478	25.19 .992	27.43 1.080	27.89 1.098	32.13 1.265	5.53 .218	3.40 .134	5.53 .218	4.39 .173
51 P / 51 S	36.27 1.428	23.92 .942	26.16 1.030	26.62 1.048	30.86 1.215	6.60 .260	4.50 .177	6.60 .260	5.59 .220

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{AC} Altitude 21 km (70,000 ft): 150 V _{AC}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 pounds)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μs
SHOCK	50g's – No discontinuity > 1 μs

MATERIAL & FINISH	
MOULDED SHELL	Liquid Crystal Polymer (LCP)
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin

SEE PAGE 24 FOR MORE INFORMATION



MIL-DTL-83513 /10 T0 /15

PCB CONNECTOR

NARROW PROFILE

RIGHT ANGLE

0.100" PITCH

METAL SHELL

- Only available in metal shell version.
- Environmentally sealed.
- Most frequently used connector for flexible and rigid printed circuit boards.
- Several tail lengths available.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

14-G

03

N

P

SERIES

M83513/: QPL series.

TYPE

- 10-A:** Pin connector, metal shell, 9 contacts.
- 10-B:** Pin connector, metal shell, 15 contacts.
- 10-C:** Pin connector, metal shell, 21 contacts.
- 10-D:** Pin connector, metal shell, 25 contacts.
- 10-E:** Pin connector, metal shell, 31 contacts.
- 10-F:** Pin connector, metal shell, 37 contacts.
- 11-G:** Pin connector, metal shell, 51 contacts.
- 12-H:** Pin connector, metal shell, 100 contacts.
- 13-A:** Socket connector, metal shell, 9 contacts.
- 13-B:** Socket connector, metal shell, 15 contacts.
- 13-C:** Socket connector, metal shell, 21 contacts.
- 13-D:** Socket connector, metal shell, 25 contacts.
- 13-E:** Socket connector, metal shell, 31 contacts.
- 13-F:** Socket connector, metal shell, 37 contacts.
- 14-G:** Socket connector, metal shell, 51 contacts.
- 15-H:** Socket connector, metal shell, 100 contacts.

See pages 26 & 27 for contact arrangements.

TERMINATION LENGTH

01: 2.80 mm (.109").**02:** 3.56 mm (.140").**03:** 4.37 mm (.172").Tolerance ± 0.13 mm (.005").

SHELL FINISH

C: Cadmium plating.**N:** Nickel plating.**P:** Passivated stainless steel.

HARDWARE CODE

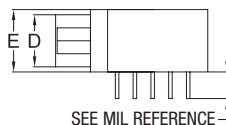
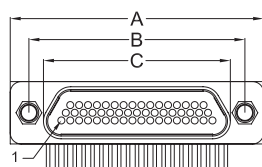
N: No jackpost or threaded insert.**P:** Jackpost installed.**T:** Threaded inserts installed for 10-A to 11-G and 13-A to 14-G only.**W:** Jackpost and threaded inserts installed for 10-A to 11-G and 13-A to 14-G only.**U:** Threaded inserts installed. For 12-H and 15-H only.**Y:** Jackpost and threaded installed. For 12-H and 15-H only.

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

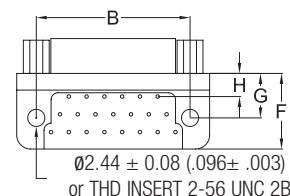
DIMENSIONS

Dimensions are in millimetres (inches).

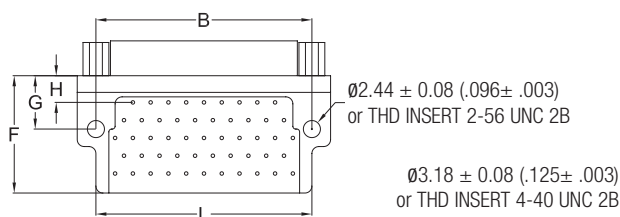
FEMALE connector



9-25 way connectors

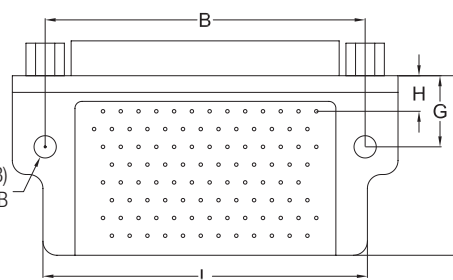


31-51 way connectors



SEE CONTACT LAYOUT ON PCB PAGES 48 & 49

100 way connectors



MIL-DTL-83513
CONNECTORS

Rectangular
Micro-D connectors

	A max.	B ± 0.13 (±.005)	C max.		D max.		E max.	F max.	G ± 0.25 (±.010)	H ± 0.25 (±.010)	L max.
			Male	Female	Male	Female					
9 P / 9 S	19.94 .785	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	7.87 .310	10.80 .425	6.35 .250	5.84 .230	-
15 P / 15 S	23.75 .935	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	7.87 .310	10.80 .425	6.35 .250	3.30 .130	-
21 P / 21 S	27.56 1.085	21.97 .865	16.10 .634	17.81 .701	4.69 .185	6.35 .250	7.87 .310	10.80 .425	6.35 .250	3.30 .130	-
25 P / 25 S	30.10 1.185	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	7.87 .310	10.80 .425	6.35 .250	3.30 .130	-
31 P / 31 S	33.91 1.335	28.32 1.115	22.45 .884	24.16 .951	4.69 .185	6.35 .250	7.87 .310	13.34 .525	6.35 .250	3.30 .130	27.69 1.090
37 P / 37 S	37.72 1.485	32.13 1.265	26.26 1.034	27.96 1.101	4.69 .185	6.35 .250	7.87 .310	13.34 .525	6.35 .250	3.30 .130	30.23 1.190
51 P / 51 S	36.45 1.435	30.86 1.215	24.99 .984	26.70 1.051	5.79 .228	7.44 .293	8.76 .345	16.76 .660	7.62 .300	3.81 .150	31.24 1.230
100 P / 100 S	55.11 2.170	45.72 1.800	35.15 1.384	36.86 1.451	6.88 .271	8.46 .333	10.29 .405	25.65 1.010	10.16 .400	5.08 .200	46.36 1.825

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{AC} Altitude 21 km (70,000 ft): 150 V _{AC}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's - No discontinuity > 1 μs
SHOCK	50g's - No discontinuity > 1 μs

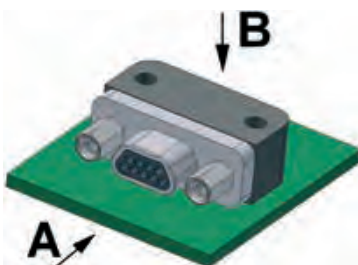
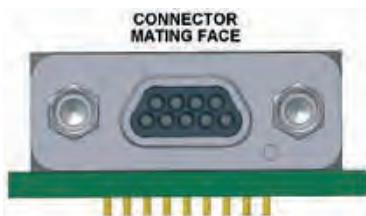
MATERIAL & FINISH	
SHELL	Aluminium Alloy 6061 or 300 series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin
MOULDED TRAY	Liquid Crystal Polymer (LCP)
PCB TERMINALS	AWG24 gold plated copper, solder dipped in 63/37 tin-lead
HARDWARE	300 series stainless steel, passivated

SEE PAGE 24 FOR MORE INFORMATION

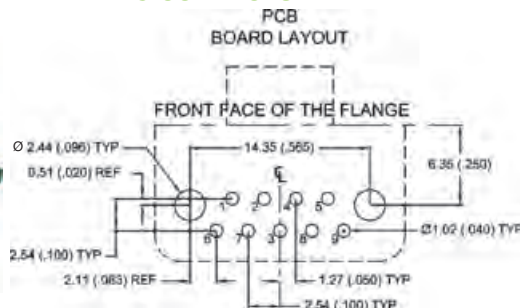
MIL-DTL-83513 /10 TO /15

PCB LAYOUT FOR NARROW PROFILE, RIGHT ANGLE 0.100" PITCH - MALE CONNECTORS

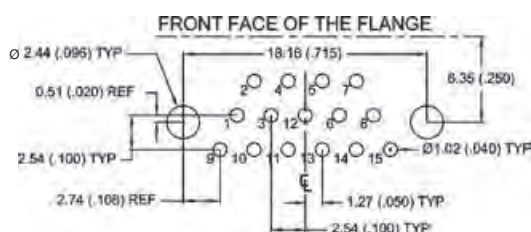
VIEW A



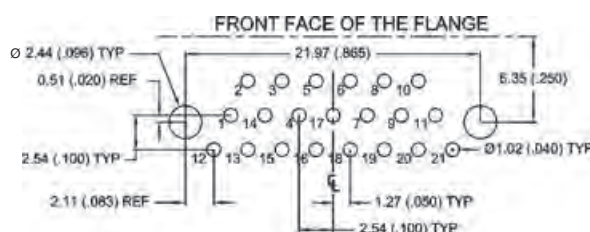
9 CONTACTS - VIEW B



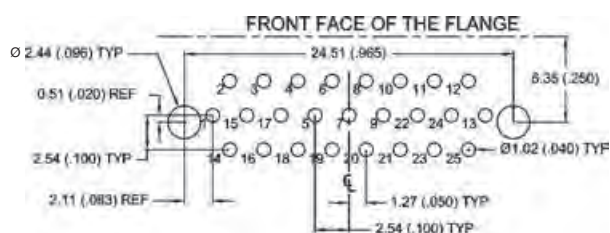
15 CONTACTS - VIEW B



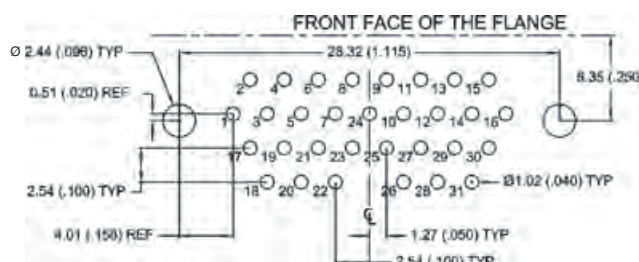
21 CONTACTS - VIEW B



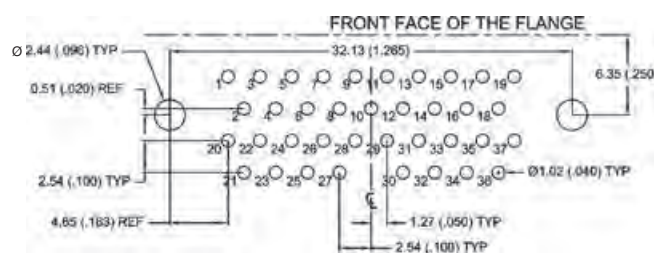
25 CONTACTS - VIEW B



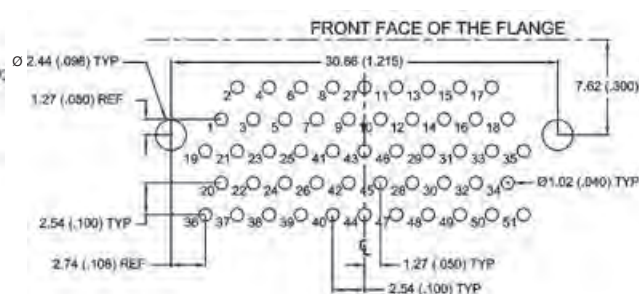
31 CONTACTS - VIEW B



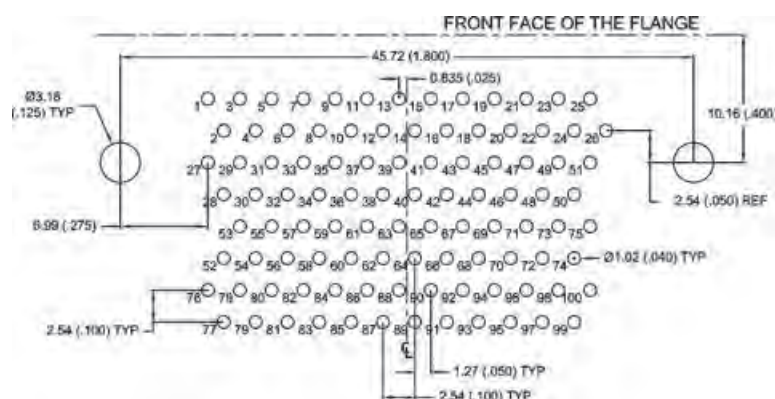
37 CONTACTS - VIEW B



51 CONTACTS - VIEW B

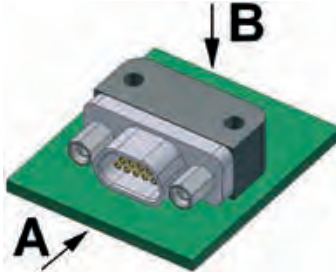


100 CONTACTS - VIEW B

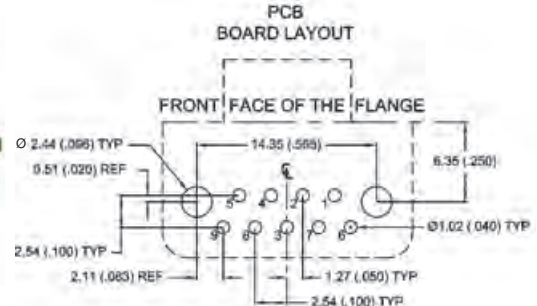


PCB LAYOUT FOR NARROW PROFILE, RIGHT ANGLE 0.100" PITCH - FEMALE CONNECTORS

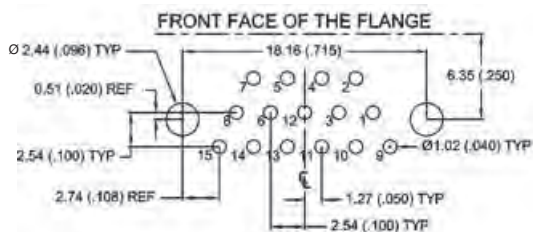
VIEW A



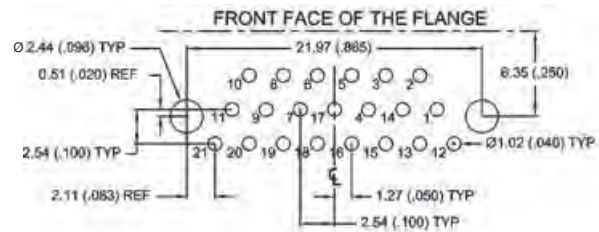
9 CONTACTS - VIEW B



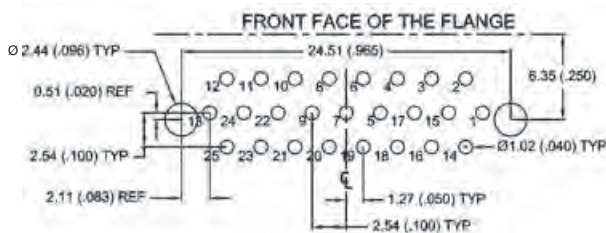
15 CONTACTS - VIEW B



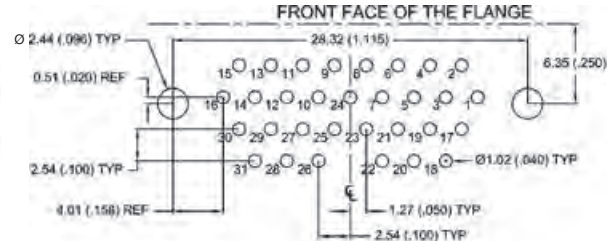
21 CONTACTS - VIEW B



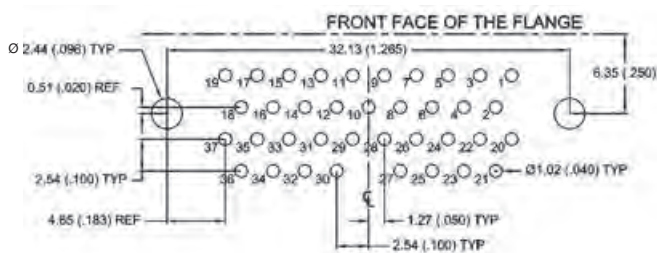
25 CONTACTS - VIEW B



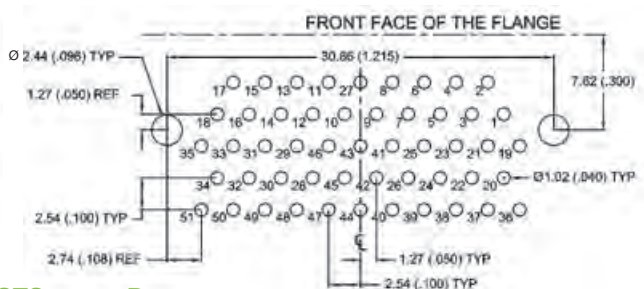
31 CONTACTS - VIEW B



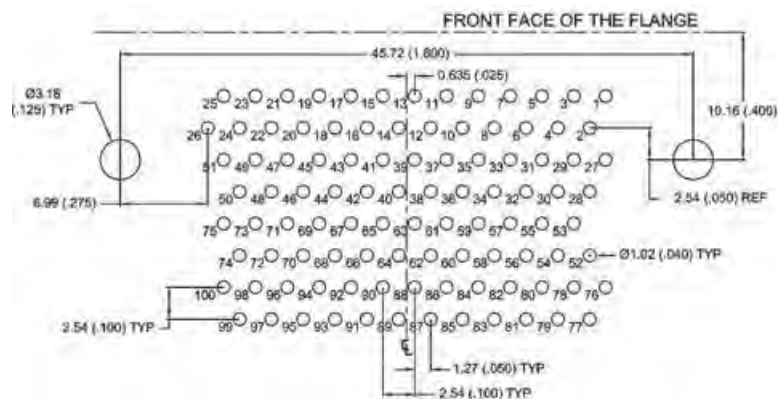
37 CONTACTS - VIEW B

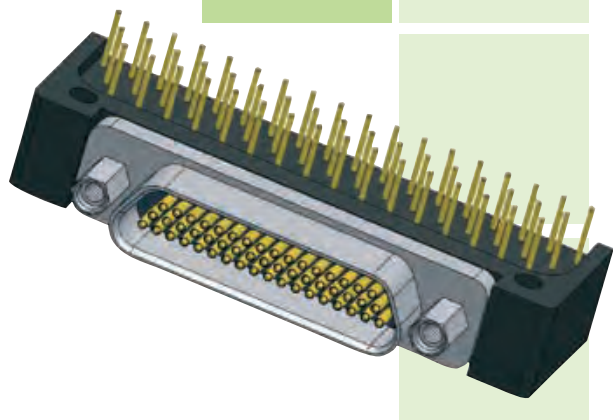


51 CONTACTS - VIEW B



100 CONTACTS - VIEW B





MIL-DTL-83513 /16 TO /21

PCB CONNECTOR

STANDARD PROFILE RIGHT ANGLE 0.100" PITCH

METAL SHELL

- Only available in metal shell version.
- Environmentally sealed.
- Board right angle connector for flexible and rigid printed circuit boards.
- Several tail lengths available.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

20-G

03

N

P

SERIES

M83513/: QPL series.

TYPE

- 16-A:** Pin connector, metal shell, 9 contacts.
- 16-B:** Pin connector, metal shell, 15 contacts.
- 16-C:** Pin connector, metal shell, 21 contacts.
- 16-D:** Pin connector, metal shell, 25 contacts.
- 16-E:** Pin connector, metal shell, 31 contacts.
- 16-F:** Pin connector, metal shell, 37 contacts.
- 17-G:** Pin connector, metal shell, 51 contacts.
- 18-H:** Pin connector, metal shell, 100 contacts.
- 19-A:** Socket connector, metal shell, 9 contacts.
- 19-B:** Socket connector, metal shell, 15 contacts.
- 19-C:** Socket connector, metal shell, 21 contacts.
- 19-D:** Socket connector, metal shell, 25 contacts.
- 19-E:** Socket connector, metal shell, 31 contacts.
- 19-F:** Socket connector, metal shell, 37 contacts.
- 20-G:** Socket connector, metal shell, 51 contacts.
- 21-H:** Socket connector, metal shell, 100 contacts.

See pages 26 & 27 for contact arrangements.

TERMINATION LENGTH

01: 2.80 mm (.109").**02:** 3.56 mm (.140").**03:** 4.37 mm (.172").Tolerance ± 0.13 mm (.005").

SHELL FINISH

C: Cadmium plating.**N:** Nickel plating.**P:** Passivated stainless steel.

HARDWARE CODE

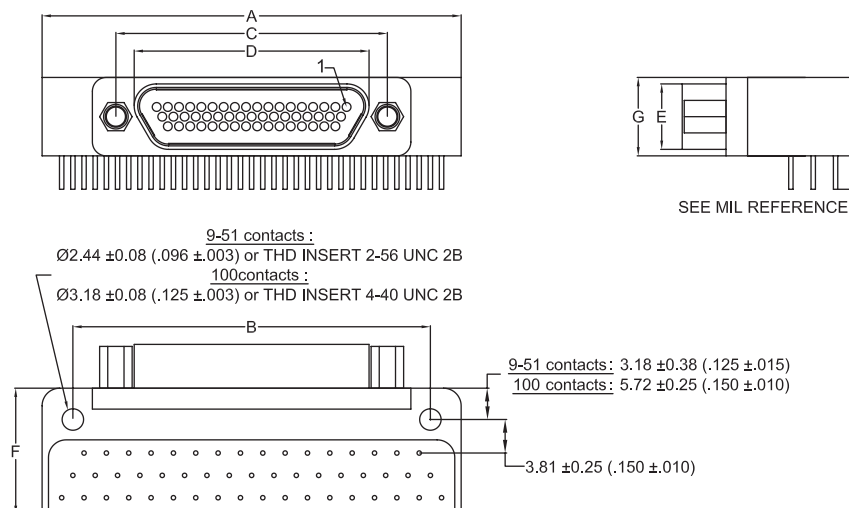
N: No jackpost or threaded insert.**P:** Jackpost installed.**T:** Threaded inserts installed. For 16-A to 17-G and 19-A to 20-G only.**W:** Jackpost and threaded inserts installed for 16-A to 17-G and 19-A to 20-G only.**U:** Threaded inserts installed. For 18-H and 21-H only.**Y:** Jackpost and threaded inserts installed. For 18-H and 21-H only.

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

DIMENSIONS

Dimensions are in millimetres (inches).

FEMALE connector



SEE CONTACT LAYOUT ON PCB PAGES 52 & 53

	A max.	B ± 0.18 (± 0.007)	C ± 0.13 (± 0.005)	D max.		E max.		F max.	G ± 0.25 (± 0.010)
				Male	Female	Male	Female		
9 P / 9 S	35.31 1.390	29.21 1.150	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	11.81 .465	7.87 .310
15 P / 15 S	39.12 1.540	33.02 1.300	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	11.81 .465	7.87 .310
21 P / 21 S	42.93 1.690	36.83 1.450	21.97 .865	16.10 .634	17.81 .701	4.69 .185	6.35 .250	11.81 .465	7.87 .310
25 P / 25 S	45.47 1.790	39.37 1.550	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	11.81 .465	7.87 .310
31 P / 31 S	51.82 2.040	45.72 1.800	28.32 1.115	22.45 .883	24.16 .951	4.69 .185	6.35 .250	11.81 .465	7.87 .310
37 P / 37 S	59.44 2.340	53.34 2.100	32.13 1.265	26.26 1.034	27.96 1.101	4.69 .185	6.35 .250	11.81 .465	7.87 .310
51 P / 51 S	47.63 1.875	40.64 1.600	30.86 1.215	24.99 .984	26.70 1.051	5.79 .228	7.44 .293	14.35 .565	8.76 .345
100 P / 100 S	70.61 2.780	63.50 2.500	45.72 1.800	35.15 1.384	36.86 1.451	6.88 .271	8.46 .333	19.43 .765	10.29 .405

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 m Ω max.
INSULATION RESISTANCE	5000 M Ω min. @ 500 V _{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{AC} Altitude 21 km (70,000 ft): 150 V _{AC}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μ s
SHOCK	50g's – No discontinuity > 1 μ s

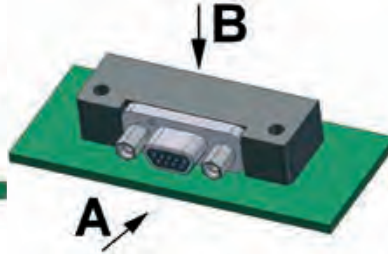
MATERIAL & FINISH	
SHELL	Aluminium Alloy 6061 or 300 series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin
MOULDED TRAY	Liquid Crystal Polymer (LCP)
PCB TERMINALS	AWG24 gold plated copper, solder dipped in 63/37 tin-lead
HARDWARE	300 series stainless steel, passivated

SEE PAGE 24 FOR MORE INFORMATION

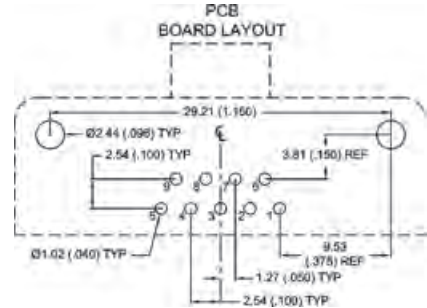
MIL-DTL-83513 /16 TO /21

PCB LAYOUT FOR STANDARD PROFILE, RIGHT ANGLE 0.100" PITCH - MALE CONNECTORS

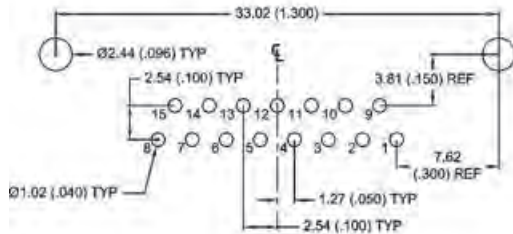
VIEW A



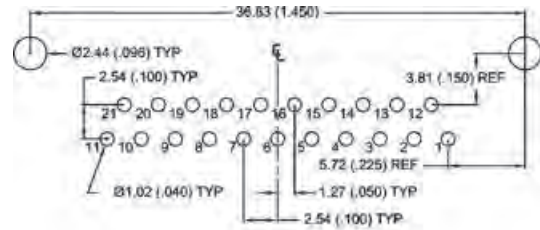
9 CONTACTS - VIEW B



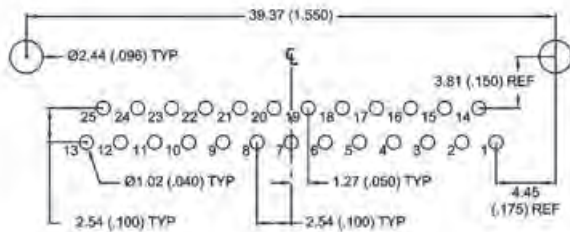
15 CONTACTS - VIEW B



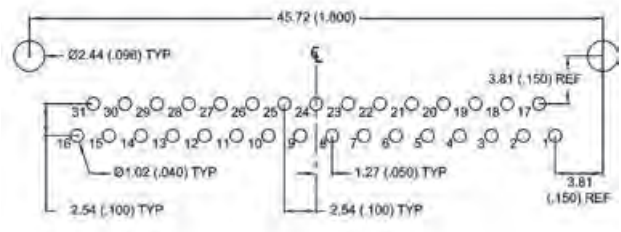
21 CONTACTS - VIEW B



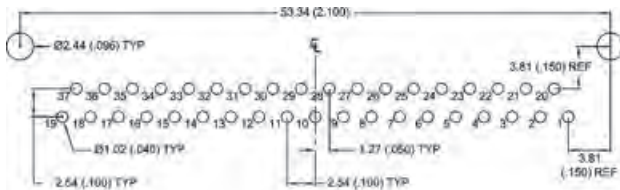
25 CONTACTS - VIEW B



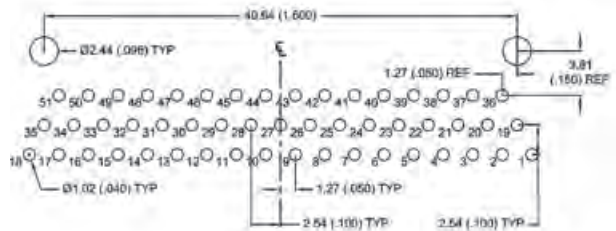
31 CONTACTS - VIEW B



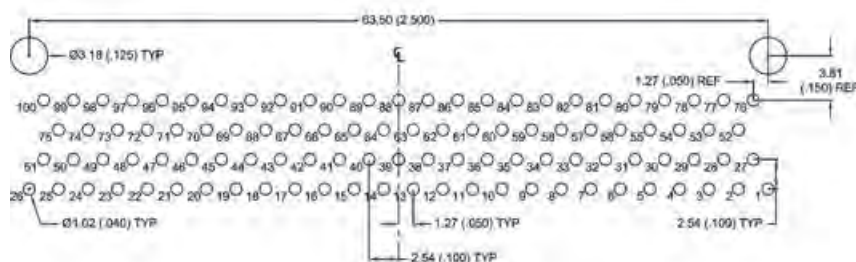
37 CONTACTS - VIEW B



51 CONTACTS - VIEW B

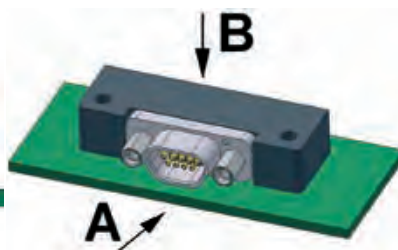


100 CONTACTS - VIEW B

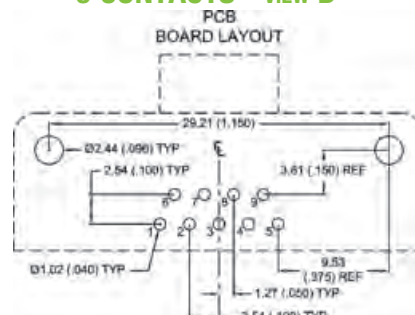


PCB LAYOUT FOR STANDARD PROFILE, RIGHT ANGLE 0.100" PITCH - FEMALE CONNECTORS

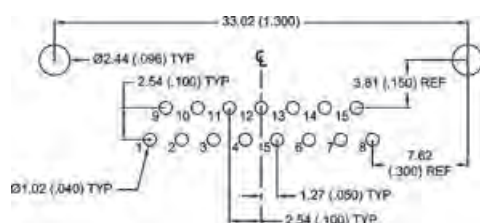
VIEW A



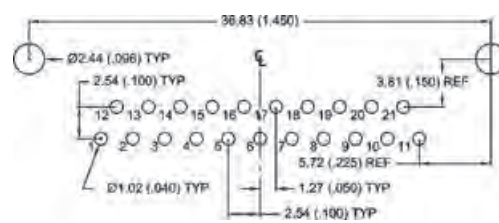
9 CONTACTS - VIEW B



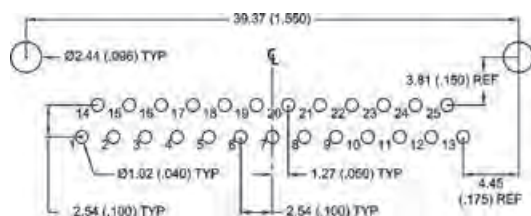
15 CONTACTS - VIEW B



21 CONTACTS - VIEW B



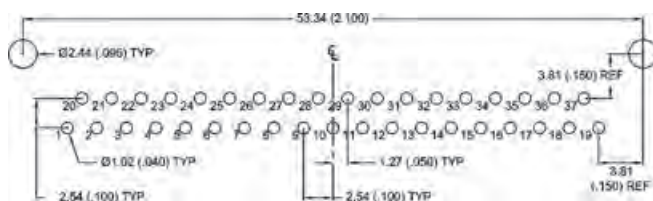
25 CONTACTS - VIEW B



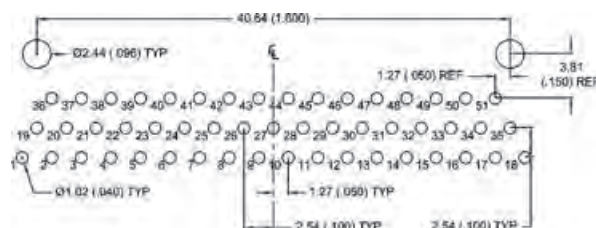
31 CONTACTS - VIEW B



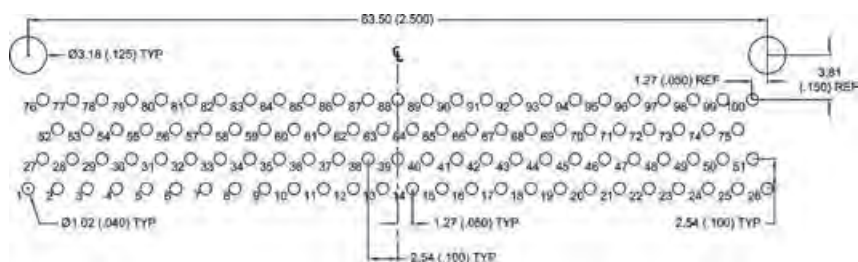
37 CONTACTS - VIEW B

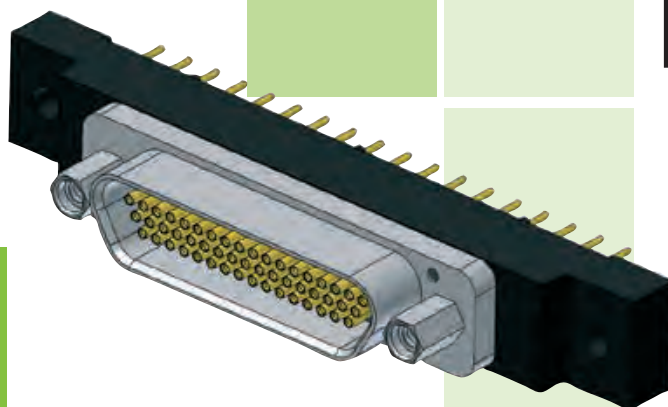


51 CONTACTS - VIEW B



100 CONTACTS - VIEW B





MIL-DTL-83513 /22 TO /27

PCB CONNECTOR

STRAIGHT
0.100" PITCH

METAL SHELL

- Only available in metal shell version.
- Environmentally sealed.
- Board straight connector for flexible and rigid printed circuit boards.
- Several tail lengths available.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

26-G

03

N

P

SERIES

M83513/: QPL series.

TYPE

- 22-A:** Pin connector, metal shell, 9 contacts.
- 22-B:** Pin connector, metal shell, 15 contacts.
- 22-C:** Pin connector, metal shell, 21 contacts.
- 22-D:** Pin connector, metal shell, 25 contacts.
- 22-E:** Pin connector, metal shell, 31 contacts.
- 22-F:** Pin connector, metal shell, 37 contacts.
- 23-G:** Pin connector, metal shell, 51 contacts.
- 24-H:** Pin connector, metal shell, 100 contacts.
- 25-A:** Socket connector, metal shell, 9 contacts.
- 25-B:** Socket connector, metal shell, 15 contacts.
- 25-C:** Socket connector, metal shell, 21 contacts.
- 25-D:** Socket connector, metal shell, 25 contacts.
- 25-E:** Socket connector, metal shell, 31 contacts.
- 25-F:** Socket connector, metal shell, 37 contacts.
- 26-G:** Socket connector, metal shell, 51 contacts.
- 27-H:** Socket connector, metal shell, 100 contacts.

See pages 26 & 27 for contact arrangements.

TERMINATION LENGTH

01: 2.80 mm (.109").**02:** 3.56 mm (.140").**03:** 4.37 mm (.172").Tolerance ± 0.13 mm (.005").

SHELL FINISH

C: Cadmium plating.**N:** Nickel plating.**P:** Passivated stainless steel.

HARDWARE CODE

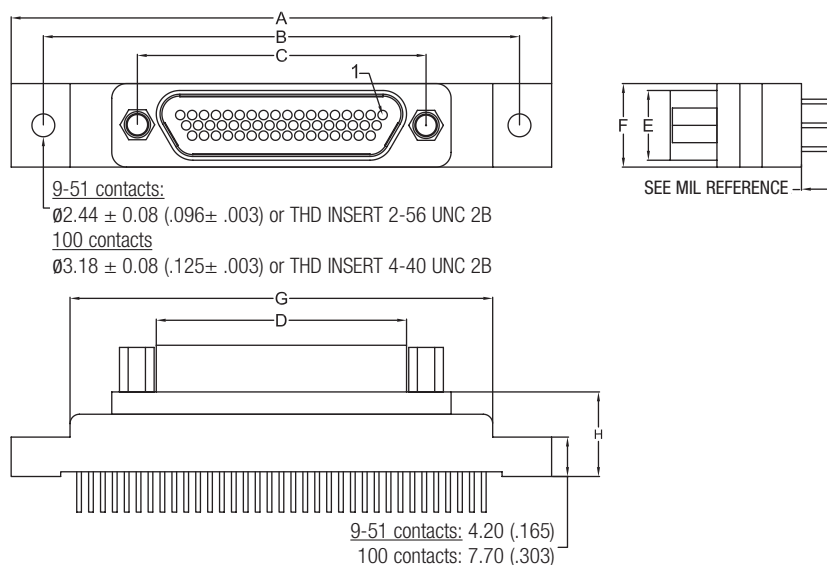
N: No jackpost or threaded insert.**P:** Jackpost installed.**T:** Threaded inserts installed for 22-A to 23-G and 25-A to 26-G only.**W:** Jackpost and threaded inserts installed for 22-A to 23-G and 25-A to 26-G only.**U:** Threaded inserts installed. For 24-H and 27-H only.**Y:** Jackpost and threaded inserts installed. For 24-H and 27-H only.

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

DIMENSIONS

Dimensions are in millimetres (inches).

FEMALE connector



SEE CONTACT LAYOUT ON PCB PAGES 56 & 57

	A max.	B ± 0.18 ($\pm .007$)	C ± 0.13 ($\pm .005$)	D max.		E max.		F max.	G max.	H max.
				Male	Female	Male	Female			
9 P / 9 S	35.31 1.390	29.21 1.150	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	7.82 .308	19.94 .785	9.02 .355
15 P / 15 S	35.31 1.390	29.21 1.150	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	7.82 .308	24.00 .945	9.02 .355
21 P / 21 S	42.93 1.690	36.83 1.450	21.97 .865	16.10 .634	17.81 .701	4.69 .185	6.35 .250	7.82 .308	29.72 1.170	9.02 .355
25 P / 25 S	44.20 1.740	38.10 1.500	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	7.82 .308	32.39 1.275	9.02 .355
31 P / 31 S	51.82 2.040	45.72 1.800	28.32 1.115	22.45 .883	24.16 .951	4.69 .185	6.35 .250	7.82 .308	40.01 1.575	9.02 .355
37 P / 37 S	59.44 2.340	53.34 2.100	32.13 1.265	26.26 1.034	27.96 1.101	4.69 .185	6.35 .250	7.82 .308	47.63 1.875	9.02 .355
51 P / 51 S	57.66 2.270	50.80 2.000	30.86 1.215	24.99 .984	26.70 1.051	5.79 .228	7.44 .293	8.92 .351	45.09 1.775	9.02 .355
100 P / 100 S	82.55 3.250	71.12 2.800	45.72 1.800	35.15 1.384	36.86 1.451	6.88 .271	8.46 .333	11.68 .460	65.66 2.585	13.97 .550

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 m Ω max.
INSULATION RESISTANCE	5000 M Ω min. @ 500 V _{ac}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{ac} Altitude 21 km (70,000 ft): 150 V _{ac}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μ s
SHOCK	50g's – No discontinuity > 1 μ s

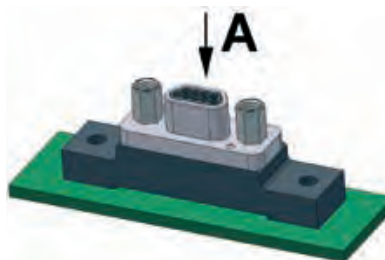
MATERIAL & FINISH	
SHELL	Aluminium Alloy 6061 or 300 series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin
MOULDED TRAY	Liquid Crystal Polymer (LCP)
PCB TERMINALS	AWG24 gold plated copper, solder dipped in 63/37 tin-lead
HARDWARE	300 series stainless steel, passivated

SEE PAGE 24 FOR MORE INFORMATION

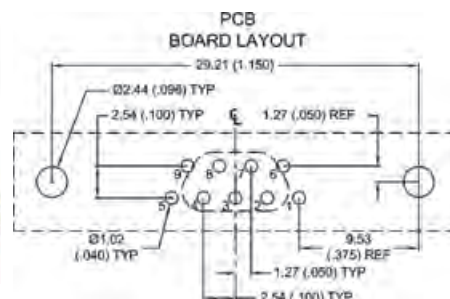
MIL-DTL-83513 /22 TO /27

PCB LAYOUT FOR STRAIGHT 0.100" PITCH - MALE CONNECTORS

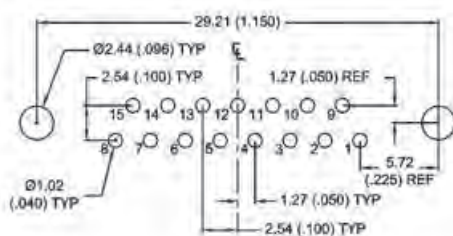
VIEW A



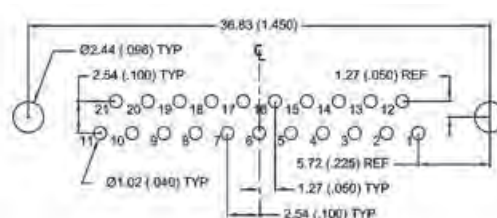
9 CONTACTS - VIEW A



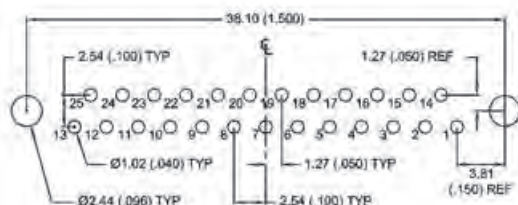
15 CONTACTS - VIEW A



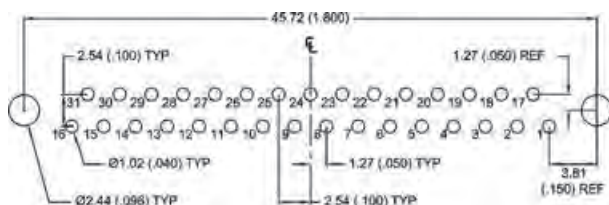
21 CONTACTS - VIEW A



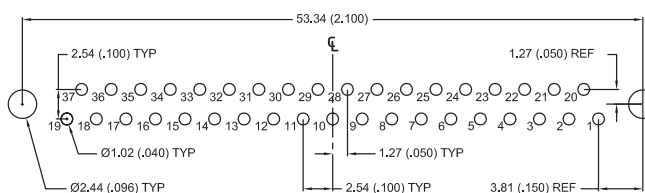
25 CONTACTS - VIEW A



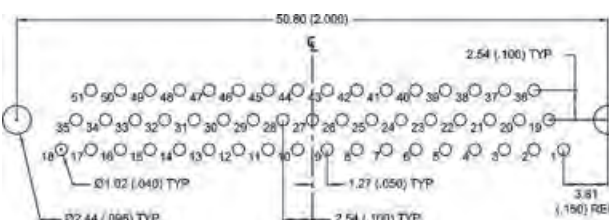
31 CONTACTS - VIEW A



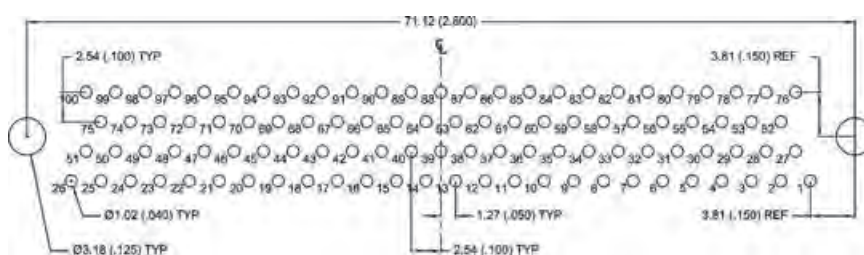
37 CONTACTS - VIEW A



51 CONTACTS - VIEW A

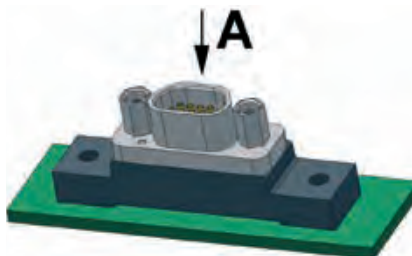


100 CONTACTS - VIEW A

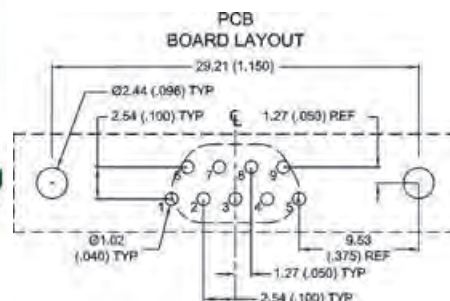


PCB LAYOUT FOR STRAIGHT, 0.100" PITCH - FEMALE CONNECTORS

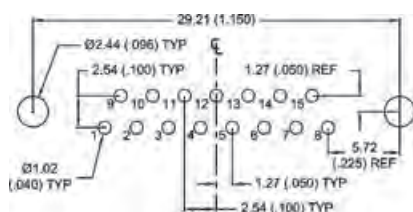
VIEW A



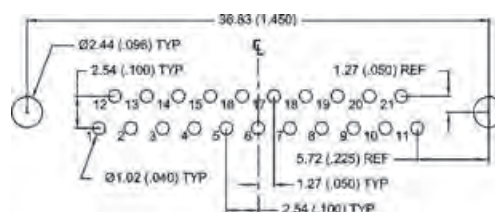
9 CONTACTS - VIEW A



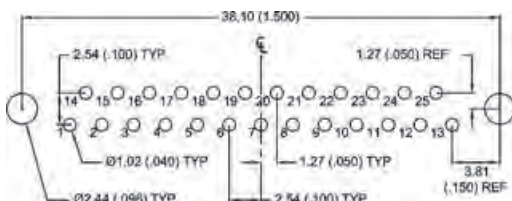
15 CONTACTS - VIEW A



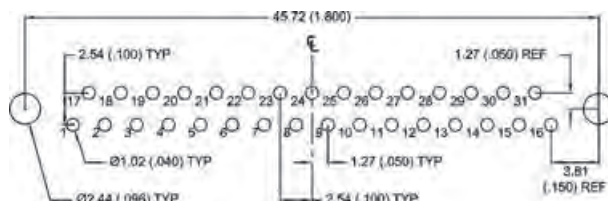
21 CONTACTS - VIEW A



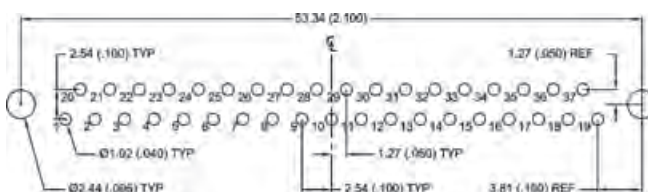
25 CONTACTS - VIEW A



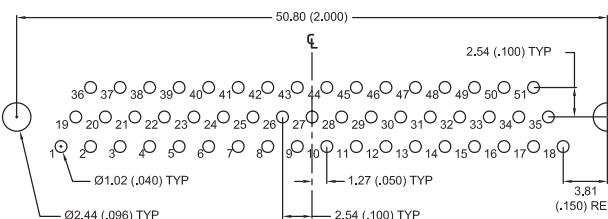
31 CONTACTS - VIEW A



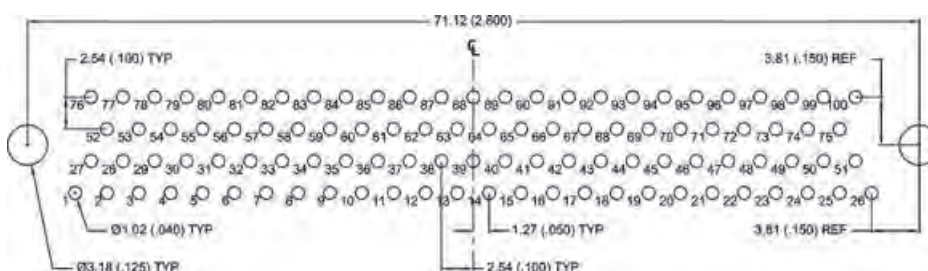
37 CONTACTS - VIEW A

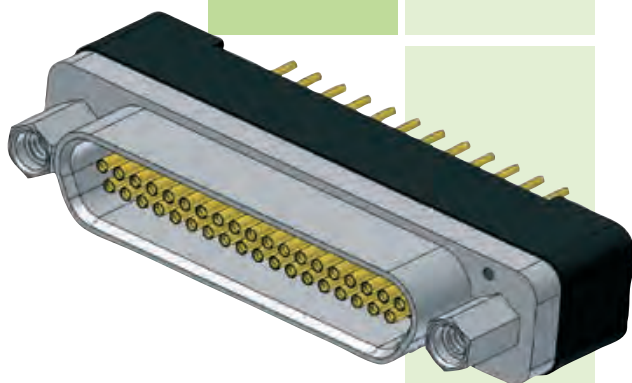


51 CONTACTS - VIEW A



100 CONTACTS - VIEW A





MIL-DTL-83513 /28 TO /33

PCB CONNECTOR

STRAIGHT
0.075" PITCH

METAL SHELL

- Only available in metal shell version.
- Environmentally sealed.
- Board straight connector for flexible and rigid printed circuit boards.
- Several tail lengths available.

CAGE CODE: OK0J2

IDENTIFICATION CODE

M83513/

31-F

03

N

W

SERIES

M83513/: QPL series.

TYPE

- 28-A:** Pin connector, metal shell, 9 contacts.
- 28-B:** Pin connector, metal shell, 15 contacts.
- 28-C:** Pin connector, metal shell, 21 contacts.
- 28-D:** Pin connector, metal shell, 25 contacts.
- 28-E:** Pin connector, metal shell, 31 contacts.
- 28-F:** Pin connector, metal shell, 37 contacts.
- 29-G:** Pin connector, metal shell, 51 contacts.
- 30-H:** Pin connector, metal shell, 100 contacts.
- 31-A:** Socket connector, metal shell, 9 contacts.
- 31-B:** Socket connector, metal shell, 15 contacts.
- 31-C:** Socket connector, metal shell, 21 contacts.
- 31-D:** Socket connector, metal shell, 25 contacts.
- 31-E:** Socket connector, metal shell, 31 contacts.
- 31-F:** Socket connector, metal shell, 37 contacts.
- 32-G:** Socket connector, metal shell, 51 contacts.
- 33-H:** Socket connector, metal shell, 100 contacts.

See pages 26 & 27 for contact arrangements.

TERMINATION LENGTH

- 01:** 2.80 mm (.109").
- 02:** 3.56 mm (.140").
- 03:** 4.37 mm (.172").

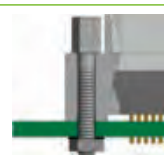
Tolerance ± 0.13 mm (.005").

SHELL FINISH

- C:** Cadmium plating.
- N:** Nickel plating.
- P:** Passivated stainless steel.

HARDWARE CODE

- N:** No jackpost or threaded insert.
- P:** Jackpost installed.
- T:** Threaded inserts installed. For 28-A to 29-G and 31-A to 32-G only.
- W:** Jackpost and threaded inserts installed for 28-A to 29-G and 31-A to 32-G only.
- U:** Threaded inserts installed. For 30-H and 33-H only.
- Y:** Jackpost and threaded inserts installed. For 30-H and 33-H only.

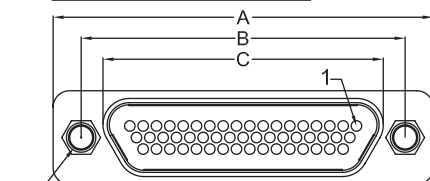
Hardware Code **P:**
Long jackpost and
thru-hole

METAL CONNECTORS ARE SUPPLIED WITH ANTI-STATIC PROTECTIVE DUST CAPS

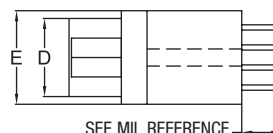
DIMENSIONS

Dimensions are in millimetres (inches).

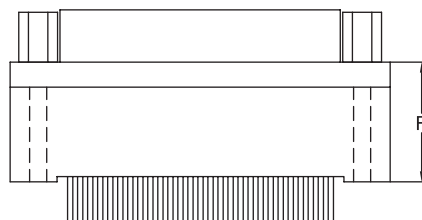
FEMALE connector



9-51 contacts:
 Ø2.24/2.44 (.088/.096) or THD INSERT 2-56 UNC 2B
 100 contacts
 Ø3.68/3.81 (.145/.150) or THD INSERT 4-40 UNC 2B



SEE MIL REFERENCE



SEE CONTACT LAYOUT ON PCB PAGES 60 & 61

	A max.	B ± 0.13 (±.005)	C max.		D max.		E max.	F max.
			Male	Female	Male	Female		
9 P / 9 S	19.94 .785	14.35 .565	8.48 .334	10.16 .400	4.69 .185	6.35 .250	7.87 .310	9.02 .355
15 P / 15 S	23.75 .935	18.16 .715	12.29 .484	14.00 .551	4.69 .185	6.35 .250	7.87 .310	9.02 .355
21 P / 21 S	27.56 1.085	21.97 .865	16.10 .634	17.81 .701	4.69 .185	6.35 .250	7.87 .310	9.02 .355
25 P / 25 S	30.10 1.185	24.51 .965	18.64 .734	20.35 .801	4.69 .185	6.35 .250	7.87 .310	9.02 .355
31 P / 31 S	33.91 1.335	28.32 1.115	22.45 .883	24.16 .951	4.69 .185	6.35 .250	7.87 .310	9.02 .355
37 P / 37 S	37.72 1.485	32.13 1.265	26.26 1.034	27.96 1.101	4.69 .185	6.35 .250	7.87 .310	9.02 .355
51 P / 51 S	36.45 1.435	30.86 1.215	24.99 .984	26.70 1.051	5.79 .228	7.44 .293	10.16 .400	9.02 .355
100 P / 100 S	55.12 2.170	45.72 1.800	35.15 1.384	36.86 1.451	6.88 .271	8.46 .333	12.95 .510	10.92 .430

SUMMARY OF CHARACTERISTICS

ELECTRICAL & MECHANICAL PERFORMANCE	
CURRENT RATING	3 A max.
CONTACT RESISTANCE	8 mΩ max.
INSULATION RESISTANCE	5000 MΩ min. @ 500 V _{DC}
DIELECTRIC WITHSTANDING VOLTAGE	Sea level: 600 V _{AC} Altitude 21 km (70,000 ft): 150 V _{AC}
CONTACT ENGAGING FORCE	170 g max. (6 oz)
CONTACT SEPARATING FORCE	14 g min. (0.5 oz)
CONTACT RETENTION	2.26 kg (5 lbs)
DURABILITY	500 mating cycles min.
VIBRATION	20g's – No discontinuity > 1 μs
SHOCK	50g's – No discontinuity > 1 μs

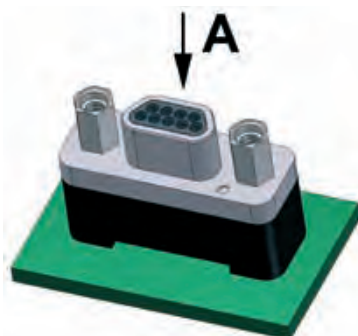
MATERIAL & FINISH	
SHELL	Aluminium Alloy 6061 or 300 series stainless steel, see ordering info for plating options
MOULDED INSULATOR	Liquid Crystal Polymer (LCP)
INTERFACIAL SEAL	Fluorosilicone rubber
PIN CONTACT	Copper and beryllium copper, gold over nickel plating
SOCKET CONTACT	Copper alloy, gold over nickel plating
ENCAPSULANT	Epoxy resin
MOULDED TRAY	Liquid Crystal Polymer (LCP)
PCB TERMINALS	AWG24 gold plated copper, solder dipped in 63/37 tin-lead
HARDWARE	300 series stainless steel, passivated

SEE PAGE 24 FOR MORE INFORMATION

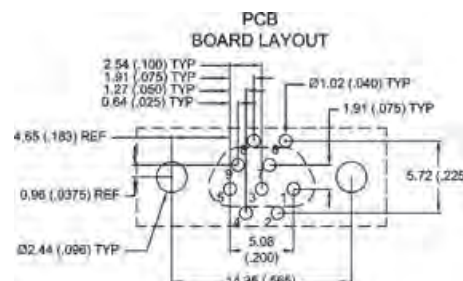
MIL-DTL-83513 /28 TO /33

PCB LAYOUT FOR QPL STRAIGHT 0.075" PITCH - MALE CONNECTORS

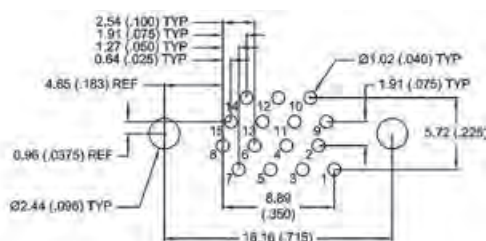
VIEW A



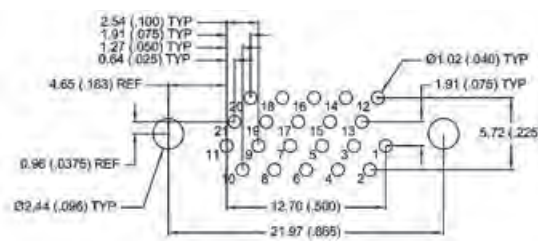
9 CONTACTS - VIEW A



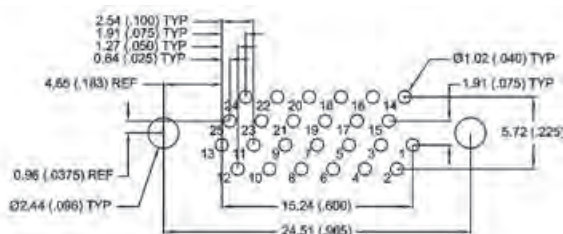
15 CONTACTS - VIEW A



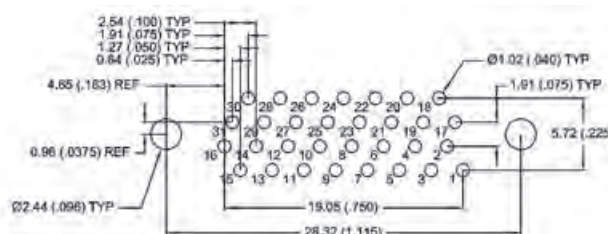
21 CONTACTS - VIEW A



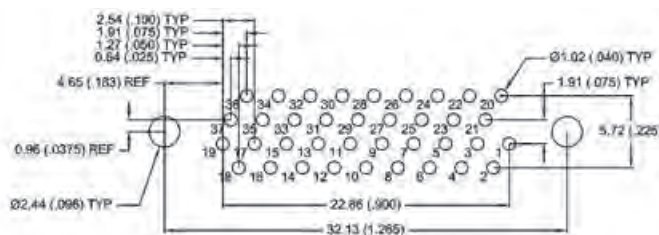
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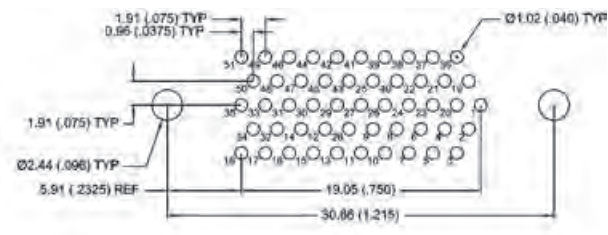
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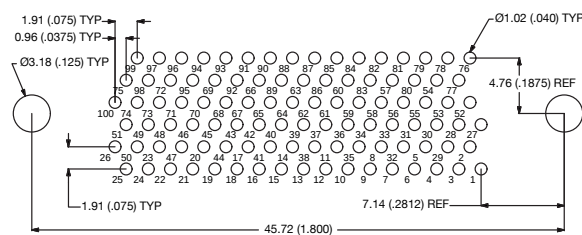
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51 CONTACTS - VIEW A

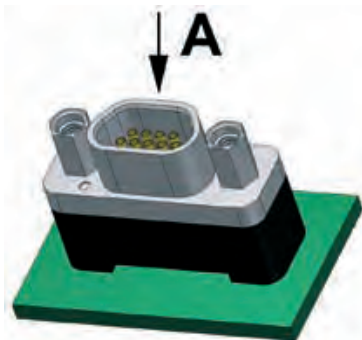


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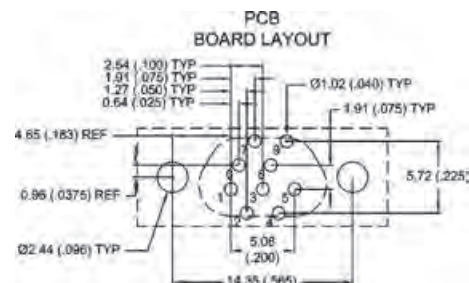


PCB LAYOUT FOR QPL STRAIGHT 0.075" PITCH - FEMALE CONNECTORS

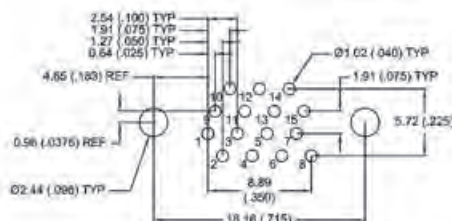
VIEW A



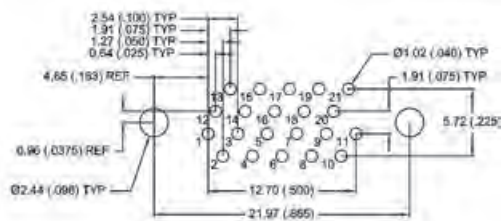
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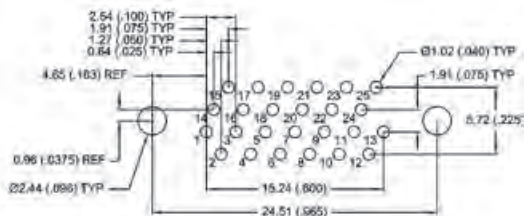
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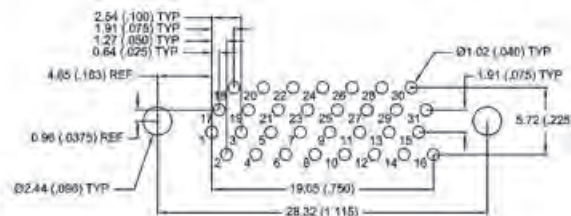
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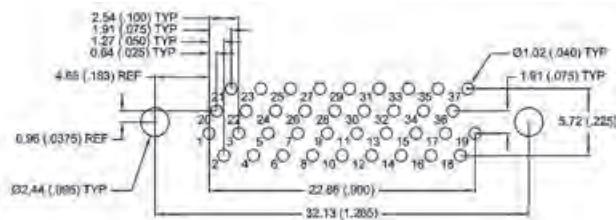
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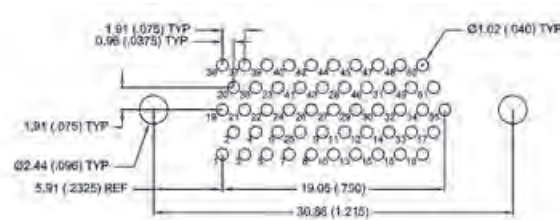
31 CONTACTS - VIEW A



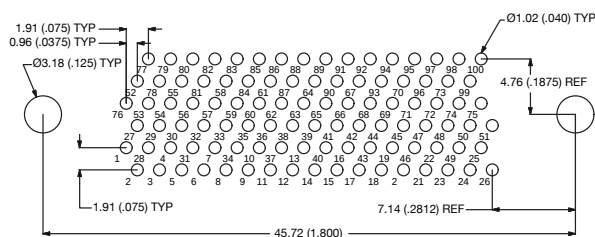
37 CONTACTS - VIEW A



51 CONTACTS - VIEW A



100 CONTACTS - VIEW A



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1.3 (.05) TYP

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-4 (.096) TYP

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1.02 (.040) TYP

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