



RỒNG VÀNG
TECHNOLOGY



HIGH PERFORMANCE TWIST PIN CONNECTORS MICRO-D

www.rong-vang-technology.vn



Product Introduction

Conforms to MIL-C-83513

Male pin is twist pin

High-density contact, spacing 2.54 mm

9 ~ 130 contacts

Application

The product has the advantages of high density, lightweight and miniaturization, which can realize the reliable interconnection of the electrical circuit system from cable to cable, cable to printed board, and between printed board and printed board

The product can withstand strong vibration, shock and other harsh operating environment, especially suitable for the use in space; equipment lightweight has special requirements for the use of the occasion

High-Performance Micro-D Connectors

Technical features

Mechanical

Description	Values
Connector Shell, Metal	Aluminum Alloy Plating Code 1: Cadmium With Yellow Chromate Plating Code 2: Electroless Nickel Plating Code 4: Black Anodize Plating Code 5: Gold Plated Plating Code 6: Chem Film Stainless Steel, 300 Series Plating Code 3: Passivated
Connector Shell, Plastic	Liquid Crystal Polymer, 30% Glass-Filled
Insulator	Liquid Crystal Polymer, 30% Glass-Filled
Interfacial Seal	Flourosilicone Rubber
Terminal Block, PCB	Liquid Crystal Polymer, 30% Glass-Filled
Pin Contact (TwistPin)	Beryllium Copper, Gold Plated (50 Microinches Minimum) Over Nickel Underplate (30 – 150 Microinches)
Socket Contact	Phos Bronze Gold Plated (50 Microinches Minimum) Over Nickel Underplate (30 – 150 Microinches)
Encapsulant (Potting)	Epoxy Resin
Jackscrews, Jackposts, Float Mounts	Stainless Steel, 300 Series, Passivated
Pigtail Wire, Insulated Hookup	Wire Type E: Silver-Coated Copper Wire, Extruded PTFE Insulation, 600 Volts RMS, 200°C., In Accordance with NEMA HP3 (Replaces MIL-W-16878/4) Wire Type K: Silver-Coated Copper Wire, Extruded PTFE Insulation, 600 Volts RMS, 200° C., In Accordance with SAE AS 22759/11 Wire Type J: High-Strength Silver-Coated Copper Alloy Wire, Crosslinked Modified ETFE Insulation, 600 Volts RMS, 200° C., In Accordance with SAE AS 22759/33
Pigtail Wire, Uninsulated	Wire Finish Code 3: Solid Copper Wire In Accordance With A-A-59551, Gold-Plated, Solder Dipped in 63/37 tin-lead Wire Finish Code 4: Solid Copper Wire In Accordance With A-A-59551, Gold-Plated
Vibration (sine):	10 ~ 2000 Hz acceleration 20 g
Shock:	amplitude of 50 g peak
Endurance:	500 cycle



Electrical

Description	Values
Contact rating:	3A
Contact resistance:	$\leq 8 \text{ m}\Omega$
Insulation resistance:	Normal temperature: $\geq 5000 \text{ M}\Omega$; Damp heat temperature: $\geq 100 \text{ M}\Omega$;
Dielectric withstanding voltage (sea level):	600 V
Dielectric withstanding voltage (21 000 m):	150 V

Environmental

Description	Values
Salt spray (corrosion):	Aluminum, cadmium plating (01) – 96 h Aluminum, electroless nickel plating (02) – 48 h Aluminum, black anodize (04) – 48 h Aluminum, chem film (06) – 48 h Aluminum, gold (05) – 48 h Stainless steel, passivated (03) – 1000 h
Fluid immersion:	20 hours immersion in synthetic lubricating oil and 1 hour immersion in coolanol 25
Operating Temperature:	up -55°C to $+150^{\circ} \text{C}$

Micro-D metal shell weights in grams (aluminum)

Layout	Solder Cup	Pigtail	PCB «CBR»	PCB «BR»	PCB «BS»	PCB «CBS»
9P	1.7	1.6	3.9	5.9	4.1	3.1
9S	1.7	1.6	3.9	5.9	4.1	3.1
15P	2.3	2.2	4.8	6.8	4.7	3.3
15S	2.2	2.1	4.7	6.7	4.7	3.4
21P	3.0	2.9	5.6	7.7	5.7	4.1
21S	2.6	2.5	5.4	7.6	5.6	4.8
25P	3.3	3.2	6.1	8.3	5.9	5.3
25S	3.0	2.9	6.0	8.2	6.1	5.5
31P	3.9	3.8	7.6	9.5	7.2	6.5
31S	3.6	3.5	7.5	9.4	7.3	6.6
37P	4.4	4.2	8.4	11.1	8.5	7.7
37S	4.1	3.9	8.4	11.0	8.3	7.5
51P	5.1	4.9	11.0	12.7	9.6	8.6
51S	4.8	4.7	10.9	12.8	9.5	8.6
51-2P	5.0	4.8	10.9	12.5	9.5	8.5
51-2S	4.7	4.4	10.8	12.4	9.4	8.5
67P	5.7	5.5	13.4	13.6	10.6	9.5
67S	5.4	5.3	13.2	13.4	10.5	9.4
69P	6.2	6.0	14.0	14.1	11.1	10.0
69S	5.9	5.8	13.5	13.9	11.0	9.9
75P	7.4	7.1	17.3	19.5	14.7	12.6
75S	7.1	6.9	17.1	19.3	14.6	12.5
100P	9.1	8.6	26.6	27.5	25.4	22.9
100S	8.2	7.9	26.4	27.1	24.8	22.3
130P	13.0	12.4	34.2	37.0	32.6	29.4
130S	11.8	11.4	33.9	36.5	32.1	28.9



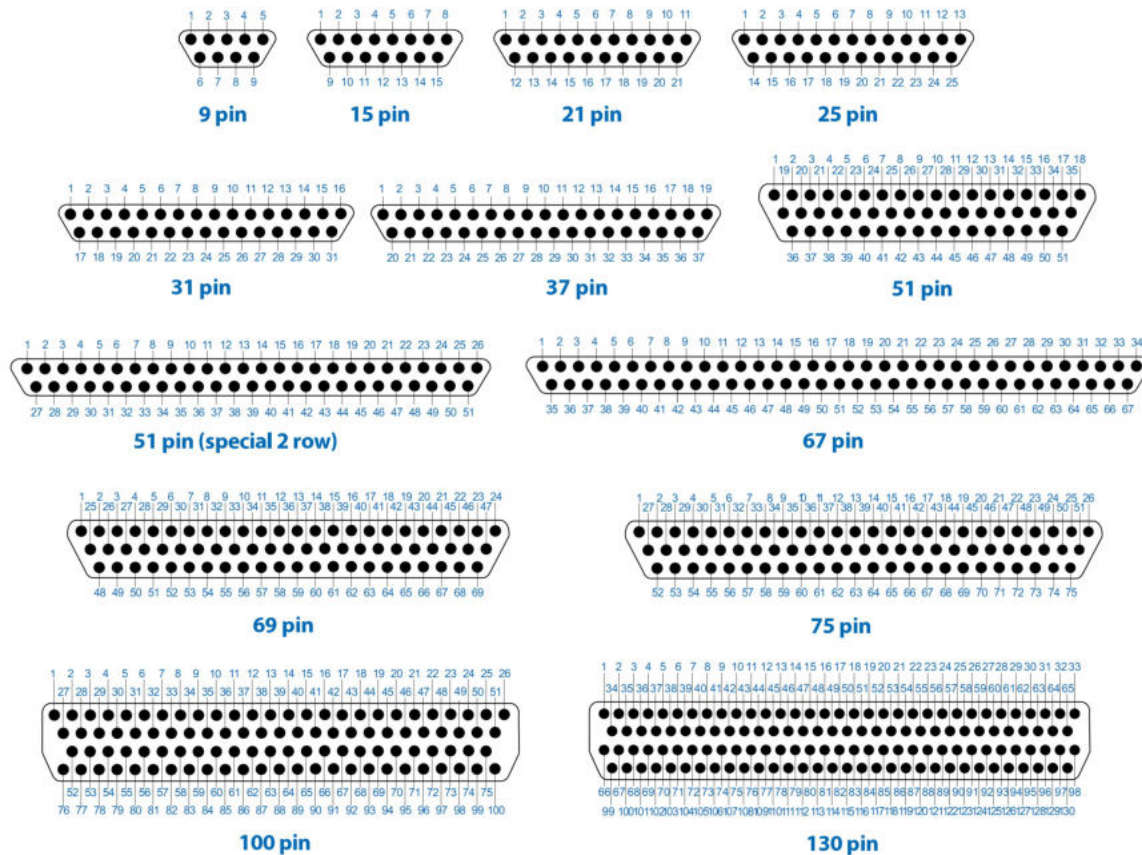
Micro-D metal shell weights in grams (stainless steel)

Layout	Solder Cup	Pigtail	PCB «CBR»	PCB «BR»	PCB «BS»	PCB «CBS»
9P	3.60	3.50	5.80	7.80	6.00	5.00
9S	3.70	3.60	5.90	7.90	6.10	5.10
15P	4.70	4.60	7.20	9.20	7.10	5.70
15S	4.60	4.50	7.10	9.10	7.10	5.80
21P	5.90	5.80	8.50	10.60	8.60	7.00
21S	5.40	5.30	8.20	10.40	8.40	7.60
25P	6.50	6.40	9.30	11.50	9.10	8.50
25S	5.90	5.80	8.90	11.10	9.00	8.40
31P	7.30	7.20	11.00	12.90	10.60	9.90
31S	6.80	6.70	10.70	12.60	10.50	9.80
37P	8.00	7.80	12.00	14.70	12.10	11.30
37S	8.20	8.00	12.50	15.10	12.40	11.60
51P	9.10	8.90	15.00	16.70	13.60	12.60
51S	8.60	8.50	14.70	16.60	13.30	12.40
51-2P	11.20	11.00	17.10	18.70	15.70	14.70
51-2S	10.70	10.40	16.80	18.40	15.40	14.50
67P	12.80	12.60	20.50	20.70	17.70	16.60
67S	12.20	12.10	20.00	20.20	17.30	16.20
69P	13.50	13.30	21.30	21.40	18.40	17.30
69S	12.90	12.80	20.50	20.90	18.00	16.90
75P	15.10	14.80	25.00	27.20	22.40	20.30
75S	14.50	14.30	24.50	26.70	22.00	19.90
100P	17.40	16.90	34.90	35.80	33.70	31.20
100S	16.20	15.90	34.40	35.10	32.80	30.30
130P	24.80	24.20	46.00	48.80	44.40	41.20
130S	23.30	22.90	45.40	48.00	43.60	40.40

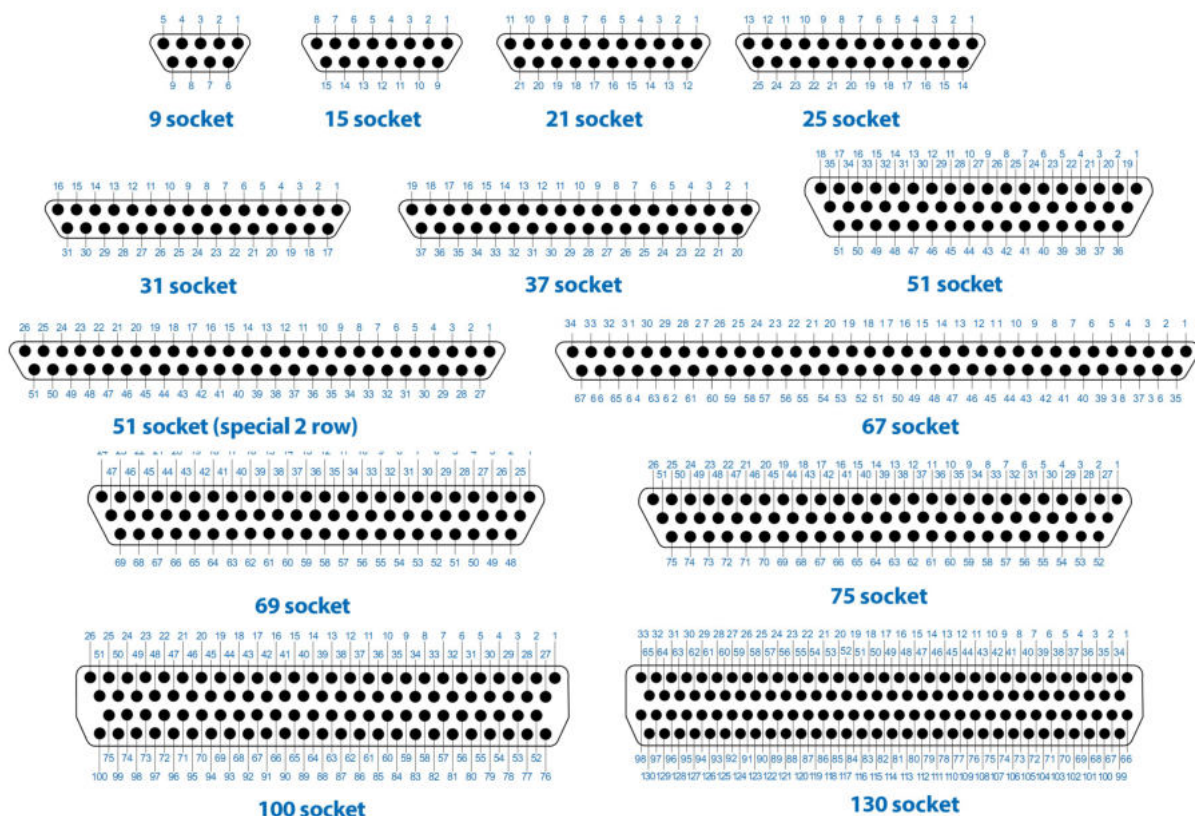
Micro-D connector plating codes

Plating Code	Plating Type
1 (C)	Cadmium with yellow chromate conversion coating over electroless nickel
2 (N)	Electroless nickel
3 (P)	Stainless steel shell, passivated
4	Black anodize over aluminum
5	Gold over aluminum
6	Chem film
33 (T)	Nickel-PTFE

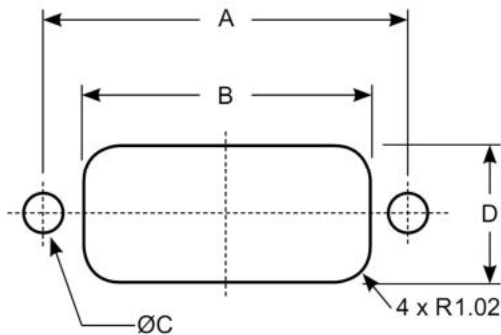
Contact layouts (face view pin connector)



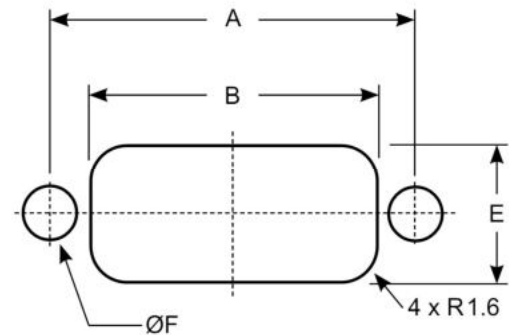
Contact layouts (face view socket connector)



Micro-D panel cutouts



Front Panel Mounting



Rear Panel Mounting

Plastic shell MWD connectors (M83513/06 thru /09)

Layout	A ± 0.08	B ± 0.05	C ± 0.05	D ± 0.05	E + 0.13/0.00	F ± 0.05
9	14.35	10.41	2.31	4.42	5.56	3.20
15	18.16	14.22	2.31	4.42	5.56	3.20
21	21.97	18.03	2.31	4.42	5.56	3.20
25	24.51	20.57	2.31	4.42	5.56	3.20
31	28.32	24.38	2.31	4.42	5.56	3.20
37	32.13	28.19	2.31	4.42	5.56	3.20
51	30.86	26.92	2.31	5.51	5.56	3.20

Metal shell MWD connectors

Layout	A ± 0.08	B ± 0.05	C ± 0.05	D ± 0.05	E + 0.13/0.00	F ± 0.05
9	14.35	10.41	2.31	7.04	6.50	3.20
15	18.16	14.22	2.31	7.04	6.50	3.20
21	21.97	18.03	2.31	7.04	6.50	3.20
25	24.51	20.57	2.31	7.04	6.50	3.20
31	28.32	24.38	2.31	7.04	6.50	3.20
37	32.13	28.19	2.31	7.04	6.50	3.20
51	30.86	26.92	2.31	8.05	7.62	3.20
51-2	41.02	37.08	2.31	7.04	6.50	3.20
67	51.18	47.19	2.31	7.04	6.50	3.20
69	38.48	34.54	2.31	8.05	7.62	3.20
75	43.31	37.08	3.05	8.05	7.62	3.79
100	45.72	36.96	3.05	9.22	8.59	3.73
130	54.61	45.69	3.05	9.22	8.59	3.73

MICRO-D MWDM versions

**Part
1**

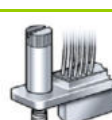
Solder Cup Metal Shell Connectors



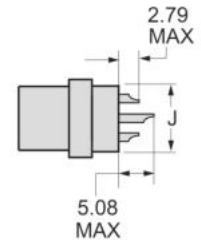
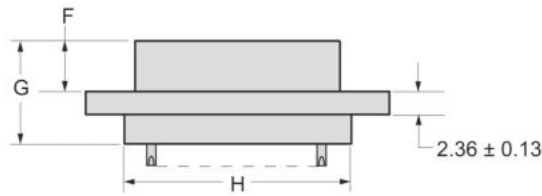
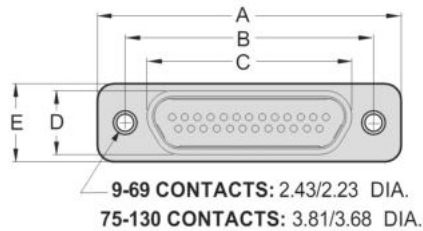
Ordering information

Basic series	MWDM	2	L-	37	S	S	B
Shell Material and Finish:							
Aluminum Shell:							
1 – Cadmium							
2 – Nickel							
4 – Black Anodize							
5 – Gold							
6 – Chem Film							
33 – Nickel-PTFE							
Stainless Steel Shell:							
3 – Passivated							
Insulator Material:							
L – 30% Glass-Filled Liquid Crystal Polymer							
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2, 67, 69, 75, 100, 130							
Contact Type:							
Size #26 Solder Cup Contacts (Standard)							
P – Pin							
S – Socket							
Size #24 Solder Cup Contacts							
N – Pin							
T – Socket							
Termination Type:							
S – Solder Cup							
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H							

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	8.46	4.67	7.82	4.65	10.57	10.16	6.86
9S	19.94	14.35	10.16	6.35	7.82	4.95	10.90	10.16	6.86
15P	23.75	18.16	12.27	4.67	7.82	4.65	10.57	13.97	6.86
15S	23.75	18.16	14.00	6.35	7.82	4.95	10.90	13.97	6.86
21P	27.56	21.97	16.08	4.67	7.82	4.65	10.57	17.78	6.86
21S	27.56	21.97	17.81	6.35	7.82	4.95	10.90	17.78	6.86
25P	30.01	24.51	18.62	4.67	7.82	4.65	10.57	20.32	6.86
25S	30.01	24.51	20.35	6.35	7.82	4.95	10.90	20.32	6.86
31P	33.91	28.32	22.43	4.67	7.82	4.65	10.57	24.13	6.86
31S	33.91	28.32	24.16	6.35	7.82	4.95	10.90	24.13	6.86
37P	37.72	32.13	26.24	4.67	7.82	4.65	10.57	27.94	6.86
37S	37.72	32.13	27.96	6.35	7.82	4.95	10.90	27.94	6.86
51P	36.45	30.86	24.97	5.79	8.92	4.65	10.57	26.67	7.87
51S	36.45	30.86	26.70	7.52	8.92	4.95	10.90	26.67	7.87
51-2P	46.61	41.02	35.15	4.67	7.87	4.65	10.57	36.83	6.86
51-2S	46.61	41.02	36.83	6.35	7.87	4.95	10.90	36.83	6.86
67P	56.77	51.18	45.31	4.67	7.87	4.65	10.57	36.83	6.86
67S	56.77	51.18	46.99	6.35	7.87	4.95	10.90	36.83	6.86
69P	44.07	38.48	32.61	5.79	8.92	4.65	10.57	34.29	7.87
69S	44.07	38.48	34.29	7.52	8.92	4.95	10.90	34.29	7.87
75P	46.61	41.02	35.15	5.8	8.92	4.72	10.57	36.83	7.87
75S	46.61	41.02	36.83	7.52	8.92	5.03	10.90	36.83	7.87
100P	55.12	45.72	35.13	6.86	10.01	4.65	10.57	36.63	9.14
100S	55.12	45.72	36.86	8.46	10.01	4.95	10.90	36.63	9.14
130P	64.00	54.86	44.07	6.66	9.90	4.65	10.6	64.00	9.14
130S	64.00	54.86	45.60	8.46	9.90	4.95	10.9	64.00	9.14

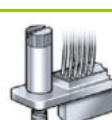
Insulated Wire Metal Shell Connectors



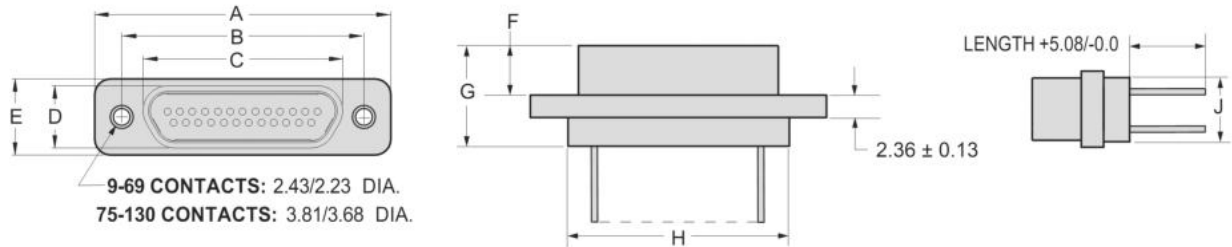
Ordering information

Basic series	MWDM	2	L-	37	P-	4	K	1-	18	B
Shell Material and Finish:										
Aluminum Shell:										
1 – Cadmium										
2 – Nickel										
4 – Black Anodize										
5 – Gold										
6 – Chem Film										
33 – Nickel-PTFE										
Stainless Steel Shell:										
3 – Passivated										
Insulator Material:										
L – 30% Glass-Filled Liquid Crystal Polymer										
Contact Layout:										
9, 15, 21, 25, 31, 37, 51, 51-2, 67, 69, 75, 100, 130										
Contact Type:										
P – Pin										
S – Socket										
Wire Gage (AWG):										
4 – #24										
6 – #26										
8 – #28										
0 – #30										
Wire Type:										
K – M22759/11, 600 VRMS, Fluoropolymer (TFE)										
J – M22759/33, 600 VRMS, Modified Cross-Linked Tefzel® (ETFE)										
E – NEMA HP3-EB, 600 VRMS Type E M16878/4 (TFE)										
Wire Color:										
1 – White										
2 – Yellow										
5 – Color-Coded Stripes Per MIL-STD-681 (up to 51 colors)										
7 – Ten Color Repeating										
Wire Length Inches:										
18 – Wire Length In Inches (6 inches minimum)										
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H										

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	8.46	4.67	7.82	4.65	10.57	10.16	6.86
9S	19.94	14.35	10.16	6.35	7.82	4.95	10.90	10.16	6.86
15P	23.75	18.16	12.27	4.67	7.82	4.65	10.57	13.97	6.86
15S	23.75	18.16	14.00	6.35	7.82	4.95	10.90	13.97	6.86
21P	27.56	21.97	16.08	4.67	7.82	4.65	10.57	17.78	6.86
21S	27.56	21.97	17.81	6.35	7.82	4.95	10.90	17.78	6.86
25P	30.01	24.51	18.62	4.67	7.82	4.65	10.57	20.32	6.86
25S	30.01	24.51	20.35	6.35	7.82	4.95	10.90	20.32	6.86
31P	33.91	28.32	22.43	4.67	7.82	4.65	10.57	24.13	6.86
31S	33.91	28.32	24.16	6.35	7.82	4.95	10.90	24.13	6.86
37P	37.72	32.13	26.24	4.67	7.82	4.65	10.57	27.94	6.86
37S	37.72	32.13	27.96	6.35	7.82	4.95	10.90	27.94	6.86
51P	36.45	30.86	24.97	5.79	8.92	4.65	10.57	26.67	7.87
51S	36.45	30.86	26.70	7.52	8.92	4.95	10.90	26.67	7.87
51-2P	46.61	41.02	35.15	4.67	7.87	4.65	10.57	36.83	6.86
51-2S	46.61	41.02	36.83	6.35	7.87	4.95	10.90	36.83	6.86
67P	56.77	51.18	45.31	4.67	7.87	4.65	10.57	36.83	6.86
67S	56.77	51.18	46.99	6.35	7.87	4.95	10.90	36.83	6.86
69P	44.07	38.48	32.61	5.79	8.92	4.65	10.57	34.29	7.87
69S	44.07	38.48	34.29	7.52	8.92	4.95	10.90	34.29	7.87
75P	46.61	41.02	35.15	5.8	8.92	4.72	10.57	36.83	7.87
75S	46.61	41.02	36.83	7.52	8.92	5.03	10.90	36.83	7.87
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100S	55.12	45.72	36.86	8.46	10.01	4.95	10.90	36.63	9.14
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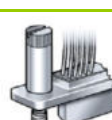
Uninsulated Wire Connector



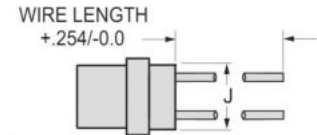
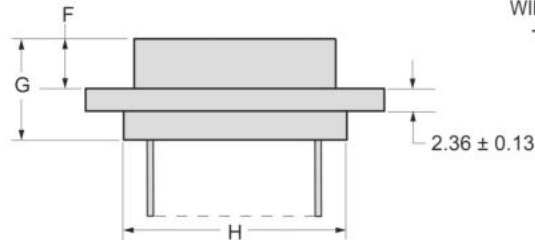
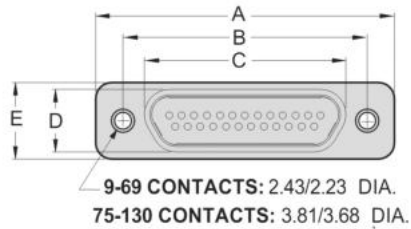
Ordering information

Basic series	MWDM	2	L-	37	P-	4	C	3-	.250	B
Shell Material and Finish:										
Aluminum Shell:										
1 – Cadmium										
2 – Nickel										
4 – Black Anodize										
5 – Gold										
6 – Chem Film										
33 – Nickel-PTFE										
Stainless Steel Shell:										
3 – Passivated										
Insulator Material:										
L – 30% Glass-Filled Liquid Crystal Polymer										
Contact Layout:										
9, 15, 21, 25, 31, 37, 51, 51-2, 67, 69, 75, 100, 130										
Contact Type:										
P – Pin										
S – Socket										
Wire Gage (AWG):										
4 – #24										
5 – #25										
6 – #26										
Wire Type:										
C – Solid Copper										
Wire Finish:										
3 – Solder-Dipped Sn 60/40										
4 – Gold										
Wire Length (Inches):										
.125										
.250										
.375										
.500										
.750										
1.000										
2.000										
for Wire Lengths over 2,000 Inches, pitch «.500»										
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H										

Mounting Hardware Codes

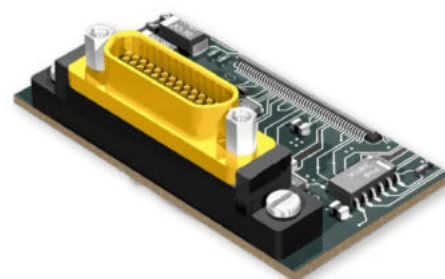
Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.9	14.4	8.5	4.7	7.82	4.65	10.57	10.2	6.86
9S	19.9	14.4	10.2	6.35	7.82	4.95	10.90	10.2	6.86
15P	23.8	18.2	12.3	4.7	7.82	4.65	10.57	14.0	6.86
15S	23.8	18.2	14.00	6.4	7.82	4.95	10.90	14.0	6.86
21P	27.6	22.0	16.0	4.7	7.82	4.65	10.57	17.8	6.86
21S	27.6	22.0	17.8	6.4	7.82	4.95	10.90	17.8	6.86
25P	30.0	24.5	18.6	4.7	7.82	4.65	10.57	20.3	6.86
25S	30.0	24.5	20.4	6.4	7.82	4.95	10.90	20.3	6.86
31P	33.9	28.3	22.4	4.7	7.82	4.65	10.57	24.1	6.86
31S	33.9	28.3	24.2	6.4	7.82	4.95	10.90	24.1	6.86
37P	37.7	32.1	26.2	4.7	7.82	4.65	10.57	27.9	6.86
37S	37.7	32.1	28.0	6.4	7.82	4.95	10.90	27.9	6.86
51P	36.5	30.9	28.0	5.8	8.92	4.65	10.57	26.7	7.87
51S	36.5	30.9	27.0	7.5	8.92	4.95	10.90	26.7	7.87
51-2P	46.6	41.0	35.0	4.7	7.82	4.65	10.57	36.8	6.86
51-2S	46.6	41.0	36.8	6.4	7.82	4.95	10.90	36.8	6.86
67P	56.8	51.2	45.3	4.7	7.87	4.65	10.57	36.8	6.86
67S	56.8	51.2	46.99	6.4	7.87	4.95	10.90	36.8	6.86
69P	44.1	38.5	32.61	5.8	8.92	4.65	10.57	34.3	7.87
69S	44.1	38.5	34.29	7.5	8.92	4.95	10.90	34.3	7.87
75P	52.8	43.3	35.154	5.8	8.9	4.6	10.6	36.6	7.9
75S	52.8	43.3	36.83	7.5	8.9	5.0	10.9	36.6	7.9
100P	55.1	45.7	35.13	6.9	10.01	4.65	10.57	36.6	9.14
100S	55.1	45.7	36.86	8.5	10.01	4.95	10.90	36.6	9.14
130P	64.0	54.6	44.1	6.9	10.0	4.6	10.6	45.2	9.1
130S	64.0	54.6	45.6	8.5	10.0	5.0	10.9	45.2	9.1

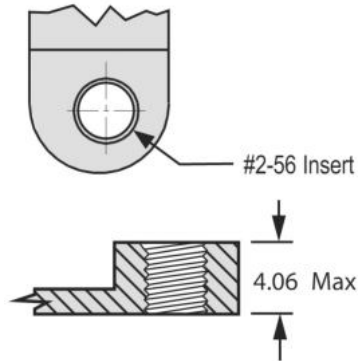
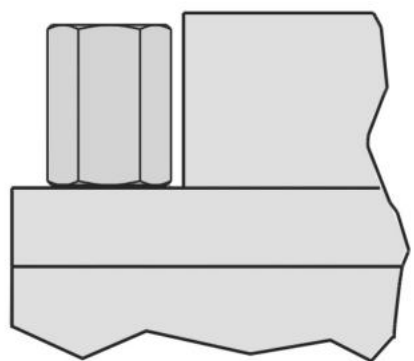
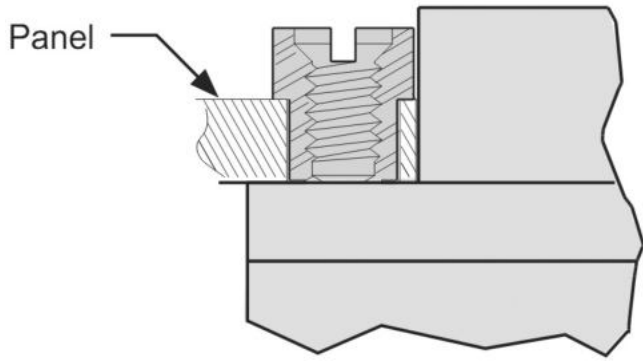
Vertical Mount Thru-Hole Printed Circuit Board Connectors



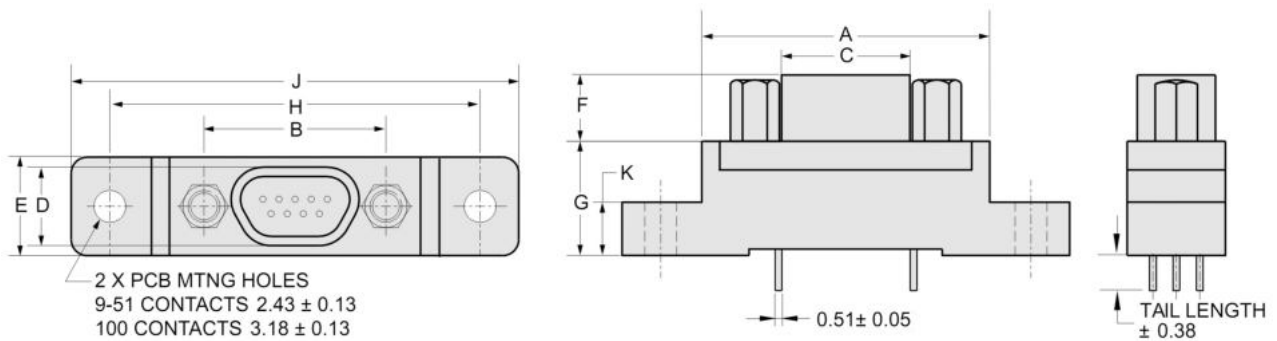
Ordering information

Basic series	MWDM	2	L-	15-	P	BS	R3	-.110
Shell Material and Finish:								
Aluminum Shell:								
1 – Cadmium								
2 – Nickel								
4 – Black Anodize								
5 – Gold								
6 – Chem Film								
Stainless Steel Shell:								
3 – Passivated								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 100								
Contact Type:								
P – Pin								
S – Socket								
Termination Type:								
BS – Board Straight								
Jackpost Option:								
Omit – for None								
P – Jackpost								
Jackposts for Rear Panel Mounting:								
R1 – 0.8 mm Panel								
R2 – 1.19 mm Panel								
R3 – 1.58 mm Panel								
R4 – 2.36 mm Panel								
R5 – 3.18 mm Panel								
R6 – 2.03 mm Panel								
Threaded Insert Option:								
T – Threaded Insert In Board Mount Hole								
Omit – for Thru-Hole								
Terminal Length in Inches, tolerance $\pm 0,38$ mm:								
.080								
.110								
.125								
.140								
.150								
.172								
.190								
.250								
Terminal Plated Code:								
513 – Gold plated terminals								
Omit – Tin-lead solder 60/40								

Mounting Hardware Codes

Hardware Code	Description	View
T	Threaded Inserts	
P	Standard Jackpost not intended for removal	
R1 Thru R6	Jackpost for Rear Panel Mounting	

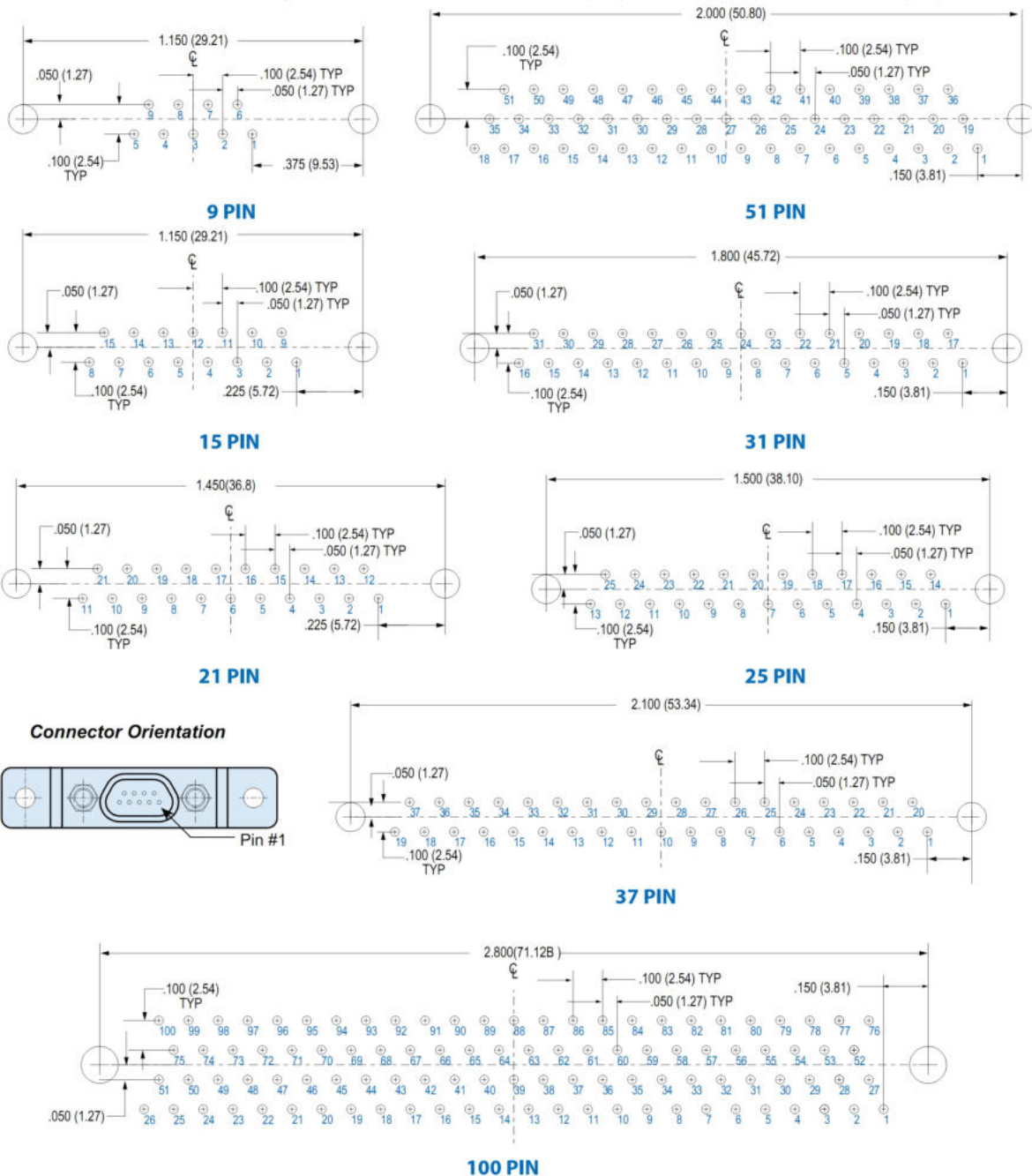
Dimensions



Layout	A Max.	B ± 0.06	C Max.	D Max.	E Max.	F ± 0.10	G ± 0.25	H ± 0.18	J Max.	K ± 0.25
9P	20.07	14.35	8.46	4.67	7.87	4.65	8.46	29.21	35.31	3.94
9S	20.07	14.35	10.16	6.35	7.87	4.95	8.46	29.21	35.31	3.94
15P	23.88	18.16	12.27	4.67	7.87	4.65	8.46	29.21	35.31	3.94
15S	23.88	18.16	14.00	6.35	7.87	4.95	8.46	29.21	35.31	3.94
21P	29.97	21.97	16.08	4.67	7.87	4.65	8.46	36.83	42.93	3.94
21S	29.97	21.97	17.81	6.35	7.87	4.95	8.46	36.83	42.93	3.94
25P	32.39	24.51	18.62	4.67	7.87	4.65	8.46	38.10	44.20	3.94
25S	32.39	24.51	20.35	6.35	7.87	4.95	8.46	38.10	44.20	3.94
31P	40.01	28.32	22.43	4.67	7.87	4.65	8.46	45.72	51.82	3.94
31S	40.01	28.32	24.16	6.35	7.87	4.95	8.46	45.72	51.82	3.94
37P	47.63	32.13	26.24	4.67	7.87	4.65	8.46	53.34	59.44	3.94
37S	47.63	32.13	27.96	6.35	7.87	4.95	8.46	53.34	59.44	3.94
51P	45.09	30.86	24.97	5.69	8.92	4.65	8.46	50.80	57.64	3.94
51S	45.09	30.86	26.70	7.44	8.92	4.95	8.46	50.80	57.64	3.94
100P	65.66	45.72	35.13	6.86	10.01	4.65	13.34	71.12	82.55	7.44
100S	65.66	45.72	36.86	8.46	10.01	4.95	13.34	71.12	82.55	7.44

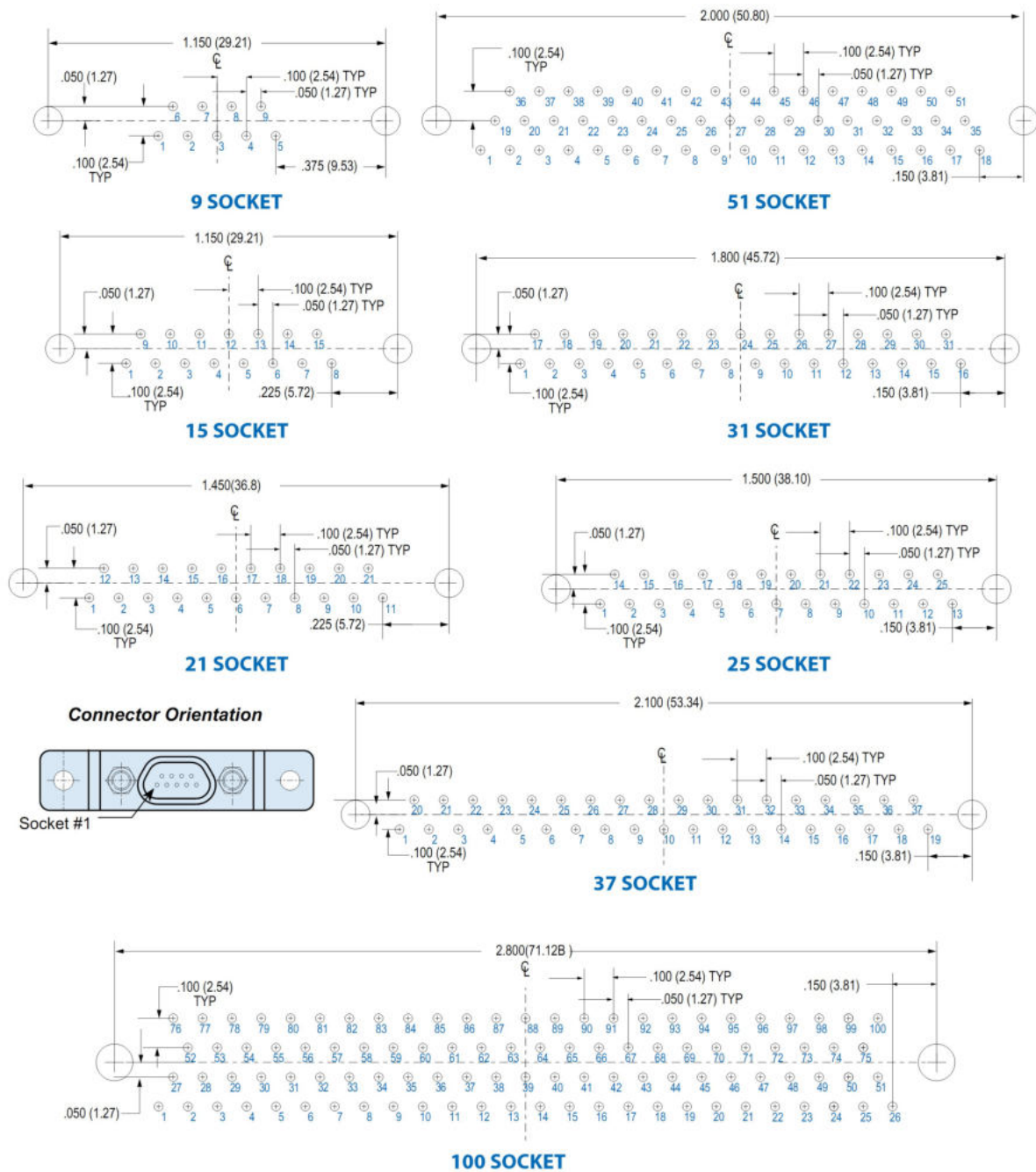
PCB Layouts – Pin Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



PCB Layouts – Socket Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole





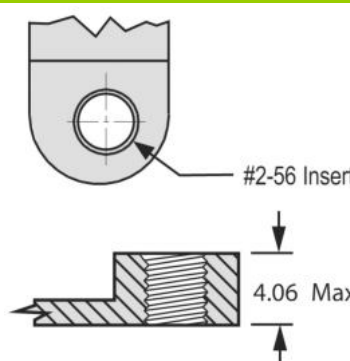
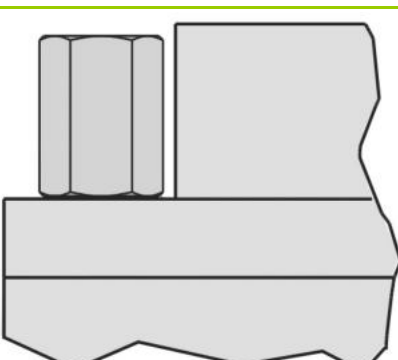
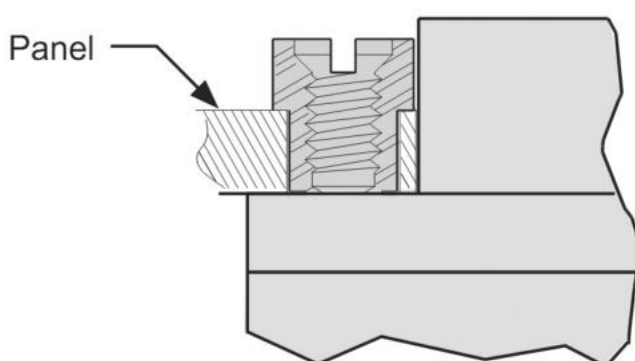
Right Angle Thru-Hole Printed Circuit Board Connectors

Ordering information

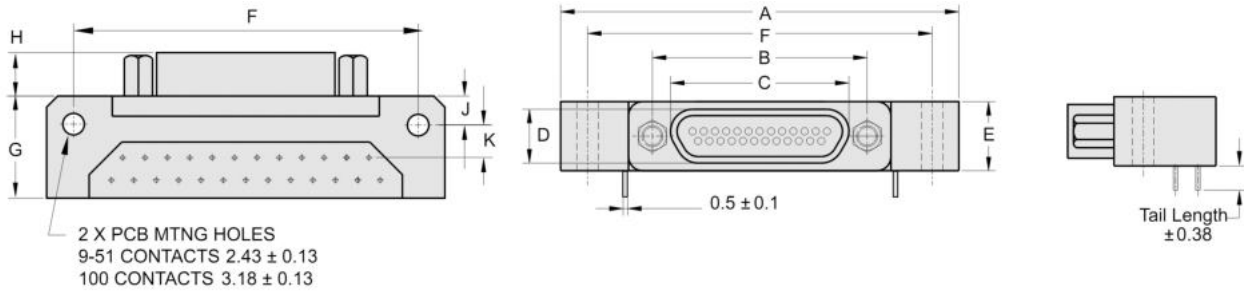


Basic series	MWDM	2	L-	15-	P	BR	R3	-.110
Shell Material and Finish:								
Aluminum Shell:								
1 – Cadmium								
2 – Nickel								
4 – Black Anodize								
5 – Gold								
6 – Chem Film								
Stainless Steel Shell:								
3 – Passivated								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 100								
Contact Type:								
P – Pin								
S – Socket								
Termination Type:								
BR – Board Right Angle								
Jackpost Option:								
Omit – for None								
P – Jackpost								
Jackposts for Rear Panel Mounting:								
R1 – 0.8 mm Panel								
R2 – 1.19 mm Panel								
R3 – 1.58 mm Panel								
R4 – 2.36 mm Panel								
R5 – 3.18 mm Panel								
R6 – 2.03 mm Panel								
Threaded Insert Option:								
T – Threaded Insert In Board Mount Hole								
Omit – for Thru-Hole								
Terminal Length in Inches, tolerance $\pm 0,38$ mm:								
.080								
.110								
.125								
.140								
.150								
.172								
.190								
.250								
Terminal Plated Code:								
513 – Gold plated terminals								
Omit – Tin-lead solder 60/40								

Mounting Hardware Codes

Hardware Code	Description	View
T	Threaded Inserts	
P	Standard Jackpost not intended for removal	
R1 Thru R6	Jackpost for Rear Panel Mounting	

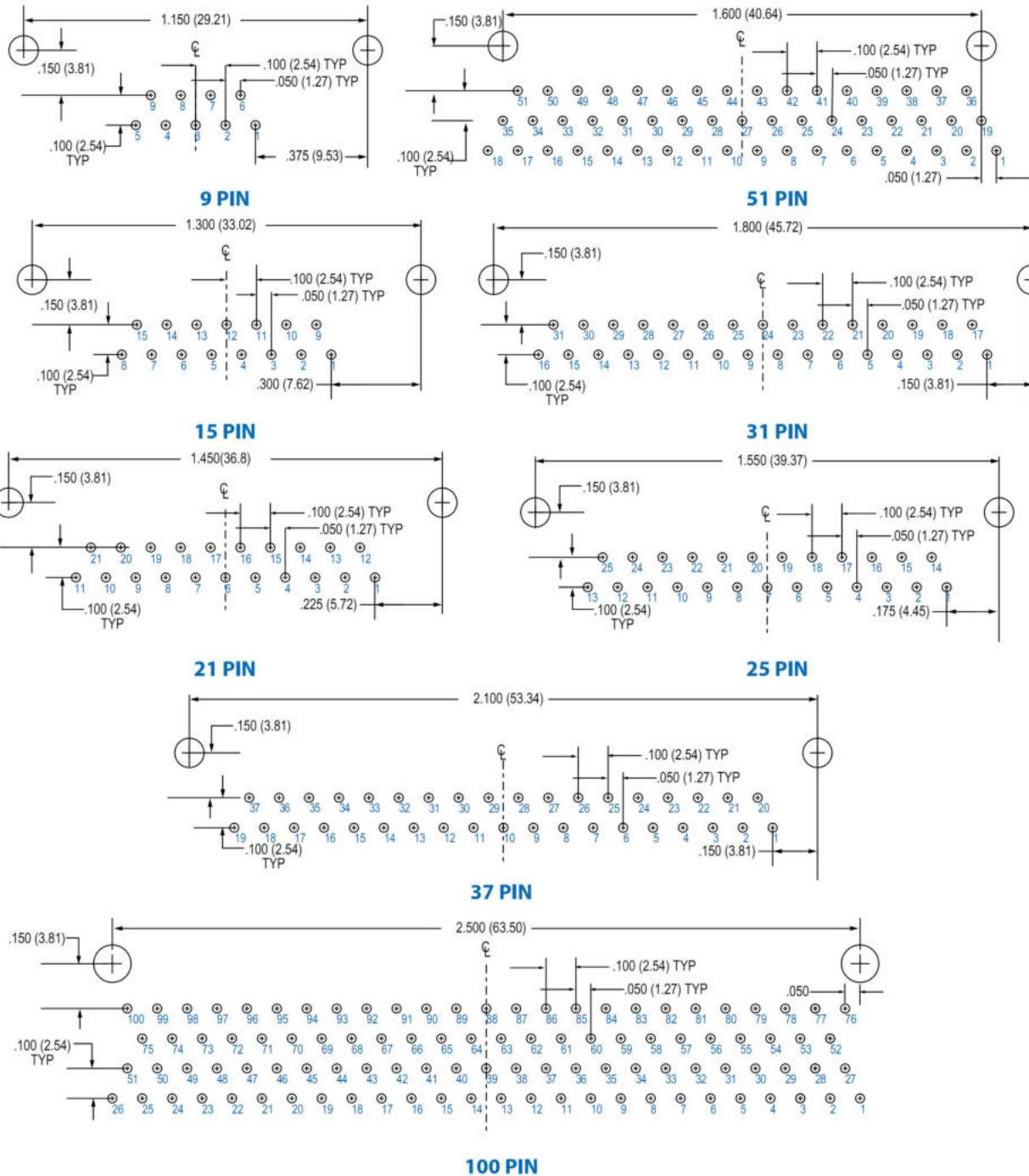
Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H ± 0.08	J ± 0.38	K ± 0.25
9P	35.31	14.35	8.46	4.67	7.87	29.21	11.81	4.65	3.18	3.81
9S	35.31	14.35	10.16	6.35	7.87	29.21	11.81	4.95	3.18	3.81
15P	39.12	18.16	12.27	4.67	7.87	33.02	11.81	4.65	3.18	3.81
15S	39.12	18.16	14.00	6.35	7.87	33.02	11.81	4.95	3.18	3.81
21P	42.93	21.97	16.08	4.67	7.87	36.83	11.81	4.65	3.18	3.81
21S	42.93	21.97	17.81	6.35	7.87	36.83	11.81	4.95	3.18	3.81
25P	45.47	24.51	18.62	4.67	7.87	39.37	11.81	4.65	3.18	3.81
25S	45.47	24.51	20.35	6.35	7.87	39.37	11.81	4.95	3.18	3.81
31P	51.82	28.32	22.43	4.67	7.87	45.72	11.81	4.65	3.18	3.81
31S	51.82	28.32	24.16	6.35	7.87	45.72	11.81	4.95	3.18	3.81
37P	59.44	32.13	26.24	4.67	7.87	53.34	11.81	4.65	3.18	3.81
37S	59.44	32.13	27.96	6.35	7.87	53.34	11.81	4.95	3.18	3.81
51P	47.63	30.86	24.97	5.69	8.92	40.64	14.35	4.65	3.18	3.81
51S	47.63	30.86	26.70	7.44	8.92	40.64	14.35	4.95	3.18	3.81
100P	70.60	45.72	35.13	6.86	10.01	63.50	19.43	4.65	5.72	3.81
100S	70.60	45.72	36.86	8.46	10.01	63.50	19.43	4.95	5.72	3.81

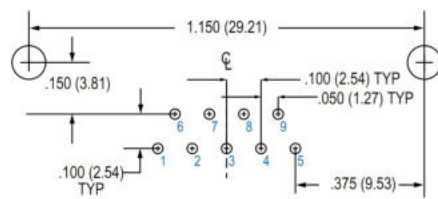
PCB Layouts – Pin Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole

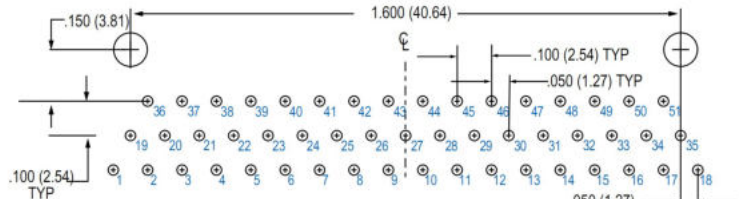


PCB Layouts – Socket Connectors

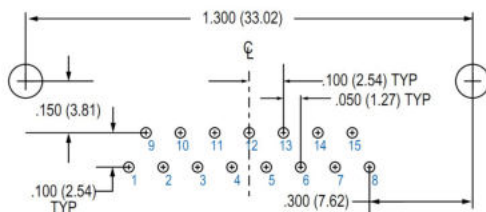
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



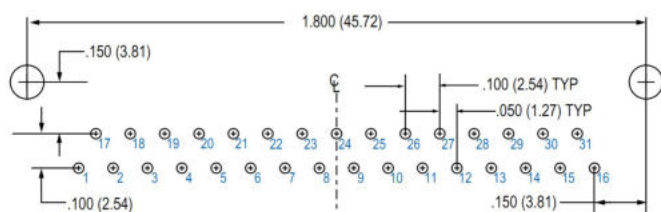
9 SOCKET



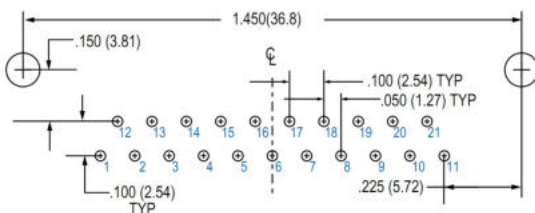
51 SOCKET



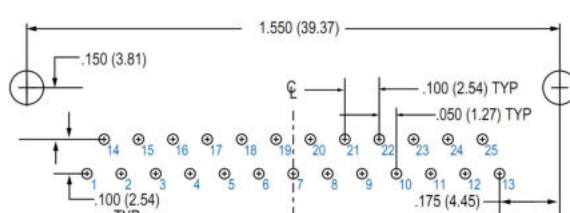
15 SOCKET



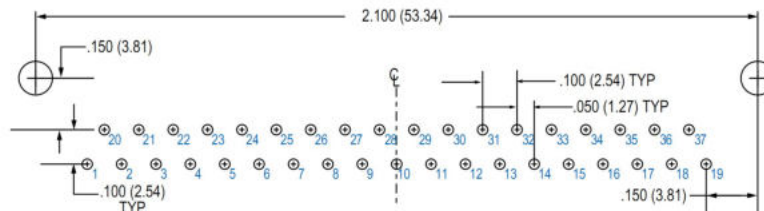
31 SOCKET



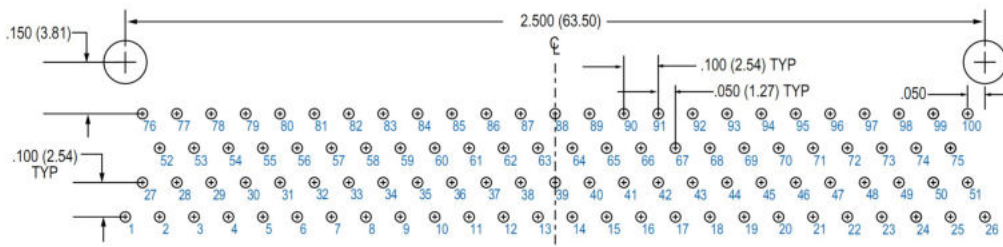
21 SOCKET



25 SOCKET



37 SOCKET



100 SOCKET

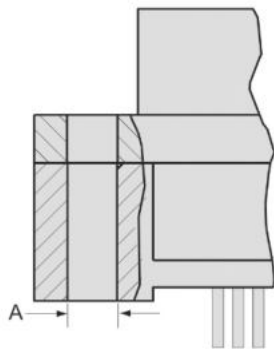
Vertical Board Mount Printed Circuit Board Connector (CBS)



Ordering information

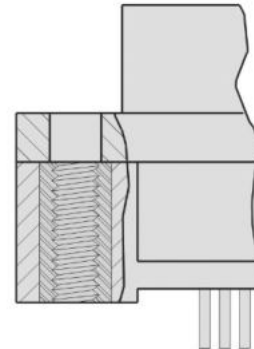
Basic series	MWDM	2	L-	15-	P	CBS	NN	-.110
Shell Material and Finish:								
Aluminum Shell:								
1 – Cadmium								
2 – Nickel								
4 – Black Anodize								
5 – Gold								
6 – Chem Film								
33 – Nickel-PTFE								
Stainless Steel Shell:								
3 – Passivated								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 69, 75, 100, 130								
Contact Type:								
P – Pin								
S – Socket								
Termination Type:								
CBS – Condensed Board Straight								
Hardware Option:								
NN – No Jackpost, No Threaded Insert								
PN – Extended Jackpost for 1.6 mm PCB, No Threaded Insert								
RN – Extended Jackpost for 5.0 mm PCB, No Threaded Insert								
NU – Threaded Insert Only, No Jackposts								
PU – Short Jackpost and Threaded Insert								
Rear Panel Jackposts:								
With Threaded Inserts								
R7U – 2.0 mm Panel								
R6U – 3.2 mm Panel								
R5U – 2.4 mm Panel								
R4U – 1.6 mm Panel								
R3U – 1.2 mm Panel								
R2U – 0.8 mm Panel								
Jackscrew Options								
M – Hex Head Jackscrews								
S – Slot Head Jackscrews								
Terminal Length in Inches, tolerance $\pm 0,38$ mm:								
.080								
.110								
.125								
.140								
.150								
.172								
.190								
.250								
Terminal Plated Code:								
513 – Gold plated terminals								
Omit – Tin-lead solder 60/40								

Mounting Hardware Codes



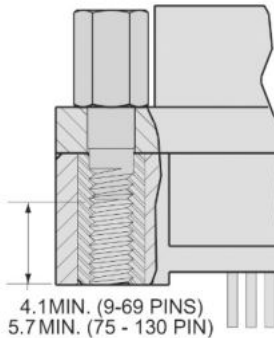
NN Style
Thru-Hole, No Hardware

A DIAMETER
9-69 CONTACTS
2.44/2.24
75, 100, 130 CONTACTS
3.81/3.68



NU Style
Threaded Insert

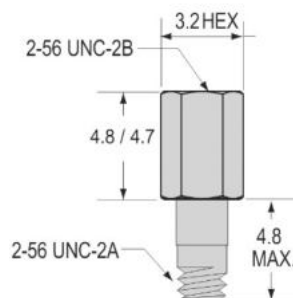
9-69 CONTACTS
NO. 2-56 UNC-2B
75-130 CONTACTS
NO. 4-40 UNC-2B



PU Style
Jackpost with Threaded Insert

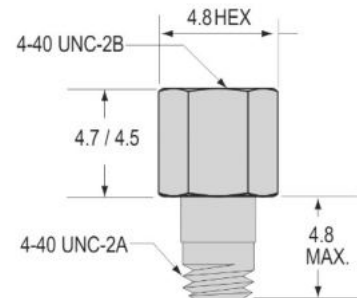
4.1 MIN. (9-69 PINS)
5.7 MIN. (75 - 130 PIN)

9 – 69 Contacts

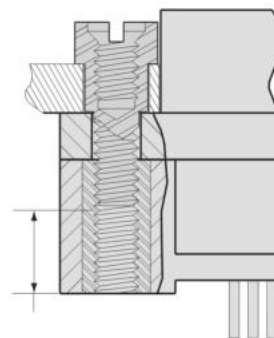


Kit Part Number **500-063-1**
Kit Consists of Two Jackposts

75 – 130 Contacts

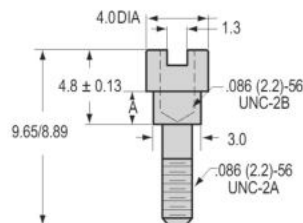


Kit Part Number **500-063-2**
Kit Consists of Two Jackposts

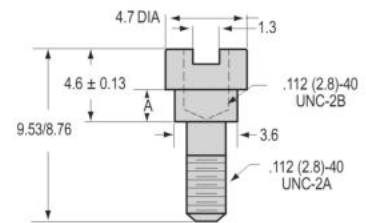


4.1 MIN. (9-69 PINS)
5.7 MIN. (75 - 130 PINS)

9 – 69 Contacts



75 – 130 Contacts

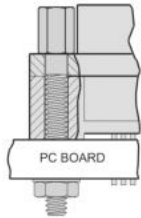


RU Style
Jackpost For Rear Panel Mounting,
with Threaded Insert

Kit Consists of Two Jackposts

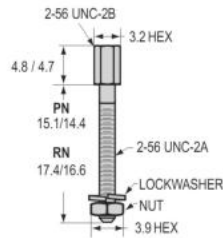
Hardware Code 9 – 69 Contacts	Panel Thickness	Part Number	A ± 0.08	Hardware Code 75 – 130 Contacts	Panel Thickness	Part Number	A ± 0.08
R2U	0.8	177-505-A-2-2	0.6	R2U	0.8	177-505-D-4-2	0.6
R3U	1.2	177-505-A-2-3	1.0	R3U	1.2	177-505-D-4-3	1.0
R4U	1.6	177-505-A-2-4	1.4	R4U	1.6	177-505-D-4-4	1.4
R5U	2.4	177-505-A-2-5	2.2	R5U	2.4	177-505-D-4-5	2.2
R6U	3.2	177-505-A-2-6	3.0	R6U	3.2	177-505-D-4-6	3.0
R7U	2.0	177-505-A-2-7	1.9	R7U	2.0	177-505-D-4-7	1.9

Mounting Hardware Codes



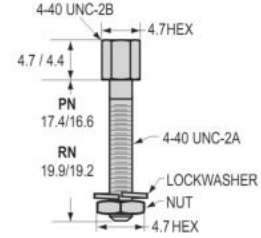
PN Style
for 1.6 PCB
RN Style
for 5.0 PCB
Jackpost Kit

9 – 69 Contacts

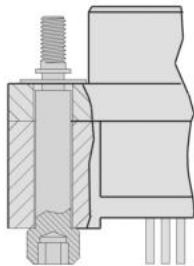


PN Kit Part Number **500-069-2-6**
RN Kit Part Number **500-069-2-7**
Kit Consists of 2 Jackposts, 2 Nuts, 2 Washers

75 - 130 Contacts

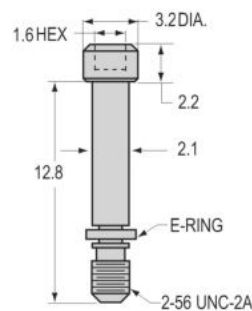


PN Kit Part Number **500-069-4-7**
RN Kit Part Number **500-069-4-8**
Kit Consists of 2 Jackposts, 2 Nuts, 2 Washers



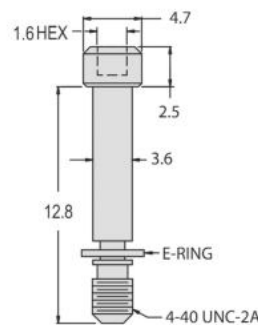
M Style
Hex Head Jackscrew
with
E-Ring

9 – 69 Contacts



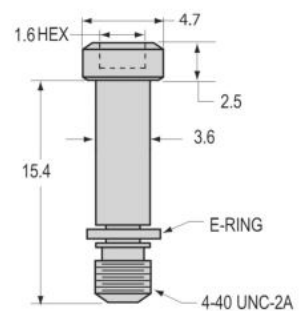
Kit Part Number **500-080-2**
Kit Consists of 2 Jackscrews and 2 E-Rings

75 Contacts

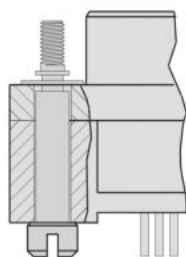


Kit Part Number **500-080-3**
Kit Consists of 2 Jackscrews and 2 E-Rings

100 - 130 Contacts

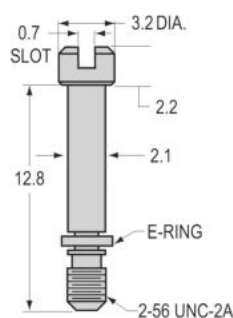


Kit Part Number **500-080-4**
Kit Consists of 2 Jackscrews and 2 E-Rings



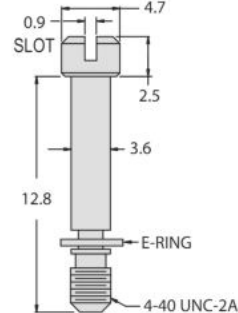
S Style
Slot Head Jackscrew
with
E-Ring

9 – 69 Contacts



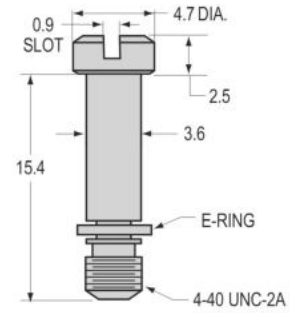
Kit Part Number **500-081-2**
Kit Consists of 2 Jackscrews and 2 E-Rings

75 Contacts



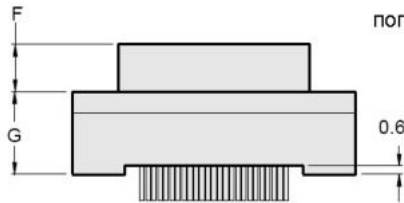
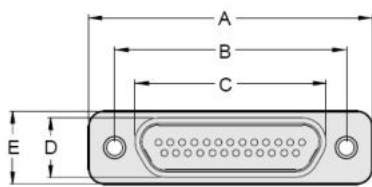
Kit Part Number **500-081-3**
Kit Consists of 2 Jackscrews and 2 E-Rings

100 - 130 Contacts

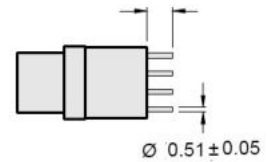


Kit Part Number **500-081-4**
Kit Consists of 2 Jackscrews and 2 E-Rings

Dimensions



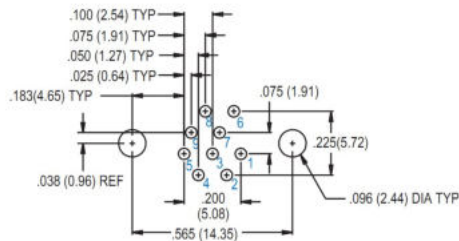
погрешность длины шпильки ± 0.38



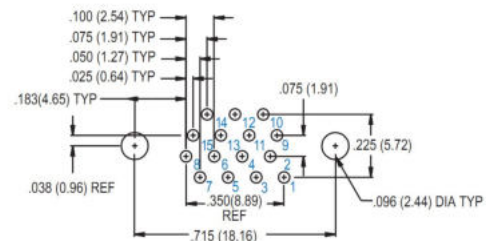
Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.08	G Max.
9P	19.94	14.35	8.46	4.67	7.87	4.65	9.02
9S	19.94	14.35	10.16	6.35	7.87	4.95	9.02
15P	23.75	18.16	12.27	4.67	7.87	4.65	9.02
15S	23.75	18.16	14.00	6.35	7.87	4.95	9.02
21P	27.56	21.97	16.08	4.67	7.87	4.65	9.02
21S	27.56	21.97	17.81	6.35	7.87	4.95	9.02
25P	30.01	24.51	18.62	4.67	7.87	4.65	9.02
25S	30.01	24.51	20.35	6.35	7.87	4.95	9.02
31P	33.91	28.32	22.43	4.67	7.87	4.65	9.02
31S	33.91	28.32	24.16	6.35	7.87	4.95	9.02
37P	37.72	32.13	26.24	4.67	7.87	4.65	9.02
37S	37.72	32.13	27.96	6.35	7.87	4.95	9.02
51P	36.45	30.86	24.97	5.79	10.16	4.65	9.02
51S	36.45	30.86	26.70	7.52	10.16	4.95	9.02
69P	44.07	38.48	32.61	5.69	10.16	4.65	9.02
69S	44.07	38.48	34.29	7.44	10.16	4.95	9.02
75P	52.83	43.31	35.15	5.79	10.16	4.65	9.02
75S	52.83	43.31	36.83	7.52	10.16	4.95	9.02
100P	55.12	45.72	35.13	6.86	12.95	4.65	10.92
100S	55.12	45.72	36.86	8.46	12.95	4.95	10.92
130P	64.00	54.61	44.07	6.86	12.95	4.65	10.92
130S	64.00	54.61	45.59	8.46	12.95	4.95	10.92

PCB Layouts – Pin Connectors

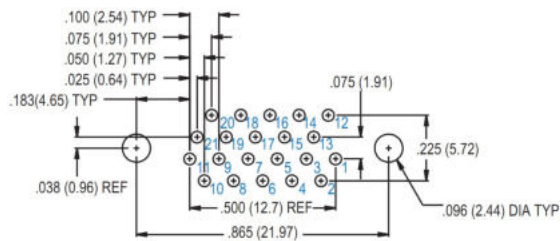
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



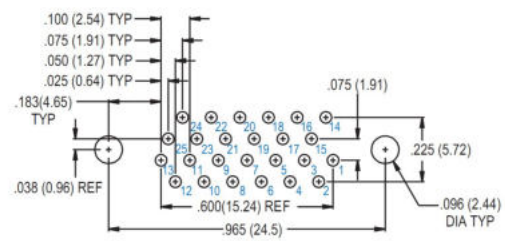
9 PIN



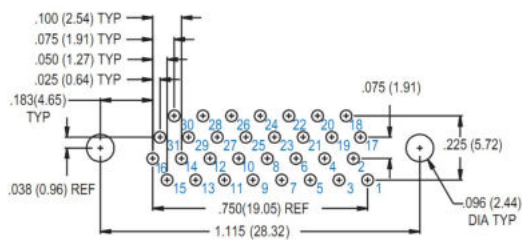
15 PIN



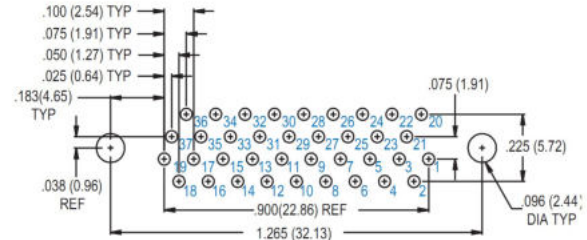
21 PIN



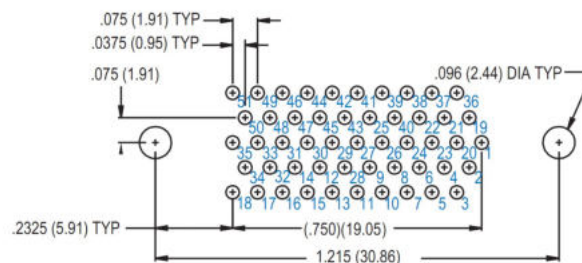
25 PIN



31 PIN



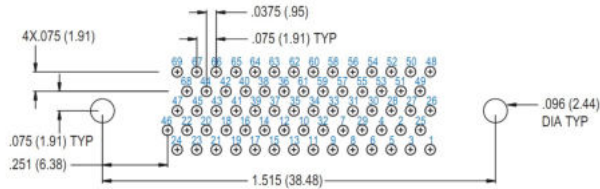
37 PIN



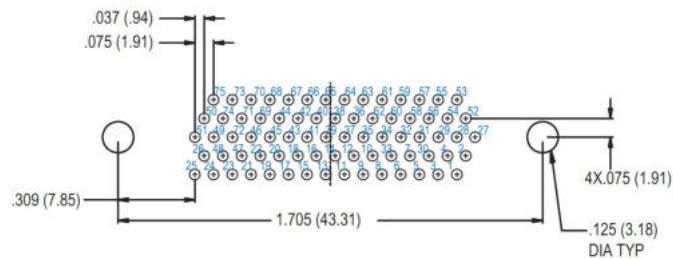
51 PIN

PCB Layouts – Pin Connectors

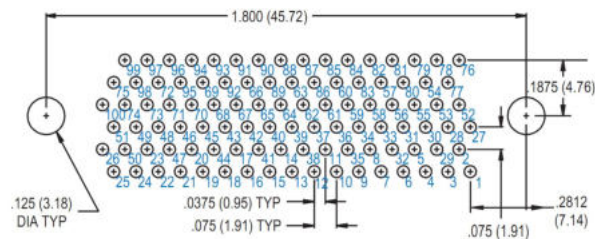
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



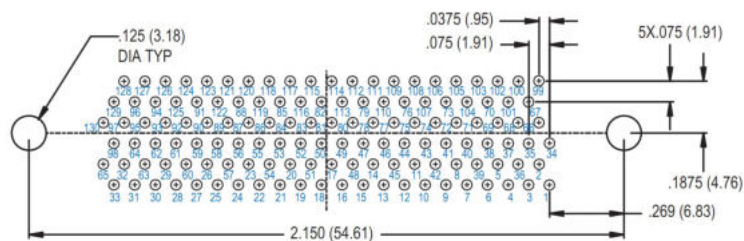
69 PIN



75 PIN



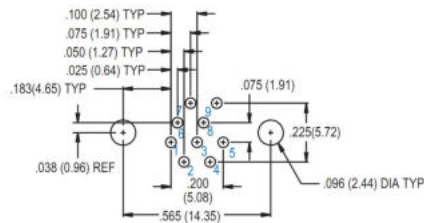
100 PIN



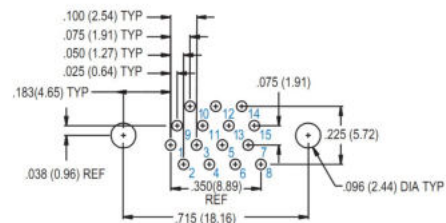
130 PIN

PCB Layouts – Socket Connectors

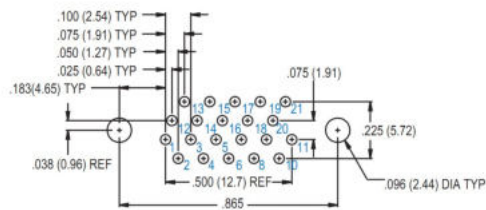
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



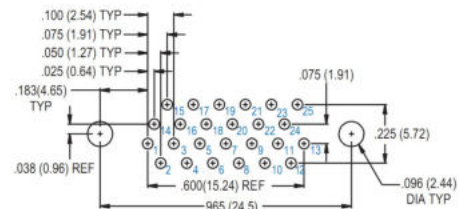
9 SOCKET



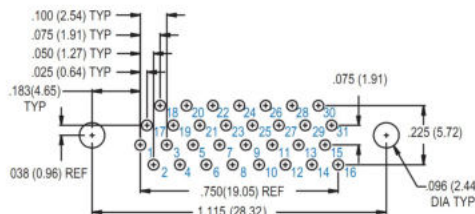
15 SOCKET



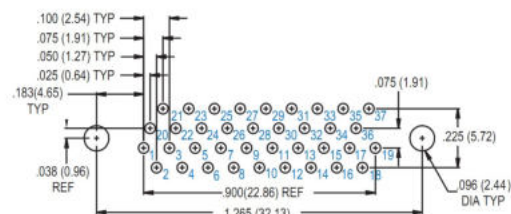
21 SOCKET



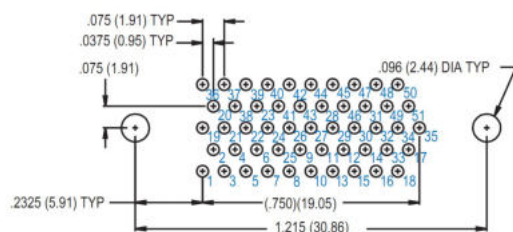
25 SOCKET



31 SOCKET



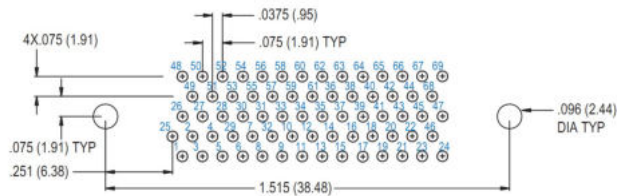
37 SOCKET



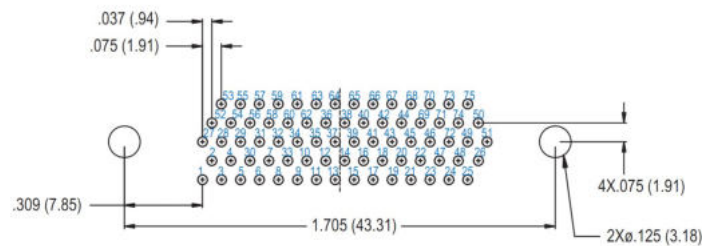
51 SOCKET

PCB Layouts – Socket Connectors

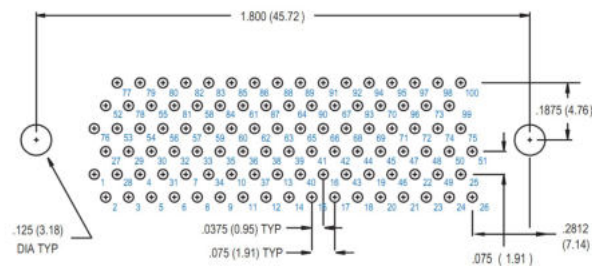
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



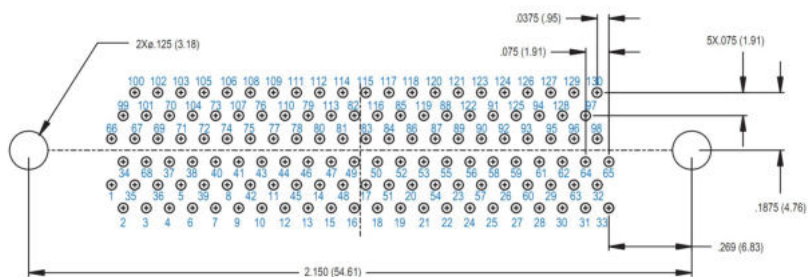
69 SOCKET



75 SOCKET



100 SOCKET



130 SOCKET

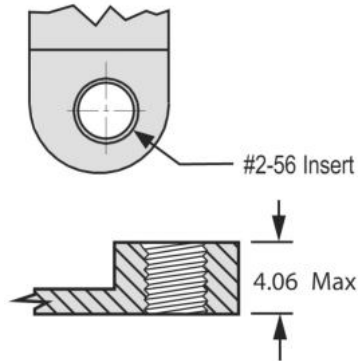
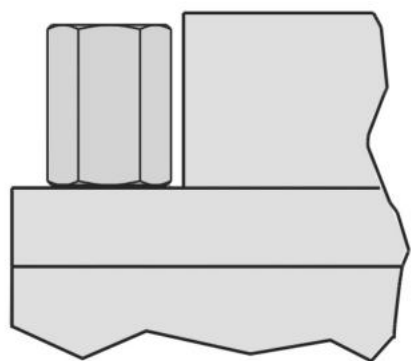
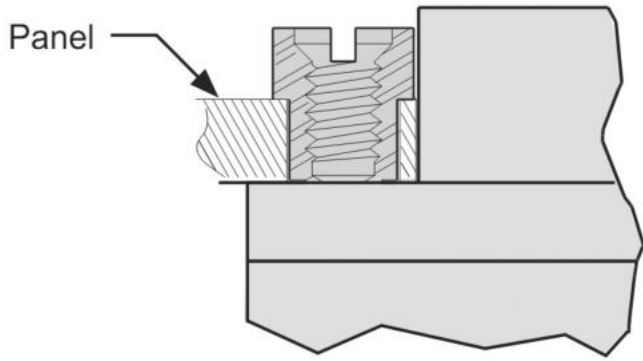
Right Angle Thru-Hole Printed Circuit Board Connectors (CBR)



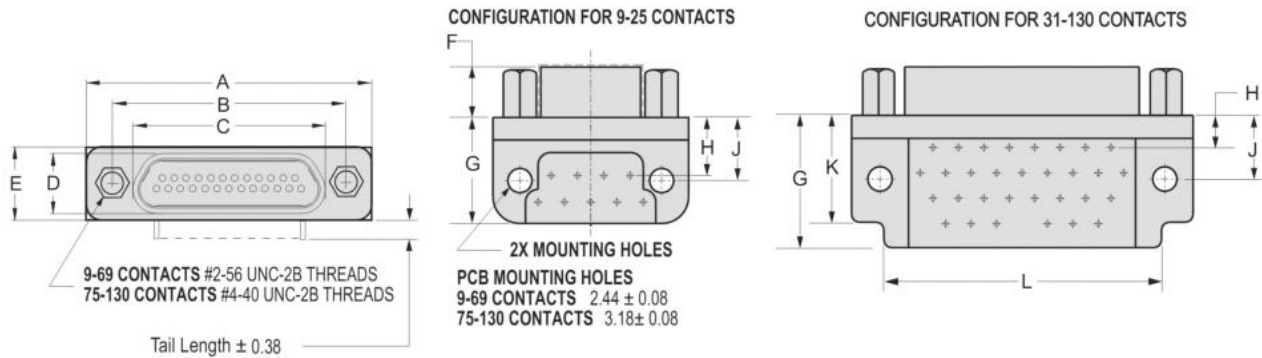
Ordering information

Basic series	MWDM	2	L-	15-	P	CBR	R3	-.110
Shell Material and Finish:								
Aluminum Shell:								
1 – Cadmium								
2 – Nickel								
4 – Black Anodize								
5 – Gold								
6 – Chem Film								
33 – Nickel-PTFE								
Stainless Steel Shell:								
3 – Passivated								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 69, 75, 100, 130								
Contact Type:								
P – Pin								
S – Socket								
Termination Type:								
CBR – Condensed Board Right Angle								
Jackpost Option:								
Omit – for None								
P – Jackpost								
Jackposts for Rear Panel Mounting:								
R1 – 0.8 mm Panel								
R2 – 1.19 mm Panel								
R3 – 1.58 mm Panel								
R4 – 2.36 mm Panel								
R5 – 3.18 mm Panel								
R6 – 2.03 mm Panel								
Threaded Insert Option:								
T – Threaded Insert In Board Mount Hole (2-56 threads for sizes 9-69 and 4-40 threads for sizes 75 – 130)								
Omit – for Thru-Hole								
Terminal Length in Inches, tolerance $\pm 0,38$ mm:								
.080								
.110								
.125								
.140								
.150								
.172								
.190								
.250								
Terminal Plated Code:								
513 – Gold plated terminals								
Omit – Tin-lead solder 60/40								

Mounting Hardware Codes

Hardware Code	Description	View
T	Threaded Inserts	 #2-56 Insert 4.06 Max
P	Standard Jackpost not intended for removal	
R1 Thru R6	Jackpost for Rear Panel Mounting	 Panel

Dimensions

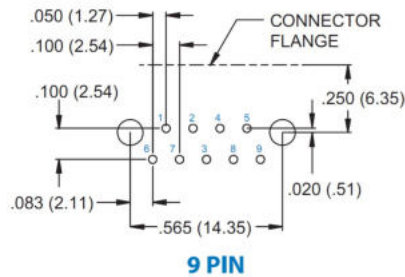


Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H ± 0.25	J ± 0.25	K Max.	L Max.
9P	19.94	14.35	8.46	4.67	7.87	4.65	10.80	5.84	6.35	*	*
9S	19.94	14.35	10.16	6.35	7.87	4.95	10.80	5.84	6.35	*	*
15P	23.75	18.16	12.27	4.67	7.87	4.65	10.80	3.30	6.35	*	*
15S	23.75	18.16	14.00	6.35	7.87	4.95	10.80	3.30	6.35	*	*
21P	27.56	21.97	16.08	4.67	7.87	4.65	10.80	3.30	6.35	*	*
21S	27.56	21.97	17.81	6.35	7.87	4.95	10.80	3.30	6.35	*	*
25P	30.01	24.51	18.62	4.67	7.87	4.65	10.80	3.30	6.35	*	*
25S	30.01	24.51	20.35	6.35	7.87	4.95	10.80	3.30	6.35	*	*
31P	33.91	28.32	22.43	4.67	7.87	4.65	13.34	3.30	6.35	11.43	27.56
31S	33.91	28.32	24.16	6.35	7.87	4.95	13.34	3.30	6.35	11.43	27.56
37P	37.72	32.13	26.24	4.67	7.87	4.65	13.34	3.30	6.35	11.43	30.10
37S	37.72	32.13	27.96	6.35	7.87	4.95	13.34	3.30	6.35	11.43	30.10
51P	36.45	30.86	24.97	5.79	8.92	4.65	16.76	3.81	7.62	11.43	31.12
51S	36.45	30.86	26.70	7.52	8.92	4.95	16.76	3.81	7.62	11.43	31.12
69P	44.20	38.48	32.59	5.79	8.92	4.65	19.05	3.81	7.62	11.43	38.86
69S	44.20	38.58	34.32	7.52	8.92	4.95	19.05	3.81	7.62	11.43	38.86
75P	52.83	43.31	35.15	5.79	8.92	4.65	19.05	3.81	7.62	11.43	43.82
75S	52.83	43.31	36.83	7.52	8.92	4.95	19.05	3.81	7.62	11.43	43.82
100P	55.12	45.72	35.13	6.86	10.01	4.65	25.65	5.08	10.16	14.99	46.23
100S	55.12	45.72	36.86	8.46	10.01	4.95	25.65	5.08	10.16	14.99	46.23
130P	64.01	54.61	44.07	6.86	10.01	4.65	25.65	5.08	10.16	15.75	54.86
130S	64.01	54.61	44.07	8.46	10.01	4.95	25.65	5.08	10.16	15.75	54.86

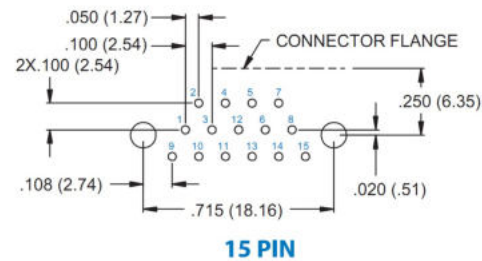
* – consultation required

PCB Layouts – Pin Connectors

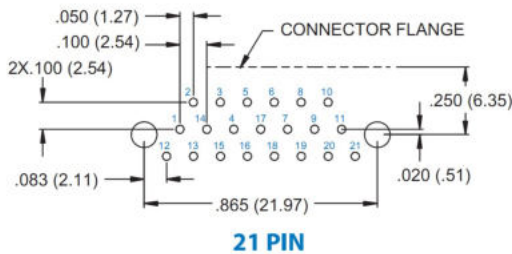
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole



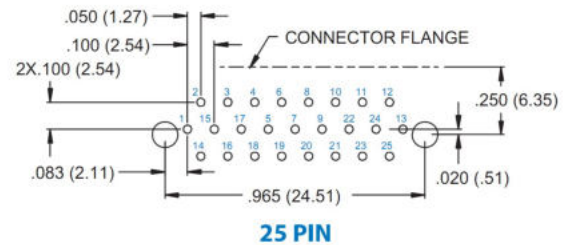
9 PIN



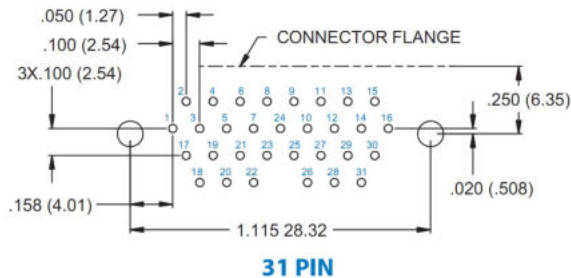
15 PIN



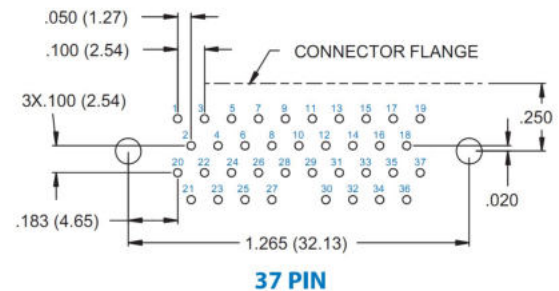
21 PIN



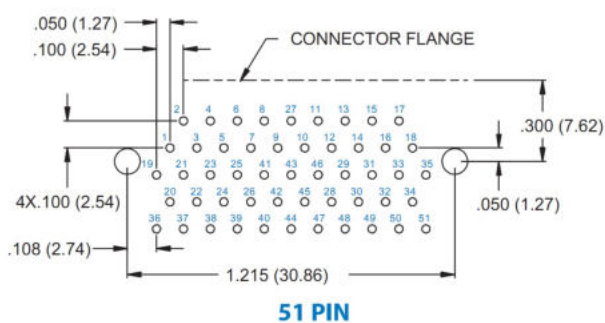
25 PIN



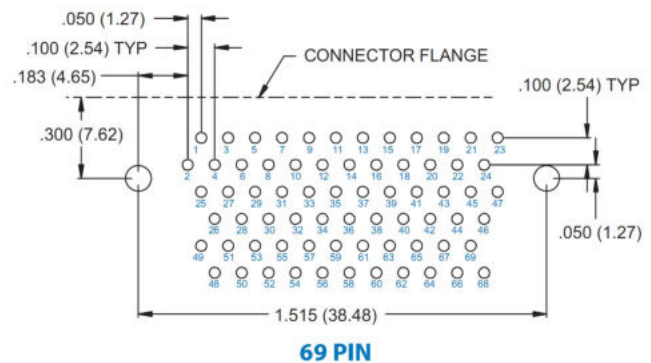
31 PIN



37 PIN



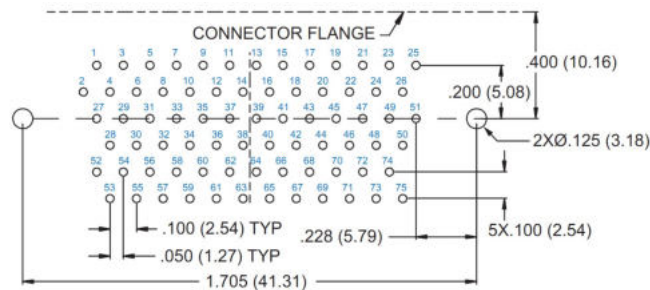
51 PIN



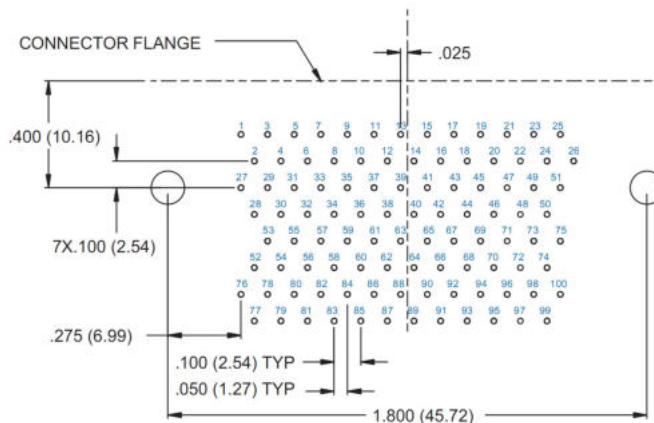
69 PIN

PCB Layouts – Pin Connectors

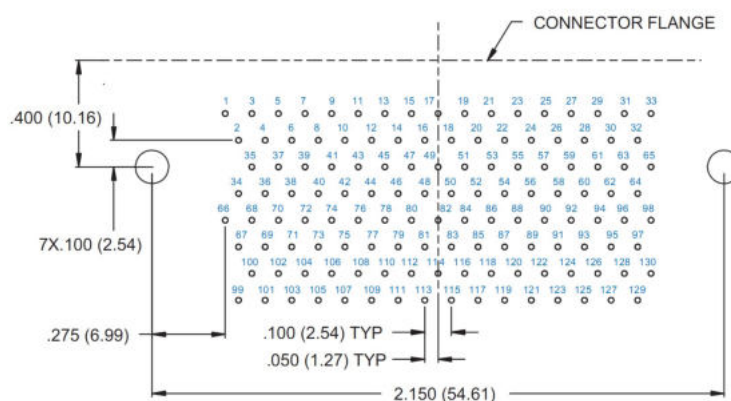
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole



75 PIN



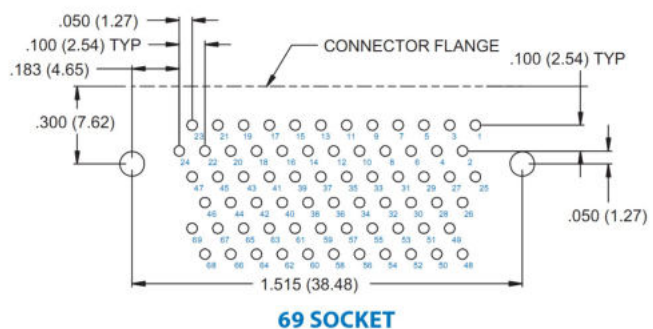
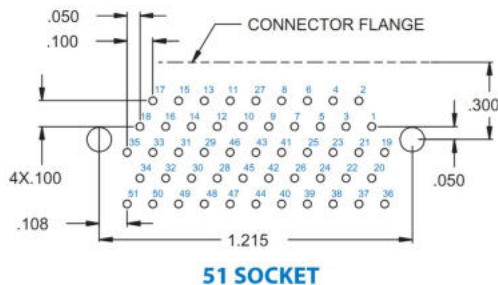
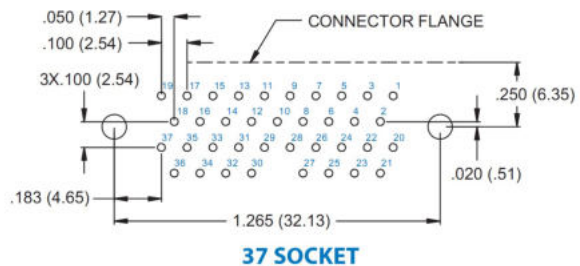
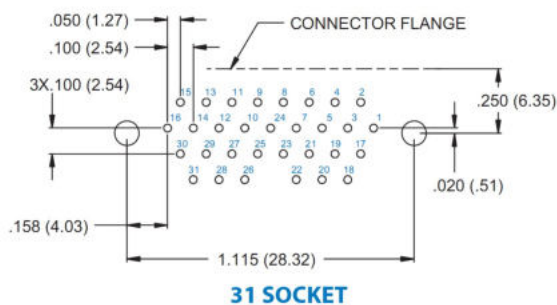
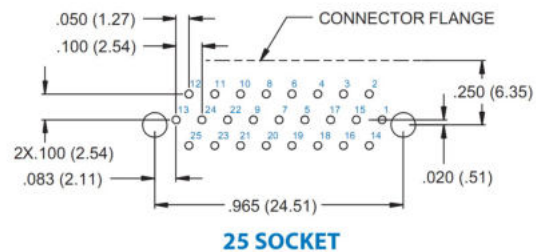
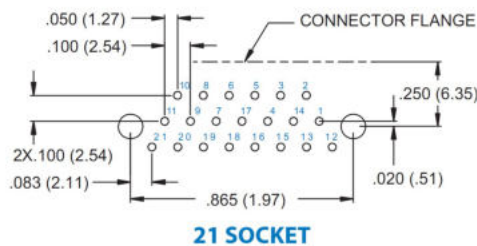
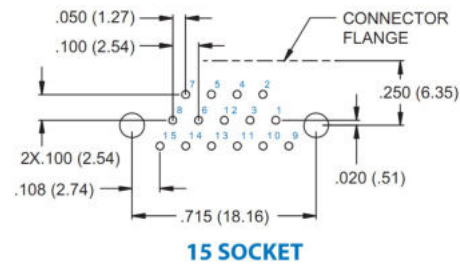
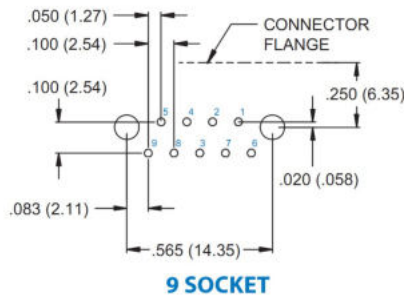
100 PIN



130 PIN

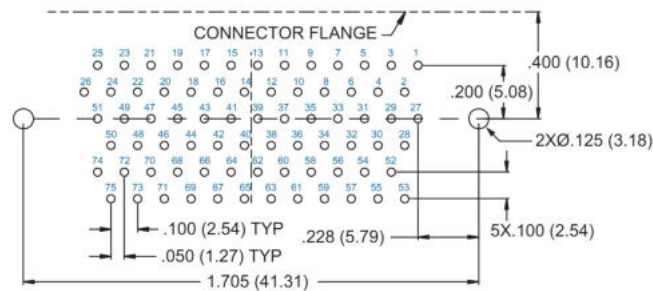
PCB Layouts – Socket Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole

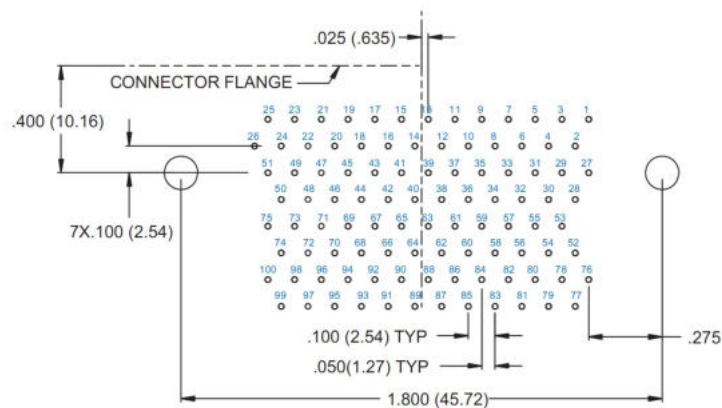


PCB Layouts – Socket Connectors

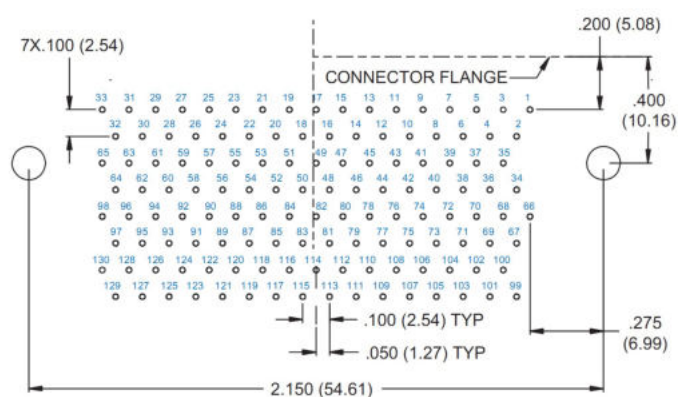
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole



75 SOCKET



100 SOCKET

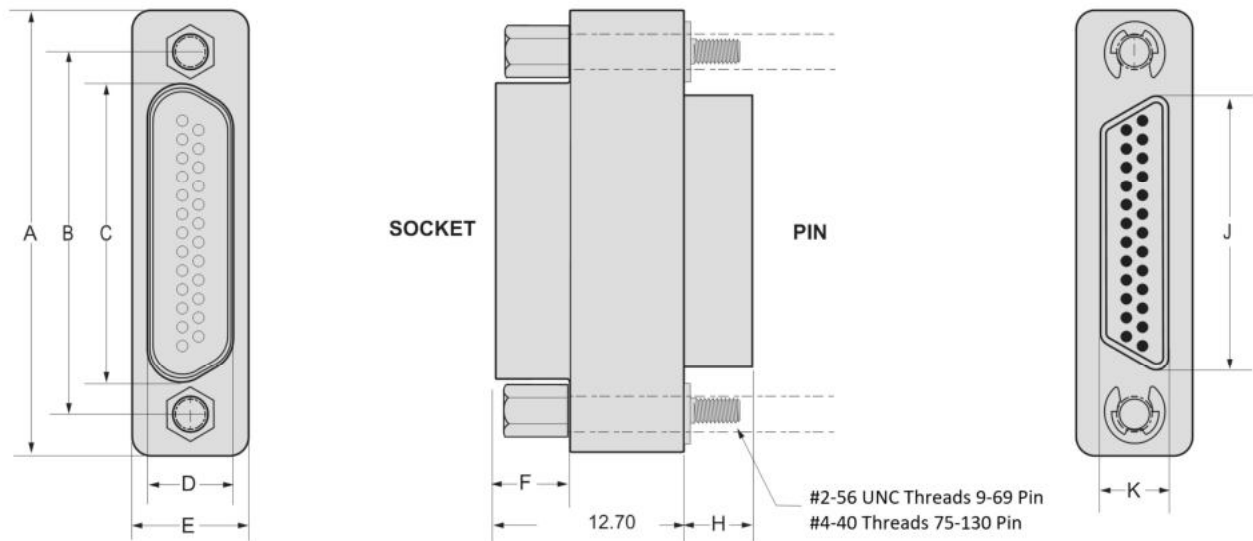


130 SOCKET

Connector Saver MWDM2L



Component	Materials & Finishes
Shell	Aluminum Alloy 6061 -T6 Electroless Nickel Plated
Contacts	Gold-Plated Copper Alloy
Encapsulant	Epoxy
Insulators	Glass-Filled LCP
Hardware	300 Series Stainless Steel, Passivated
Size	9, 15, 21, 25, 31, 37, 51, 75, 100 and 130



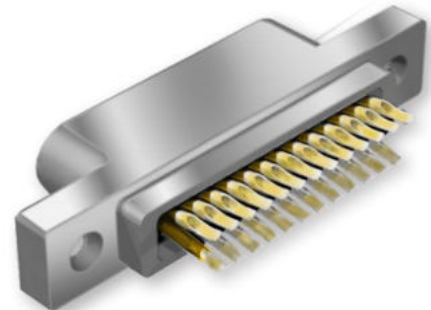
Layout	Part Number	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	H ± 0.08	J Max.	K Max.
9	MWDM2L-9USP1	19.94	14.35	10.16	6.35	7.82	4.95	4.65	8.46	4.67
15	MWDM2L-15USP1	23.75	18.16	14.00	6.35	7.82	4.95	4.65	12.27	4.67
21	MWDM2L-21USP1	27.56	21.97	17.81	6.35	7.82	4.95	4.65	16.08	4.67
25	MWDM2L-25USP1	30.01	24.51	20.35	6.35	7.82	4.95	4.65	18.62	4.67
31	MWDM2L-31USP1	33.91	28.32	24.16	6.35	7.82	4.95	4.65	22.43	4.67
37	MWDM2L-37USP1	37.72	32.13	27.96	6.35	7.82	4.95	4.65	26.24	4.67
51	MWDM2L-51USP1	36.45	30.86	26.70	7.52	8.92	4.95	4.65	24.97	5.79
51-2	MWDM2L-51-2USP1	46.61	41.02	36.83	6.35	7.82	4.95	4.65	35.15	4.67
67	MWDM2L-67USP1	56.77	51.18	46.99	6.35	7.82	4.95	4.65	45.31	4.67
69	MWDM2L-69USP1	44.07	38.48	34.29	7.52	8.92	4.95	4.65	32.61	5.79
75	MWDM2L-75USP1	52.80	43.30	36.80	7.52	8.92	4.95	4.65	35.20	5.79
100	MWDM2L-100USP1	55.12	45.72	36.86	8.46	10.01	4.95	4.65	35.13	6.86
130	MWDM2L-130USP1	64.00	54.86	45.60	8.46	10.01	4.95	4.65	44.07	6.86

MICRO-D MLDM/MWDL versions

**Part
2**



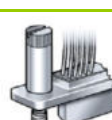
Low Profile Metal Shell Solder Cup Connectors



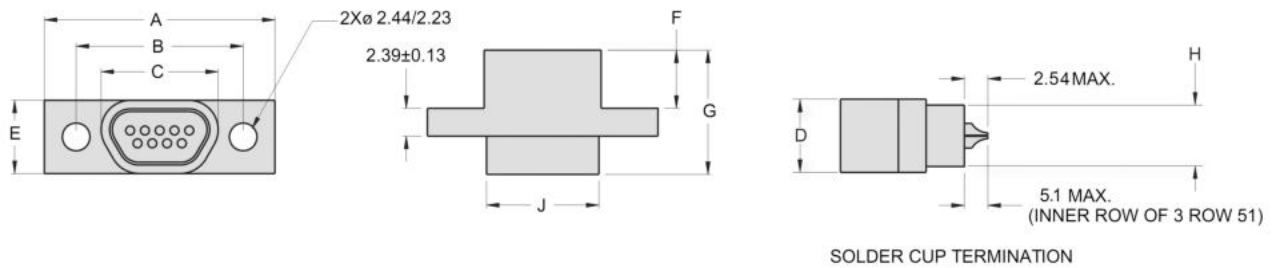
Ordering information

Basic series	MLDM	2	L-	37	S	S	B
Shell Material and Finish:							
Aluminum Shell							
1 – Yellow Chromate over Cadmium							
2 – Electroless Nickel							
32 – Black Zinc Nickel							
33 – Nickel-Fluorocarbon							
Insulator Material:							
L – 30% Glass-Filled Liquid Crystal Polymer							
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2							
Contact Type:							
Size #26 Solder Cup Contacts (Standard)							
P – Pin							
S – Socket							
Size #24 Solder Cup Contacts							
N – Pin							
T – Socket							
Termination Type:							
S – Solder Cup							
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H							

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	3.35	5.44	5.05	9.91	4.45	10.29
9S	19.94	14.35	9.65	5.44	5.44	4.57	9.58	4.45	10.29
15P	23.75	18.16	11.23	3.35	5.44	5.05	9.91	4.45	14.10
15S	23.75	18.16	13.46	5.44	5.44	4.57	9.58	4.45	14.10
21P	27.56	21.97	15.04	3.35	5.44	5.05	9.91	4.45	17.91
21S	27.56	21.97	17.27	5.44	5.44	4.57	9.58	4.45	17.91
25P	30.01	24.51	17.58	3.35	5.44	5.05	9.91	4.45	20.45
25S	30.01	24.51	19.81	5.44	5.44	4.57	9.58	4.45	20.45
31P	33.91	28.32	21.39	3.35	5.44	5.05	9.91	4.45	24.26
31S	33.91	28.32	23.62	5.44	5.44	4.57	9.58	4.45	24.26
37P	37.72	32.13	25.20	3.35	5.44	5.05	9.91	4.45	28.07
37S	37.72	32.13	27.43	5.44	5.44	4.57	9.58	4.45	28.07
51P	36.45	30.86	23.93	4.62	6.60	5.05	9.91	5.59	26.87
51S	36.45	30.86	26.16	6.60	6.60	4.57	9.58	5.59	26.87
51-2P	46.61	41.02	34.04	3.35	5.44	5.05	9.91	4.45	36.96
51-2S	46.61	41.02	36.20	5.44	5.44	4.57	9.58	4.45	36.96

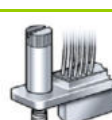
Low Profile Metal Shell Insulated Wire Connectors



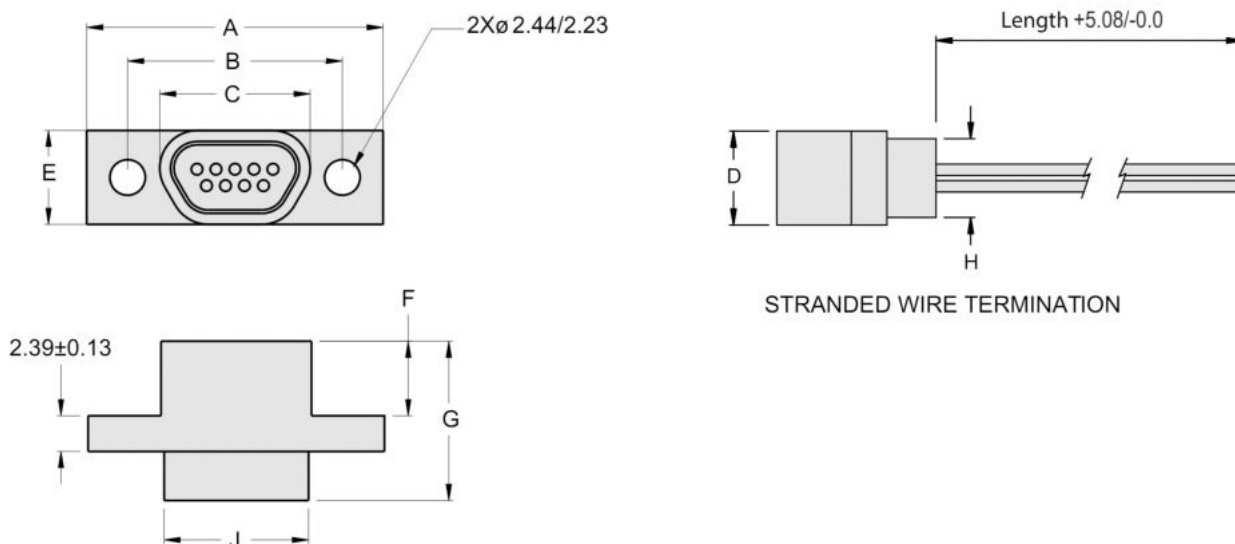
Ordering information

Basic series	MLDM	2	L-	37	P-	4	K	1-	18	B
Shell Material and Finish:										
Aluminum Shell										
1 – Yellow Chromate over Cadmium										
2 – Electroless Nickel										
32 – Black Zinc Nickel										
33 – Nickel-Fluorocarbon										
Insulator Material:										
L – 30% Glass-Filled Liquid Crystal Polymer										
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2										
Contact Type:										
P – Pin										
S – Socket										
Wire Gage (AWG):										
4 – #24										
6 – #26										
8 – #28										
0 – #30										
Wire Type:										
K – M22759/11, 600 VRMS, Fluoropolymer (TFE)										
J – M22759/33, 600 VRMS, Modified Cross-Linked Tefzel® (ETFE)										
Wire Color:										
1 – White										
5 – Color-Coded Stripes Per MIL-STD-681 (up to 51 colors)										
7 – Ten Color Repeating										
Wire Length Inches:										
18 – Wire Length In Inches, pitch 3 inches (6 inches minimum)										
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H										

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	3.35	5.44	5.05	9.91	4.45	10.29
9S	19.94	14.35	9.65	5.44	5.44	4.57	9.58	4.45	10.29
15P	23.75	18.16	11.23	3.35	5.44	5.05	9.91	4.45	14.10
15S	23.75	18.16	13.46	5.44	5.44	4.57	9.58	4.45	14.10
21P	27.56	21.97	15.04	3.35	5.44	5.05	9.91	4.45	17.91
21S	27.56	21.97	17.27	5.44	5.44	4.57	9.58	4.45	17.91
25P	30.01	24.51	17.58	3.35	5.44	5.05	9.91	4.45	20.45
25S	30.01	24.51	19.81	5.44	5.44	4.57	9.58	4.45	20.45
31P	33.91	28.32	21.39	3.35	5.44	5.05	9.91	4.45	24.26
31S	33.91	28.32	23.62	5.44	5.44	4.57	9.58	4.45	24.26
37P	37.72	32.13	25.20	3.35	5.44	5.05	9.91	4.45	28.07
37S	37.72	32.13	27.43	5.44	5.44	4.57	9.58	4.45	28.07
51P	36.45	30.86	23.93	4.62	6.60	5.05	9.91	5.59	26.87
51S	36.45	30.86	26.16	6.60	6.60	4.57	9.58	5.59	26.87
51-2P	46.61	41.02	34.04	3.35	5.44	5.05	9.91	4.45	36.96
51-2S	46.61	41.02	36.20	5.44	5.44	4.57	9.58	4.45	36.96



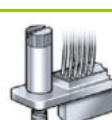
Low Profile Metal Shell Uninsulated Wire Connector



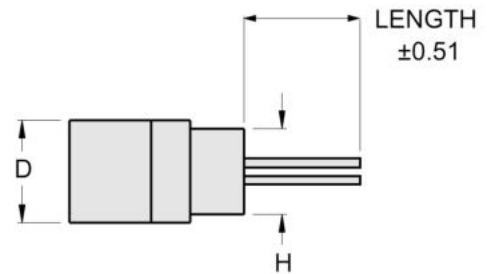
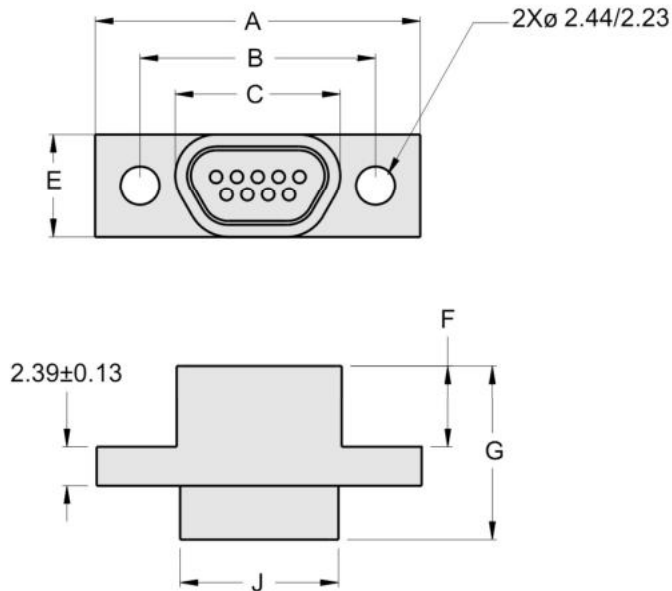
Ordering information

Basic series	MLDM	2	L-	37	P-	4	C	3-	.250	B
Shell Material and Finish:										
Aluminum Shell										
1 – Yellow Chromate over Cadmium										
2 – Electroless Nickel										
32 – Black Zinc Nickel										
33 – Nickel-Fluorocarbon										
Insulator Material:										
L – 30% Glass-Filled Liquid Crystal Polymer										
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2										
Contact Type:										
P – Pin										
S – Socket										
Wire Gage (AWG):										
4 – #24										
5 – #25										
6 – #26										
Wire Type:										
C – Solid Copper										
Wire Finish:										
3 – Solder-Dipped Sn 60/40										
4 – Gold										
Wire Length (Inches):										
.125										
.250										
.375										
.500										
.750										
1.000										
2.000										
for Wire Lengths over 2,000 Inches, pitch «.500»										
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H										

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions



SOLID WIRE TERMINATION

Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	3.35	5.44	5.05	9.91	4.45	10.29
9S	19.94	14.35	9.65	5.44	5.44	4.57	9.58	4.45	10.29
15P	23.75	18.16	11.23	3.35	5.44	5.05	9.91	4.45	14.10
15S	23.75	18.16	13.46	5.44	5.44	4.57	9.58	4.45	14.10
21P	27.56	21.97	15.04	3.35	5.44	5.05	9.91	4.45	17.91
21S	27.56	21.97	17.27	5.44	5.44	4.57	9.58	4.45	17.91
25P	30.01	24.51	17.58	3.35	5.44	5.05	9.91	4.45	20.45
25S	30.01	24.51	19.81	5.44	5.44	4.57	9.58	4.45	20.45
31P	33.91	28.32	21.39	3.35	5.44	5.05	9.91	4.45	24.26
31S	33.91	28.32	23.62	5.44	5.44	4.57	9.58	4.45	24.26
37P	37.72	32.13	25.20	3.35	5.44	5.05	9.91	4.45	28.07
37S	37.72	32.13	27.43	5.44	5.44	4.57	9.58	4.45	28.07
51P	36.45	30.86	23.93	4.62	6.60	5.05	9.91	5.59	26.87
51S	36.45	30.86	26.16	6.60	6.60	4.57	9.58	5.59	26.87
51-2P	46.61	41.02	34.04	3.35	5.44	5.05	9.91	4.45	36.96
51-2S	46.61	41.02	36.20	5.44	5.44	4.57	9.58	4.45	36.96

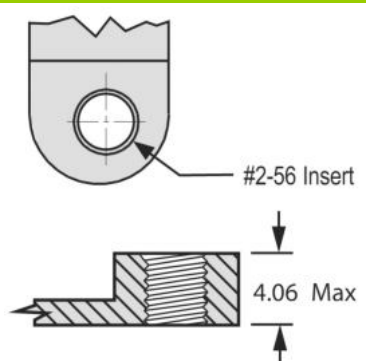
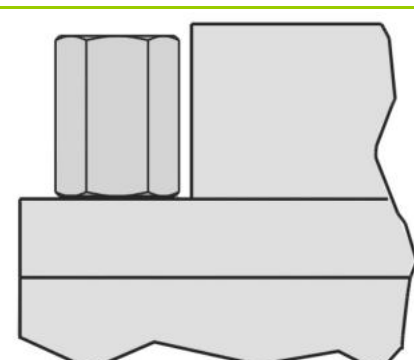
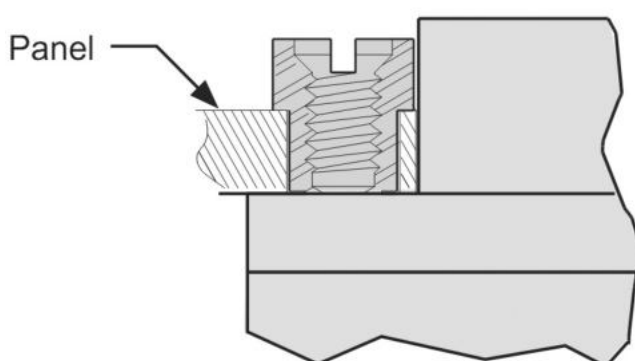
Low Profile Metal Shell Right Angle PCB Termination (CBR)



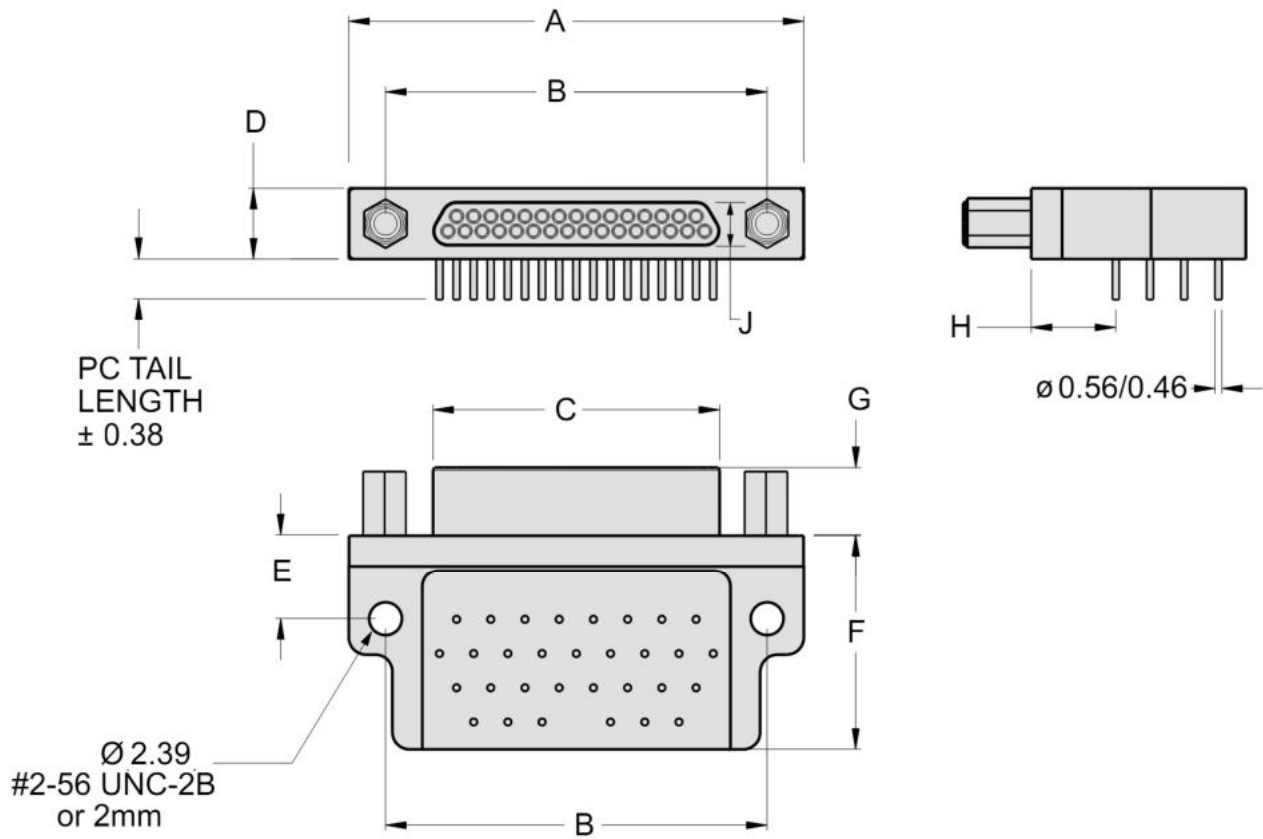
Ordering information

Basic series	MLDM	2	L-	15-	P	CBR	R3	-.110
Shell Material and Finish:								
Aluminum Shell								
1 – Yellow Chromate over Cadmium								
2 – Electroless Nickel								
32 – Black Zinc Nickel								
33 – Nickel-Fluorocarbon								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51								
Contact Type:								
P – Pin								
S – Socket								
Termination Type:								
CBR – Condensed Board Right Angle								
Jackpost Option:								
Omit – for None								
P – Jackpost								
Jackposts for Rear Panel Mounting:								
R1 – 0.8 mm Panel								
R2 – 1.19 mm Panel								
R3 – 1.58 mm Panel								
R4 – 2.36 mm Panel								
R5 – 3.18 mm Panel								
R6 – 2.03 mm Panel								
Threaded Insert Option:								
T – Threaded Inserts in Board Mounting Holes. #2-56 Inch Thread								
M – Threaded Inserts in Board Mounting Holes. M2 Metric Thread								
Omit – for Thru-Hole								
Terminal Length in Inches, tolerance $\pm 0,38$ mm:								
.110								
.125								
.150								
.190								
.250								
Terminal Plated Code:								
513 – Gold plated terminals								
Omit – Tin-lead solder 60/40								

Mounting Hardware Codes

Hardware Code	Description	View
T	Threaded Inserts	 #2-56 Insert 4.06 Max
P	Standard Jackpost not intended for removal	
R1 Thru R6	Jackpost for Rear Panel Mounting	 Panel

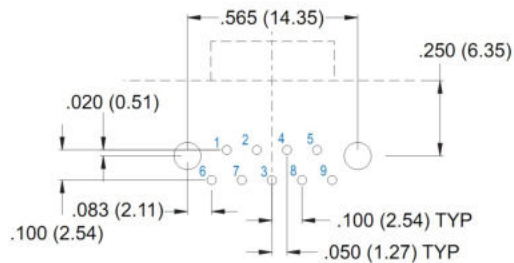
Dimensions



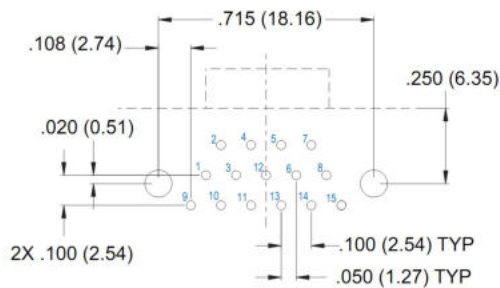
Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F Max	G Max.	H ± 0.25	J Max
9P	19.94	14.35	7.42	5.44	6.35	10.80	5.13	5.84	3.40
9S	19.94	14.35	9.65	5.44	6.35	10.80	4.70	5.84	5.54
15P	23.75	18.16	11.23	5.44	6.35	10.80	5.13	3.30	3.40
15S	23.75	18.16	13.46	5.44	6.35	10.80	4.70	3.30	5.64
21P	27.56	21.97	15.04	5.44	6.35	10.80	5.13	3.30	3.40
21S	27.56	21.97	17.27	5.44	6.35	10.80	4.70	3.30	5.64
25P	30.01	24.51	17.58	5.44	6.35	10.80	5.13	3.30	3.40
25S	30.01	24.51	19.81	5.44	6.35	10.80	4.70	3.30	5.64
31P	33.91	28.32	21.39	5.44	6.35	13.34	5.13	3.30	3.40
31S	33.91	28.32	23.62	5.44	6.35	13.34	4.70	3.30	5.64
37P	37.72	32.13	25.20	5.44	6.35	13.34	5.13	3.30	3.40
37S	37.72	32.13	27.43	5.44	6.35	13.34	4.70	3.30	5.64
51P	36.45	30.86	23.93	6.60	7.62	16.76	5.13	3.81	4.50
51S	36.45	30.86	26.16	6.60	7.62	16.76	4.70	3.81	6.60

PCB Layouts – Pin Connectors

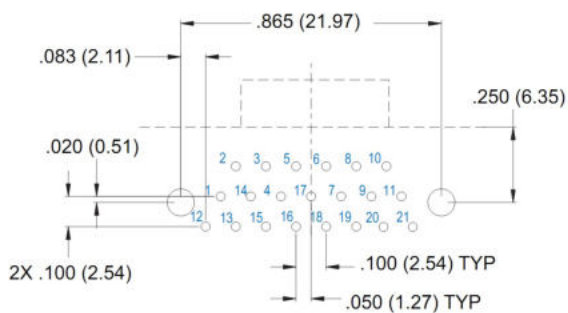
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.39 mm Diameter Mounting Holes. PC tails are 0.56 mm maximum diameter.



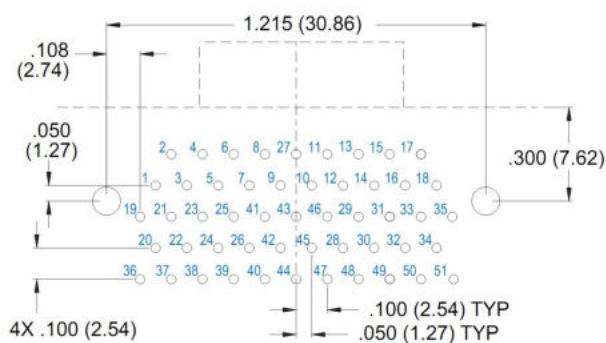
9 PIN



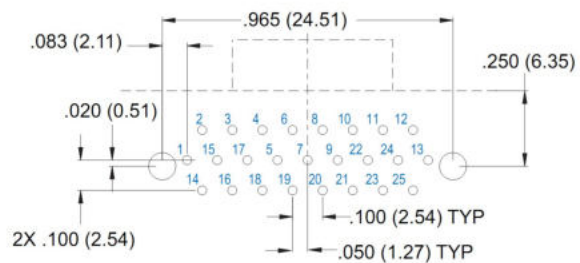
15 PIN



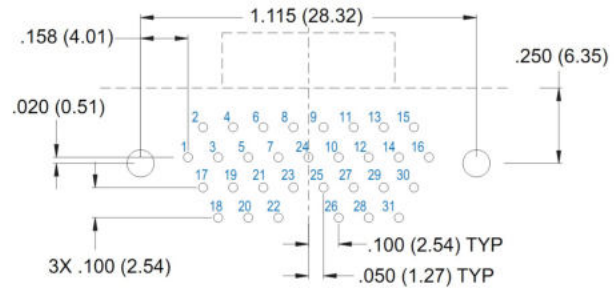
21 PIN



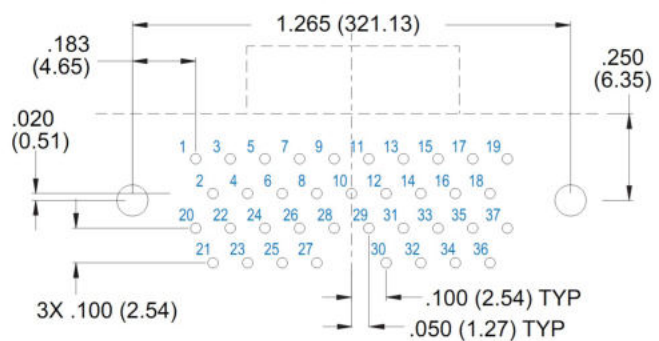
51 PIN



25 PIN



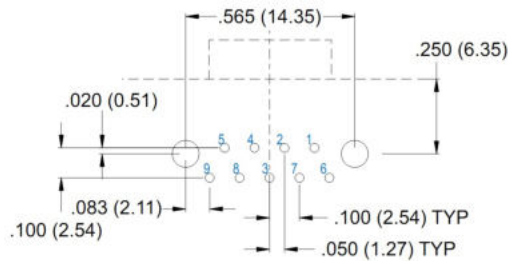
31 PIN



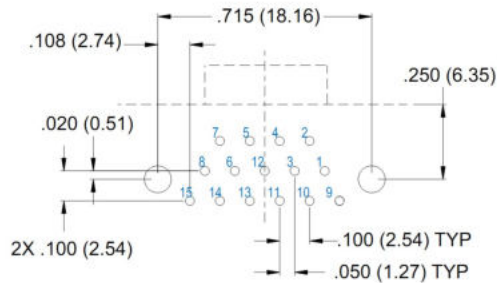
37 PIN

PCB Layouts – Socket Connectors

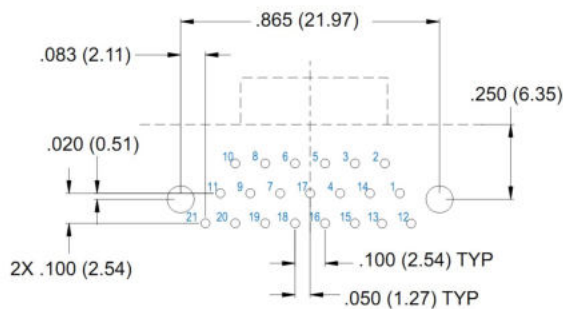
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.39 mm Diameter Mounting Holes. PC tails are 0.56 mm maximum diameter.



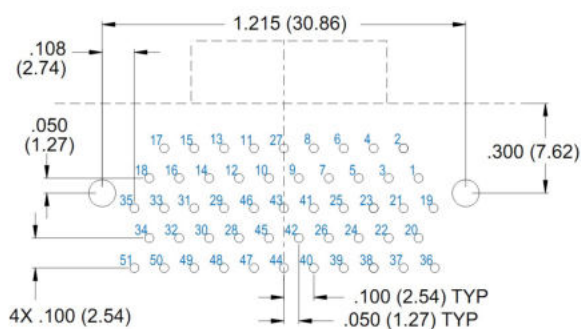
9 Socket



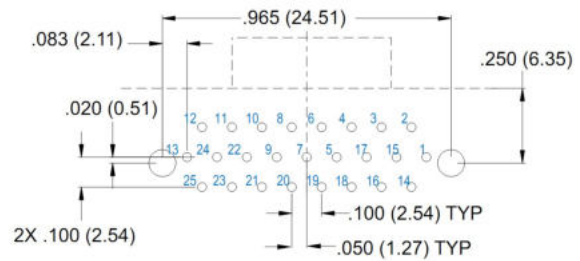
15 Socket



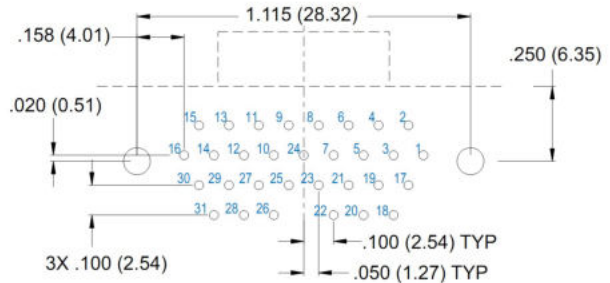
21 Socket



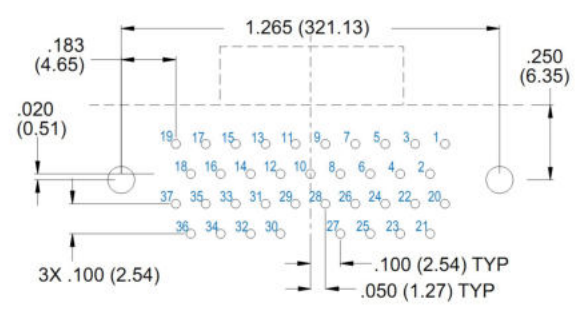
51 Socket



25 Socket



31 Socket



37 Socket

Low Profile Plastic Shell Solder Cup Connectors

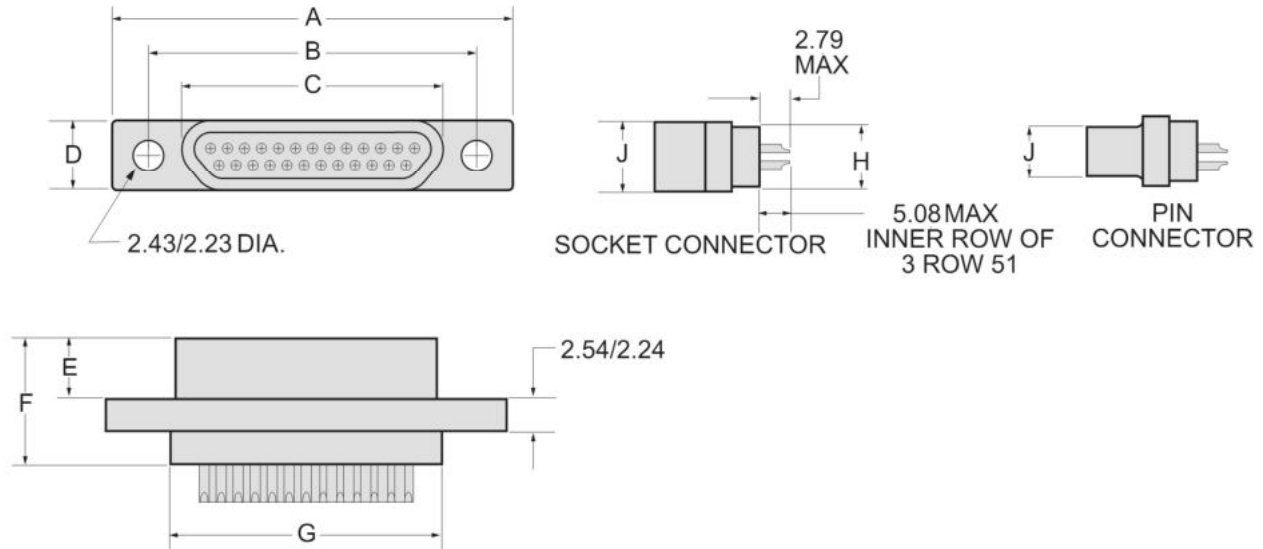


Ordering information

Basic series	MWDL	-37	S	S	B
Contact Layout – 9, 15, 21, 25, 31, 37, 51					
Contact Type:					
Size #26 Solder Cup Contacts (Standard)					
P – Pin					
S – Socket					
Size #24 Solder Cup Contacts					
N – Pin					
T – Socket					
Termination Type:					
S – Solder Cup					
Hardware Option – B, P, M, M1, S, S1					

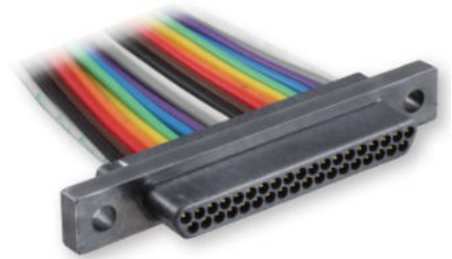
Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	5.54	5.13	10.03	10.36	4.39	3.40
9S	19.94	14.35	9.65	5.54	4.70	9.53	10.36	4.39	5.54
15P	23.75	18.16	11.23	5.54	5.13	10.03	14.17	4.39	3.40
15S	23.75	18.16	13.46	5.54	4.70	9.53	14.17	4.39	5.64
21P	27.56	21.97	15.04	5.54	5.13	10.03	17.98	4.39	3.40
21S	27.56	21.97	17.27	5.54	4.70	9.53	17.98	4.39	5.64
25P	30.01	24.51	17.58	5.54	5.13	10.03	20.52	4.39	3.40
25S	30.01	24.51	19.81	5.54	4.70	9.53	20.52	4.39	5.64
31P	33.91	28.32	21.39	5.54	5.13	10.03	24.33	4.39	3.40
31S	33.91	28.32	23.62	5.54	4.70	9.53	24.33	4.39	5.64
37P	37.72	32.13	25.20	5.54	5.13	10.03	28.14	4.39	3.40
37S	37.72	32.13	27.43	5.54	4.70	9.53	28.14	4.39	5.64
51P	36.45	30.86	23.93	6.60	5.13	10.03	26.87	5.59	4.62
51S	36.45	30.86	26.16	6.60	4.70	9.53	26.87	5.59	6.60

Low Profile Plastic Shell Insulated Wire Connectors

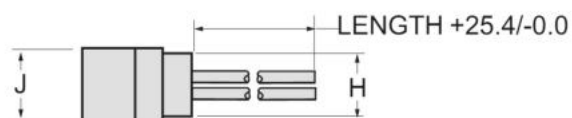
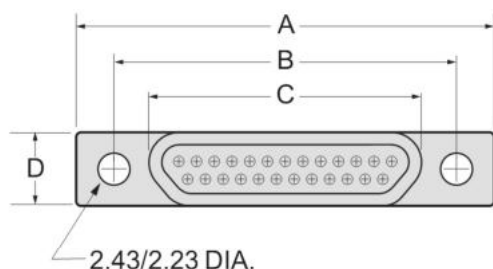


Ordering information

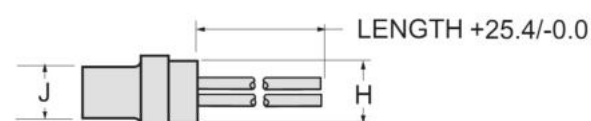
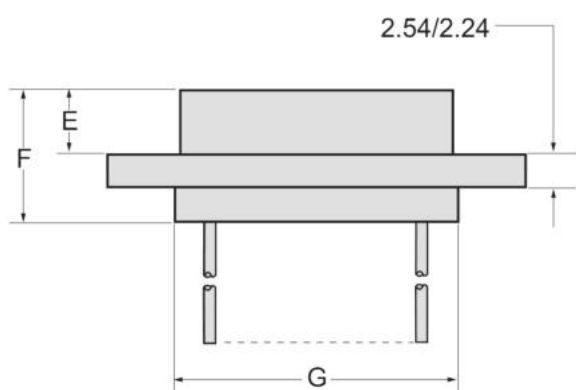
Basic series	MWDL	-37	P-	4	K	1-	18	B
Contact Layout – 9, 15, 21, 25, 31, 37, 51								
Contact Type:								
P – Pin								
S – Socket								
Wire Gage (AWG):								
4 – #24								
6 – #26								
8 – #28								
0 – #30								
Wire Type:								
K – M22759/11, 600 VRMS, Fluoropolymer (TFE)								
J – M22759/33, 600 VRMS, Modified Cross-Linked Tefzel® (ETFE)								
Wire Color:								
1 – White								
5 – Color-Coded Stripes Per MIL-STD-681 (up to 51 colors)								
7 – Ten Color Repeating								
Wire Length Inches:								
18 – Wire Length In Inches, pitch 3 inches (6 inches minimum)								
Hardware Option – B, M, M1, S, S1, P								

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	

Dimensions



SOCKET CONNECTOR

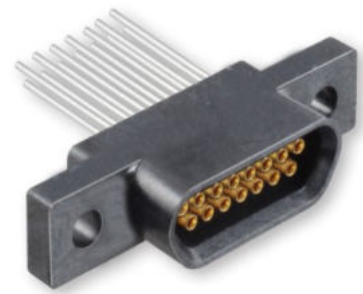


PIN CONNECTOR

Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	5.54	5.13	10.03	10.36	4.39	3.40
9S	19.94	14.35	9.65	5.54	4.70	9.53	10.36	4.39	5.54
15P	23.75	18.16	11.23	5.54	5.13	10.03	14.17	4.39	3.40
15S	23.75	18.16	13.46	5.54	4.70	9.53	14.17	4.39	5.64
21P	27.56	21.97	15.04	5.54	5.13	10.03	17.98	4.39	3.40
21S	27.56	21.97	17.27	5.54	4.70	9.53	17.98	4.39	5.64
25P	30.01	24.51	17.58	5.54	5.13	10.03	20.52	4.39	3.40
25S	30.01	24.51	19.81	5.54	4.70	9.53	20.52	4.39	5.64
31P	33.91	28.32	21.39	5.54	5.13	10.03	24.33	4.39	3.40
31S	33.91	28.32	23.62	5.54	4.70	9.53	24.33	4.39	5.64
37P	37.72	32.13	25.20	5.54	5.13	10.03	28.14	4.39	3.40
37S	37.72	32.13	27.43	5.54	4.70	9.53	28.14	4.39	5.64
51P	36.45	30.86	23.93	6.60	5.13	10.03	26.87	5.59	4.62
51S	36.45	30.86	26.16	6.60	4.70	9.53	26.87	5.59	6.60



Low Profile Plastic Shell Uninsulated Wire Connector

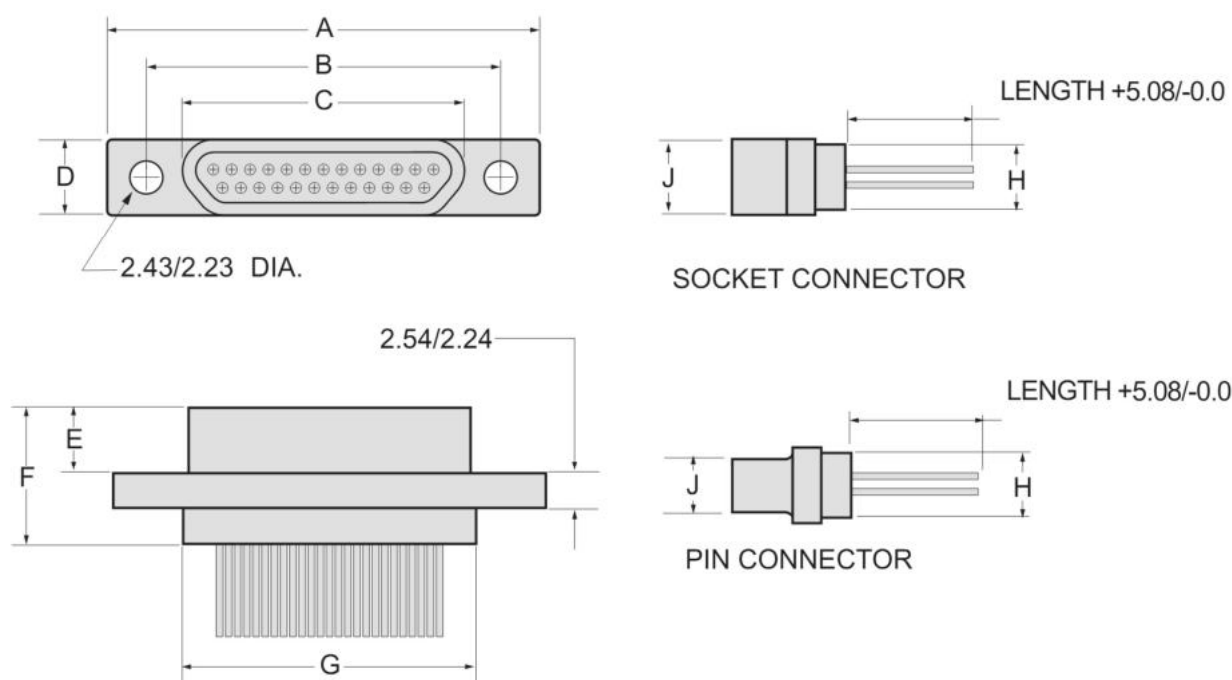


Ordering information

Basic series	MWDL	-37	P-	4	C	3-	.250	B
Contact Layout – 9, 15, 21, 25, 31, 37, 51								
Contact Type:								
P – Pin								
S – Socket								
Wire Gage (AWG):								
4 – #24								
5 – #25								
6 – #26								
Wire Type:								
C – Solid Copper								
Wire Finish:								
3 – Solder-Dipped Sn 60/40								
4 – Gold								
Wire Length (Inches):								
.125								
.250								
.500								
1.000								
1.500								
2.000								
Hardware Option – B, M, M1, S, S1, P								

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	

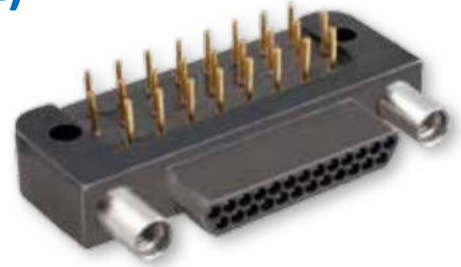
Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	7.42	5.54	5.13	10.03	10.36	4.39	3.40
9S	19.94	14.35	9.65	5.54	4.70	9.53	10.36	4.39	5.54
15P	23.75	18.16	11.23	5.54	5.13	10.03	14.17	4.39	3.40
15S	23.75	18.16	13.46	5.54	4.70	9.53	14.17	4.39	5.64
21P	27.56	21.97	15.04	5.54	5.13	10.03	17.98	4.39	3.40
21S	27.56	21.97	17.27	5.54	4.70	9.53	17.98	4.39	5.64
25P	30.01	24.51	17.58	5.54	5.13	10.03	20.52	4.39	3.40
25S	30.01	24.51	19.81	5.54	4.70	9.53	20.52	4.39	5.64
31P	33.91	28.32	21.39	5.54	5.13	10.03	24.33	4.39	3.40
31S	33.91	28.32	23.62	5.54	4.70	9.53	24.33	4.39	5.64
37P	37.72	32.13	25.20	5.54	5.13	10.03	28.14	4.39	3.40
37S	37.72	32.13	27.43	5.54	4.70	9.53	28.14	4.39	5.64
51P	36.45	30.86	23.93	6.60	5.13	10.03	26.87	5.59	4.62
51S	36.45	30.86	26.16	6.60	4.70	9.53	26.87	5.59	6.60



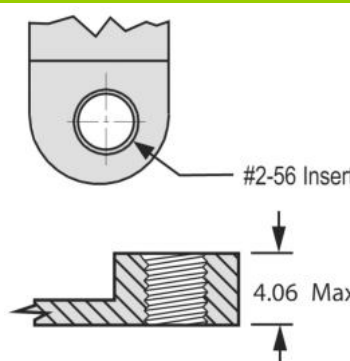
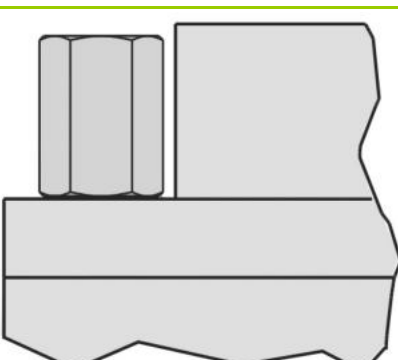
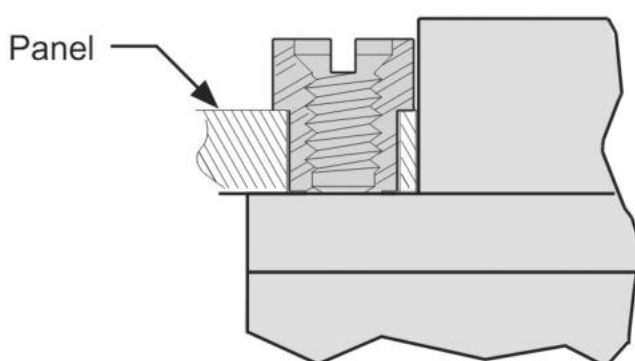
Low Profile Plastic Shell Right Angle PCB Termination (CBR)



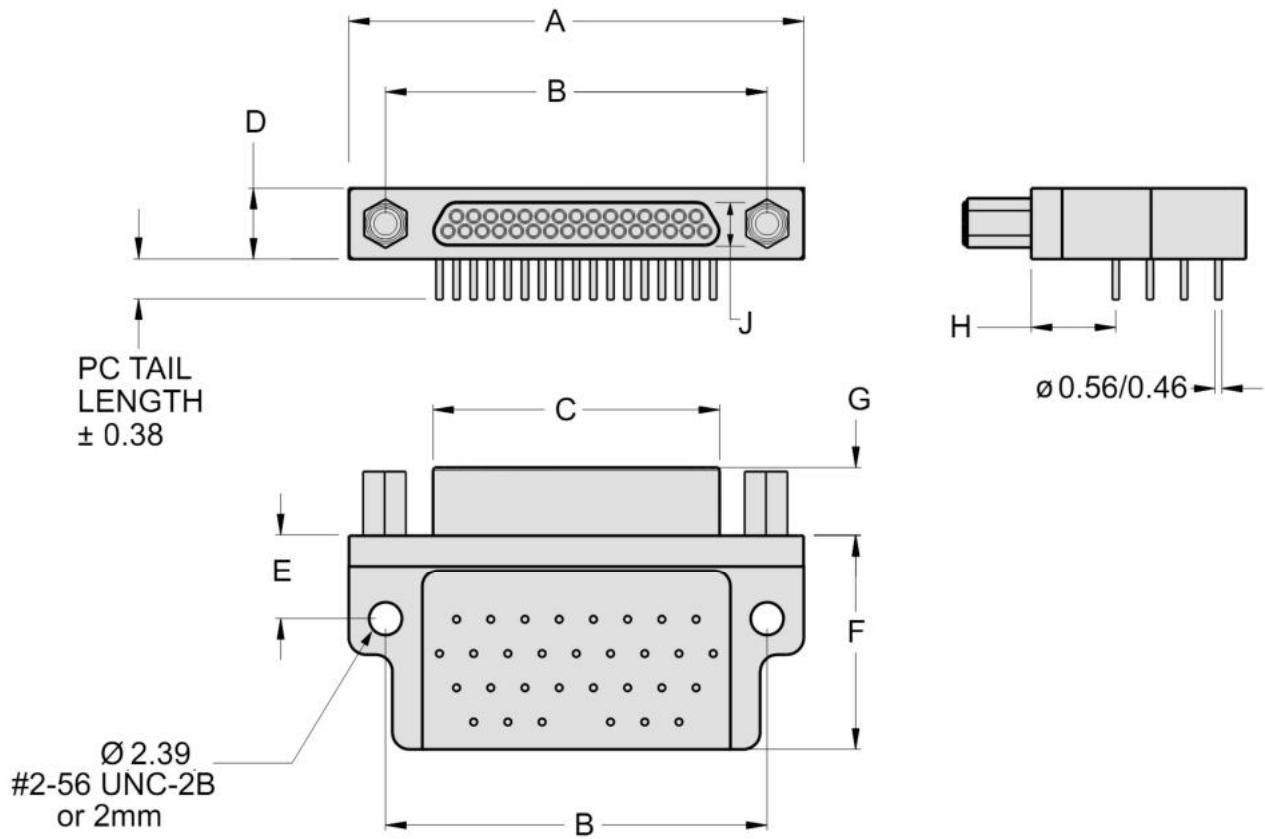
Ordering information

Basic series	MWDL	-15	P	CBR	R3	- .110
Contact Layout – 9, 15, 21, 25, 31, 37, 51						
Contact Type:						
P – Pin						
S – Socket						
Termination Type:						
CBR – Condensed Board Right Angle						
Jackpost Option:						
Omit – for None						
P – Jackpost						
Jackposts for Rear Panel Mounting:						
R1 – 0.8 mm Panel						
R2 – 1.19 mm Panel						
R3 – 1.58 mm Panel						
R4 – 2.36 mm Panel						
R5 – 3.18 mm Panel						
R6 – 2.03 mm Panel						
Threaded Insert Option:						
T – Threaded Inserts in Board Mounting Holes. #2-56 Inch Thread						
M – Threaded Inserts in Board Mounting Holes. M2 Metric Thread						
Omit – for Thru-Hole						
Terminal Length in Inches, tolerance $\pm 0,38$ mm:						
.110						
.125						
.150						
.190						
.250						
Terminal Plated Code:						
513 – Gold plated terminals						
Omit – Tin-lead solder 60/40						

Mounting Hardware Codes

Hardware Code	Description	View
T	Threaded Inserts	
P	Standard Jackpost not intended for removal	
R1 Thru R6	Jackpost for Rear Panel Mounting	

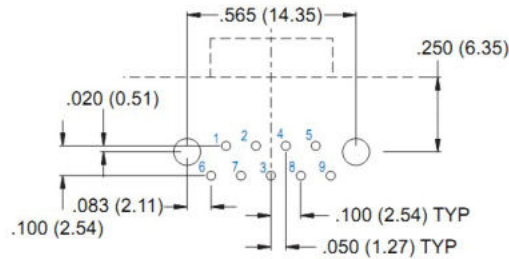
Dimensions



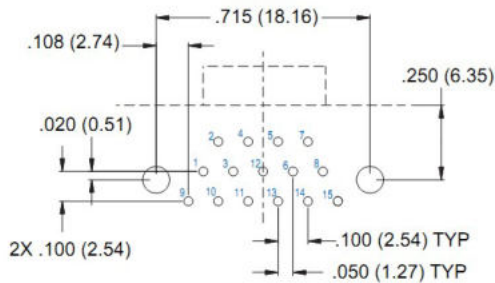
Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H ± 0.25	J ± 0.25
9P	19.94	14.35	7.42	5.44	6.35	10.80	5.13	5.84	3.40
9S	19.94	14.35	9.65	5.44	6.35	10.80	4.70	5.84	5.54
15P	23.75	18.16	11.23	5.44	6.35	10.80	5.13	3.30	3.40
15S	23.75	18.16	13.46	5.44	6.35	10.80	4.70	3.30	5.54
21P	27.56	21.97	15.04	5.44	6.35	10.80	5.13	3.30	3.40
21S	27.56	21.97	17.27	5.44	6.35	10.80	4.70	3.30	5.54
25P	30.01	24.51	17.58	5.44	6.35	10.80	5.13	3.30	3.40
25S	30.01	24.51	19.81	5.44	6.35	10.80	4.70	3.30	5.54
31P	33.91	28.32	21.39	5.44	6.35	13.34	5.13	3.30	3.40
31S	33.91	28.32	23.62	5.44	6.35	13.34	4.70	3.30	5.54
37P	37.72	32.13	25.20	5.44	6.35	13.34	5.13	3.30	3.40
37S	37.72	32.13	27.43	5.44	6.35	13.34	4.70	3.30	5.54
51P	36.45	30.86	23.93	6.60	7.62	16.76	5.13	3.81	4.50
51S	36.45	30.86	26.16	6.60	7.62	16.76	4.70	3.81	6.60

PCB Layouts – Pin Connectors

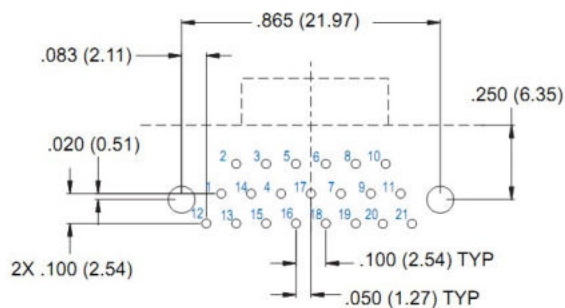
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.39 mm Diameter Mounting Holes. PC tails are 0.56 mm maximum diameter.



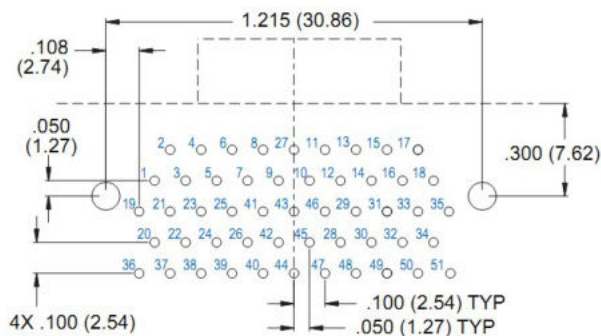
9 PIN



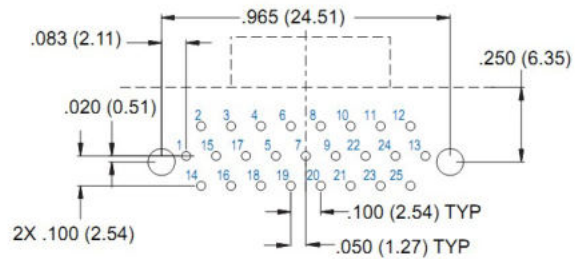
15 PIN



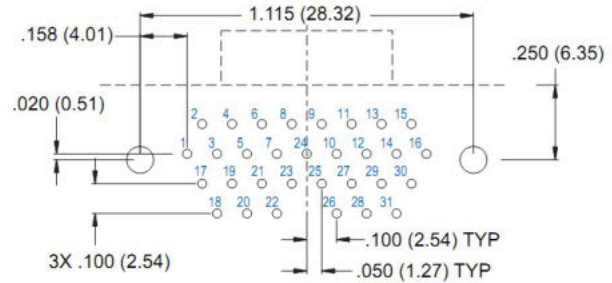
21 PIN



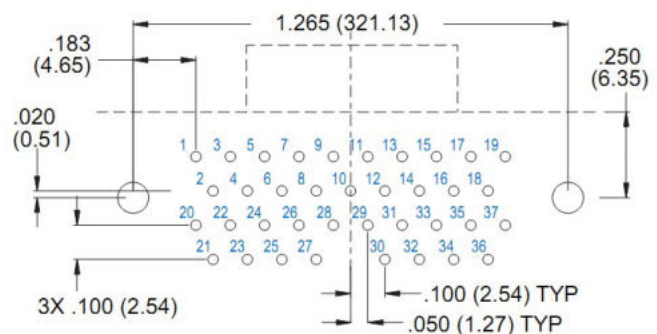
51 PIN



25 PIN



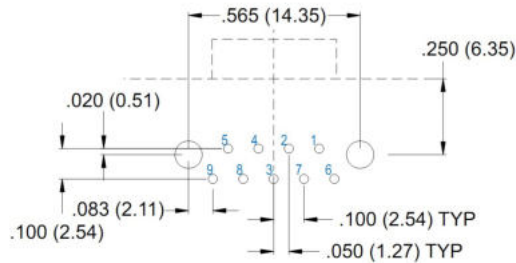
31 PIN



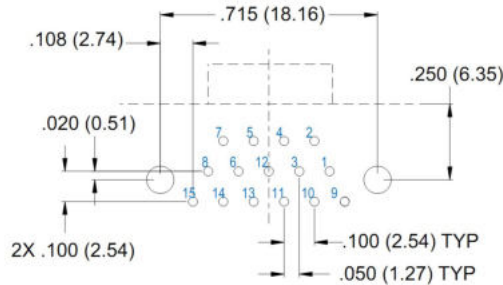
37 PIN

PCB Layouts – Socket Connectors

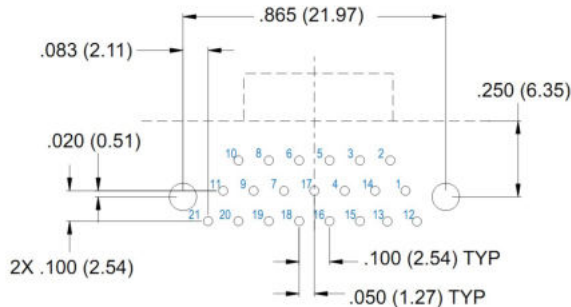
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.39 mm Diameter Mounting Holes. PC tails are 0.56 mm maximum diameter.



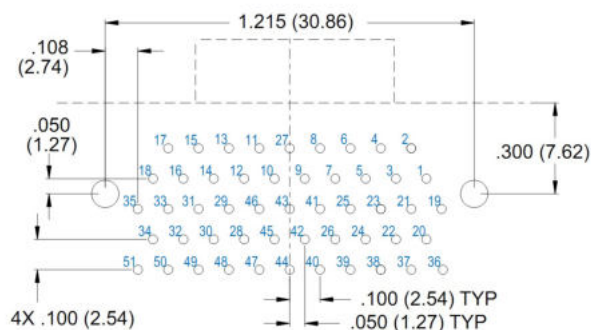
9 Socket



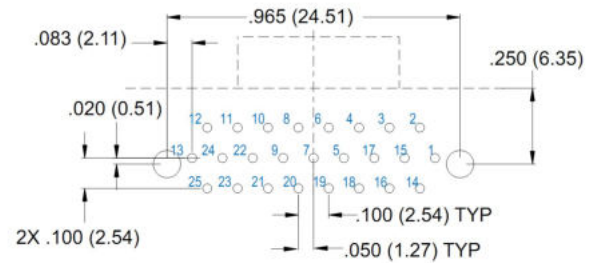
15 Socket



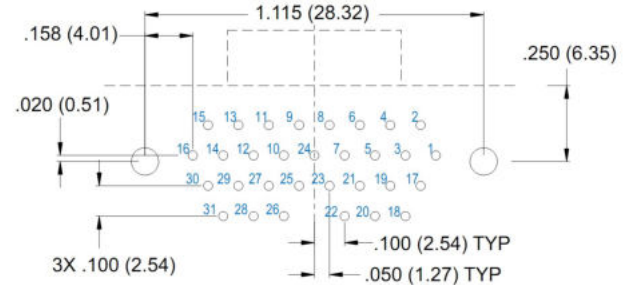
21 Socket



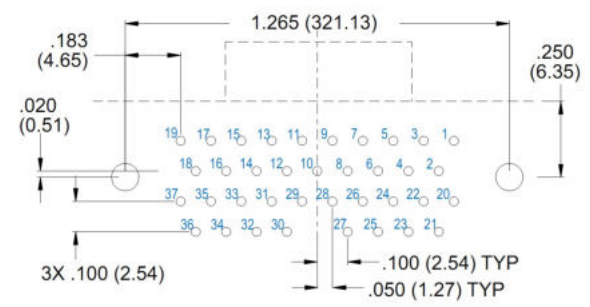
51 Socket



25 Socket



31 Socket



37 Socket

MICRO-D GRPM versions

**Part
3**



Solder Cup Terminated Rear Panel Mount Connectors with Wide Flange

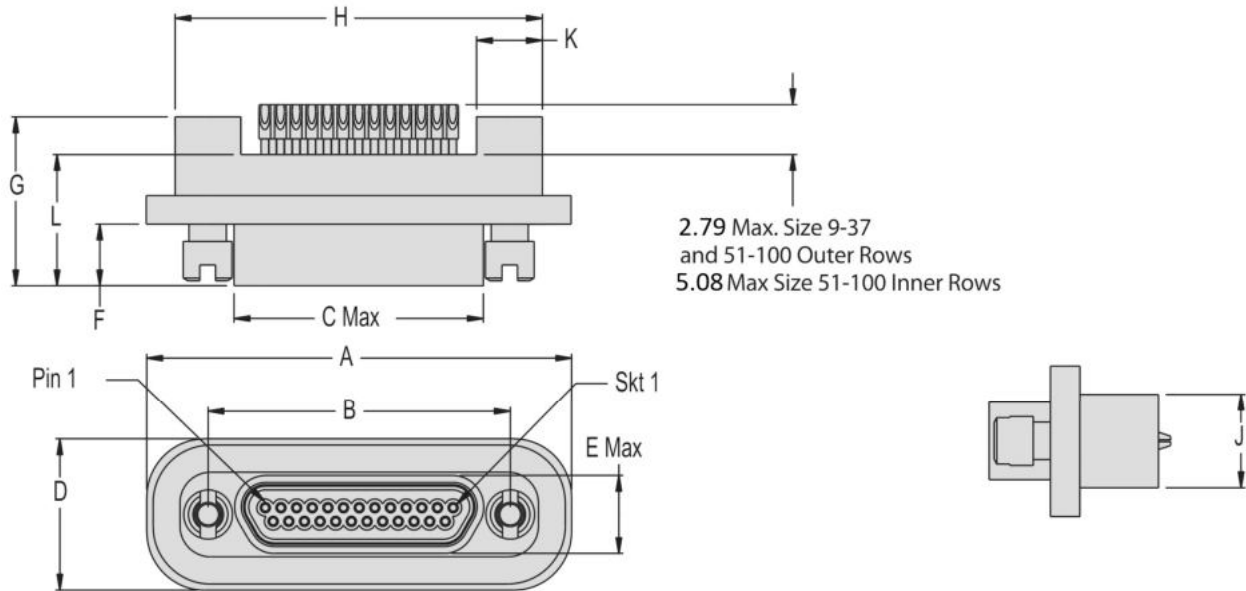


Ordering information

Basic series	GRPM	2	L-	37	S	S	R3	N
Shell Material and Finish:								
Aluminum Shell:								
1 – Cadmium								
2 – Nickel								
4 – Black Anodize								
5 – Gold								
6 – Chem Film								
33 – Nickel-PTFE								
Stainless Steel Shell:								
3 – Passivated								
Insulator Material:								
L – 30% Glass-Filled Liquid Crystal Polymer								
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130								
Contact Type:								
Size #26 Solder Cup Contacts (Standard)								
P – Pin								
S – Socket								
Termination Type:								
S – Solder Cup								
Jackpost Option:								
B – No hardware								
R1 – 0.8 mm Panel								
R2 – 1.19 mm Panel								
R3 – 1.58 mm Panel								
R4 – 2.36 mm Panel								
R5 – 3.18 mm Panel								
R6 – 2.03 mm Panel								
O-Ring Option:								
C – Conductive								
N – Non Conductive (Nitrile)								
B – Supplied Less O-ring								
F – Fluorosilicone								

Hardware Code	Description	View
R1 Thru R6	Jackpost for Rear Panel Mounting	

Dimensions



Layout	A ± 0.13	B ± 0.08	C Max.	D ± 0.13	E Max.	F ± 0.08	G ± 0.13	H Max.	J Max.	K	L Max.
9P	24.38	14.35	8.48	12.19	4.67	4.65	13.44	20.07	7.87	5.33	10.57
9S	24.38	14.35	10.16	12.19	6.35	4.95	13.74	20.07	7.87	5.33	10.90
15P	28.19	18.16	12.29	12.19	4.67	4.65	13.44	23.88	7.87	5.33	10.57
15S	28.19	18.16	13.97	12.19	6.35	4.95	13.74	23.88	7.87	5.33	10.90
21P	32.00	21.97	16.10	12.19	4.67	4.65	13.44	27.69	7.87	5.33	10.57
21S	32.00	21.97	17.78	12.19	6.35	4.95	13.74	27.69	7.87	5.33	10.90
25P	34.54	24.51	18.64	12.19	4.67	4.65	13.44	30.23	7.87	5.33	10.57
25S	34.54	24.51	20.32	12.19	6.35	4.95	13.74	30.23	7.87	5.33	10.90
31P	38.35	28.32	22.45	12.19	4.67	4.65	13.44	34.04	7.87	5.33	10.57
31S	38.35	28.32	24.13	12.19	6.35	4.95	13.74	34.04	7.87	5.33	10.90
37P	42.16	32.13	26.26	12.19	4.67	4.65	13.44	37.85	7.87	5.33	10.57
37S	42.16	32.13	27.94	12.19	6.35	4.95	13.74	37.85	7.87	5.33	10.90
51P	51.05	41.02	35.15	12.19	4.67	4.65	13.44	46.74	7.87	5.33	10.57
51S	51.05	41.02	36.83	12.19	6.35	4.95	13.74	46.74	7.87	5.33	10.90
51-2P	42.16	30.86	24.99	13.34	5.69	4.65	13.44	36.58	8.92	5.33	10.57
51-2S	42.16	30.86	26.67	13.34	7.44	4.95	13.74	36.58	8.92	5.33	10.90
69P	49.78	38.48	32.61	13.34	5.69	4.65	13.44	44.20	8.92	5.33	10.57
69S	49.78	38.48	34.29	13.34	7.44	4.95	13.74	44.20	8.92	5.33	10.90
75P	54.61	43.31	35.15	13.34	5.69	4.65	13.44	52.96	8.92	7.11	10.57
75S	54.61	43.31	36.83	13.34	7.44	4.95	13.74	52.96	8.92	7.11	10.90
100P	60.58	45.72	35.15	15.24	6.86	4.65	13.44	56.64	10.01	7.65	10.57
100S	60.58	45.72	36.86	15.24	8.46	4.95	13.74	56.64	10.01	7.65	10.90
130P	69.47	54.61	44.07	15.24	6.86	4.65	13.44	61.59	10.01	8.64	10.57
130S	69.47	54.61	45.60	15.24	8.46	4.95	13.74	61.59	10.01	8.64	10.90



Insulated-Wire Rear Panel Mount Connector with Wide Flange

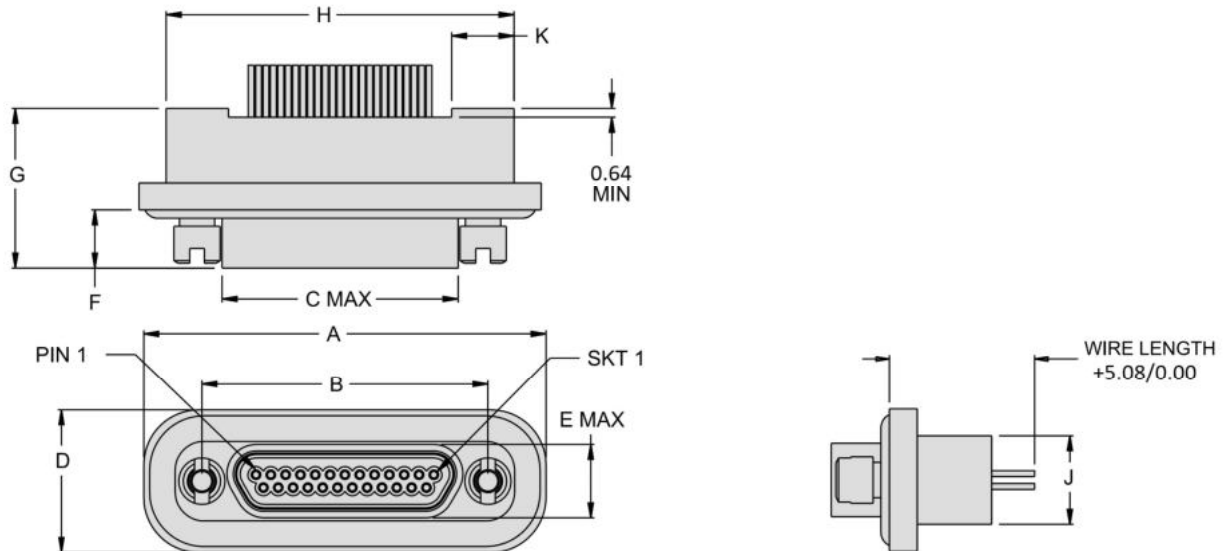


Ordering information

Basic series	GRPM	2	L-	37	P-	4	K	1-	18	B	N
Shell Material and Finish:											
Aluminum Shell:											
1 – Cadmium											
2 – Nickel											
4 – Black Anodize											
5 – Gold											
6 – Chem Film											
33 – Nickel-PTFE											
Stainless Steel Shell:											
3 – Passivated											
Insulator Material:											
L – 30% Glass-Filled Liquid Crystal Polymer											
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130											
Contact Type:											
P – Pin											
S – Socket											
Wire Gage (AWG):											
4 – #24 8 – #28											
6 – #26 0 – #30											
Wire Type:											
K – M22759/11, 600 VRMS, Fluoropolymer (TFE)											
J – M22759/33, 600 VRMS, Modified Cross-Linked Tefzel® (ETFE)											
E – NEMA HP3-EB, 600 VRMS Type E M16878/4 (TFE)											
Wire Color:											
1 – White											
2 – Yellow											
5 – Color-Coded Stripes Per MIL-STD-681 (up to 51 colors)											
7 – Ten Color Repeating											
Wire Length Inches:											
18 – Wire Length In Inches (6 inches minimum)											
Jackpost Option:											
B – No hardware											
R1 – 0.8 mm Panel R2 – 1.19 mm Panel											
R3 – 1.58 mm Panel R4 – 2.36 mm Panel											
R5 – 3.18 mm Panel R6 – 2.03 mm Panel											
O-Ring Option:											
C – Conductive											
N – Non Conductive (Nitrile)											
B – Supplied Less O-ring											
F – Fluorosilicone											

Hardware Code	Description	View
R1 Thru R6	Jackpost for Rear Panel Mounting	

Dimensions



Layout	A ± 0.13	B ± 0.08	C Max.	D ± 0.13	E Max.	F ± 0.08	G ± 0.13	H Max.	J Max.	K
9P	24.38	14.35	8.48	12.19	4.67	4.65	13.44	20.07	7.87	5.33
9S	24.38	14.35	10.16	12.19	6.35	4.95	13.74	20.07	7.87	5.33
15P	28.19	18.16	12.29	12.19	4.67	4.65	13.44	23.88	7.87	5.33
15S	28.19	18.16	13.97	12.19	6.35	4.95	13.74	23.88	7.87	5.33
21P	32.00	21.97	16.10	12.19	4.67	4.65	13.44	27.69	7.87	5.33
21S	32.00	21.97	17.78	12.19	6.35	4.95	13.74	27.69	7.87	5.33
25P	34.54	24.51	18.64	12.19	4.67	4.65	13.44	30.23	7.87	5.33
25S	34.54	24.51	20.32	12.19	6.35	4.95	13.74	30.23	7.87	5.33
31P	38.35	28.32	22.45	12.19	4.67	4.65	13.44	34.04	7.87	5.33
31S	38.35	28.32	24.13	12.19	6.35	4.95	13.74	34.04	7.87	5.33
37P	42.16	32.13	26.26	12.19	4.67	4.65	13.44	37.85	7.87	5.33
37S	42.16	32.13	27.94	12.19	6.35	4.95	13.74	37.85	7.87	5.33
51P	51.05	41.02	35.15	12.19	4.67	4.65	13.44	46.74	7.87	5.33
51S	51.05	41.02	36.83	12.19	6.35	4.95	13.74	46.74	7.87	5.33
51-2P	42.16	30.86	24.99	13.34	5.69	4.65	13.44	36.58	8.92	5.33
51-2S	42.16	30.86	26.67	13.34	7.44	4.95	13.74	36.58	8.92	5.33
69P	49.78	38.48	32.61	13.34	5.69	4.65	13.44	44.20	8.92	5.33
69S	49.78	38.48	34.29	13.34	7.44	4.95	13.74	44.20	8.92	5.33
75P	54.61	43.31	35.15	13.34	5.69	4.65	13.44	52.96	8.92	7.11
75S	54.61	43.31	36.83	13.34	7.44	4.95	13.74	52.96	8.92	7.11
100P	60.58	45.72	35.15	15.24	6.86	4.65	13.44	56.64	10.01	7.65
100S	60.58	45.72	36.86	15.24	8.46	4.95	13.74	56.64	10.01	7.65
130P	69.47	54.61	44.07	15.24	6.86	4.65	13.44	61.59	10.01	8.64
130S	69.47	54.61	45.60	15.24	8.46	4.95	13.74	61.59	10.01	8.64



Uninsulated-Wire Rear Panel Mount Connector with Wide Flange

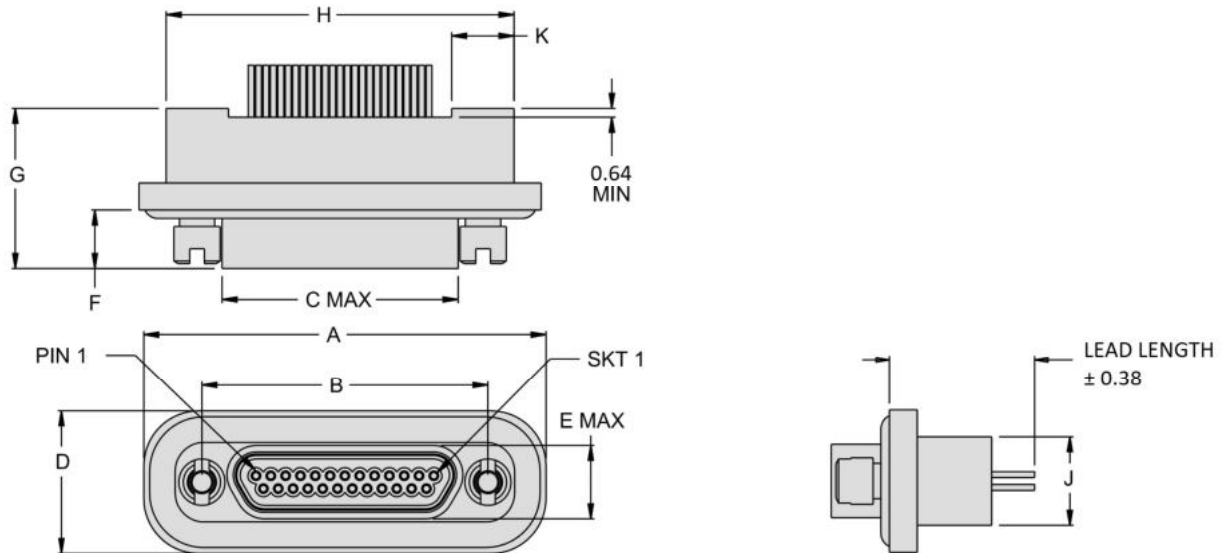


Ordering information

Basic series	GRPM	2	L-	37	P-	4	C	4-	.250	R3	N
Shell Material and Finish:											
Aluminum Shell:											
1 – Cadmium											
2 – Nickel											
4 – Black Anodize											
5 – Gold											
6 – Chem Film											
33 – Nickel-PTFE											
Stainless Steel Shell:											
3 – Passivated											
Insulator Material:											
L – 30% Glass-Filled Liquid Crystal Polymer											
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130											
Contact Type:											
P – Pin											
S – Socket											
Wire Gage (AWG):											
4 – #24 5 – #25 6 – #26											
Wire Type:											
C – Solid Copper											
Wire Finish:											
3 – Solder-Dipped Sn 60/40											
4 – Gold											
Wire Length (Inches):											
.125											
.250											
.375											
.500											
.750											
1.000											
Jackpost Option:											
B – No hardware											
R1 – 0.8 mm Panel R2 – 1.19 mm Panel											
R3 – 1.58 mm Panel R4 – 2.36 mm Panel											
R5 – 3.18 mm Panel R6 – 2.03 mm Panel											
O-Ring Option:											
C – Conductive											
N – Non Conductive (Nitrile)											
B – Supplied Less O-ring											
F – Fluorosilicone											

Hardware Code	Description	View
R1 Thru R6	Jackpost for Rear Panel Mounting	

Dimensions



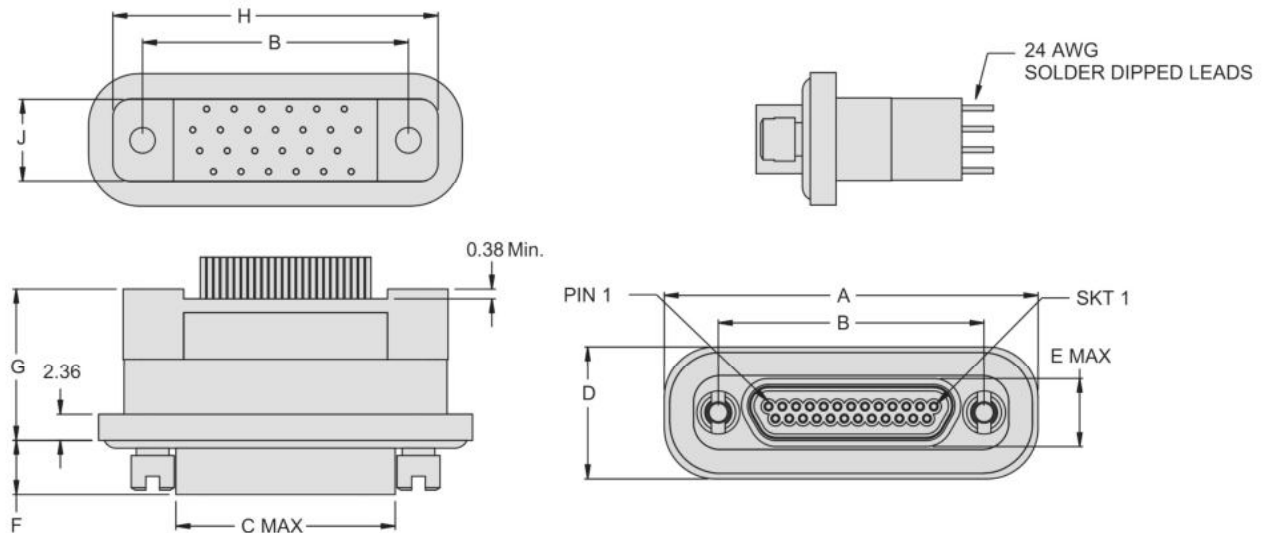
Layout	A ± 0.13	B ± 0.08	C Max.	D ± 0.13	E Max.	F ± 0.08	G ± 0.13	H Max.	J Max.	K
9P	24.38	14.35	8.48	12.19	4.67	4.65	13.44	20.07	7.87	5.33
9S	24.38	14.35	10.16	12.19	6.35	4.95	13.74	20.07	7.87	5.33
15P	28.19	18.16	12.29	12.19	4.67	4.65	13.44	23.88	7.87	5.33
15S	28.19	18.16	13.97	12.19	6.35	4.95	13.74	23.88	7.87	5.33
21P	32.00	21.97	16.10	12.19	4.67	4.65	13.44	27.69	7.87	5.33
21S	32.00	21.97	17.78	12.19	6.35	4.95	13.74	27.69	7.87	5.33
25P	34.54	24.51	18.64	12.19	4.67	4.65	13.44	30.23	7.87	5.33
25S	34.54	24.51	20.32	12.19	6.35	4.95	13.74	30.23	7.87	5.33
31P	38.35	28.32	22.45	12.19	4.67	4.65	13.44	34.04	7.87	5.33
31S	38.35	28.32	24.13	12.19	6.35	4.95	13.74	34.04	7.87	5.33
37P	42.16	32.13	26.26	12.19	4.67	4.65	13.44	37.85	7.87	5.33
37S	42.16	32.13	27.94	12.19	6.35	4.95	13.74	37.85	7.87	5.33
51P	51.05	41.02	35.15	12.19	4.67	4.65	13.44	46.74	7.87	5.33
51S	51.05	41.02	36.83	12.19	6.35	4.95	13.74	46.74	7.87	5.33
51-2P	42.16	30.86	24.99	13.34	5.69	4.65	13.44	36.58	8.92	5.33
51-2S	42.16	30.86	26.67	13.34	7.44	4.95	13.74	36.58	8.92	5.33
69P	49.78	38.48	32.61	13.34	5.69	4.65	13.44	44.20	8.92	5.33
69S	49.78	38.48	34.29	13.34	7.44	4.95	13.74	44.20	8.92	5.33
75P	54.61	43.31	35.15	13.34	5.69	4.65	13.44	52.96	8.92	7.11
75S	54.61	43.31	36.83	13.34	7.44	4.95	13.74	52.96	8.92	7.11
100P	60.58	45.72	35.15	15.24	6.86	4.65	13.44	56.64	10.01	7.65
100S	60.58	45.72	36.86	15.24	8.46	4.95	13.74	56.64	10.01	7.65
130P	69.47	54.61	44.07	15.24	6.86	4.65	13.44	61.59	10.01	8.64
130S	69.47	54.61	45.60	15.24	8.46	4.95	13.74	61.59	10.01	8.64

Condensed Vertical Rear Panel Mount Printed Circuit Board Connectors with Wide Flange Ordering information



Basic series	GRPM	2	L-	37	P	CBS	R3	T	N	-.110	N
Shell Material and Finish:											
Aluminum Shell											
1 – Cadmium											
2 – Nickel											
4 – Black Anodize											
5 – Gold											
6 – Chem Film											
Stainless Steel Shell											
3 – Passivated											
Insulator Material:											
L – 30% Glass-Filled Liquid Crystal Polymer											
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130											
Contact Type:											
P – Pin											
S – Socket											
Termination Type:											
CBS – Condensed Board Straight											
Jackpost Option:											
B – No hardware											
R1 – 0.8 mm Panel											
R2 – 1.19 mm Panel											
R3 – 1.58 mm Panel											
R4 – 2.36 mm Panel											
R5 – 3.18 mm Panel											
R6 – 2.03 mm Panel											
Threaded Insert Option:											
T – Threaded Insert In Board Mount Hole (2-56 threads for sizes 9-69 and 4-40 threads for sizes 75 – 130)											
Omit – for Thru-Hole											
O-Ring Option:											
C – Conductive											
N – Non Conductive (Nitrile)											
B – Supplied Less O-ring											
F – Fluorosilicone											
Terminal Length in Inches, tolerance $\pm 0,38$ mm:											
.080											
.110											
.125											
.140											
.150											
.172											
.190											
.250											
Terminal Plated Code:											
513 – Gold plated terminals											
Omit – Tin-lead solder 60/40											

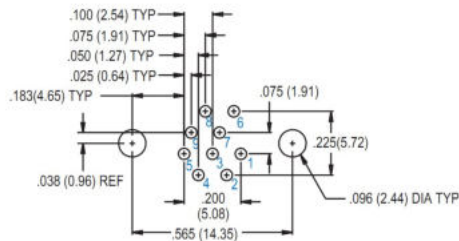
Dimensions



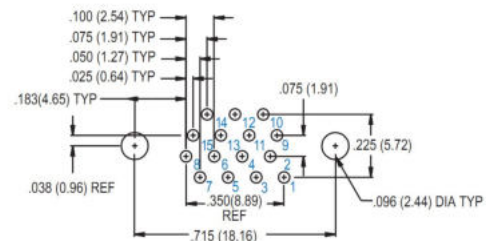
Layout	A ± 0.13	B ± 0.08	C Max.	D ± 0.13	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	24.38	14.35	8.48	12.19	4.67	4.65	14.10	19.94	7.87
9S	24.38	14.35	10.16	12.19	6.35	4.95	14.10	19.94	7.87
15P	28.19	18.16	12.29	12.19	4.67	4.65	14.10	23.75	7.87
15S	28.19	18.16	13.97	12.19	6.35	4.95	14.10	23.75	7.87
21P	32.00	21.97	16.10	12.19	4.67	4.65	14.10	27.56	7.87
21S	32.00	21.97	17.78	12.19	6.35	4.95	14.10	27.56	7.87
25P	34.54	24.51	18.64	12.19	4.67	4.65	14.10	30.10	7.87
25S	34.54	24.51	20.32	12.19	6.35	4.95	14.10	30.10	7.87
31P	38.35	28.32	22.45	12.19	4.67	4.65	14.10	33.91	7.87
31S	38.35	28.32	24.13	12.19	6.35	4.95	14.10	33.91	7.87
37P	42.16	32.13	26.26	12.19	4.67	4.65	14.10	37.72	7.87
37S	42.16	32.13	27.94	12.19	6.35	4.95	14.10	37.72	7.87
51P	51.05	41.02	35.15	12.19	4.67	4.65	14.10	46.61	7.87
51S	51.05	41.02	36.83	12.19	6.35	4.95	14.10	46.61	7.87
51-2P	42.16	30.86	24.99	13.34	5.69	4.65	14.10	36.45	10.16
51-2S	42.16	30.86	26.67	13.34	7.44	4.95	14.10	36.45	10.16
69P	49.78	38.48	32.61	13.34	5.69	4.65	14.10	44.07	10.16
69S	49.78	38.48	34.29	13.34	7.44	4.95	14.10	44.07	10.16
75P	54.61	43.31	35.15	13.34	5.69	4.65	14.10	52.83	10.16
75S	54.61	43.31	36.83	13.34	7.44	4.95	14.10	52.83	10.16
100P	60.58	45.72	35.15	15.24	6.86	4.65	16.26	55.12	12.95
100S	60.58	45.72	36.86	15.24	8.46	4.95	16.26	55.12	12.95
130P	69.47	54.61	44.07	15.24	6.86	4.65	16.26	64.01	12.95
130S	69.47	54.61	45.60	15.24	8.46	4.95	16.26	64.01	12.95

PCB Layouts – Pin Connectors

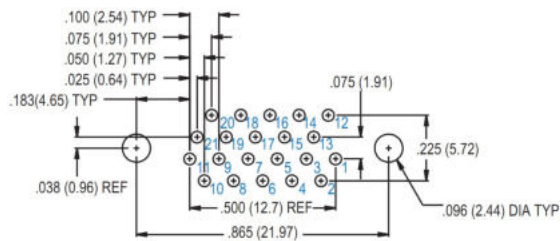
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



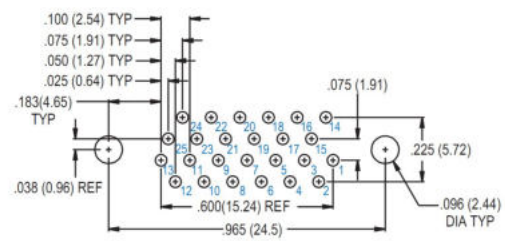
9 PIN



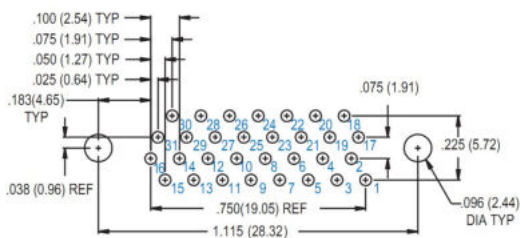
15 PIN



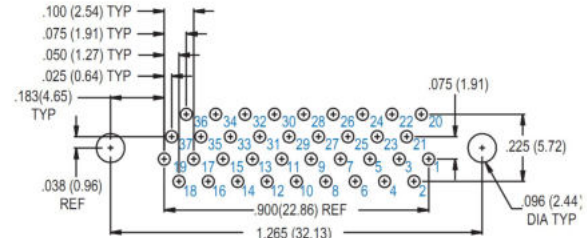
21 PIN



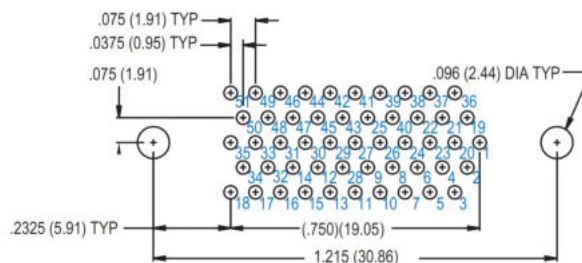
25 PIN



31 PIN



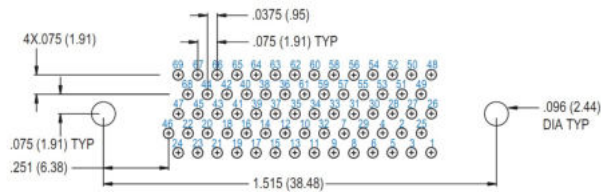
37 PIN



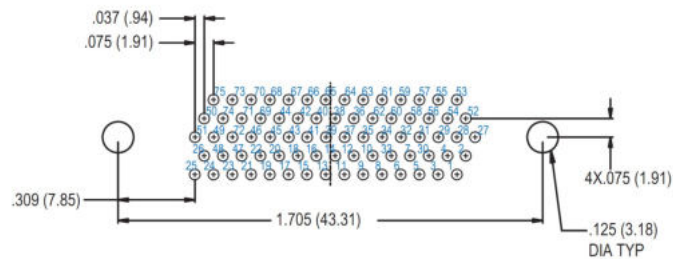
51 PIN

PCB Layouts – Pin Connectors

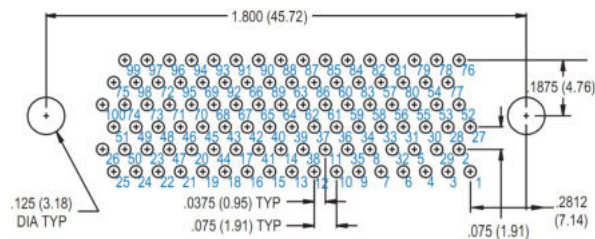
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



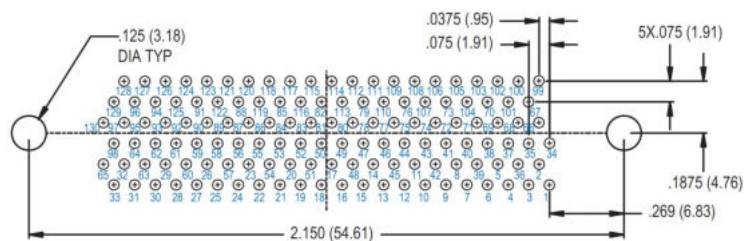
69 PIN



75 PIN



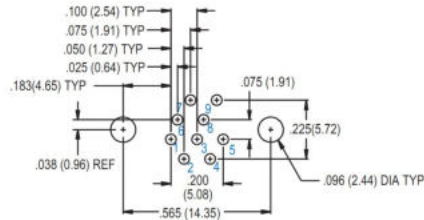
100 PIN



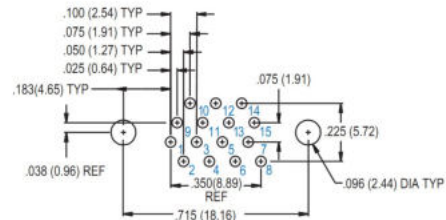
130 PIN

PCB Layouts – Socket Connectors

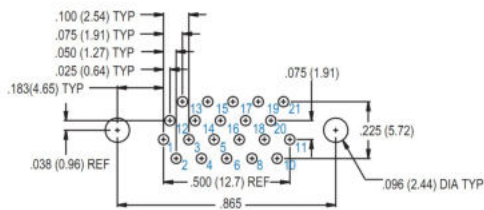
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



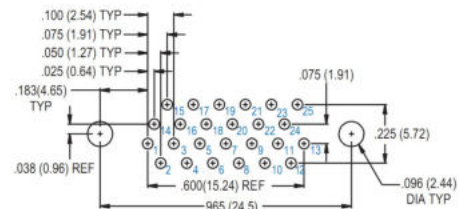
9 SOCKET



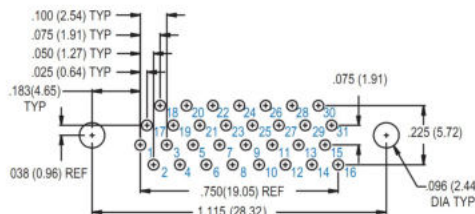
15 SOCKET



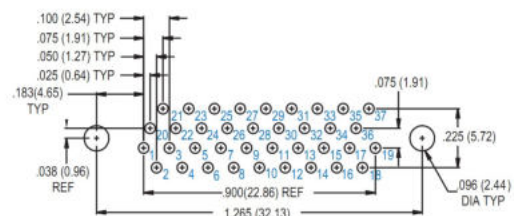
21 SOCKET



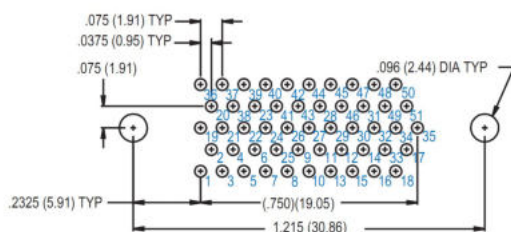
25 SOCKET



31 SOCKET



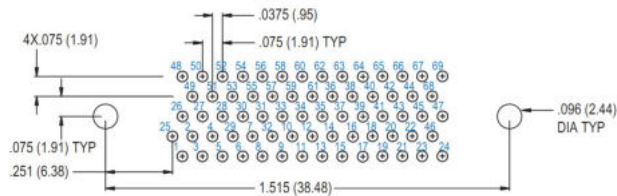
37 SOCKET



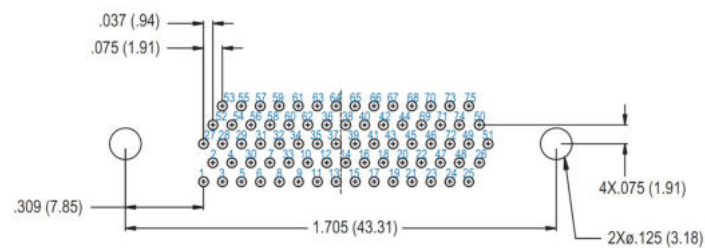
51 SOCKET

PCB Layouts – Socket Connectors

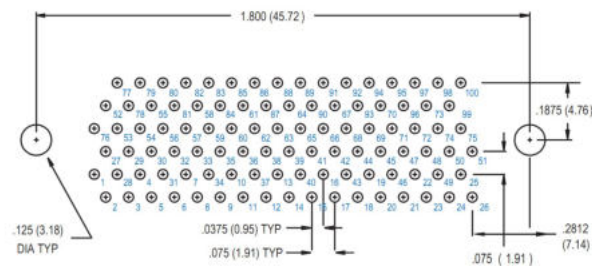
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75 Thru 130 Contacts 3.18 mm Diameter Mounting Hole



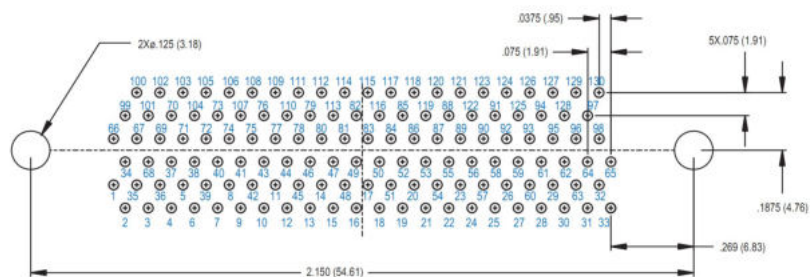
69 SOCKET



75 SOCKET



100 SOCKET



130 SOCKET

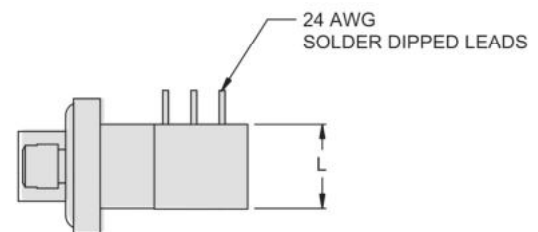
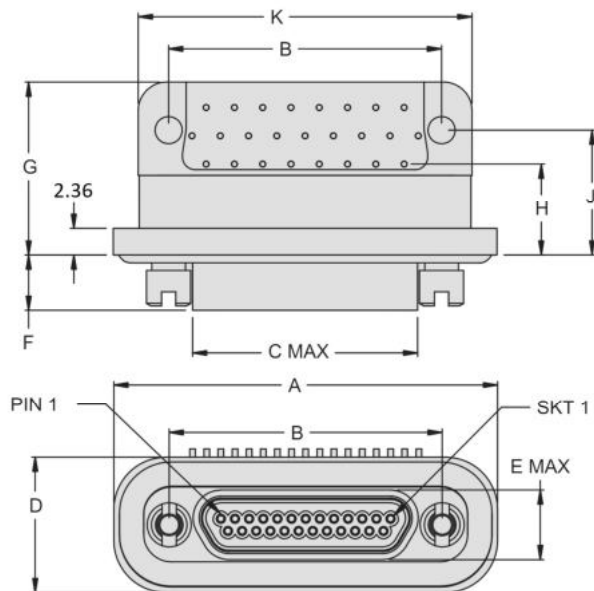
Condensed Right Angle RearPanel Mount Printed Circuit Board Connectors with Wide Flange (CBR)



Ordering information

Basic series	GRPM	2	L-	37	P	CBR	R3	T	N	-.110	N
Shell Material and Finish:											
Aluminum Shell											
1 – Cadmium											
2 – Nickel											
4 – Black Anodize											
5 – Gold											
6 – Chem Film											
Stainless Steel Shell											
3 – Passivated											
Insulator Material:											
L – 30% Glass-Filled Liquid Crystal Polymer											
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130											
Contact Type:											
P – Pin											
S – Socket											
Termination Type:											
CBR – Condensed Board Right Angle											
Jackpost Option:											
B – No hardware											
R1 – 0.8 mm Panel											
R2 – 1.19 mm Panel											
R3 – 1.58 mm Panel											
R4 – 2.36 mm Panel											
R5 – 3.18 mm Panel											
R6 – 2.03 mm Panel											
Threaded Insert Option:											
T – Threaded Insert In Board Mount Hole (2-56 threads for sizes 9-69 and 4-40 threads for sizes 75 – 130)											
Omit – for Thru-Hole											
O-Ring Option:											
C – Conductive											
N – Non Conductive (Nitrile)											
B – Supplied Less O-ring											
F – Fluorosilicone											
Terminal Length in Inches, tolerance $\pm 0,38$ mm:											
.080											
.110											
.125											
.140											
.150											
.172											
.190											
.250											
Terminal Plated Code:											
513 – Gold plated terminals											
Omit – Tin-lead solder 60/40											

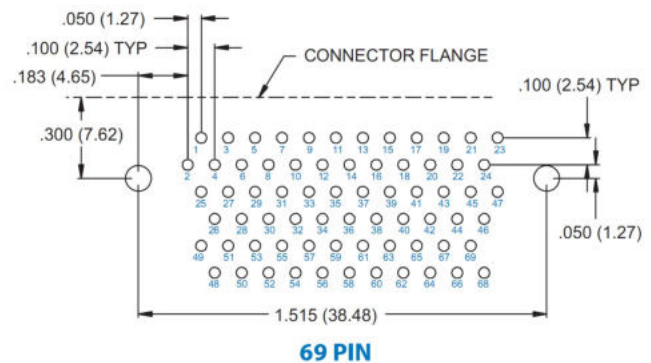
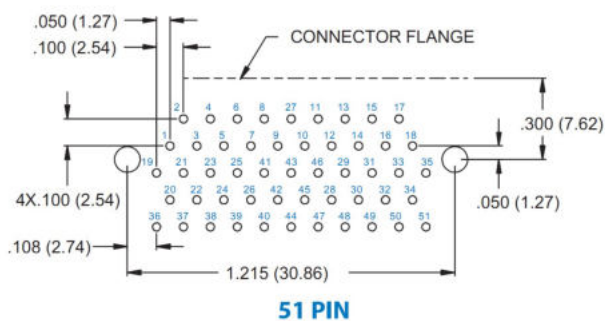
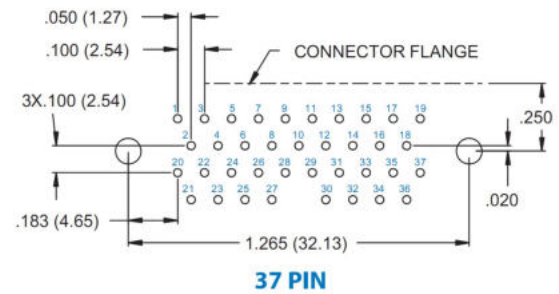
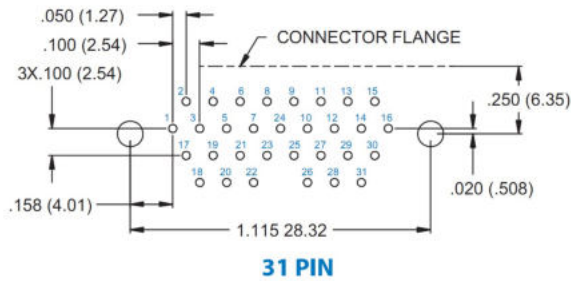
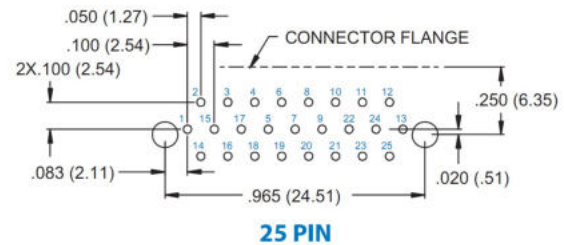
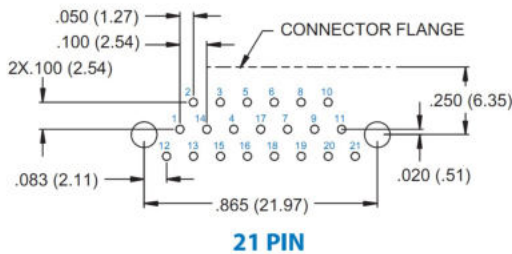
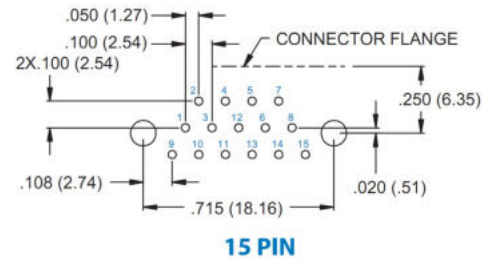
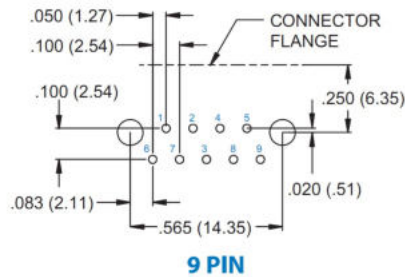
Dimensions



Layout	A ± 0.13	B ± 0.08	C Max.	D ± 0.13	E Max.	F ± 0.08	G Max.	H ± 0.25	J Max.	K Max.	L Max.
9P	24.38	14.35	8.48	12.19	4.67	4.65	15.88	10.80	11.30	19.99	7.87
9S	24.38	14.35	10.16	12.19	6.35	4.95	15.88	10.80	11.30	19.99	7.87
15P	28.19	18.16	12.29	12.19	4.67	4.65	15.88	8.25	11.30	23.80	7.87
15S	28.19	18.16	13.97	12.19	6.35	4.95	15.88	8.25	11.30	23.80	7.87
21P	32.00	21.97	16.10	12.19	4.67	4.65	15.88	8.25	11.30	27.61	7.87
21S	32.00	21.97	17.78	12.19	6.35	4.95	15.88	8.25	11.30	27.61	7.87
25P	34.54	24.51	18.64	12.19	4.67	4.65	15.88	8.25	11.30	30.15	7.87
25S	34.54	24.51	20.32	12.19	6.35	4.95	15.88	8.25	11.30	30.15	7.87
31P	38.35	28.32	22.45	12.19	4.67	4.65	18.42	8.25	11.30	33.96	7.87
31S	38.35	28.32	24.13	12.19	6.35	4.95	18.42	8.25	11.30	33.96	7.87
37P	42.16	32.13	26.26	12.19	4.67	4.65	18.42	8.25	11.30	37.77	7.87
37S	42.16	32.13	27.94	12.19	6.35	4.95	18.42	8.25	11.30	37.77	7.87
51P	51.05	41.02	35.15	12.19	4.67	4.65	18.42	8.25	11.30	46.66	7.87
51S	51.05	41.02	36.83	12.19	6.35	4.95	18.42	8.25	11.30	46.66	7.87
51-2P	42.16	30.86	24.99	13.34	5.69	4.65	21.84	8.76	12.57	36.45	8.92
51-2S	42.16	30.86	26.67	13.34	7.44	4.95	21.84	8.76	12.57	36.45	8.92
69P	49.78	38.48	32.61	13.34	5.69	4.65	24.13	8.76	12.57	44.20	8.92
69S	49.78	38.48	34.29	13.34	7.44	4.95	24.13	8.76	12.57	44.20	8.92
75P	54.61	43.31	35.15	13.34	5.69	4.65	25.40	10.03	15.11	53.09	8.92
75S	54.61	43.31	36.83	13.34	7.44	4.95	25.40	10.03	15.11	53.09	8.92
100P	60.58	45.72	35.15	15.24	6.86	4.65	30.73	10.03	15.11	55.25	10.01
100S	60.58	45.72	36.86	15.24	8.46	4.95	30.73	10.03	15.11	55.25	10.01
130P	69.47	54.61	44.07	15.24	6.86	4.65	30.73	10.03	15.11	64.01	10.01
130S	69.47	54.61	45.60	15.24	8.46	4.95	30.73	61.59	10.01	8.64	10.90

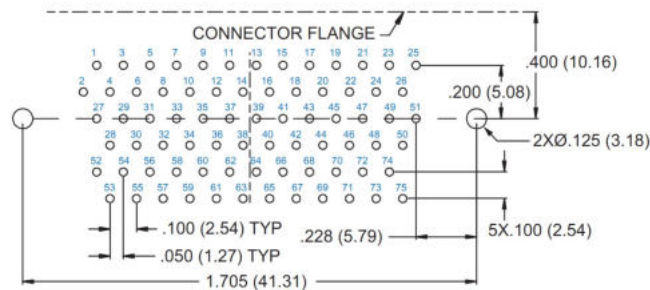
PCB Layouts – Pin Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole

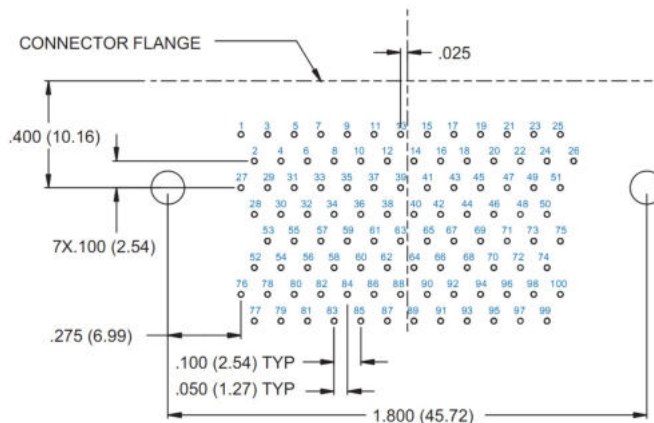


PCB Layouts – Pin Connectors

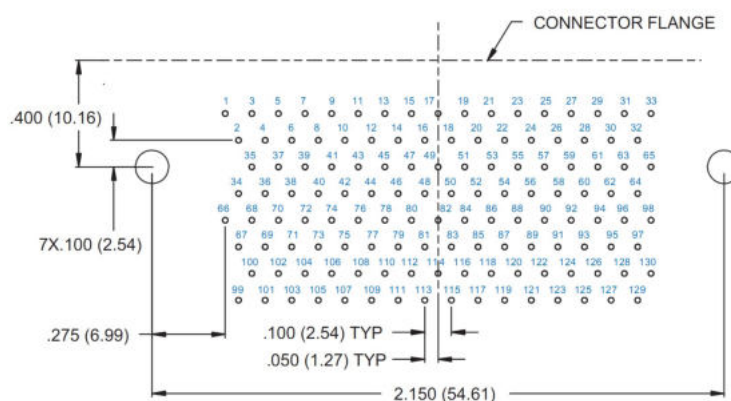
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole



75 PIN



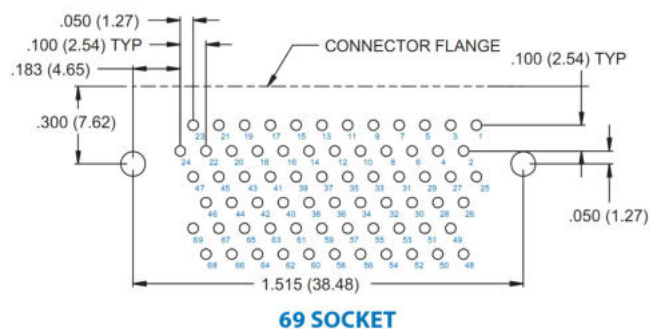
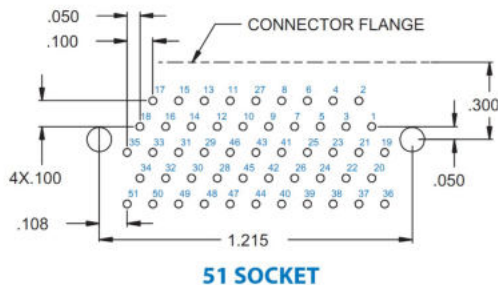
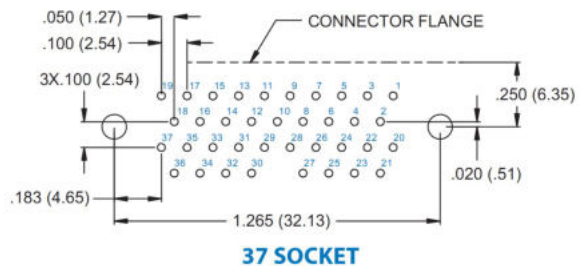
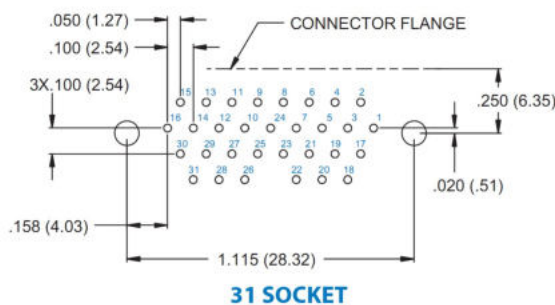
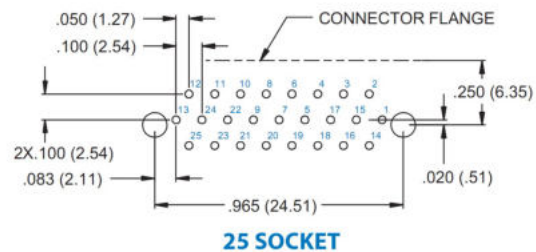
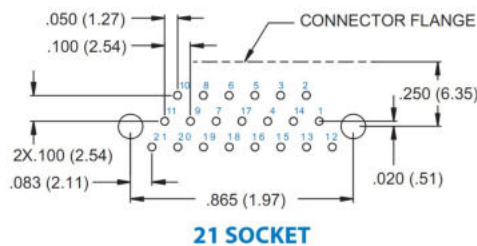
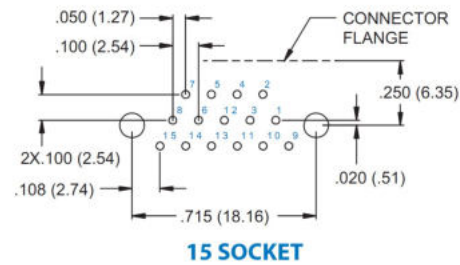
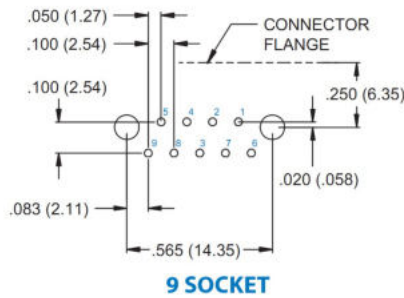
100 PIN



130 PIN

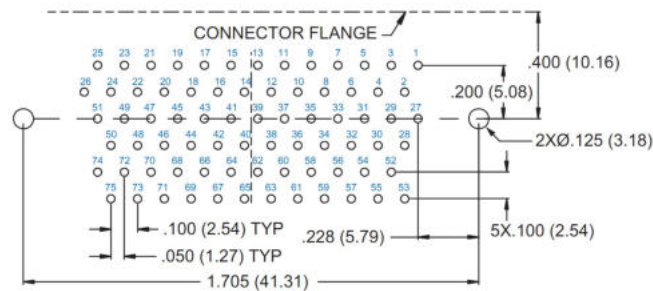
PCB Layouts – Socket Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole

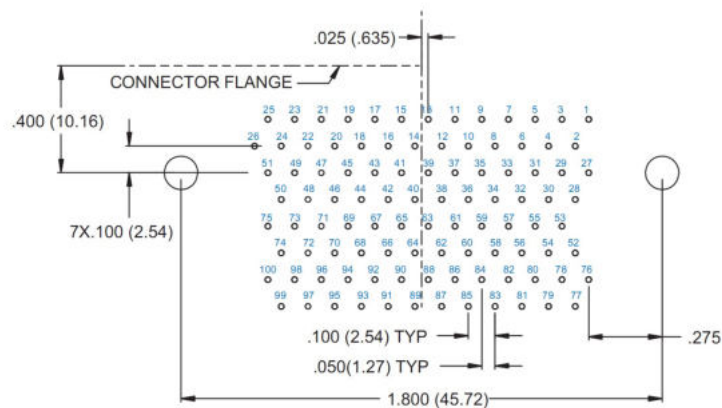


PCB Layouts – Socket Connectors

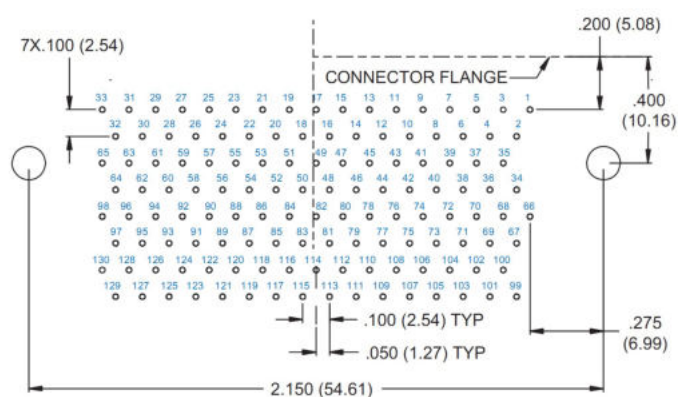
Patterns shown are for connector mounting side of PC board. 9 Thru 69 Contacts 2.44 mm Diameter Mounting Holes, 75-130 Contacts 3.18 mm Diameter Mounting Hole



75 SOCKET



100 SOCKET



130 SOCKET

MICRO-D GMR75 versions

**Part
4**

Vertical Mount

Printed Circuit Board Connectors

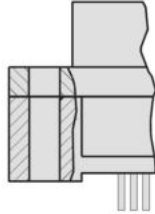
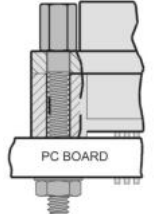
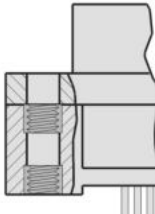
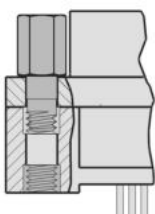
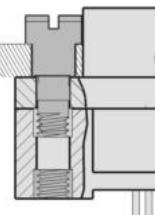
1.905 x 1.905 terminal spacing



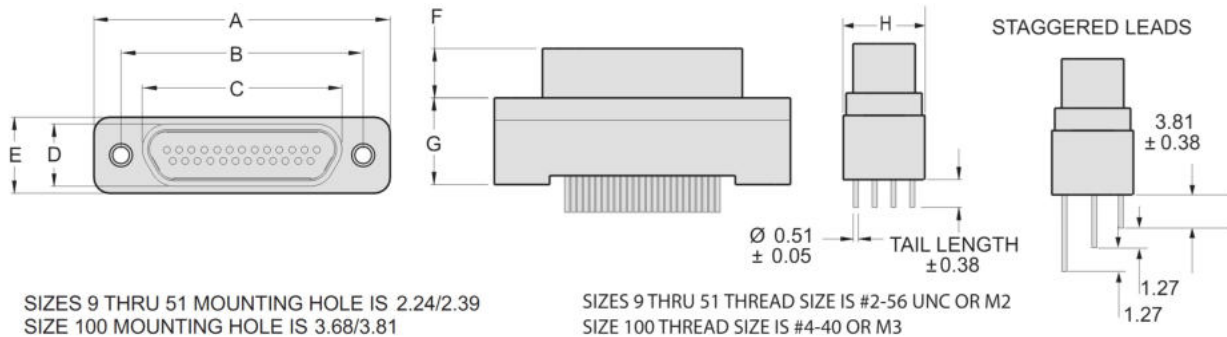
Ordering information

Basic series	GMR7580	-15	S	2	B	NN
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 100						
Contact Type:						
P – Pin						
S – Socket						
Tail Length Inches (mm):						
1 – 2.76 mm						
2 – 3.81 mm						
3 – 4.83 mm						
4 – 6.35 mm						
5 – Staggered Tail Length						
Shell Plating Finish:						
Aluminum						
A – Cadmium						
B – Nickel						
C – Alchrome						
D – Black Anodize						
E – Gold						
Stainless Steel						
F – Passivated						
Hardware Option:						
NN – No Jackpost, No Threaded Insert						
PN – Extended Jackpost For 1.6 mm PCB, No Threaded Insert						
RN – Extended Jackpost For 5.0 mm PCB, No Threaded Insert						
NU – Threaded insert only, no jackposts						
NM – Metric Threaded Insert Only, No Jackposts						
SU – Short Jackpost and Threaded Insert						
SM – Short Jackpost and Metric Threaded Insert						
Rear Panel Mount Jackposts and Threaded Inserts						
UN Threads Metric Threads Panel Thickness						
TU TM 2.4 mm						
VU VM 1.6 mm						
WU WM 1.2 mm						
XU XM 0.8 mm						
YU YM 0.6 mm						
Terminal Plated Code:						
513 – Gold plated terminals						
Omit – Tin-lead solder 60/40						

Mounting Hardware Codes

Hardware Code	Description	View
NN	Thru-Hole	
PN, RN	Jackpost Kit PN 1.6 mm PCB RN 5.0 mm PCB	
NU, NM	Threaded Inserts	
SU, SM	Jackpost With Threaded Insert	
TU, VU, WU, XU, YU TM, VM, WM, XM, YM	Jackpost for Rear Panel Mounting	

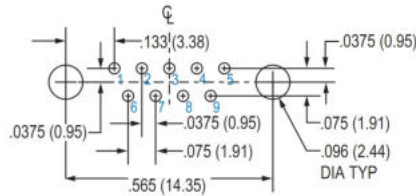
Dimensions



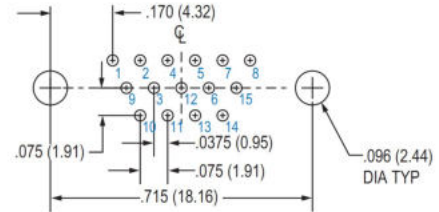
Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.
9P	19.94	14.35	8.51	4.70	7.87	4.65	9.02	7.87
9S	19.94	14.35	10.16	6.38	7.87	4.95	9.02	7.87
15P	23.75	18.16	12.32	4.70	7.87	4.65	9.02	7.87
15S	23.75	18.16	13.97	6.38	7.87	4.95	9.02	7.87
21P	27.56	21.97	16.13	4.70	7.87	4.65	9.02	7.87
21S	27.56	21.97	17.78	6.38	7.87	4.95	9.02	7.87
25P	30.01	24.51	18.67	4.70	7.87	4.65	9.02	7.87
25S	30.01	24.51	20.32	6.38	7.87	4.95	9.02	7.87
31P	33.91	28.32	22.48	4.70	7.87	4.65	9.02	7.87
31S	33.91	28.32	24.13	6.38	7.87	4.95	9.02	7.87
37P	37.72	32.13	26.29	4.70	7.87	4.65	9.02	7.87
37S	37.72	32.13	27.94	6.38	7.87	4.95	9.02	7.87
51P	36.45	30.86	25.02	5.79	8.92	4.65	9.02	8.92
51S	36.45	30.86	26.67	7.47	8.92	4.95	9.02	8.92
100P	55.12	45.72	35.15	6.88	10.00	4.65	10.92	11.94
100S	55.12	45.72	38.30	10.00	10.00	4.95	10.92	11.94

PCB Layouts – Pin Connectors

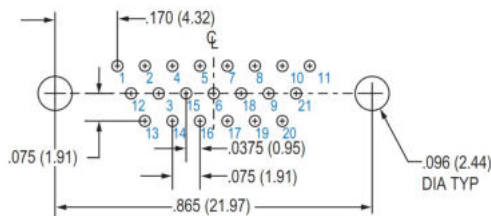
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



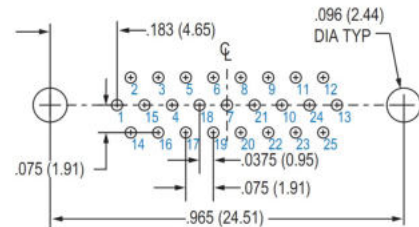
9 PIN



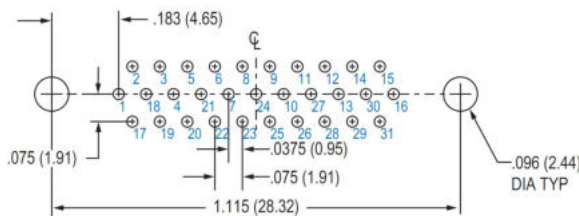
15 PIN



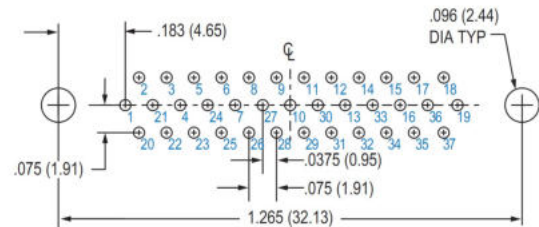
21 PIN



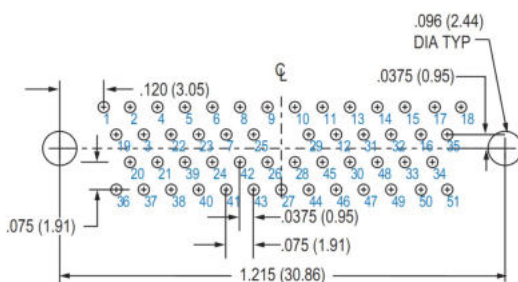
25 PIN



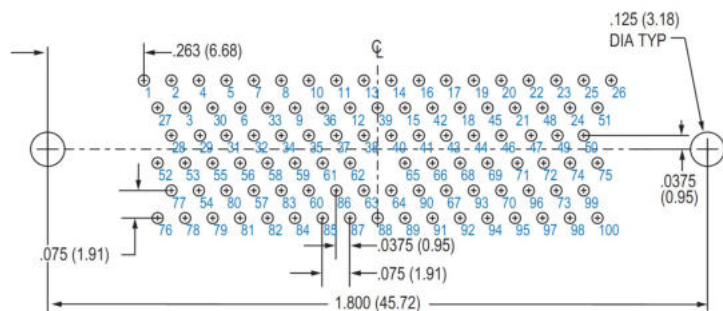
31 PIN



37 PIN



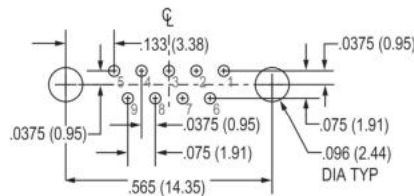
51 PIN



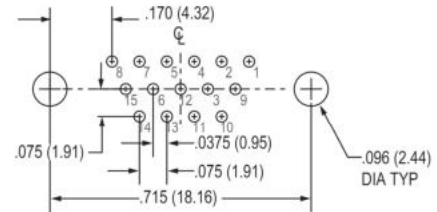
100 PIN

PCB Layouts – Socket Connectors

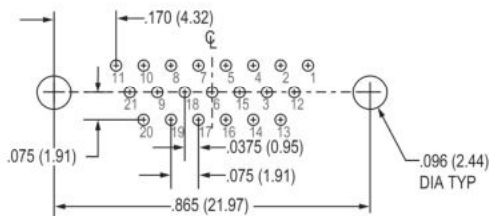
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



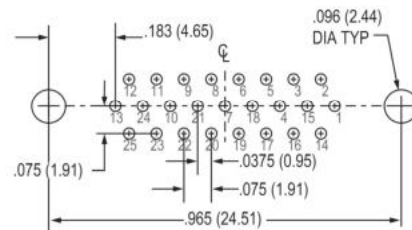
9 SOCKET



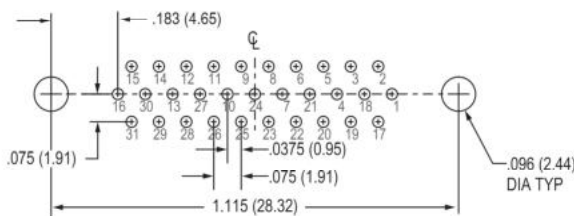
15 SOCKET



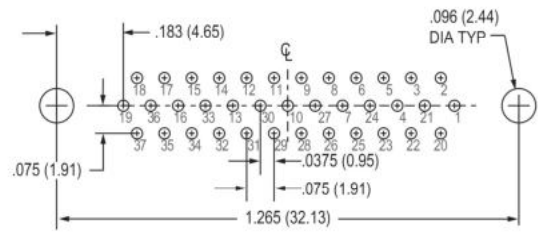
21 SOCKET



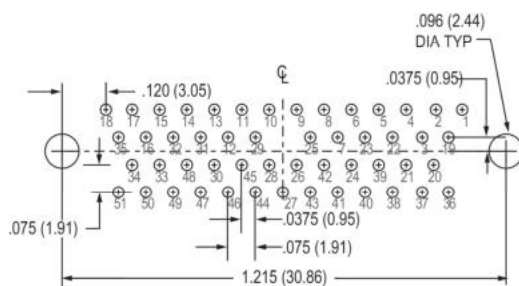
25 SOCKET



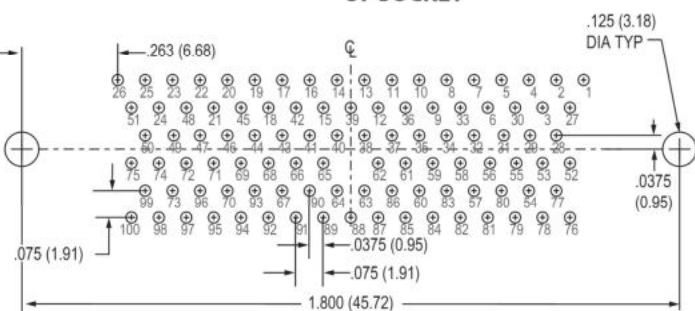
31 SOCKET



37 SOCKET



51 SOCKET



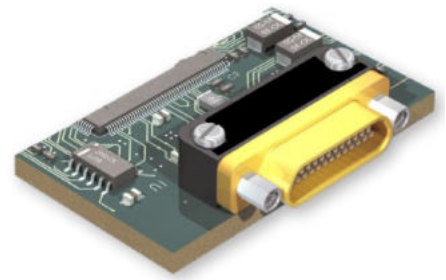
100 SOCKET



Right Angle Mount

Printed Circuit Board Connectors

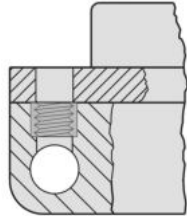
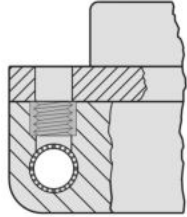
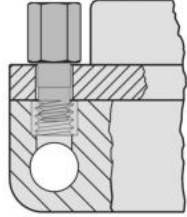
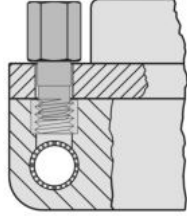
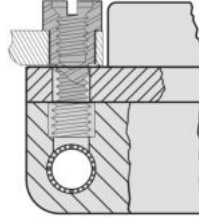
1.905 x 1.905 terminal spacing



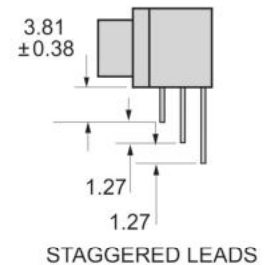
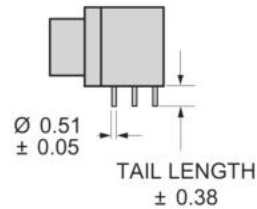
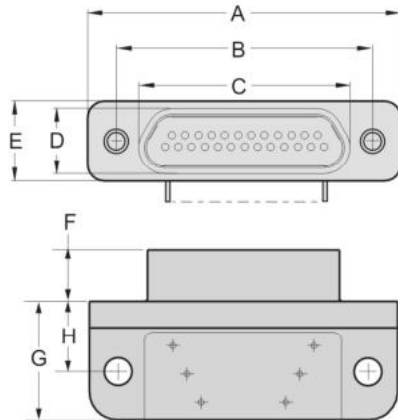
Ordering information

Basic series	GMR7590	-15	S	2	B	NN
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 100						
Contact Type:						
P – Pin						
S – Socket						
Tail Length Inches (mm):						
1 – 2.76 mm						
2 – 3.81 mm						
3 – 4.83 mm						
4 – 6.35 mm						
5 – Staggered Tail Length						
Shell Plating Finish:						
Aluminum						
A – Cadmium						
B – Nickel						
C – Alchrome						
D – Black Anodize						
E – Gold						
Stainless Steel						
F – Passivated						
Hardware Option:						
NN – No Jackpost, No Threaded Insert						
NU – Threaded Insert Only, No Jackposts						
NM – Metric Threaded Insert Only, No Jackposts						
SU – Short Jackpost and threaded Insert						
SM – Short Jackpost and Metric Threaded Insert						
SN – Short Jackpost, No Threaded Insert						
Rear Panel Mount Jackposts and Threaded Inserts						
UN Threads Metric Threads Panel Thickness						
TU TM 2.4 mm						
VU VM 1.6 mm						
WU WM 1.2 mm						
XU XM 0.8 mm						
YU YM 0.6 mm						
Terminal Plated Code:						
513 – Gold plated terminals						
Omit – Tin-lead solder 60/40						

Mounting Hardware Codes

Hardware Code	Description	View
NN	No Jackpost, No Threaded Insert In PCB Mounting Hole	
NU, NM	No Jackpost, Threaded Insert In PCB Mounting Hole	
SN	Jackpost Installed, No Threaded Insert in PCB Mounting Hole	
SU, SM	Jackpost With Threaded Insert	
TU, VU, WU, XU, YU TM, VM, WM, XM, YM	Jackpost for Rear Panel Mounting	

Dimensions



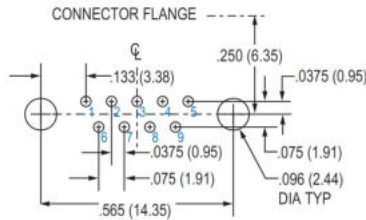
SIZES 9 THRU 51 MOUNTING HOLE IS 2.24/2.39
SIZE 100 MOUNTING HOLE IS 3.68/3.81

SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC OR M2.
SIZE 100 THREAD SIZE IS #4-40 OR M3.

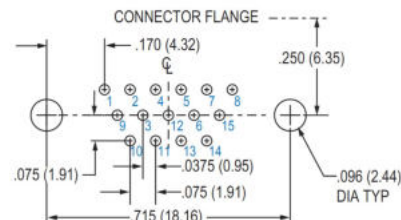
Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H ± 0.25
9P	19.94	14.35	8.51	4.70	7.87	4.65	10.16	6.35
9S	19.94	14.35	10.16	6.38	7.87	4.95	10.16	6.35
15P	23.75	18.16	12.32	4.70	7.87	4.65	10.16	6.35
15S	23.75	18.16	13.97	6.38	7.87	4.95	10.16	6.35
21P	27.56	21.97	16.13	4.70	7.87	4.65	10.16	6.35
21S	27.56	21.97	17.78	6.38	7.87	4.95	10.16	6.35
25P	30.01	24.51	18.67	4.70	7.87	4.65	10.16	6.35
25S	30.01	24.51	20.32	6.38	7.87	4.95	10.16	6.35
31P	33.91	28.32	22.48	4.70	7.87	4.65	10.16	6.35
31S	33.91	28.32	24.13	6.38	7.87	4.95	10.16	6.35
37P	37.72	32.13	26.29	4.70	7.87	4.65	10.16	6.35
37S	37.72	32.13	27.94	6.38	7.87	4.95	10.16	6.35
51P	36.45	30.86	25.02	5.79	8.92	4.65	12.45	7.62
51S	36.45	30.86	26.67	7.47	8.92	4.95	12.45	7.62
100P	55.12	45.72	35.15	6.88	10.00	4.65	16.76	10.16
100S	55.12	45.72	38.30	10.00	10.00	4.95	16.76	10.16

PCB Layouts – Pin Connectors

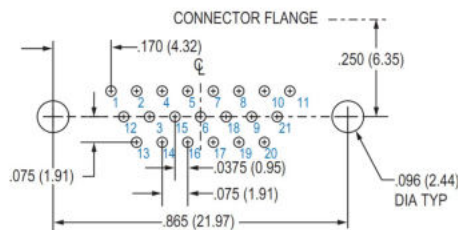
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



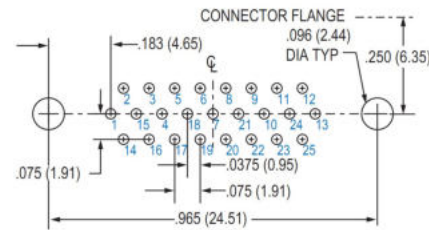
9 PIN



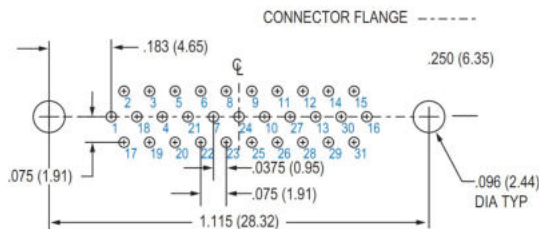
15 PIN



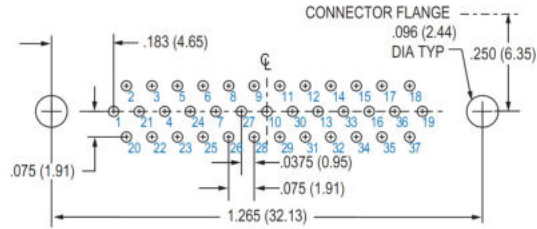
21 PIN



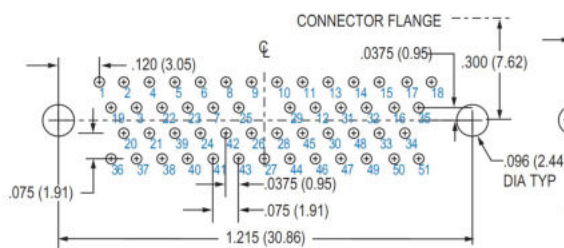
25 PIN



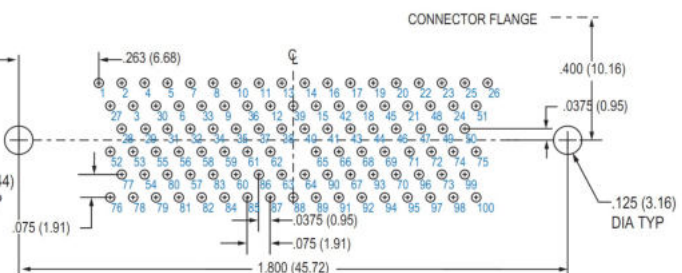
31 PIN



37 PIN



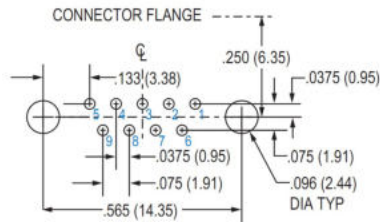
51 PIN



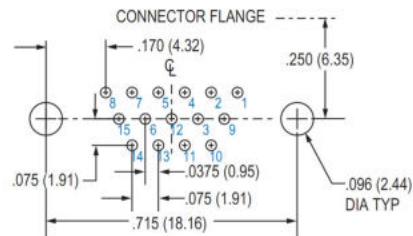
100 PIN

PCB Layouts – Socket Connectors

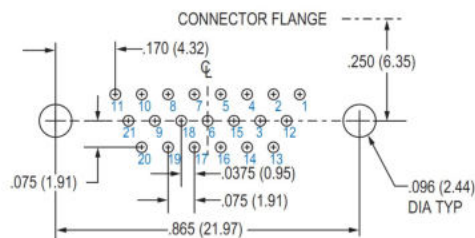
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



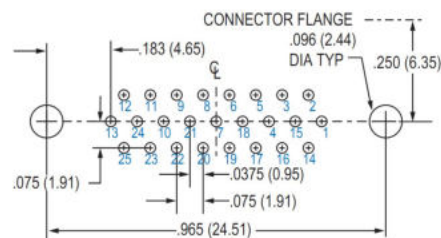
9 SOCKET



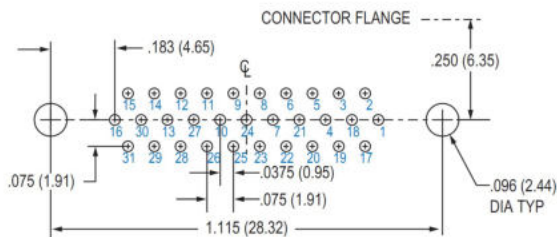
15 SOCKET



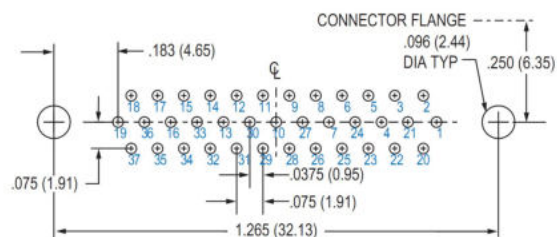
21 SOCKET



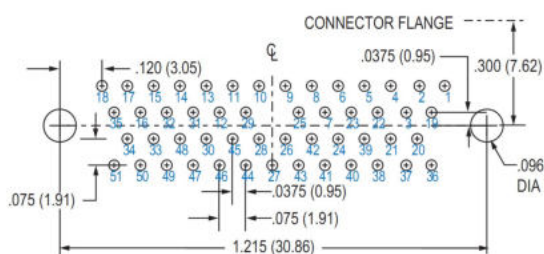
25 SOCKET



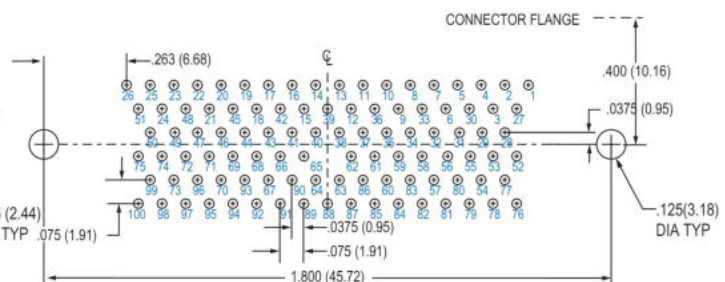
31 SOCKET



37 SOCKET

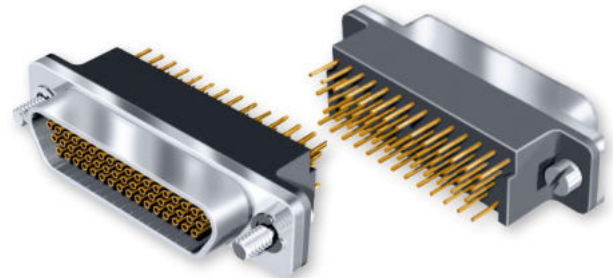


51 SOCKET



100 SOCKET

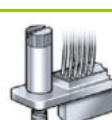
Compact Flange Vertical Mount Printed Circuit Board Connector



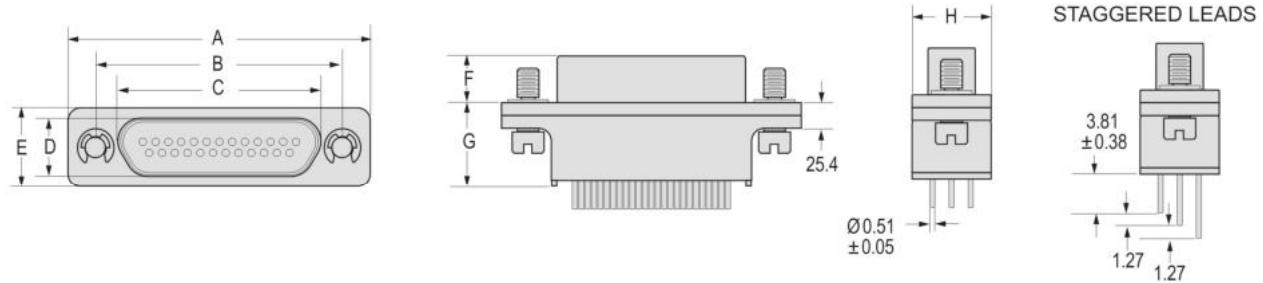
Ordering information

Basic series	GMR7580C	-15	S	2	B	S1
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 100						
Contact Type:						
P – Pin						
S – Socket						
Tail Length Inches (mm):						
1 – 2.76 mm						
2 – 3.81 mm						
3 – 4.83 mm						
4 – 6.35 mm						
5 – Staggered Tail Length						
Shell Plating Finish:						
Aluminum						
A – Cadmium						
B – Nickel						
C – Alchrome						
D – Black Anodize						
E – Gold						
Stainless Steel						
F – Passivated						
Hardware Option – B, P, M, M1, S, S1, L, K, F, R, H						
Terminal Plated Code:						
513 – Gold plated terminals						
Omit – Tin-lead solder 60/40						

Mounting Hardware Codes

Hardware Code	Description	View
B	Thru-Hole	
P	Jackpost	
M	Hex Head Jackscrew	
M1	Hex Head Jackscrew, Extended	
S	Slot Head Jackscrew	
S1	Slot Head Jackscrew, Extended	
L	Hex Head Jackscrew Non-Removable	
K	Slot Head Jackscrew Non-Removable, Extended	
F	Float Mount For Front Panel Mounting	
R	Float Mount For Rear Panel Mounting	
H	Threaded Insert	

Dimensions

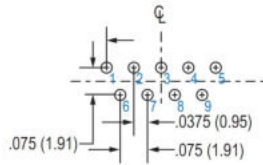


SIZES 9 THRU 51 MOUNTING HOLE IS 2.24/2.39
SIZE 100 MOUNTING HOLE IS 3.68/3.81

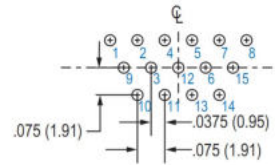
SIZES 9 THRU 51 THREAD SIZE IS #2-56 UNC
SIZE 100 THREAD SIZE IS #4-40

Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.
9P	19.94	14.35	8.51	4.70	7.87	4.65	9.02	7.87
9S	19.94	14.35	10.16	6.38	7.87	4.95	9.02	7.87
15P	23.75	18.16	12.32	4.70	7.87	4.65	9.02	7.87
15S	23.75	18.16	13.97	6.38	7.87	4.95	9.02	7.87
21P	27.56	21.97	16.13	4.70	7.87	4.65	9.02	7.87
21S	27.56	21.97	17.78	6.38	7.87	4.95	9.02	7.87
25P	30.01	24.51	18.67	4.70	7.87	4.65	9.02	7.87
25S	30.01	24.51	20.32	6.38	7.87	4.95	9.02	7.87
31P	33.91	28.32	22.48	4.70	7.87	4.65	9.02	7.87
31S	33.91	28.32	24.13	6.38	7.87	4.95	9.02	7.87
37P	37.72	32.13	26.29	4.70	7.87	4.65	9.02	7.87
37S	37.72	32.13	27.94	6.38	7.87	4.95	9.02	7.87
51P	36.45	30.86	25.02	5.79	8.92	4.65	9.02	8.92
51S	36.45	30.86	26.67	7.47	8.92	4.95	9.02	8.92
100P	55.12	45.72	35.15	6.88	10.00	4.65	10.92	11.94
100S	55.12	45.72	38.30	10.00	10.00	4.95	10.92	11.94

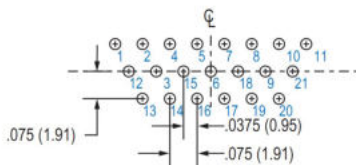
PCB Layouts – Pin Connectors



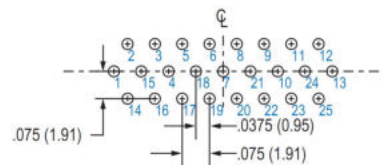
9 PIN



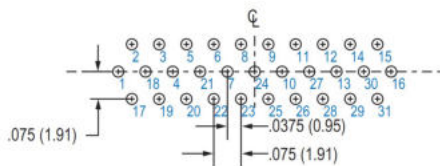
15 PIN



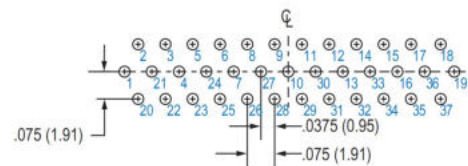
21 PIN



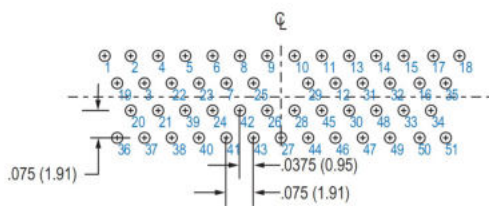
25 PIN



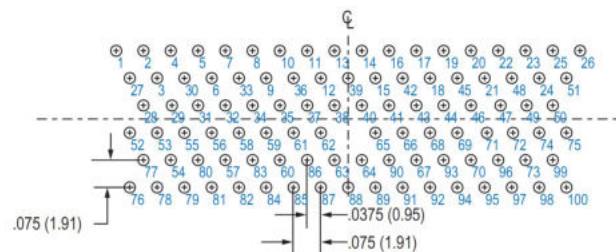
31 PIN



37 PIN

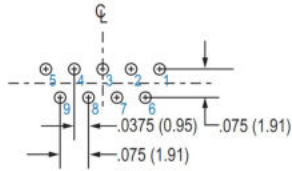


51 PIN

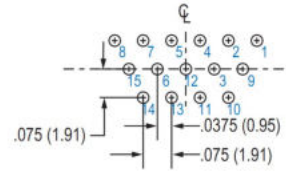


100 PIN

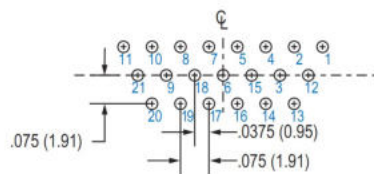
PCB Layouts – Socket Connectors



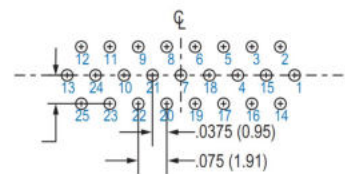
9 SOCKET



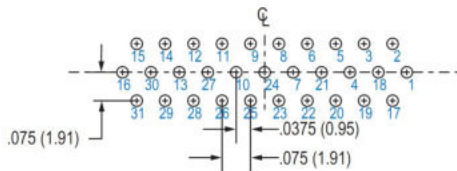
15 SOCKET



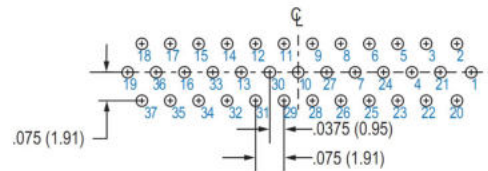
21 SOCKET



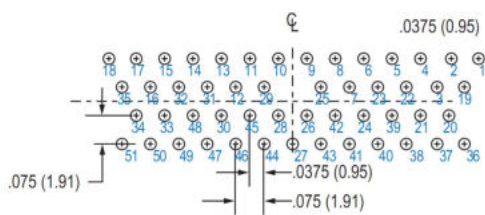
25 SOCKET



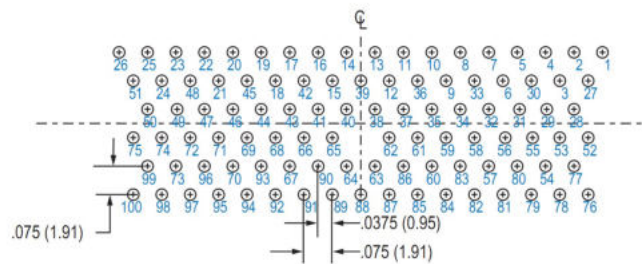
31 SOCKET



37 SOCKET



51 SOCKET



100 SOCKET

MICRO-D

Hermetic versions

**Part
5**

Micro-D Hermetic Connectors

Technical features

Mechanical

Description	Values
Connector Shell	Kovar® Alloy, Plated with Electrodeposited Nickel In, 0.0002-0.0003 Inches Thick
Insulator	Borosilicate Glass
Interfacial Seal	Fluorosilicone Rubber, Blue
Terminal Block, PCB	Liquid Crystal Polymer, 30% Glass-Filled
Socket Contact	Kovar® Alloy, Gold Plated 50 microinches minimum over Nickel
O-Ring	Fluorosilicone Rubber, Blue
Vibration (sine):	10 ~ 2000 Hz acceleration 20 g
Shock:	amplitude of 50 g peak
Endurance:	500 cycle

Electrical

Description	Values
Contact rating:	1.5 A
Contact resistance:	$\leq 50 \text{ m}\Omega$
Insulation resistance:	$\geq 5000 \text{ M}\Omega$
Working Voltage:	100 V
Dielectric withstanding voltage:	150 V

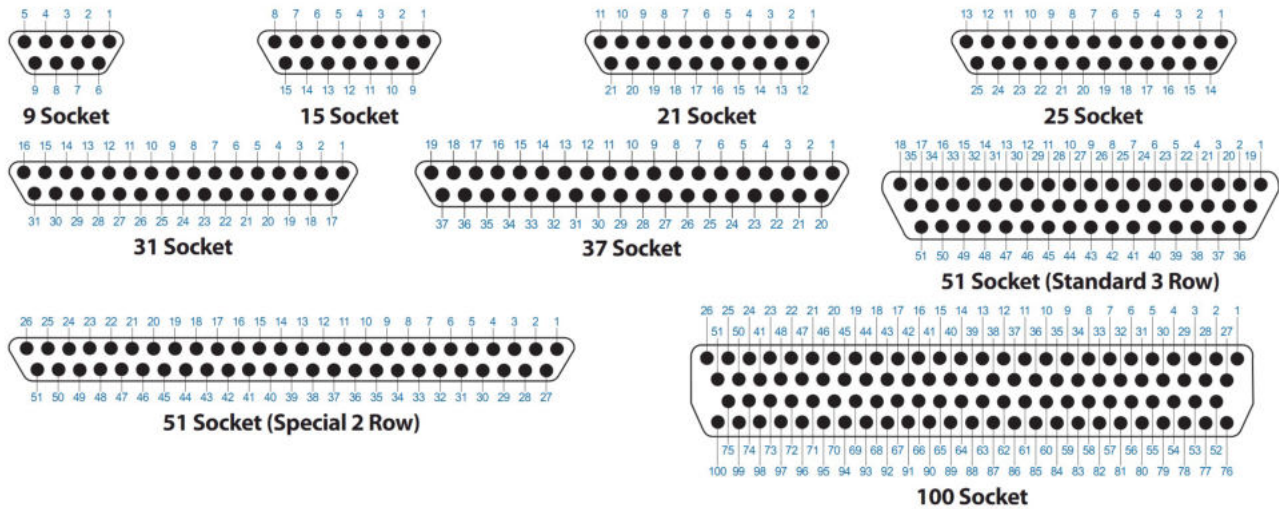
Environmental

Description	Values
Hermeticity:	Maximum Helium Leak Rate 1×10^{-7} cc's per Second at 1 atm
Fluid immersion:	20 hours immersion in synthetic lubricating oil and 1 hour immersion in coolanol 25
Operating Temperature:	up -55° C to +125° C

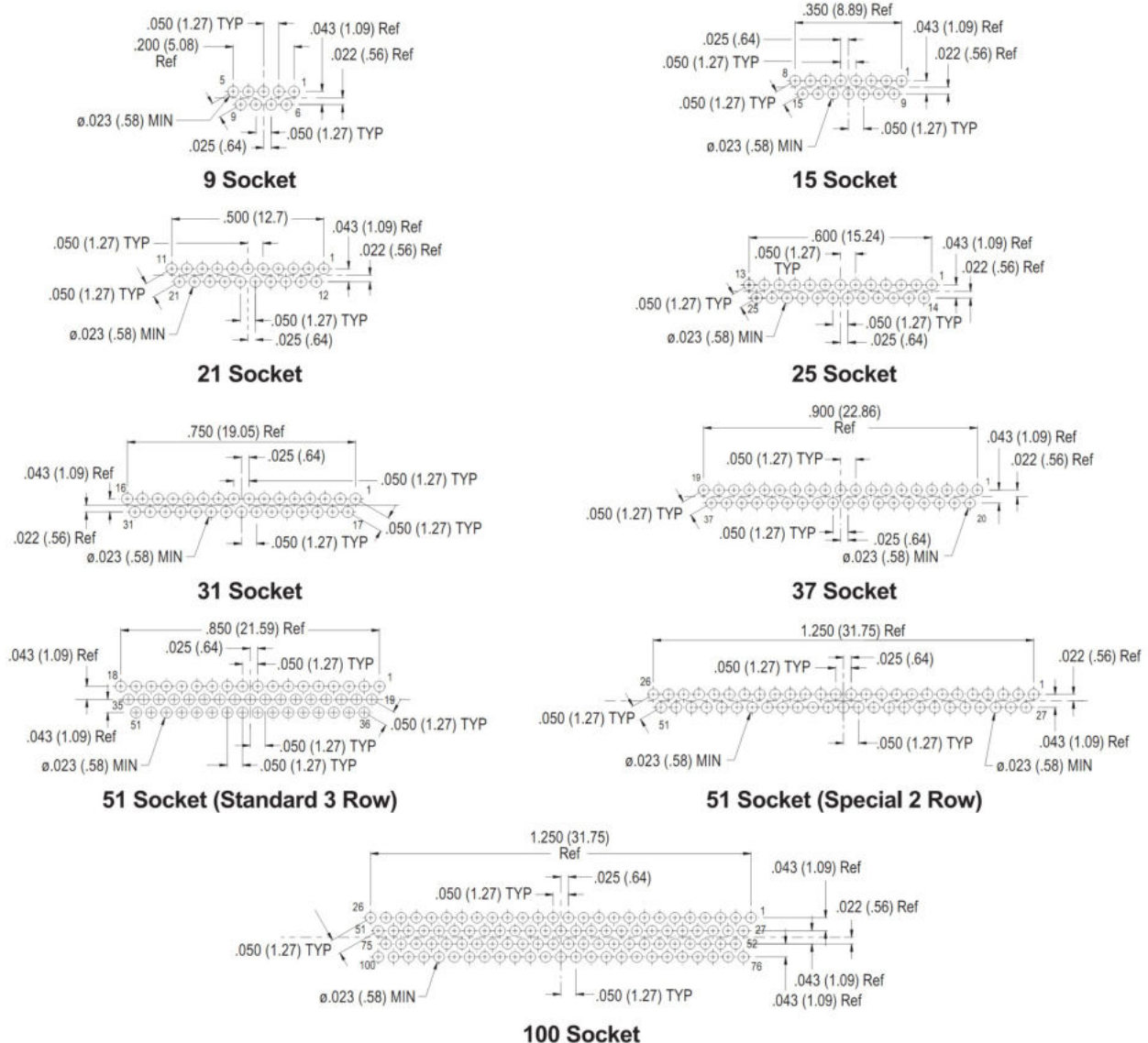
Connector Weights For 177-140H Hermetic Solder Mount

Layout	Solder Cup	PCB
9	4.7	4.5
15	7.1	6.8
21	8.2	8.0
25	8.7	8.4
31	9.5	9.2
37	10.8	10.4

Contact layouts (face view socket connector)



Micro-D PCB footprints (component side of board)



Solder Cup or PC Tail and Insulated Wire Hermetic Connectors Solder, Braze or Weld Mount



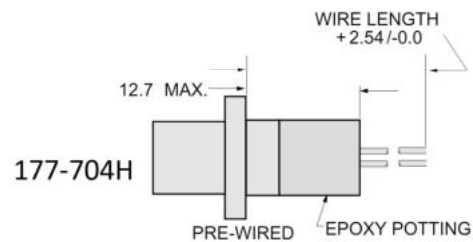
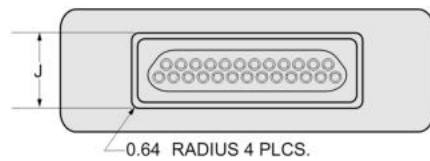
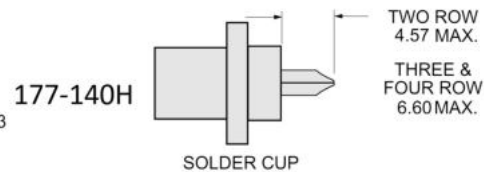
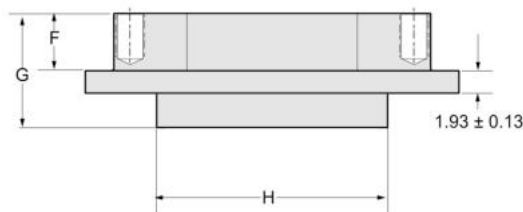
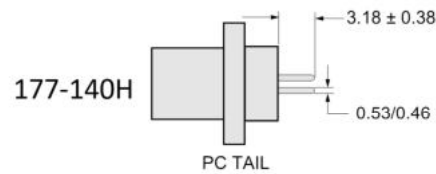
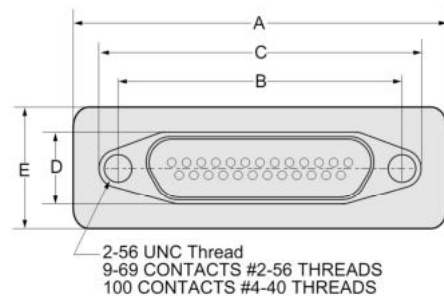
Ordering information

Basic series	177-140H	31	S	S
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2, 100				
Contact Type:				
S – Socket				
Termination Type:				
S – Solder Cup				
P – PC Tail				

Basic series	177-704H	25	S	6	K	1	-18
Contact Layout – 9, 15, 21, 25, 31, 37, 51, 51-2, 100							
Contact Type:							
S – Socket, Pre-Wired							
Wire Gage (AWG):							
6 – 26							
8 – #28							
0 – #30							
Wire Type:							
K – M22759/11, 600 Vrms Fluoropolymer (TFE) (Not Available in #30 AWG)							
J – M22759/33, 600 Vrms Modified Cross-Linked Tefzel® (ETFE)							
Wire Color:							
1 – White							
2 – Yellow							
5 – Color-Coded Stripes Per MIL-STD-681 (#26 gage only)							
7 – Ten Color Repeat							
Wire Length Inches:							
18 – Wire Length In Inches (6 inches minimum)							

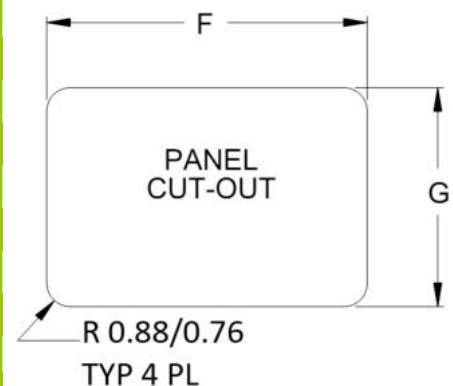
Mates With All 83513 Pin Connectors

Dimensions



Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.1	G Max.	H ± 0.1	J ± 0.1
9S	19.94	14.35	14.35	6.35	7.87	4.95	10.01	10.11	6.81
15S	26.16	21.71	18.16	6.35	10.80	4.95	10.01	13.59	6.48
21S	29.97	25.53	21.97	6.35	10.80	4.95	10.01	19.05	6.48
25S	32.51	28.06	24.51	6.35	10.80	4.95	10.01	19.94	6.48
31S	36.32	31.88	28.32	6.35	10.80	4.95	10.01	23.75	6.48
37S	40.13	36.20	32.13	6.35	10.80	4.95	10.01	27.56	6.48
51-2S	49.02	41.02	45.08	7.87	10.80	5.05	10.01	36.45	6.35
51S	38.86	30.86	34.57	7.87	11.89	5.05	10.01	33.10	7.62
100S	57.40	45.72	51.05	8.38	13.13	5.05	10.01	44.80	9.00

Layout	F	G
9S	10.41/10.29	7.11/ 6.99
15S	13.97/13.84	6.86/ 6.73
21S	20.32/20.19	6.86/6.73
25S	20.32/20.19	6.86/ 6.73
31S	24.13/ 24.00	6.86/ 6.73
37S	27.94/ 27.81	6.86/ 6.73
51S	26.54/ 26.42	7.87/ 7.75
51-2S	36.83/ 36.70	6.86/ 6.73
100S	45.21/45.09	9.40/ 9.27



Solder Cup or PC Tail and Insulated Wire Hermetic Connectors Rear Panel Mount



Ordering information

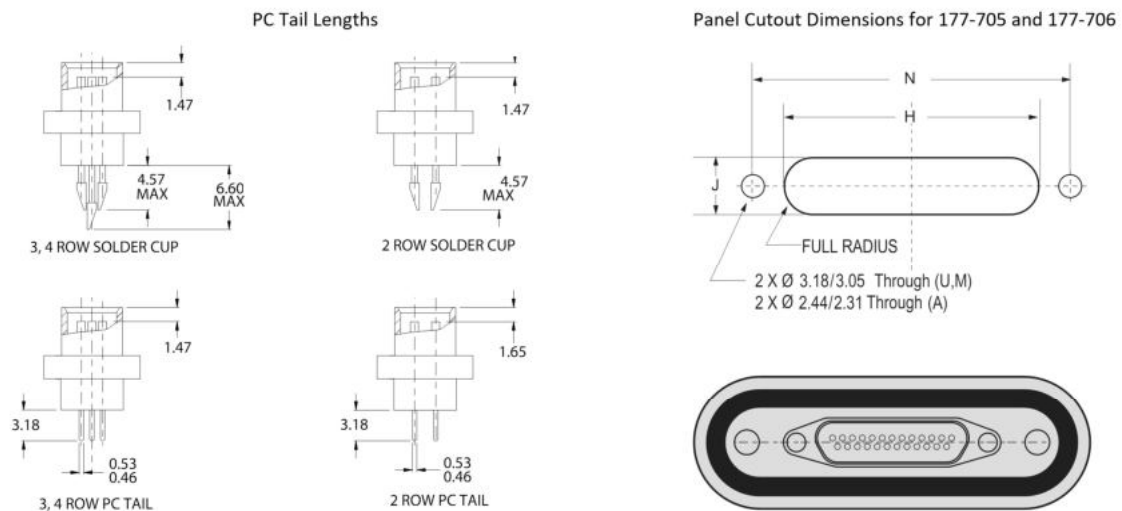
Basic series	177-706H	37	S	37	K	2	-18	M	-V
Contact Layout:									
9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130									
Contact Type:									
S – Socket, Pre-Wired									
Wire Gage (AWG):									
6 – 26									
8 – #28									
0 – #30									
Wire Type:									
K – M22759/11, 600 Vrms Fluoropolymer (TFE) (Not Available in #30 AWG)									
J – M22759/33, 600 Vrms Modified Cross-Linked Tefzel® (ETFE)									
Wire Color:									
1 – White									
2 – Yellow									
5 – Color-Coded Stripes Per MIL-STD-681 (#26 gage only)									
7 – Ten Color Repeat									
Wire Length Inches:									
18 – Wire Length In Inches (6 inches minimum)									
Mounting Threads:									
U – #4-40 UNC									
M – M3 Metric									
A – #2-56 UNC									
O-Ring Material:									
C – Fluorosilicone, Conductive (CHOSEAL 1298)									
E – EPDM (Ethylene-Propylene)									
V – Viton (Fluorocarbon; FKM)									
N – Nitrile (Buna-N)									
S – Silicone (ZZ-R-765)									
B – Butyl Rubber (IIR)									
K – Kalrez (FFKM)									

Mates With All 83513 Pin Connectors

Ordering information

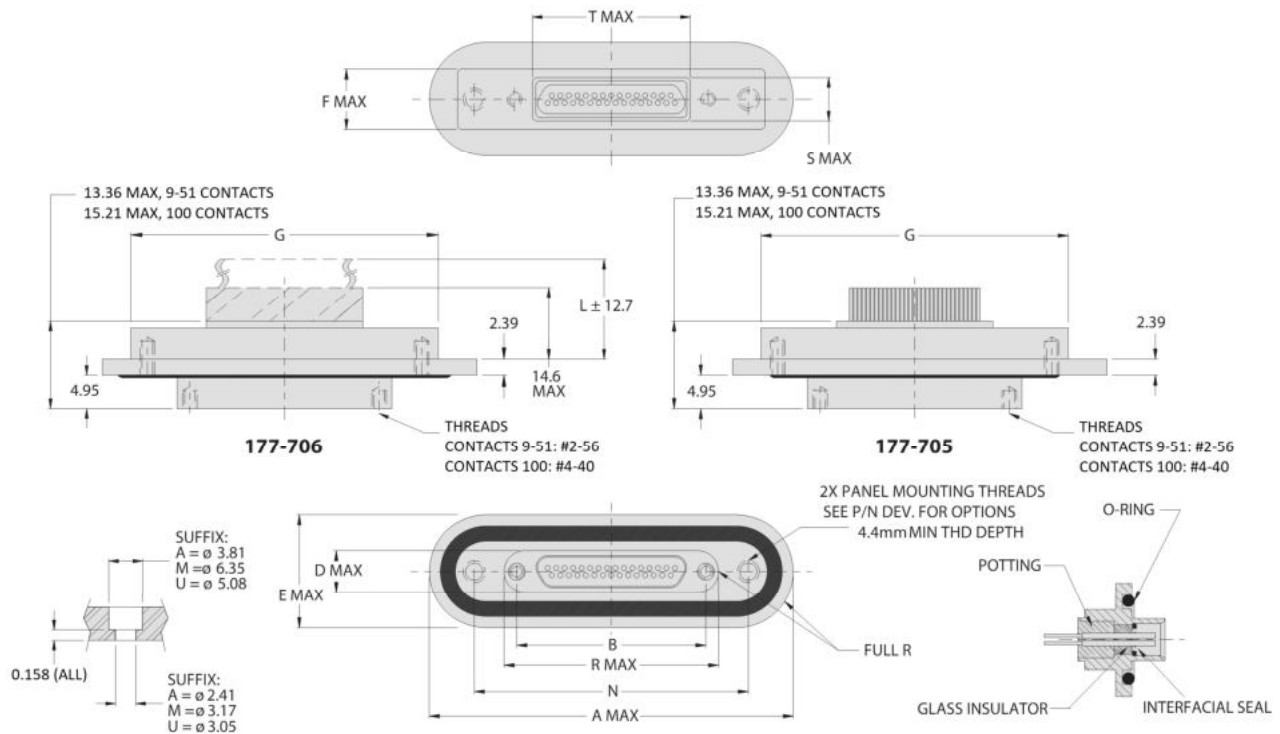
Basic series	177-705H	31	S	S	U	-V
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 69, 75, 100, 130						
Contact Type:						
S – Socket						
Termination Type:						
S – Solder Cup						
P – PC Tail						
Mounting Threads:						
U – #4-40 UNC						
M – M3 Metric						
A – #2-56 UNC						
O-Ring Material:						
C – Fluorosilicone, Conductive (CHOSEAL 1298)						
E – EPDM (Ethylene-Propylene)						
V – Viton (Fluorocarbon; FKM)						
N – Nitrile (Buna-N)						
S – Silicone (ZZ-R-765)						
B – Butyl Rubber (IIR)						
K – Kalrez (FFKM)						

Mates With All 83513 Pin Connectors



Layout	N ± 0.08	H +0.13/-0.0	J +0.13/-0.0
9	25.69	18.75	6.35
15	29.50	22.56	6.35
21	33.31	26.37	6.35
25	35.85	28.91	6.35
31	39.66	32.72	6.35
37	43.47	36.53	6.35
51-2	52.35	45.52	6.35
51	42.19	35.26	8.12
100	58.72	51.10	8.63

Dimensions



Layout	A MAX	B	D MAX	E MAX	F MAX	G	H ± 0.127	J ± 0.127	N	R MAX	S MAX	T MAX
9	37.80	14.35	6.35	17.15	9.09	30.76	18.75	6.60	25.68	18.49	6.99	10.41
15	41.61	18.16	6.35	17.15	9.09	35.92	22.56	6.60	29.49	22.30	6.99	13.72
21	45.42	21.97	6.35	17.15	9.09	39.37	26.37	6.60	33.30	26.11	6.99	18.03
25	47.96	24.51	6.35	17.15	9.09	41.91	28.91	6.60	35.84	28.65	6.99	20.57
31	51.77	28.32	6.35	17.15	9.09	46.08	32.72	6.60	39.65	32.46	6.99	24.26
37	55.58	32.13	6.35	17.15	9.09	50.39	36.53	6.60	43.46	36.27	6.99	27.81
51-2	64.47	41.02	6.35	17.15	9.09	59.28	45.42	6.60	52.35	45.16	6.99	41.91
51	54.31	30.86	8.13	18.16	10.11	48.77	35.26	8.38	42.19	35.00	7.49	27.81
100	71.63	45.72	8.38	20.19	14.10	65.25	51.10	8.64	58.72	50.85	9.02	42.55

NOTES:

For panel thickness greater than 1.57 mm thick, the mounting holes for 100 must be counter-bored as shown when mating connector has a backshell to prevent interference. Diameters shown are for socket-head cap screws. User to adjust for different screw type.



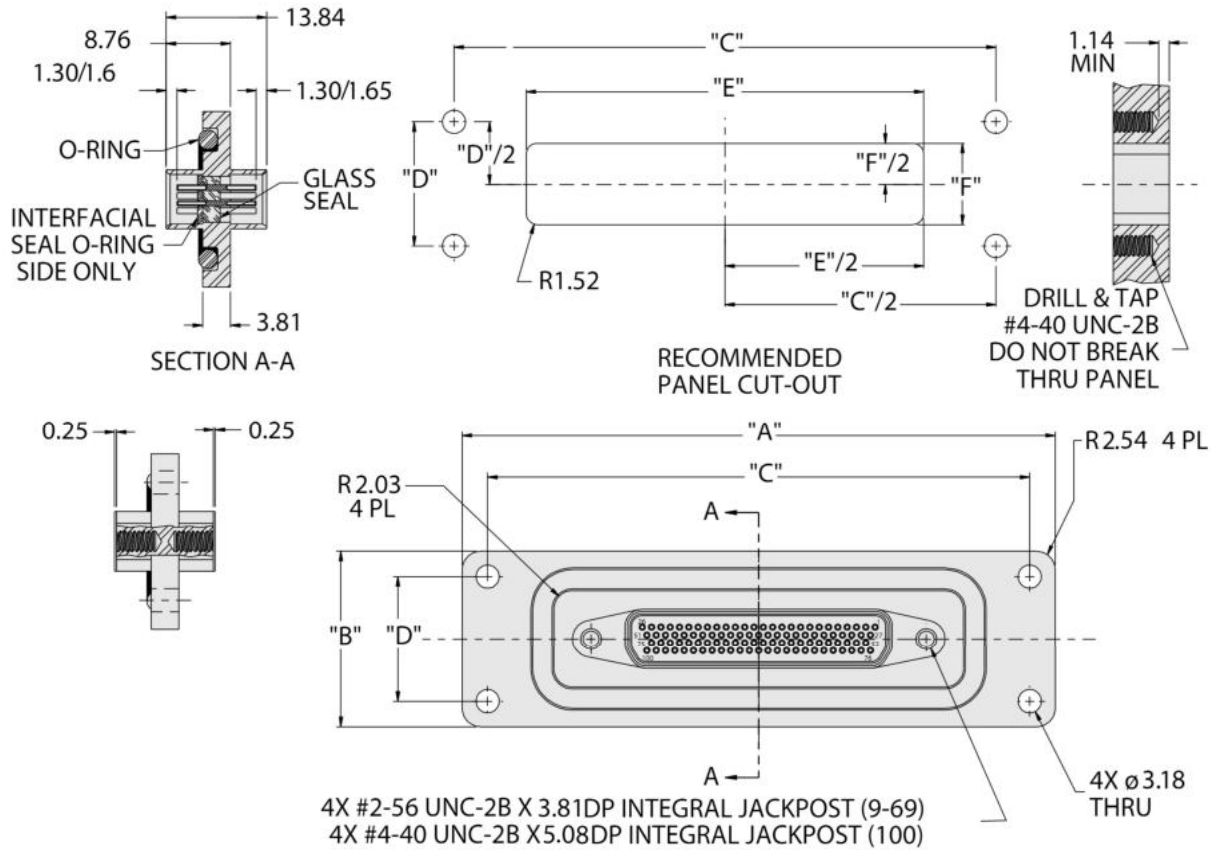
Hermetic Bulkhead Feed-thru Rear Panel Mount



Ordering information

Basic series	1770-3687	31	E
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 67, 69, 100			
O-Ring Material:			
C1224 – Silver in silicone			
C1221 – Silver in fluoroelastomer			
C6502 – Nickel-plated aluminum in silicone			
C6503 – Nickel-plated aluminum in fluoroelastomer			
C1285 – Silver-plated aluminum in silicone			
C1287 – Silver-plated aluminum in fluoroelastomer			
C1215 – Silver-plated copper in silicone			
C1217 – Silver-plated copper in fluoroelastomer			
E – EPDM (Ethylene-Propylene)			
V – Viton			
N – Nitrile (Buna-N)			
S – Silicone (ZZ-R-765)			
B – Butyl Rubber (IIR)			
K – Kalrez (FFKM)			

Dimensions



Layout	A ± 0.38	B ± 0.38	C ± 0.25	D ± 0.25	E ± 0.13	F ± 0.13	O-ring Size
9	49.40	21.84	42.42	14.86	22.86	9.02	2-119
15	51.69	21.84	44.70	14.86	26.03	9.02	2-120
21	56.77	21.84	49.78	14.86	30.23	9.02	2-122
25	59.44	21.84	52.45	14.86	32.89	9.02	2-123
31	61.59	21.84	54.61	14.86	35.05	9.02	2-124
37	66.93	21.84	59.94	14.86	40.39	9.02	2-126
51	64.77	24.00	57.79	17.02	38.23	11.18	2-126
51-2	74.55	21.84	67.56	14.86	48.13	9.02	2-129
67	84.84	21.84	77.72	14.86	60.07	9.02	2-135
69	72.39	24.00	65.41	17.02	45.85	11.18	2-129
100	80.77	24.00	73.91	17.02	56.26	11.18	2-132



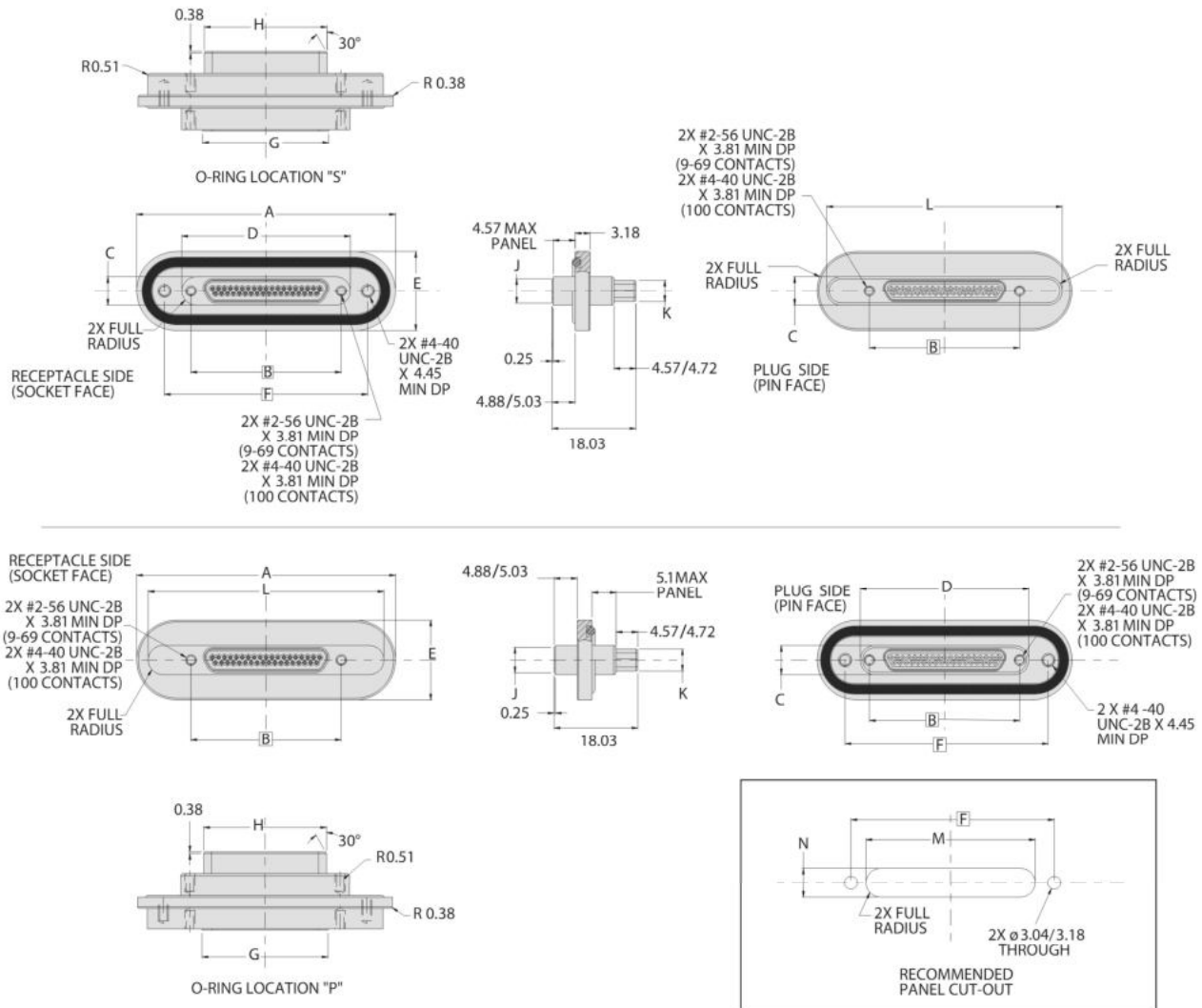
Hermetic Bulkhead Feed-thru Rear Panel Mount



Ordering information

Basic series	1770-5588	H	-37	S	V
Finish:					
H – Nickel					
Contact Layout – 9, 15, 21, 25, 31, 37, 51-2, 51, 67, 69, 100					
O-Ring Location:					
P – Pin Side					
S – Socket Side					
O-Ring Material:					
C1224 – Silver in silicone					
C1221 – Silver in fluorosilicone					
C6502 – Nickel-plated aluminum in silicone					
C6503 – Nickel-plated aluminum in fluorosilicone					
C1285 – Silver-plated aluminum in silicone					
C1287 – Silver-plated aluminum in fluorosilicone					
C1215 – Silver-plated copper in silicone					
C1217 – Silver-plated copper in fluorosilicone					
E – EPDM (Ethylene-Propylene)					
V – Viton					
N – Nitrile (Buna-N)					
S – Silicone (ZZ-R-765)					
B – Butyl Rubber (IIR)					
K – Kalrez (FFKM)					

Dimensions



Layout	A Max	B Bsc	C Max	D Max	E Max	F Bsc	G Max	H Max	J Max	K Max	L Max	M ± 0.127	N ± 0.127
9	37.80	14.35	6.35	18.49	17.15	25.68	10.16	8.48	6.10	4.67	32.00	18.67	6.60
15	41.61	18.16	6.35	22.30	17.15	29.49	13.97	12.29	6.10	4.67	36.07	22.48	6.60
21	45.42	21.97	6.35	27.38	17.15	33.30	17.78	16.10	6.10	4.67	39.88	27.56	6.60
25	47.96	24.51	6.35	28.65	17.15	35.84	20.32	18.64	6.10	4.67	42.42	28.83	6.60
31	51.77	28.32	6.35	32.46	17.15	39.65	24.13	22.45	6.10	4.67	46.23	32.64	6.60
37	55.58	32.13	6.35	36.27	17.15	43.46	27.94	26.26	6.10	4.67	50.55	36.45	6.60
51	54.31	30.86	7.87	35.00	18.16	42.19	26.67	24.99	7.37	5.69	49.02	35.18	8.13
51-2	64.47	41.02	6.35	45.16	17.15	52.35	36.86	35.15	6.10	4.67	59.56	45.34	6.60
67	74.93	51.18	6.35	55.37	17.15	62.48	46.99	45.31	6.10	4.67	68.83	55.63	6.60
69	66.04	38.48	7.87	42.62	18.16	52.07	34.29	32.61	7.37	5.69	56.64	42.80	8.13
100	71.63	45.72	8.38	50.85	20.19	58.72	36.86	35.15	8.25	6.86	65.41	51.05	8.64



MICRO-D MIL-DTL-83513 versions

**Part
6**

MIL-DTL-83513 Micro-D Connectors

Technical features

Mechanical

Description	Values
Connector Shell, Metal	Aluminum alloy 6061 Plating Code C: Cadmium with yellow chromate Plating Code N: Electroless nickel Plating Code P: Stainless steel, 300 series, passivated Plating Code A: Pure electrodeposited aluminum Plating Code K: Zinc nickel Plating Code T: Nickel fluorocarbon polymer, high phosphate nickel with fluorocarbon polymer additive over a suitable underplate
Connector Shell, Plastic	Liquid Crystal Polymer, 30% Glass-Filled
Insulator	Liquid Crystal Polymer, 30% Glass-Filled
Interfacial Seal	Fluorosilicone Rubber
Terminal Block, PCB	Liquid Crystal Polymer, 30% Glass-Filled
Pin Contact (TwistPin)	Beryllium Copper, Gold Plated (50 Microinches Minimum) Over Nickel Underplate (30 Microinches Minimum)
Socket Contact	Phos Bronze Gold Plated (50 Microinches Minimum) Over Nickel Underplate (30 Microinches Minimum)
Encapsulant (Potting)	Epoxy Resin, hysol EE4215/HD3561
Jackscrows, Jackposts	Stainless Steel, 300 Series, Passivated
Pigtail Wire, Insulated Hookup	MIL-W-22759/11: 19 strand silver-coated copper wire, extruded PTFE insulation, 600 volts rms, 200° C MIL-W-22759/33: 19 strand high-strength silver-coated copper alloy wire, crosslinked modified ETFE insulation, 600 volts rms, 200° C
Pigtail Wire, Uninsulated	Wire type 07 and 08: solid copper wire in accordance with A-A-59551, tin/lead plated wire type 05 and 06: solid copper wire in accordance with A-A-59551, gold-plated
Vibration (sine):	10 ~ 2000 Hz acceleration 20 g
Shock:	amplitude of 50 g peak
Endurance:	500 cycle

Electrical

Description	Values
Contact rating:	3 A
Contact resistance:	≤ 8 mΩ
Insulation resistance:	≥ 5000 MΩ
Dielectric withstanding voltage:	600 V (sea level)
Dielectric withstanding voltage:	150 V (21 000 m)

Environmental

Description	Values
Salt spray (corrosion):	48 h
Operating Temperature:	up -55° C to +125° C



Metal Shell Solder Cup

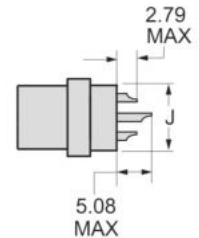
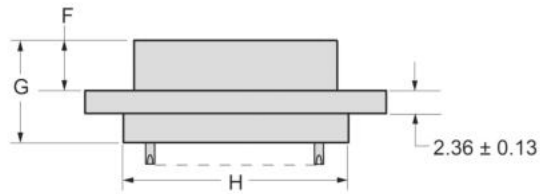
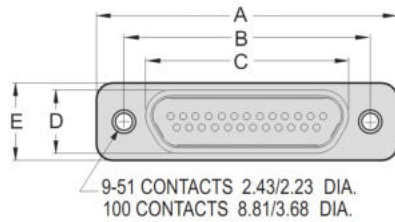
feature gold-plated TwistPin non-removable contacts for solder termination to AWG #26 or smaller wire



Ordering information

Layout	Config.	Electroless Nickel Plated Aluminum Shell	Cadmium Plated Aluminum Shell	Passivated Stainless Steel Shell
9P	Plug	M83513/01-AN	M83513/01-AC	M83513/01-AP
9S	Receptacle	M83513/02-AN	M83513/02-AC	M83513/02-AP
15P	Plug	M83513/01-BN	M83513/01-BC	M83513/01-BP
15S	Receptacle	M83513/02-BN	M83513/02-BC	M83513/02-BP
21P	Plug	M83513/01-CN	M83513/01-CC	M83513/01-CP
21S	Receptacle	M83513/02-CN	M83513/02-CC	M83513/02-CP
25P	Plug	M83513/01-DN	M83513/01-DC	M83513/01-DP
25S	Receptacle	M83513/02-DN	M83513/02-DC	M83513/02-DP
31P	Plug	M83513/01-EN	M83513/01-EC	M83513/01-EP
31S	Receptacle	M83513/02-EN	M83513/02-EC	M83513/02-EP
37P	Plug	M83513/01-FN	M83513/01-FC	M83513/01-FP
37S	Receptacle	M83513/02-FN	M83513/02-FC	M83513/02-FP
51P	Plug	M83513/01-GN	M83513/01-GC	M83513/01-GP
51S	Receptacle	M83513/02-GN	M83513/02-GC	M83513/02-GP
100P	Plug	M83513/01-HN	M83513/01-HC	M83513/01-HP
100S	Receptacle	M83513/02-HN	M83513/02-HC	M83513/02-HP

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	8.46	4.67	7.82	4.65	10.57	10.16	6.86
9S	19.94	14.35	10.16	6.35	7.82	4.95	10.90	10.16	6.86
15P	23.75	18.16	12.27	4.67	7.82	4.65	10.57	13.97	6.86
15S	23.75	18.16	14.00	6.35	7.82	4.95	10.90	13.97	6.86
21P	27.56	21.97	16.08	4.67	7.82	4.65	10.57	17.78	6.86
21S	27.56	21.97	17.81	6.35	7.82	4.95	10.90	17.78	6.86
25P	30.01	24.51	18.62	4.67	7.82	4.65	10.57	20.32	6.86
25S	30.01	24.51	20.35	6.35	7.82	4.95	10.90	20.32	6.86
31P	33.91	28.32	22.43	4.67	7.82	4.65	10.57	24.13	6.86
31S	33.91	28.32	24.16	6.35	7.82	4.95	10.90	24.13	6.86
37P	37.72	32.13	26.24	4.67	7.82	4.65	10.57	27.94	6.86
37S	37.72	32.13	27.96	6.35	7.82	4.95	10.90	27.94	6.86
51P	36.45	30.86	24.97	5.69	8.92	4.65	10.57	26.67	7.87
51S	36.45	30.86	26.70	7.44	8.92	4.95	10.90	26.67	7.87
100P	55.12	45.72	35.13	6.86	10.01	4.65	10.57	36.63	9.14
100S	55.12	45.72	36.86	8.46	10.01	4.95	10.90	36.63	9.14



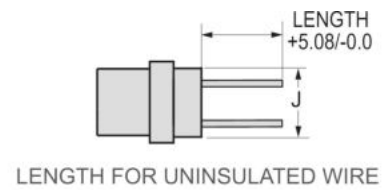
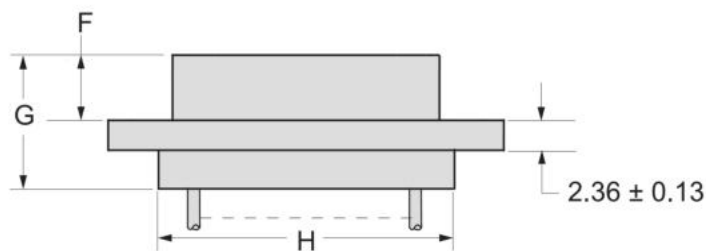
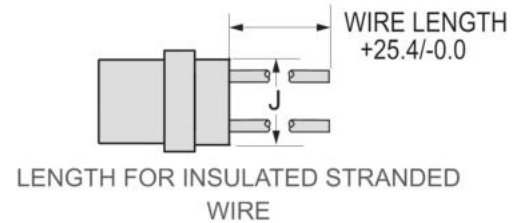
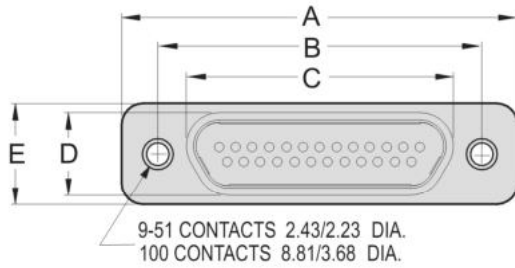
Pre-Wired Crimp Terminated, Metal Shell Connector



Ordering information

Basic series	M83513	/03	-A	09	N
Slash Number:					
/03 – Pin Connector (Plug)					
/04 – Socket Connector (Receptacle)					
Shell Size:					
A – 9 contacts					
B – 15 contacts					
C – 21 contacts					
D – 25 contacts					
E – 31 contacts					
F – 37 contacts					
G – 51 contacts					
H – 100 contacts					
Wire Type:					
M22759/11-26 Fluoropolymer-Insulated Hookup Wire:					
01 – 457mm, White					
02 – 914mm, White					
03 – 457mm, 10 Color Repeating					
04 – 914mm, 10 Color Repeating					
13 – 1829mm, White					
14 – 1829mm, 10 Color Repeating					
25 AWG Single Strand Uninsulated Wire:					
05 – 12.7mm, Gold Plated					
06 – 25.4mm, Gold Plated					
07 – 12.7mm, Tin-Lead Plated					
08 – 25.4mm, Tin-Lead Plated					
M22759/33-26 Irradiated Tefzel® Insulated Hookup Wire:					
09 – 457mm, White					
10 – 914mm, White					
11 – 457mm, 10 Color Repeating					
12 – 914mm, 10 Color Repeating					
15 – 1829mm, White					
16 – 1829mm, 10 Color Repeating					
Shell Finish:					
C – Cadmium					
N – Electroless Nickel					
P – Passivated SST					
A – Electrodeposited Aluminum					
K – Zinc Nickel					
T – Nickel Fluorocarbon Polymer					

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	19.94	14.35	8.46	4.67	7.82	4.65	10.57	10.16	6.86
9S	19.94	14.35	10.16	6.35	7.82	4.95	10.90	10.16	6.86
15P	23.75	18.16	12.27	4.67	7.82	4.65	10.57	13.97	6.86
15S	23.75	18.16	14.00	6.35	7.82	4.95	10.90	13.97	6.86
21P	27.56	21.97	16.08	4.67	7.82	4.65	10.57	17.78	6.86
21S	27.56	21.97	17.81	6.35	7.82	4.95	10.90	17.78	6.86
25P	30.01	24.51	18.62	4.67	7.82	4.65	10.57	20.32	6.86
25S	30.01	24.51	20.35	6.35	7.82	4.95	10.90	20.32	6.86
31P	33.91	28.32	22.43	4.67	7.82	4.65	10.57	24.13	6.86
31S	33.91	28.32	24.16	6.35	7.82	4.95	10.90	24.13	6.86
37P	37.72	32.13	26.24	4.67	7.82	4.65	10.57	27.94	6.86
37S	37.72	32.13	27.96	6.35	7.82	4.95	10.90	27.94	6.86
51P	36.45	30.86	24.97	5.69	8.92	4.65	10.57	26.67	7.87
51S	36.45	30.86	26.70	7.44	8.92	4.95	10.90	26.67	7.87
100P	55.12	45.72	35.13	6.86	10.01	4.65	10.57	36.63	9.14
100S	55.12	45.72	36.86	8.46	10.01	4.95	10.90	36.63	9.14

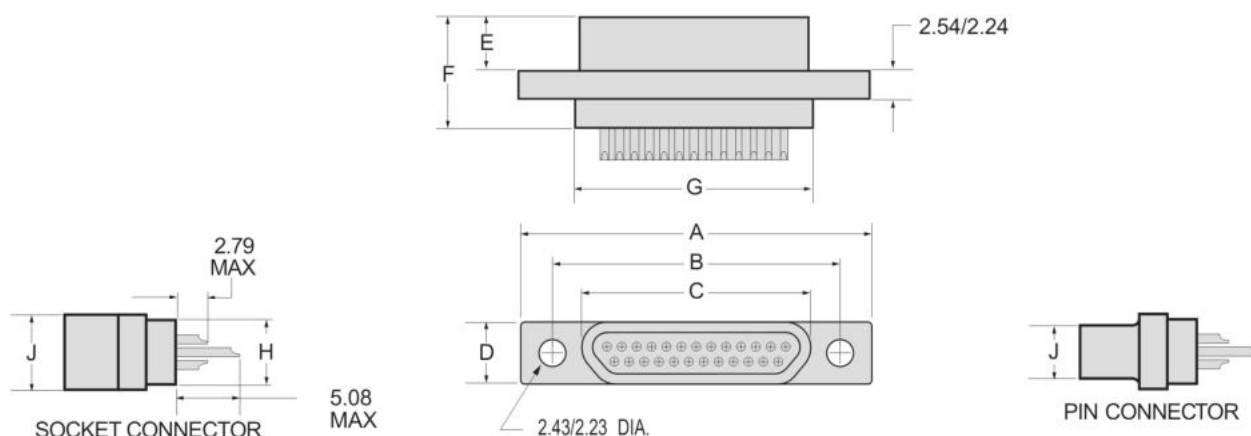
Plastic Shell Solder Cup



Ordering information

Layout	Config.	Part Number
9P	Plug	M83513/06-A
9S	Receptacle	M83513/07-A
15P	Plug	M83513/06-B
15S	Receptacle	M83513/07-B
21P	Plug	M83513/06-C
21S	Receptacle	M83513/07-C
25P	Plug	M83513/06-D
25S	Receptacle	M83513/07-D
31P	Plug	M83513/06-E
31S	Receptacle	M83513/07-E
37P	Plug	M83513/06-F
37S	Receptacle	M83513/07-F
51P	Plug	M83513/06-G
51S	Receptacle	M83513/07-G

Dimensions



Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	20.02	14.35	7.42	5.54	5.13	10.03	10.36	4.39	3.40
9S	20.02	14.35	9.65	5.54	4.70	9.53	10.36	4.39	5.54
15P	23.83	18.16	11.23	5.54	5.13	10.03	14.17	4.39	3.40
15S	23.83	18.16	13.46	5.54	4.70	9.53	14.17	4.39	5.54
21P	27.64	21.97	15.04	5.54	5.13	10.03	17.98	4.39	3.40
21S	27.64	21.97	17.27	5.54	4.70	9.53	17.98	4.39	5.54
25P	30.18	24.51	17.58	5.54	5.13	10.03	20.52	4.39	3.40
25S	30.18	24.51	19.81	5.54	4.70	9.53	20.52	4.39	5.54
31P	33.99	28.32	21.39	5.54	5.13	10.03	24.33	4.39	3.40
31S	33.99	28.32	23.62	5.54	4.70	9.53	24.33	4.39	5.54
37P	37.80	32.13	25.20	5.54	5.13	10.03	28.14	4.39	3.40
37S	37.80	32.13	27.43	5.54	4.70	9.53	28.14	4.39	5.54
51P	36.53	30.86	23.93	6.60	5.13	10.03	26.87	5.59	4.50
51S	36.53	30.86	26.16	6.60	4.70	9.53	26.87	5.59	6.60



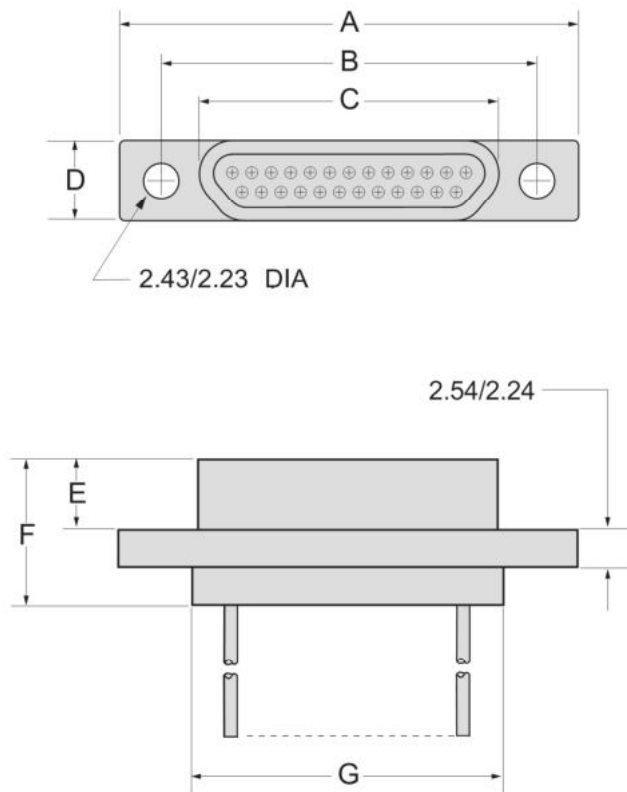
Pre-Wired Crimp Terminated, Plastic Shell Connector



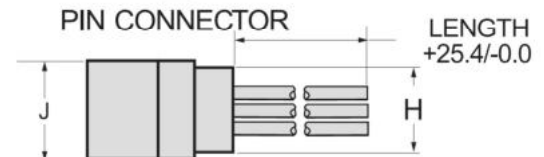
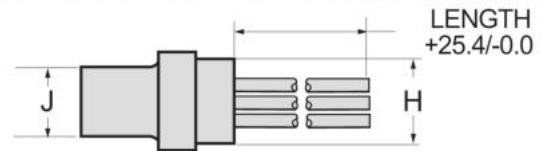
Ordering information

Basic series	M83513	/08	-A	09
Slash Number:				
/08 – Pin Connector (Plug)				
/09 – Socket Connector (Receptacle)				
Shell Size:				
A – 9 contacts				
B – 15 contacts				
C – 21 contacts				
D – 25 contacts				
E – 31 contacts				
F – 37 contacts				
G – 51 contacts				
Wire Type:				
M22759/11-26 Fluoropolymer-Insulated Hookup Wire:				
01 – 457mm, White				
02 – 914mm, White				
03 – 457mm, 10 Color Repeating				
04 – 914mm, 10 Color Repeating				
13 – 1829mm, White				
14 – 1829mm, 10 Color Repeating				
25 AWG Single Strand Uninsulated Wire:				
05 – 12.7mm, Gold Plated				
06 – 25.4mm, Gold Plated				
07 – 12.7mm, Tin-Lead Plated				
08 – 25.4mm, Tin-Lead Plated				
M22759/33-26 Irradiated Tefzel® Insulated Hookup Wire:				
09 – 457mm, White				
10 – 914mm, White				
11 – 457mm, 10 Color Repeating				
12 – 914mm, 10 Color Repeating				
15 – 1829mm, White				
16 – 1829mm, 10 Color Repeating				

Dimensions

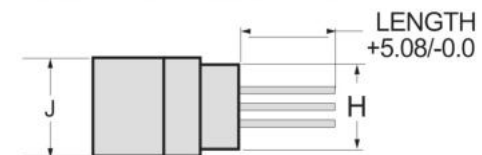


LENGTH FOR INSULATED STRANDED WIRE

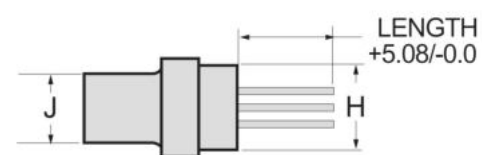


SOCKET CONNECTOR

LENGTH FOR UNINSULATED WIRE



SOCKET CONNECTOR



PIN CONNECTOR

Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H Max.	J Max.
9P	20.02	14.35	7.42	5.54	5.13	10.03	10.36	4.39	3.40
9S	20.02	14.35	9.65	5.54	4.70	9.53	10.36	4.39	5.54
15P	23.83	18.16	11.23	5.54	5.13	10.03	14.17	4.39	3.40
15S	23.83	18.16	13.46	5.54	4.70	9.53	14.17	4.39	5.54
21P	27.64	21.97	15.04	5.54	5.13	10.03	17.98	4.39	3.40
21S	27.64	21.97	17.27	5.54	4.70	9.53	17.98	4.39	5.54
25P	30.18	24.51	17.58	5.54	5.13	10.03	20.52	4.39	3.40
25S	30.18	24.51	19.81	5.54	4.70	9.53	20.52	4.39	5.54
31P	33.99	28.32	21.39	5.54	5.13	10.03	24.33	4.39	3.40
31S	33.99	28.32	23.62	5.54	4.70	9.53	24.33	4.39	5.54
37P	37.80	32.13	25.20	5.54	5.13	10.03	28.14	4.39	3.40
37S	37.80	32.13	27.43	5.54	4.70	9.53	28.14	4.39	5.54
51P	36.53	30.86	23.93	6.60	5.13	10.03	26.87	5.59	4.50
51S	36.53	30.86	26.16	6.60	4.70	9.53	26.87	5.59	6.60

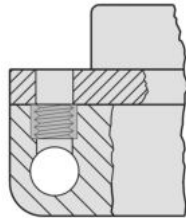
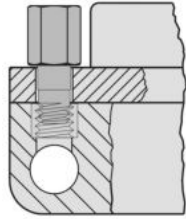
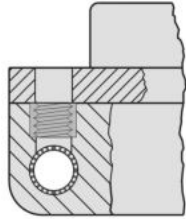
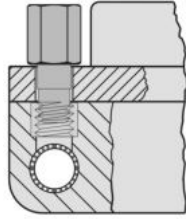
Condensed Right Angle PCB Terminated (CBR)



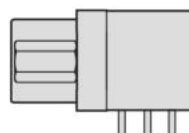
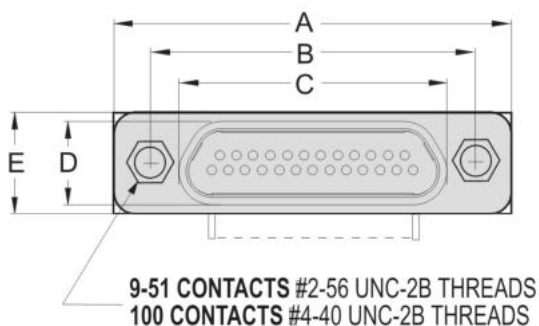
Ordering information

Basic series		M83513	/13-B	02	N	P
Slash Number:						
Plug (Pin Contacts)	Receptacle (Socket Contacts)					
10-A – 9 Contacts	13-A – 9 Contacts					
10-B – 15 Contacts	13-B – 15 Contacts					
10-C – 21 Contacts	13-C – 21 Contacts					
10-D – 25 Contacts	13-D – 25 Contacts					
10-E – 31 Contacts	13-E – 31 Contacts					
10-F – 37 Contacts	13-F – 37 Contacts					
11-G – 51 Contacts	14-G – 51 Contacts					
12-H – 100 Contacts	15-H – 100 Contacts					
PC Tail Length:						
01 – 2.77 mm						
02 – 3.56 mm						
03 – 4.37 mm						
PC Tail Length ± 0.38						
Shell Finish:						
C – Cadmium						
A – Electrodeposited Aluminum						
N – Electroless Nickel						
K – Zinc Nickel						
P – Passivated SST						
T – Nickel Fluorocarbon Polymer						
Hardware Options:						
N – No Jackpost						
P – Jackposts Installed						
Shell Size 9-51:						
T – Threaded Insert in Board Mount Hole (No Jackposts)						
W – Threaded Insert in Board Mount Hole and jackposts Installed						
Shell Size 100 (H):						
U – #4-40 Threaded Insert						
Y – #4-40 Threaded Insert & Jackpost						

Mounting Hardware Codes

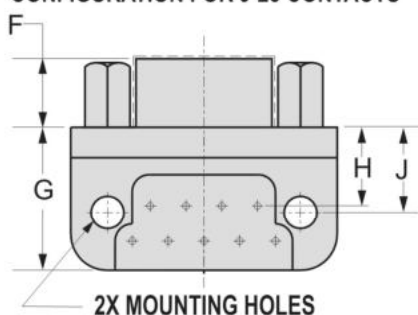
Hardware Code	Description	View
N	No Jackpost	
P	Jackpost	
T or U	Threaded Insert	
W or Y	Jackpost With Threaded Insert	

Dimensions



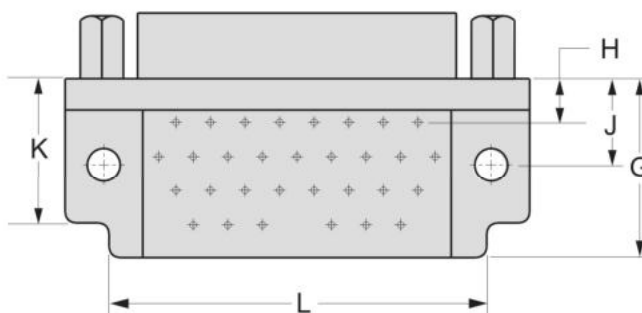
THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC

CONFIGURATION FOR 9-25 CONTACTS



PCB MOUNTING HOLES
9-51 CONTACTS 2.44 ± 0.08
100 CONTACTS 3.18 ± 0.08

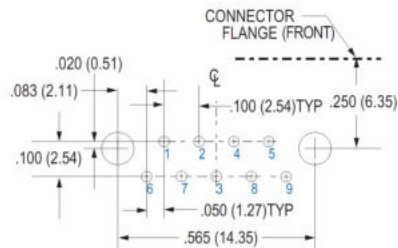
CONFIGURATION FOR 31-100 CONTACTS



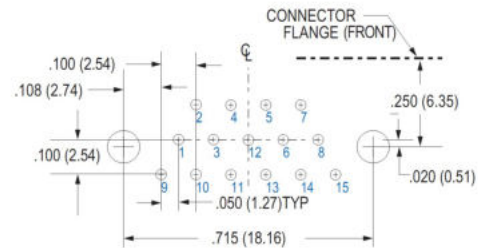
Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.08	G Max.	H ± 0.25	J ± 0.25	K Max.	L Max.
9P	19.94	14.35	8.46	4.67	7.82	4.65	10.80	5.84	6.35	—	—
9S	19.94	14.35	10.16	6.35	7.82	4.95	10.80	5.84	6.35	—	—
15P	23.75	18.16	12.27	4.67	7.82	4.65	10.80	3.30	6.35	—	—
15S	23.75	18.16	14.00	6.35	7.82	4.95	10.80	3.30	6.35	—	—
21P	27.56	21.97	16.08	4.67	7.82	4.65	10.80	3.30	6.35	—	—
21S	27.56	21.97	17.81	6.35	7.82	4.95	10.80	3.30	6.35	—	—
25P	30.01	24.51	18.62	4.67	7.82	4.65	10.80	3.30	6.35	—	—
25S	30.01	24.51	20.35	6.35	7.82	4.95	10.80	3.30	6.35	—	—
31P	33.91	28.32	22.43	4.67	7.82	4.65	13.34	3.30	6.35	11.43	27.56
31S	33.91	28.32	24.16	6.35	7.82	4.95	13.34	3.30	6.35	11.43	27.56
37P	37.72	32.13	26.24	4.67	7.82	4.65	13.34	3.30	6.35	11.43	30.10
37S	37.72	32.13	27.96	6.35	7.82	4.95	13.34	3.30	6.35	11.43	30.10
51P	36.45	30.86	24.97	5.69	8.92	4.65	16.76	3.81	7.62	11.43	31.12
51S	36.45	30.86	26.70	7.44	8.92	4.95	16.76	3.81	7.62	11.43	31.12
100P	55.12	45.72	35.13	6.86	10.01	4.65	25.65	5.08	10.16	14.99	46.23
100S	55.12	45.72	36.86	8.46	10.01	4.95	25.65	5.08	10.16	14.99	46.23

PCB Layouts – Pin Connectors

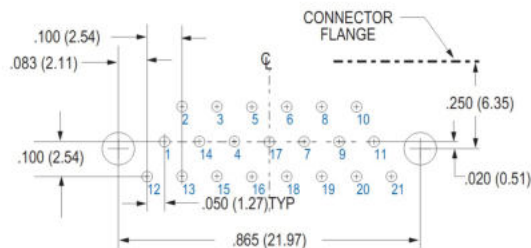
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



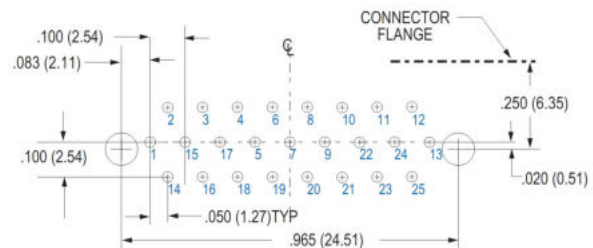
9 PIN M83513/10-A



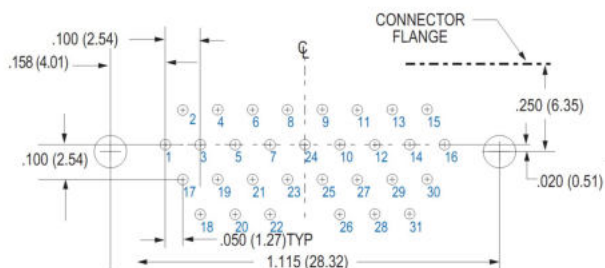
15 PIN M83513/10-B



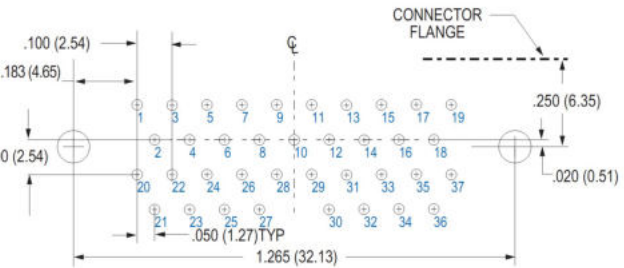
21 PIN M83513/10-C



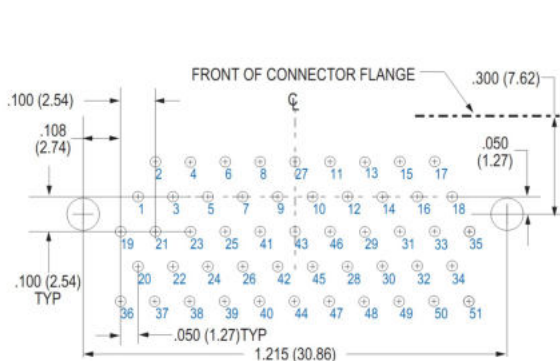
25 PIN M83513/10-D



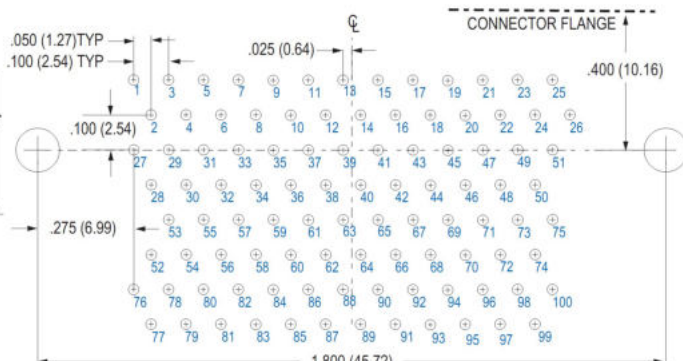
31 PIN M83513/10-E



37 PIN M83513/10-F



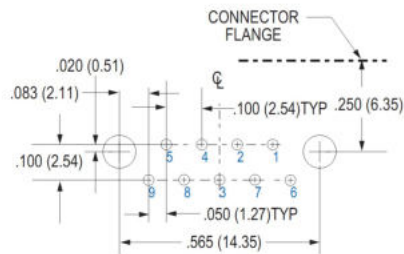
51 PIN M83513/11-G



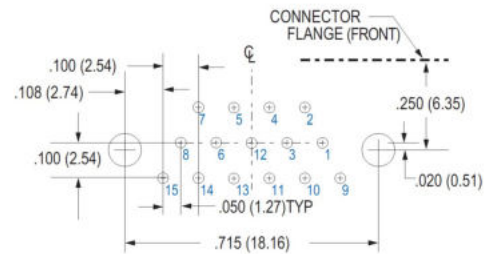
100 PIN M83513/12-H

PCB Layouts – Socket Connectors

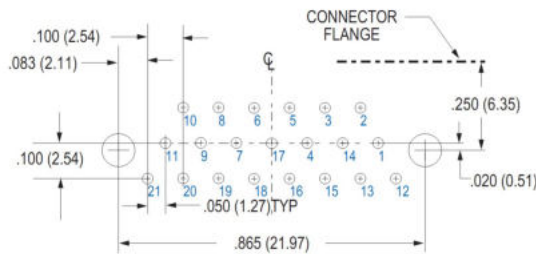
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



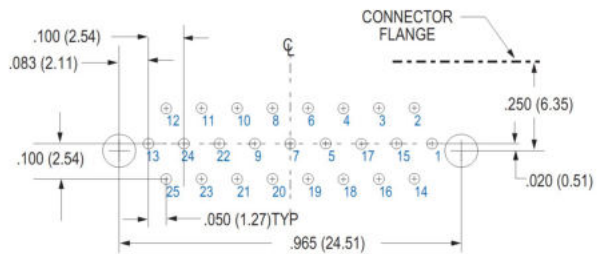
9 SOCKET M83513/13-A



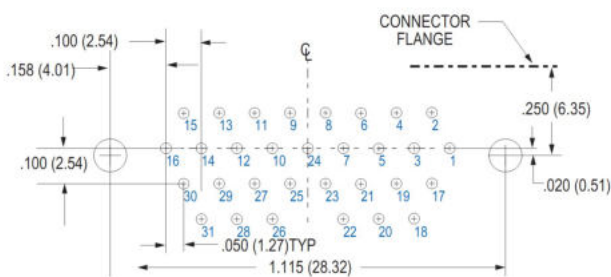
15 SOCKET M83513/13-B



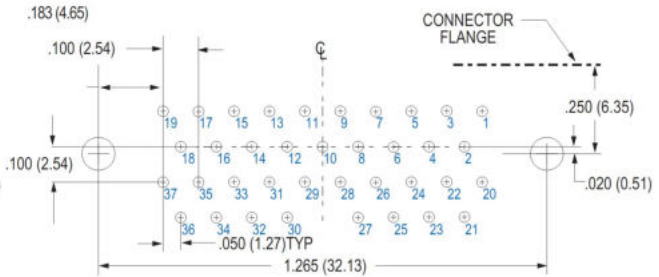
21 SOCKET M83513/13-C



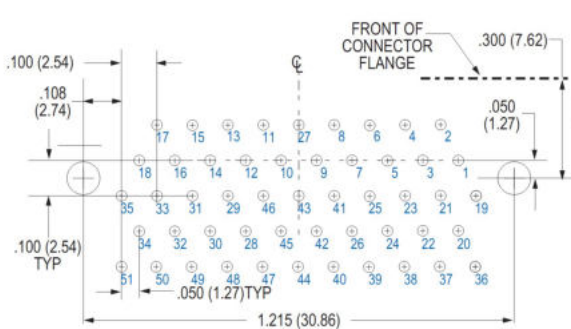
25 SOCKET M83513/13-D



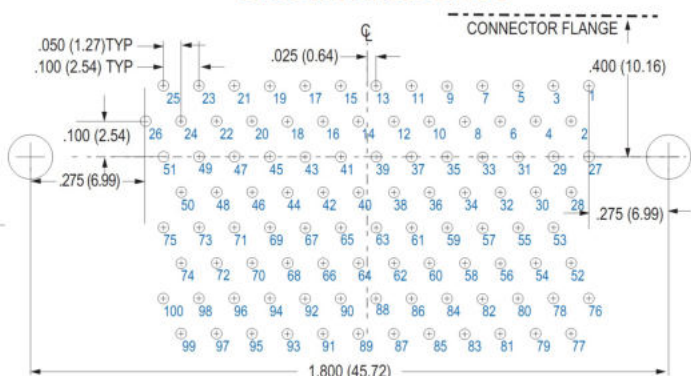
31 SOCKET M83513/13-E



37 SOCKET M83513/13-F



51 SOCKET M83513/14-G



100 SOCKET M83513/15-H

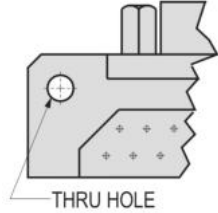
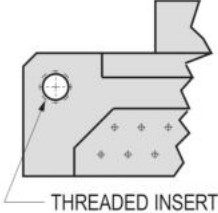
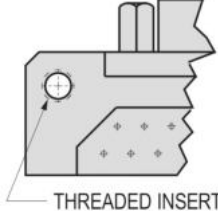
Right Angle PCB Terminated Connector (BR)



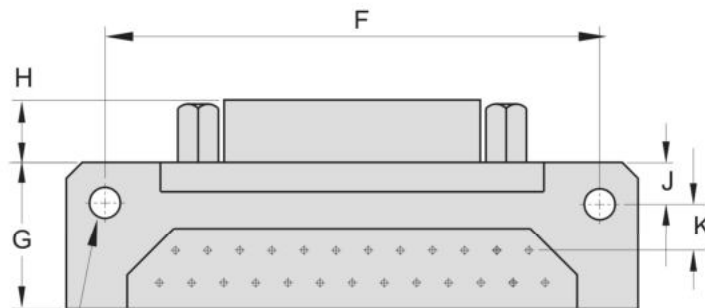
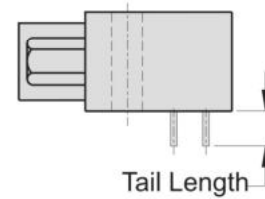
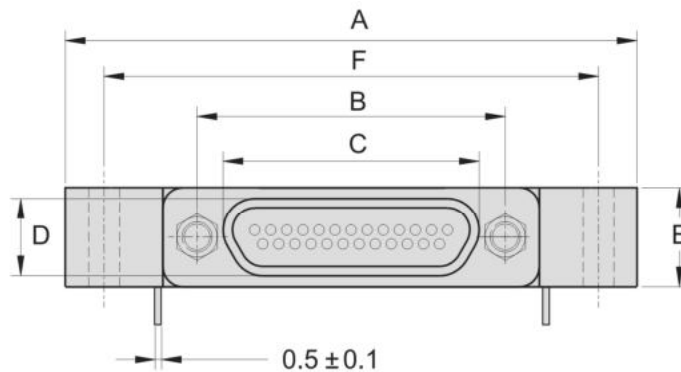
Ordering information

Basic series		M83513	/19-B	02	N	P
Slash Number:						
Plug (Pin Contacts)	Receptacle (Socket Contacts)					
16-A – 9 Contacts	19-A – 9 Contacts					
16-B – 15 Contacts	19-B – 15 Contacts					
16-C – 21 Contacts	19-C – 21 Contacts					
16-D – 25 Contacts	19-D – 25 Contacts					
16-E – 31 Contacts	19-E – 31 Contacts					
16-F – 37 Contacts	19-F – 37 Contacts					
17-G – 51 Contacts	20-G – 51 Contacts					
18-H – 100 Contacts	21-H – 100 Contacts					
PC Tail Length:						
01 – 2.77 mm						
02 – 3.56 mm						
03 – 4.37 mm						
PC Tail Length ± 0.38						
Shell Finish:						
C – Cadmium						
A – Electrodeposited Aluminum						
N – Electroless Nickel						
K – Zinc Nickel						
P – Passivated SST						
T – Nickel Fluorocarbon Polymer						
Hardware Options:						
N – No Jackpost						
P – Jackposts Installed						
Shell Size 9 – 51:						
T – Threaded Insert in Board Mount Hole (No Jackposts)						
W – Threaded Insert in Board Mount Hole and jackposts Installed						
Shell Size 100 (H):						
U – #4-40 Threaded Insert						
Y – #4-40 Threaded Insert & Jackpost						

Mounting Hardware Codes

Hardware Code	Description	View
N	No Jackpost	 THRU HOLE
P	Jackpost	 THRU HOLE
T or U	Threaded Insert	 THREADED INSERT
W or Y	Jackpost With Threaded Insert	 THREADED INSERT

Dimensions



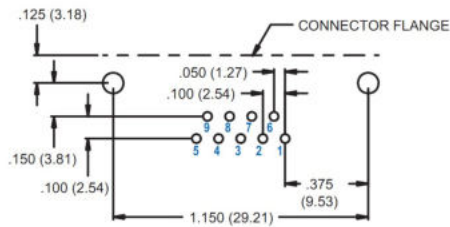
THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC

2 X PCB MTNG HOLES
9-51 CONTACTS 2.43 ± 0.13
100 CONTACTS 3.18 ± 0.13

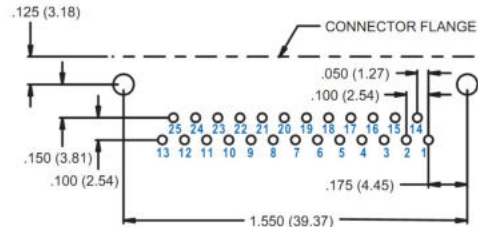
Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.13	G Max.	H ± 0.08	J ± 0.38	K ± 0.25
9P	35.31	14.35	8.46	4.70	8.26	29.21	11.81	4.65	3.18	3.81
9S	35.31	14.35	10.16	6.26	8.26	29.21	11.81	4.95	3.18	3.81
15P	39.12	18.16	12.27	4.70	8.26	33.02	11.81	4.65	3.18	3.81
15S	39.12	18.16	14.00	6.26	8.26	33.02	11.81	4.95	3.18	3.81
21P	42.93	21.97	16.08	4.70	8.26	36.83	11.81	4.65	3.18	3.81
21S	42.93	21.97	17.81	6.26	8.26	36.83	11.81	4.95	3.18	3.81
25P	45.47	24.51	18.62	4.70	8.26	39.37	11.81	4.65	3.18	3.81
25S	45.47	24.51	20.35	6.26	8.26	39.37	11.81	4.95	3.18	3.81
31P	51.82	28.32	22.43	4.70	8.26	45.72	11.81	4.65	3.18	3.81
31S	51.82	28.32	24.16	6.26	8.26	45.72	11.81	4.95	3.18	3.81
37P	59.44	32.13	26.24	4.70	8.26	53.34	11.81	4.65	3.18	3.81
37S	59.44	32.13	27.96	6.26	8.26	53.34	11.81	4.95	3.18	3.81
51P	47.63	30.86	24.97	5.79	9.14	40.64	14.35	4.65	3.18	3.81
51S	47.63	30.86	26.70	7.52	9.14	40.64	14.35	4.95	3.18	3.81
100P	70.60	45.72	35.13	6.88	10.67	63.50	19.43	4.65	5.72	3.81
100S	70.60	45.72	36.86	8.64	10.67	63.50	19.43	4.95	5.72	3.81

PCB Layouts – Pin Connectors

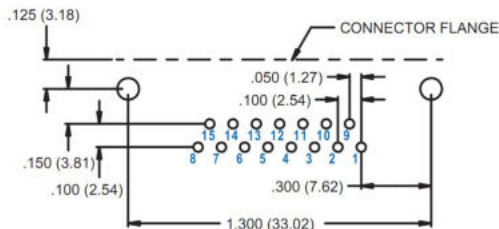
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



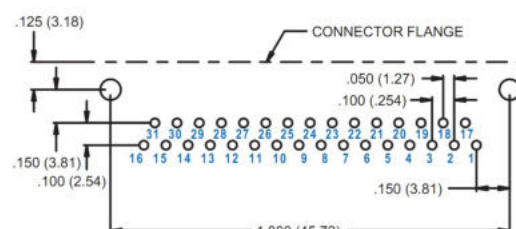
9 PIN M83513/16-A



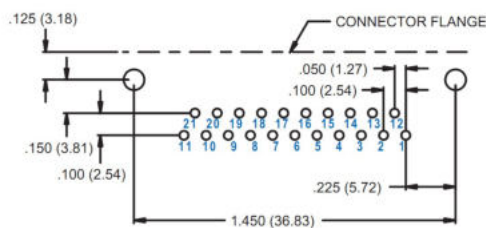
25 PIN M83513/16-D



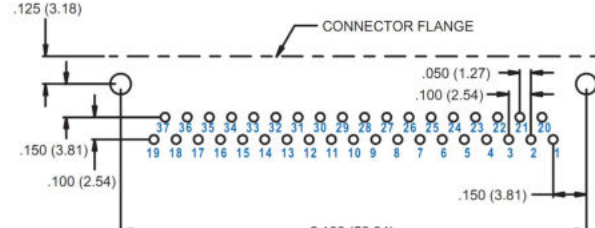
15 PIN M83513/16-B



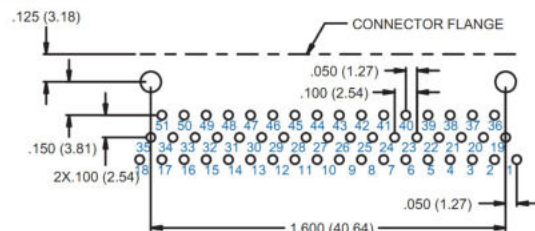
31 PIN M83513/16-E



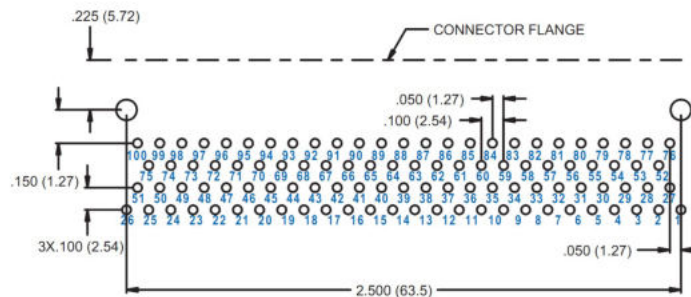
21 PIN M83513/16-C



37 PIN M83513/16-F



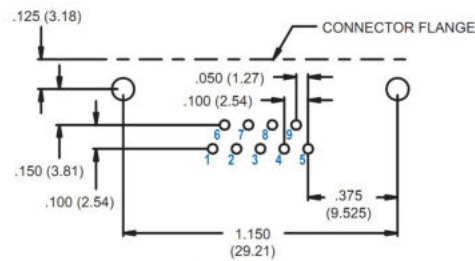
51 PIN M83513/17-G



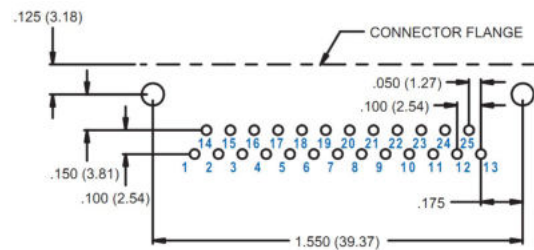
100 PIN M83513/18-H

PCB Layouts – Socket Connectors

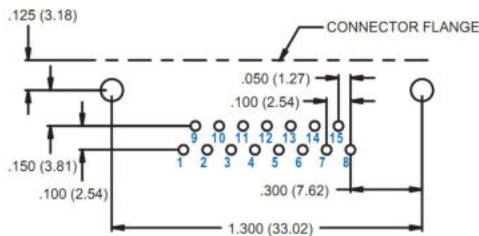
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



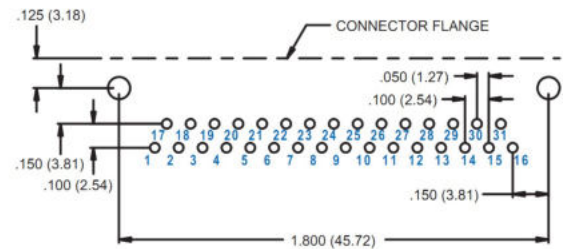
9 SOCKET M83513/19-A



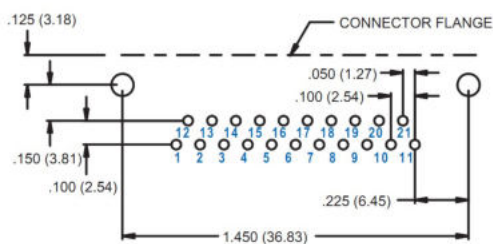
25 SOCKET M83513/19-D



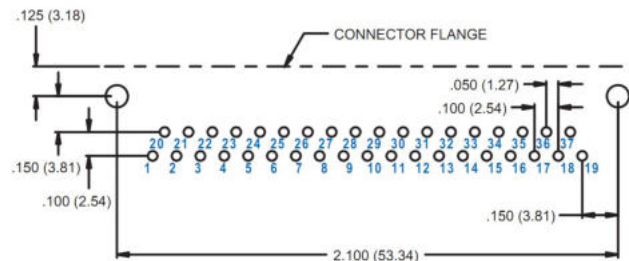
15 SOCKET M83513/19-B



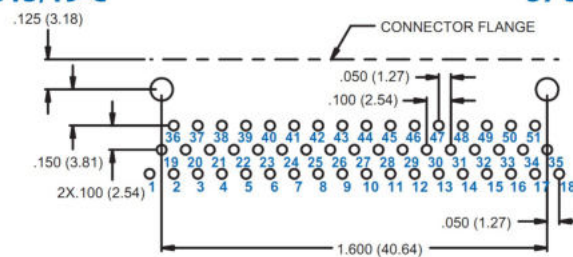
31 SOCKET M83513/19-E



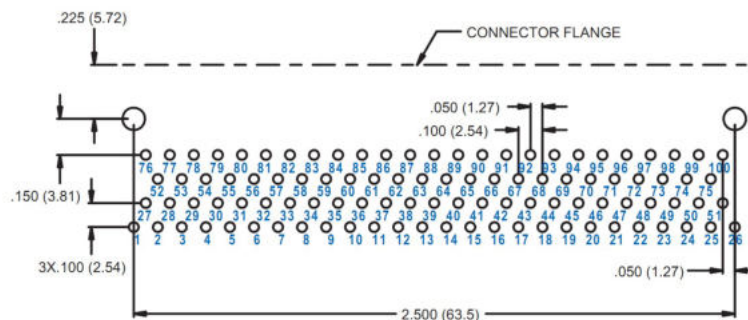
21 SOCKET M83513/19-C



37 SOCKET M83513/19-F

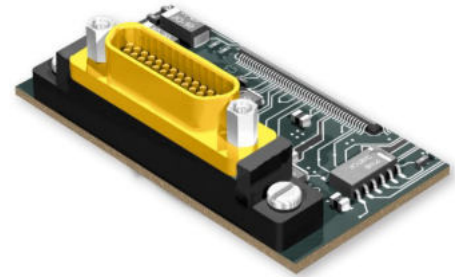


51 SOCKET M83513/20-G



100 SOCKET M83513/21-H

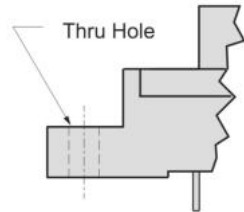
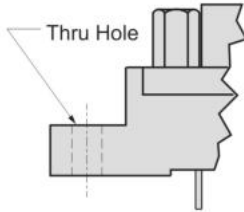
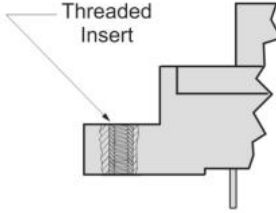
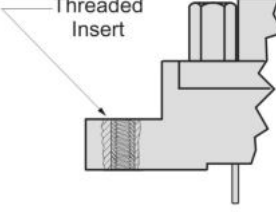
Straight PCB Terminated Connector (BS)



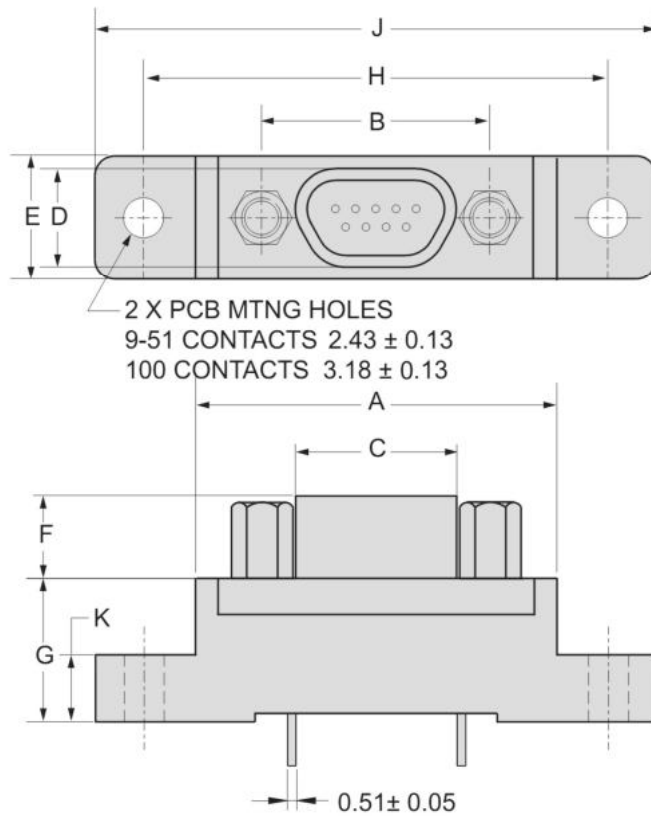
Ordering information

Basic series		M83513	/22-B	02	N	P
Slash Number:						
Plug (Pin Contacts)	Receptacle (Socket Contacts)					
22-A – 9 Contacts	25-A – 9 Contacts					
22-B – 15 Contacts	25-B – 15 Contacts					
22-C – 21 Contacts	25-C – 21 Contacts					
22-D – 25 Contacts	25-D – 25 Contacts					
22-E – 31 Contacts	25-E – 31 Contacts					
22-F – 37 Contacts	25-F – 37 Contacts					
23-G – 51 Contacts	26-G – 51 Contacts					
24-H – 100 Contacts	27-H – 100 Contacts					
PC Tail Length:						
01 – 2.77 mm						
02 – 3.56 mm						
03 – 4.37 mm						
PC Tail Length ± 0.38						
Shell Finish:						
C – Cadmium						
A – Electrodeposited Aluminum						
N – Electroless Nickel						
K – Zinc Nickel						
P – Passivated SST						
T – Nickel Fluorocarbon Polymer						
Hardware Options:						
N – No Jackpost						
P – Jackposts Installed						
Shell Size 9 – 51:						
T – Threaded Insert in Board Mount Hole (No Jackposts)						
W – Threaded Insert in Board Mount Hole and jackposts Installed						
Shell Size 100 (H):						
U – #4-40 Threaded Insert						
Y – #4-40 Threaded Insert & Jackpost						

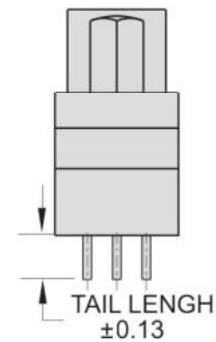
Mounting Hardware Codes

Hardware Code	Description	View
N	No Jackpost	
P	Jackpost	
T or U	Threaded Insert	
W or Y	Jackpost With Threaded Insert	

Dimensions



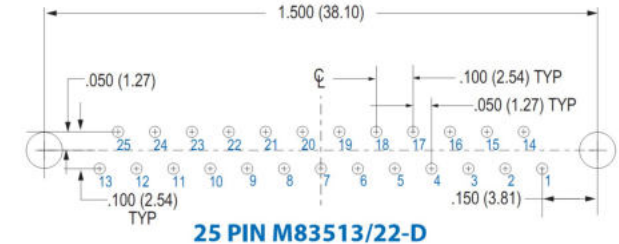
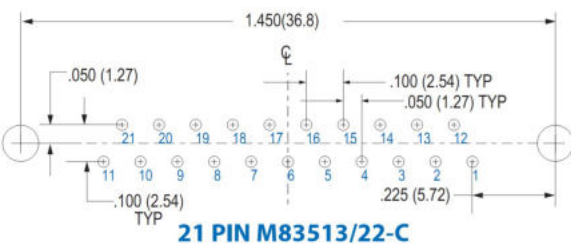
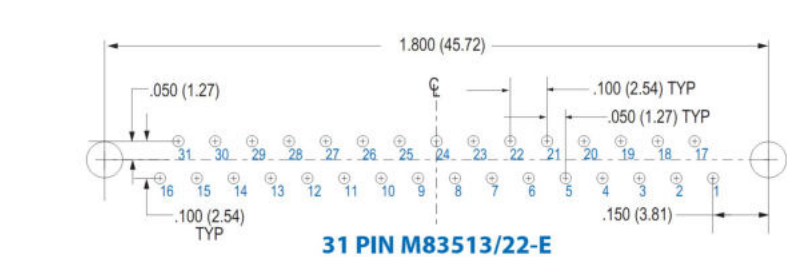
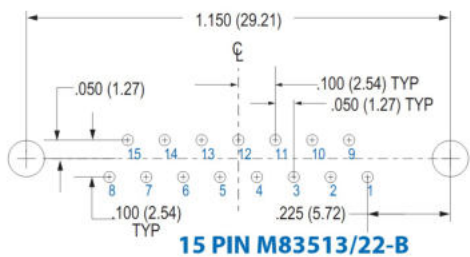
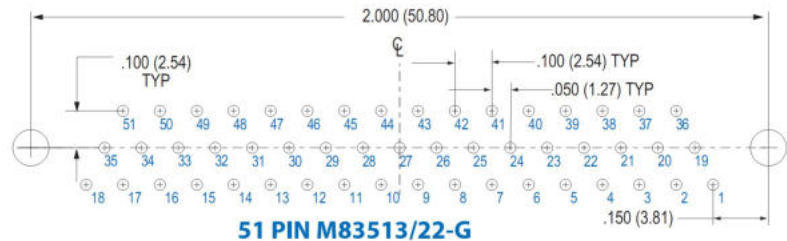
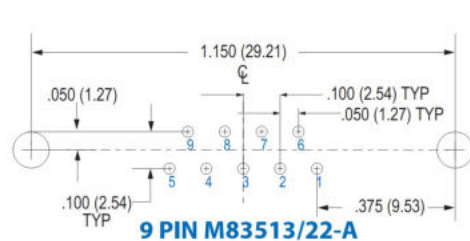
THREAD SIZES
9-51 CONTACTS #2-56 UNC
100 CONTACTS #4-40 UNC



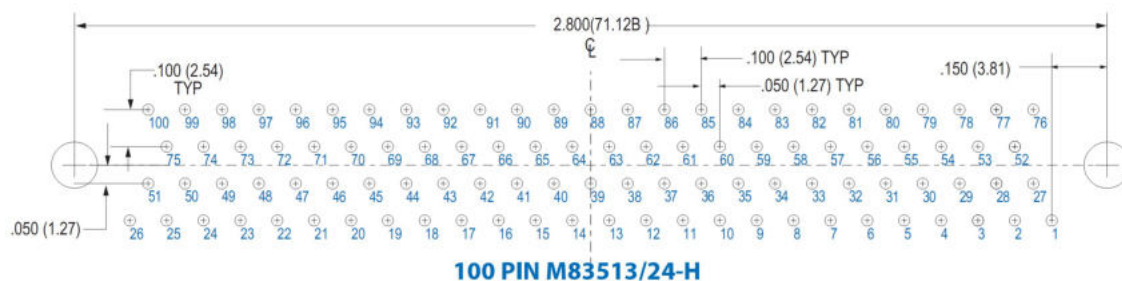
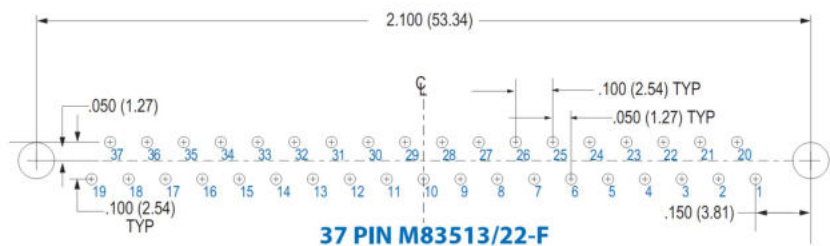
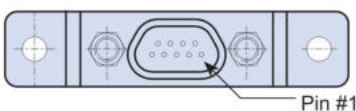
Layout	A Max.	B ± 0.08	C Max.	D Max.	E Max.	F ± 0.10	G ± 0.25	H ± 0.18	J Max.	K ± 0.25
9P	20.07	14.35	8.46	4.70	8.26	4.65	8.46	29.21	35.31	3.94
9S	20.07	14.35	10.16	6.26	8.26	4.95	8.46	29.21	35.31	3.94
15P	23.88	18.16	12.27	4.70	8.26	4.65	8.46	29.21	35.31	3.94
15S	23.88	18.16	14.00	6.26	8.26	4.95	8.46	29.21	35.31	3.94
21P	29.97	21.97	16.08	4.70	8.26	4.65	8.46	36.83	42.93	3.94
21S	29.97	21.97	17.81	6.26	8.26	4.95	8.46	36.83	42.93	3.94
25P	32.39	24.51	18.62	4.70	8.26	4.65	8.46	38.10	44.20	3.94
25S	32.39	24.51	20.35	6.26	8.26	4.95	8.46	38.10	44.20	3.94
31P	40.01	28.32	22.43	4.70	8.26	4.65	8.46	45.72	51.82	3.94
31S	40.01	28.32	24.16	6.26	8.26	4.95	8.46	45.72	51.82	3.94
37P	47.63	32.13	26.24	4.70	8.26	4.65	8.46	53.34	59.44	3.94
37S	47.63	32.13	27.96	6.26	8.26	4.95	8.46	53.34	59.44	3.94
51P	45.09	30.86	24.97	5.79	9.14	4.65	8.46	50.80	57.64	3.94
51S	45.09	30.86	26.70	7.52	9.14	4.95	8.46	50.80	57.64	3.94
100P	65.66	45.72	35.13	6.88	10.67	4.65	13.34	71.12	82.55	7.44
100S	65.66	45.72	36.86	8.64	10.67	4.95	13.34	71.12	82.55	7.44

PCB Layouts – Pin Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole

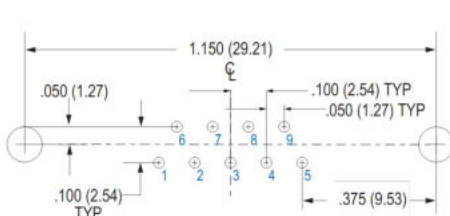


Connector Orientation

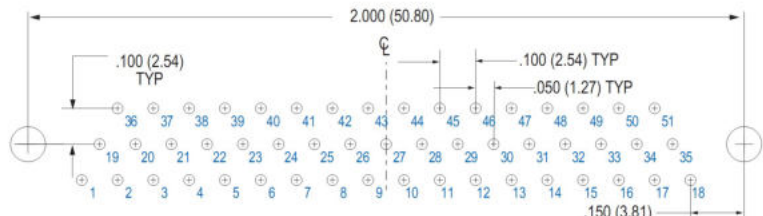


PCB Layouts – Socket Connectors

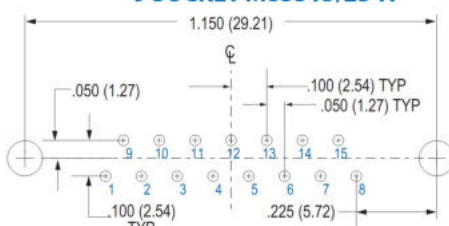
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



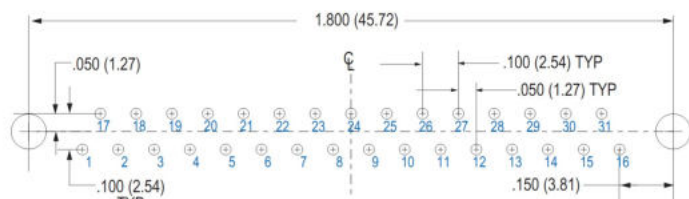
9 SOCKET M83513/25-A



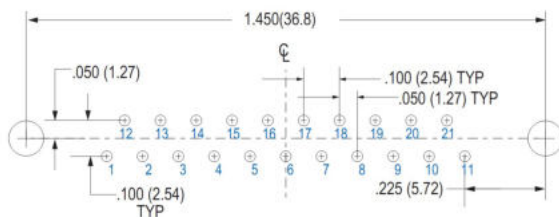
51 SOCKET M83513/26-G



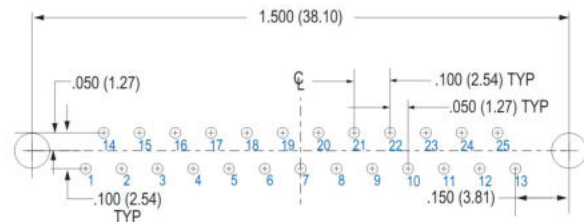
15 SOCKET M83513/25-B



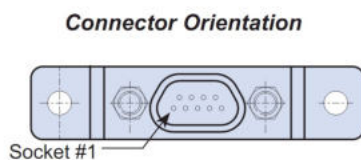
31 SOCKET M83513/25-E



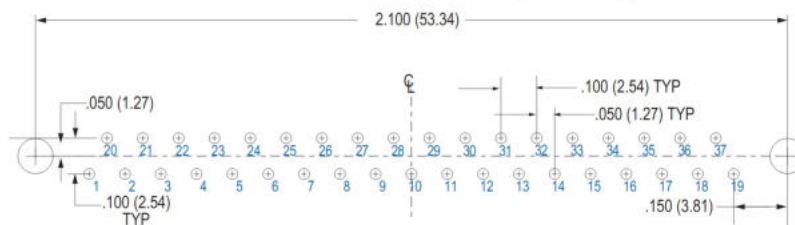
21 SOCKET M83513/25-C



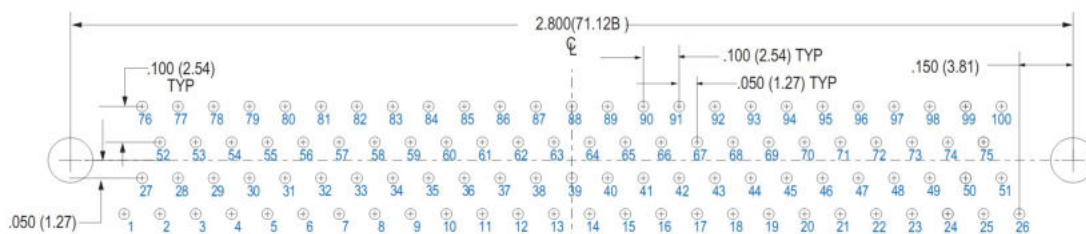
25 SOCKET M83513/25-D



Socket #1

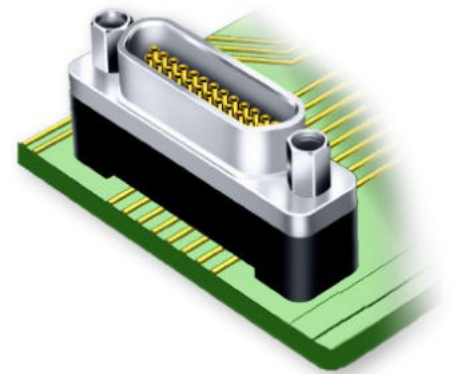


37 SOCKET M83513/25-F



100 SOCKET M83513/27-H

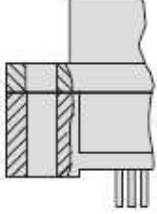
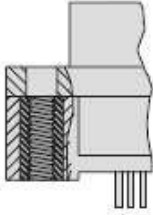
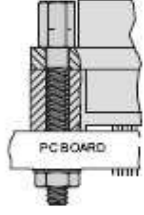
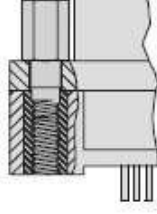
Condensed Straight PCB Terminated Connectors (CBS)



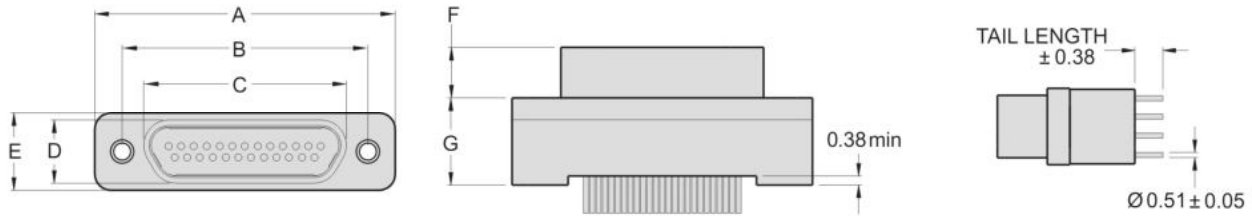
Ordering information

Basic series		M83513	/31-B	02	N	P
Slash Number:						
Plug (Pin Contacts)	Receptacle (Socket Contacts)					
28-A – 9 Contacts	31-A – 9 Contacts					
28-B – 15 Contacts	31-B – 15 Contacts					
28-C – 21 Contacts	31-C – 21 Contacts					
28-D – 25 Contacts	31-D – 25 Contacts					
28-E – 31 Contacts	31-E – 31 Contacts					
28-F – 37 Contacts	31-F – 37 Contacts					
29-G – 51 Contacts	32-G – 51 Contacts					
30-H – 100 Contacts	33-H – 100 Contacts					
PC Tail Length:						
01 – 2.77 mm						
02 – 3.56 mm						
03 – 4.37 mm						
PC Tail Length ± 0.38						
Shell Finish:						
C – Cadmium						
A – Electrodeposited Aluminum						
N – Electroless Nickel						
K – Zinc Nickel						
P – Passivated SST						
T – Nickel Fluorocarbon Polymer						
Hardware Options:						
N – No Jackpost						
P – Jackposts Installed						
Shell Size 9 – 51:						
T – Threaded Insert in Board Mount Hole (No Jackposts)						
W – Threaded Insert in Board Mount Hole and jackposts Installed						
Shell Size 100 (H):						
U – #4-40 Threaded Insert						
Y – #4-40 Threaded Insert & Jackpost						

Mounting Hardware Codes

Hardware Code	Description	View
N	no Jackpost, no Threaded Insert Mounting Hole DIA. 9-51 contacts 2.44/2.24 100 contacts 3.81/3.68	
P	Threaded Insert, no Jackpost 9-51 contacts # 2-56 UNC-2B 100 contacts # 4-40 UNC-2B	
T or U	Jackpost and Thru-Hole 9-51 contacts # 2-56 UNC 100 contacts # 4-40 UNC use with 3.96 MAX. PC board thickness	
W or Y	Jackpost With Threaded Insert 9-51 contacts #2-56 UNC 100 contacts #4-40 UNC	

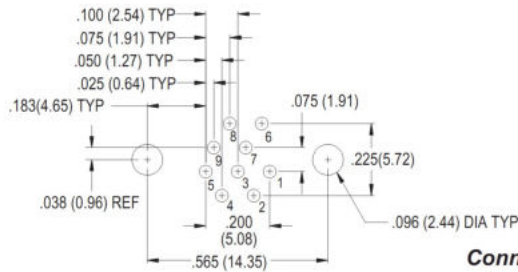
Dimensions



Layout	A Max.	B ± 0.13	C Max.	D Max.	E Max.	F ± 0.08	G Max.
9P	19.94	14.35	8.46	4.70	7.87	4.65	9.02
9S	19.94	14.35	10.16	6.43	7.87	4.95	9.02
15P	23.75	18.16	12.27	4.70	7.87	4.65	9.02
15S	23.75	18.16	14.00	6.43	7.87	4.95	9.02
21P	27.56	21.97	16.08	4.70	7.87	4.65	9.02
21S	27.56	21.97	17.81	6.43	7.87	4.95	9.02
25P	30.01	24.51	18.62	4.70	7.87	4.65	9.02
25S	30.01	24.51	20.35	6.43	7.87	4.95	9.02
31P	33.91	28.32	22.43	4.70	7.87	4.65	9.02
31S	33.91	28.32	24.16	6.43	7.87	4.95	9.02
37P	37.72	32.13	26.24	4.70	7.87	4.65	9.02
37S	37.72	32.13	27.96	6.43	7.87	4.95	9.02
51P	36.45	30.86	24.97	5.79	10.16	4.65	9.02
51S	36.45	30.86	26.70	7.52	10.16	4.95	9.02
100P	55.12	45.72	35.13	6.88	12.95	4.65	10.92
100S	55.12	45.72	36.86	8.64	12.95	4.95	10.92

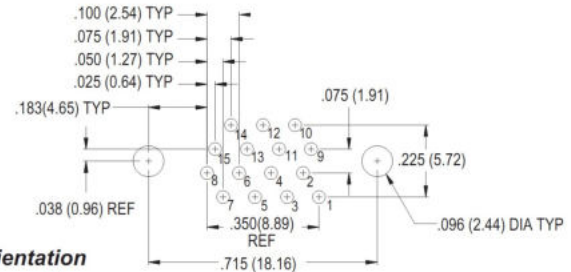
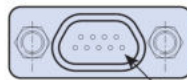
PCB Layouts – Pin Connectors

Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole

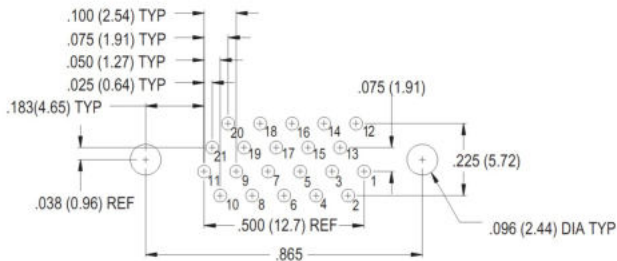


9 PIN M83513/28-A

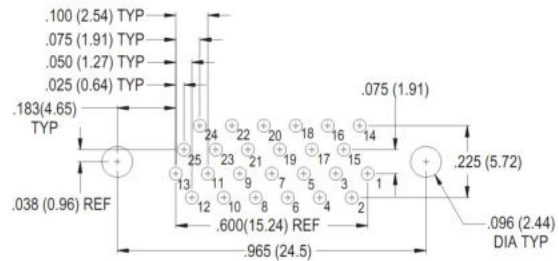
Connector Orientation



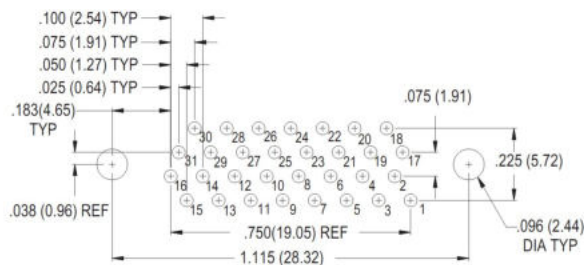
15 PIN M83513/28-B



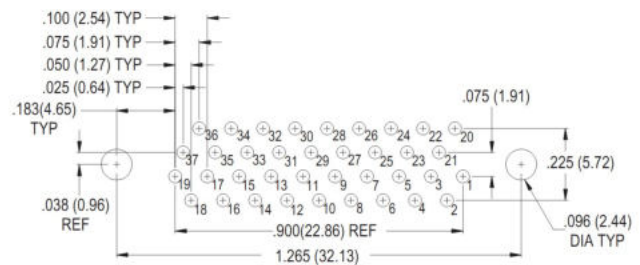
21 PIN M83513/28-C



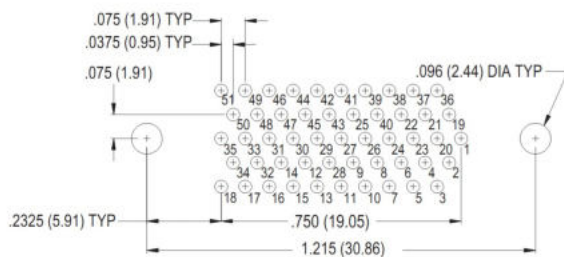
25 PIN M83513/28-D



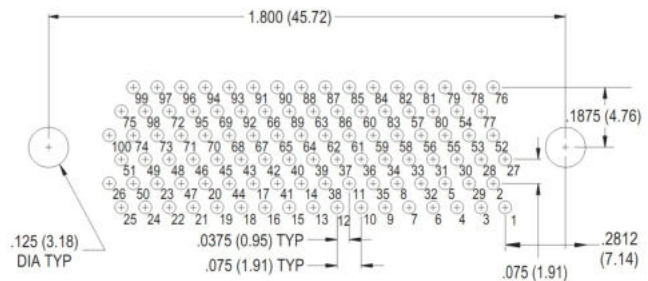
31 PIN M83513/28-E



37 PIN M83513/28-F



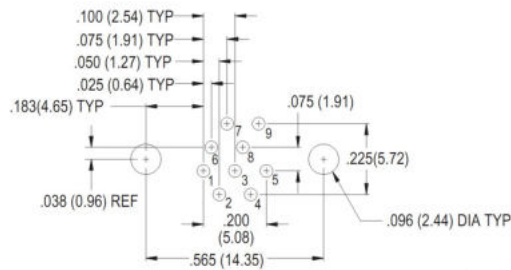
51 PIN M83513/29-G



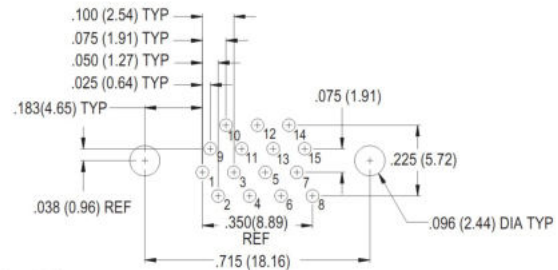
100 PIN M83513/30-H

PCB Layouts – Socket Connectors

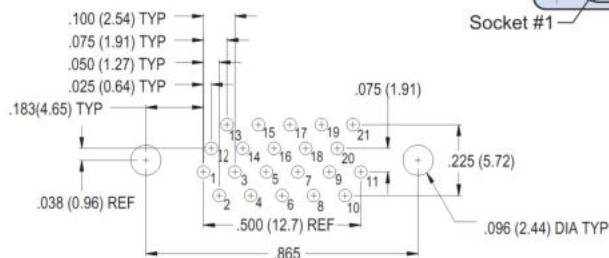
Patterns shown are for connector mounting side of PC board. 9 Thru 51 Contacts 2.44 mm Diameter Mounting Holes, 100 Contacts 3.18 mm Diameter Mounting Hole



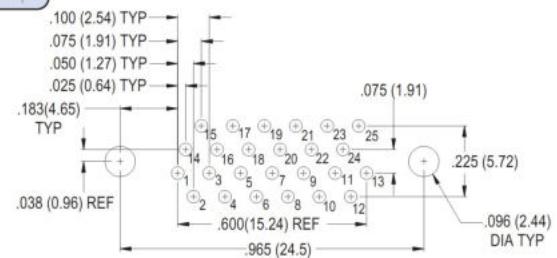
9 SOCKET M83513/31-A



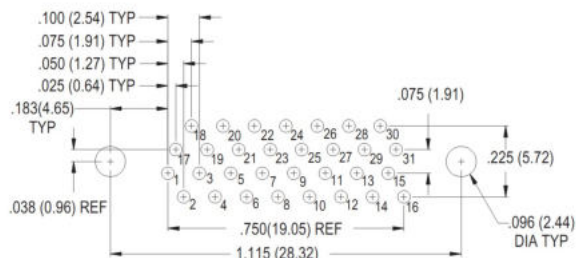
15 SOCKET M83513/31-B



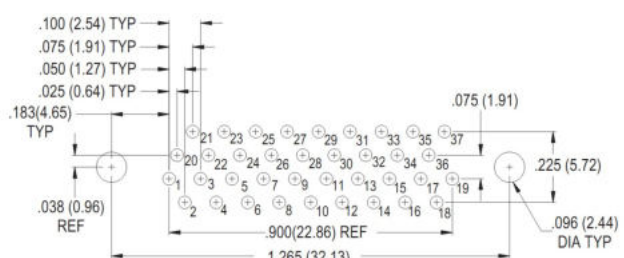
21 SOCKET M83513/31-C



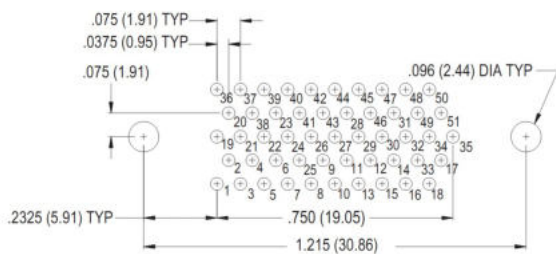
25 SOCKET M83513/31-D



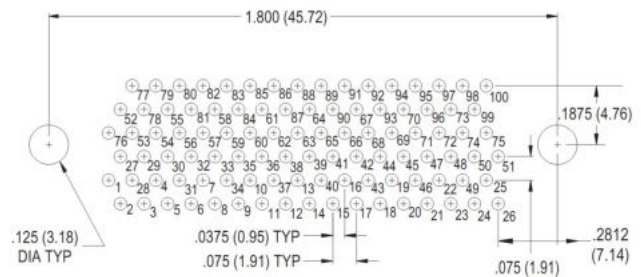
31 SOCKET M83513/31-E



37 SOCKET M83513/31-F

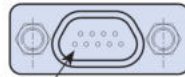


51 SOCKET M83513/32-G



100 Socket M83513/33-H

Connector Orientation



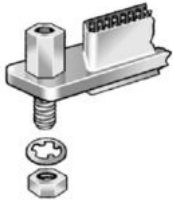
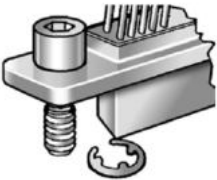
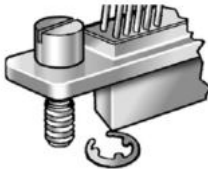
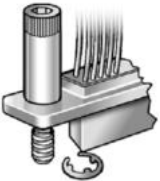
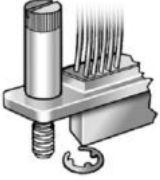
Socket #1

MICRO-D Jackscraws & Jackposts

**Part
7**

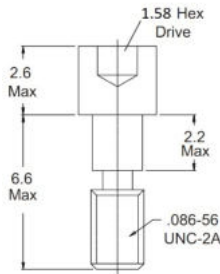
Hardware Kits for Micro-D Connectors

Ordering information

Configuration	Mounting Kits	Connector Size, Thread Size	Mil Spec Part Number
 Jackpost	2 Jackposts, 2 nuts, 2 lockwashers	Sizes 9 to 69 Size A to G #2-56 UNC	M83513/05-07
		Sizes 75 to 130 Size H #4-40 UNC	M83513/05-17
 Hex Head Jackscrew Low Profile	2 Low Profile Allen Heads, 2 E-rings	Sizes 9 to 69 Size A to G #2-56 UNC	M83513/05-02
		Sizes 75 to 130 Size H #4-40 UNC	M83513/05-12
 Slot Head Jackscrew Low Profile	2 Low Profile Slot Heads, 2 E-rings	Sizes 9 to 69 Size A to G #2-56 UNC	M83513/05-05
		Sizes 75 to 130 Size H #4-40 UNC	M83513/05-15
 Hex Head Jackscrew Extended	2 High Profile Allen Heads, 2 E-rings	Sizes 9 to 69 Size A to G #2-56 UNC	M83513/05-03
		Sizes 75 to 130 Size H #4-40 UNC	M83513/05-13
 Slot Head Jackscrew Extended	2 High Profile Slot Heads, 2 E-rings	Sizes 9 to 69 Size A to G #2-56 UNC	M83513/05-06
		Sizes 75 to 130 Size H #4-40 UNC	M83513/05-16

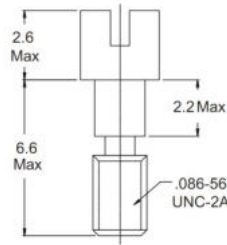
Dimensions

#2-56 for 9-51 position connectors



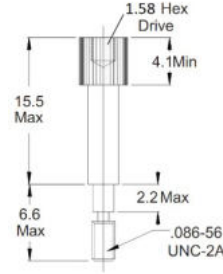
Part Number

M83513/05-02



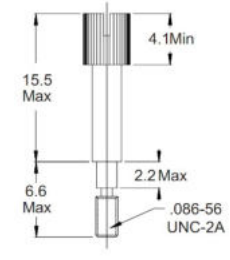
Part Number

M83513/05-05



Part Number

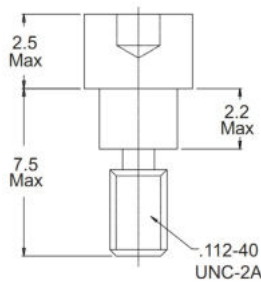
M83513/05-03



Part Number

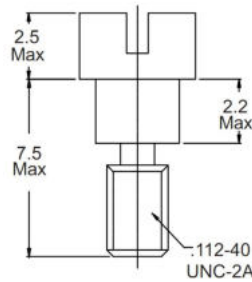
M83513/05-06

#4-40 for 100 position connectors



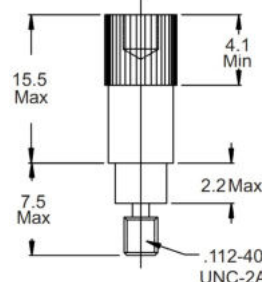
Part Number

M83513/05-12



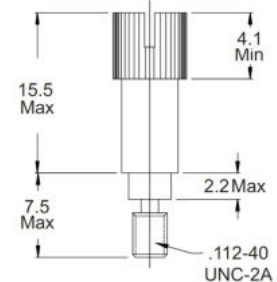
Part Number

M83513/05-15



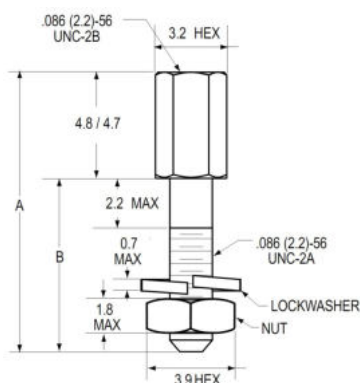
Part Number

M83513/05-13



Part Number

M83513/05-16



Part Number

A ± 0.4

B ± 0.5

M83513/05-07

12.1

7.3

EZZ-069-2-1

17.5

12.7

EZZ-069-2-2

20.7

15.9

EZZ-069-2-3

23.8

19.1

EZZ-069-2-4

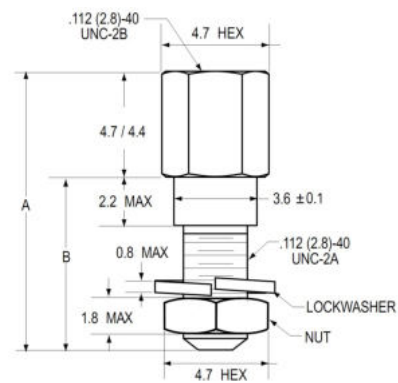
27.0

22.2

EZZ-069-2-5

30.2

25.4



Part Number

A ± 0.4

B ± 0.5

M83513/05-17

12.1

7.3

EZZ-069-4-1

17.3

12.7

EZZ-069-4-2

20.4

15.9

EZZ-069-4-3

23.6

19.1

EZZ-069-4-4

26.8

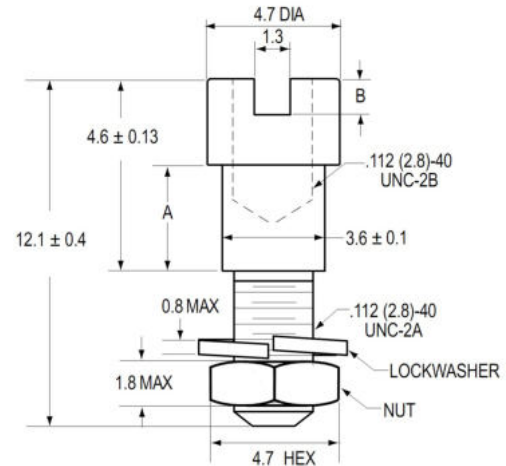
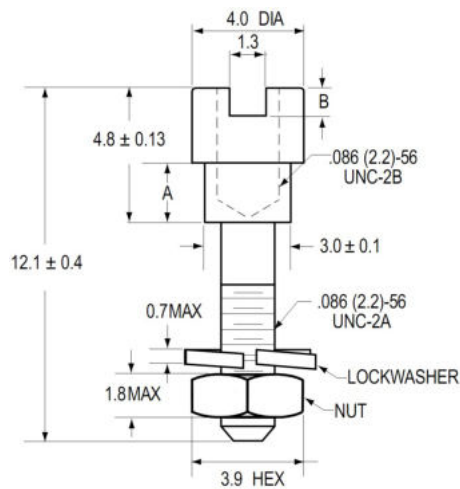
22.2

EZZ-069-4-5

30.0

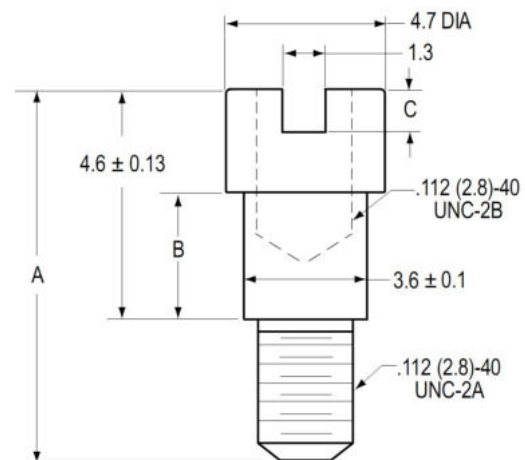
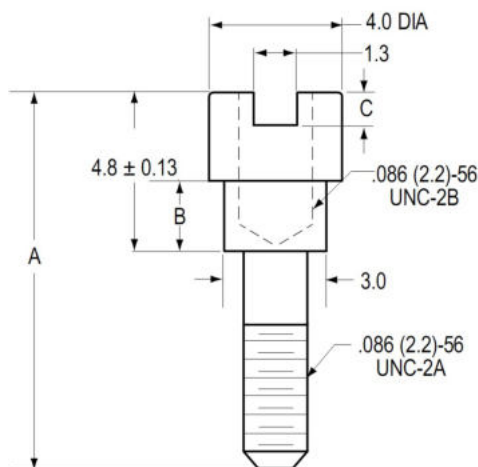
25.4

Twist pin Connectors Micro-D



Part Number	Panel Thickness	A ± 0.08	B ± 0.08
AGG-504-2-2	0.8	0.6	1.3
AGG-504-2-3	1.2	1.0	1.3
AGG-504-2-4	1.6	1.4	1.3
AGG-504-2-5	2.4	2.2	1.3
AGG-504-2-6	3.2	3.0	7.6

Part Number	Panel Thickness	A ± 0.08	B ± 0.08
AGG-504-4-2	0.8	0.6	1.3
AGG-504-4-3	1.2	1.0	1.3
AGG-504-4-4	1.6	1.4	1.3
AGG-504-4-5	2.4	2.2	1.3
AGG-504-4-6	3.2	3.0	7.6



Part Number	Panel Thickness	Connector Style	A ± 0.4	B ± 0.08	C ± 0.08
AGG-505-A-2-2	0.8	BS, CBR	9.3	0.6	1.3
AGG-505-A-2-3	1.2	BS, CBR	9.3	1.0	1.3
AGG-505-A-2-4	1.6	BS, CBR	9.3	1.4	1.3
AGG-505-A-2-5	2.4	BS, CBR	9.3	2.2	1.3
AGG-505-A-2-6	3.2	BS, CBR	9.3	3.0	7.6
AGG-505-B-2-2	0.8	BR	10.1	0.6	1.3
AGG-505-B-2-3	1.2	BR	10.1	1.0	1.3
AGG-505-B-2-4	1.6	BR	10.1	1.4	1.3
AGG-505-B-2-5	2.4	BR	10.1	2.2	1.3
AGG-505-B-2-6	3.2	BR	10.1	3.0	7.6

Part Number	Panel Thickness	Connector Style	A ± 0.4	B ± 0.08	C ± 0.08
AGG-505-C-4-2	0.8	BR, CBR	12.1	0.6	1.3
AGG-505-C-4-3	1.2	BR, CBR	12.1	1.0	1.3
AGG-505-C-4-4	1.6	BR, CBR	12.1	1.4	1.3
AGG-505-C-4-5	2.4	BR, CBR	12.1	2.2	1.3
AGG-505-C-4-6	3.2	BR, CBR	12.1	3.0	7.6
AGG-505-D-4-2	0.8	BS	9.1	0.6	1.3
AGG-505-D-4-3	1.2	BS	9.1	1.0	1.3
AGG-505-D-4-4	1.6	BS	9.1	1.4	1.3
AGG-505-D-4-5	2.4	BS	9.1	2.2	1.3
AGG-505-D-4-6	3.2	BS	9.1	3.0	7.6

Hardware Kits for Micro-D Backshells



Fillister Head Jackscrew



Hex Head Jackscrew



Extended Jackscrew



Jackpost

Part Number	Thread Size	Part Number	Thread Size	Part Number (dash # = size)	Overall Length	Part Number	Thread Size
FHG-152-01B	#2-56 (9-69 pin)	FHG-152-01	#2-56 (9-69 pin)	FHG-439-09	32.3	FHG-194	#2-56 (9-69 pin)
FHG-152-02B	#4-40 (75-130 pin)	FHG-152-02	#4-40 (75-130 pin)	FHG-439-15	35.6	FHG-194-1	#4-40 (75-130 pin)
				FHG-439-21	38.6		
				FHG-439-25	40.1		
				FHG-439-31	41.7		
				FHG-439-37	42.7		
				FHG-439-51	43.3		
				FHG-439-100	46.0		

Note. Order Two Kits Per Connector. Each Jackscrew kit consists of one jackscrew and one clip

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