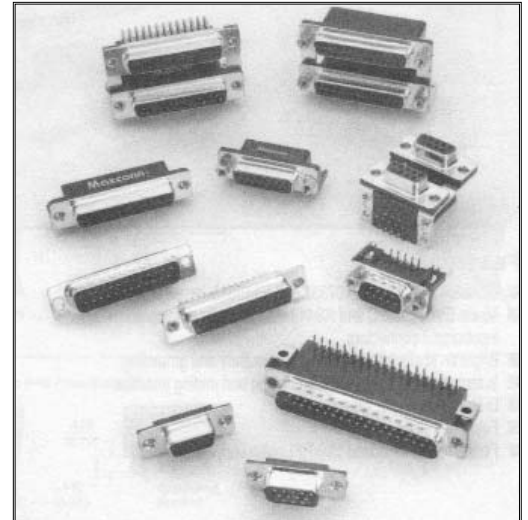


D-Subminiature Connectors

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D-SUBMINIATURE CONNECTORS

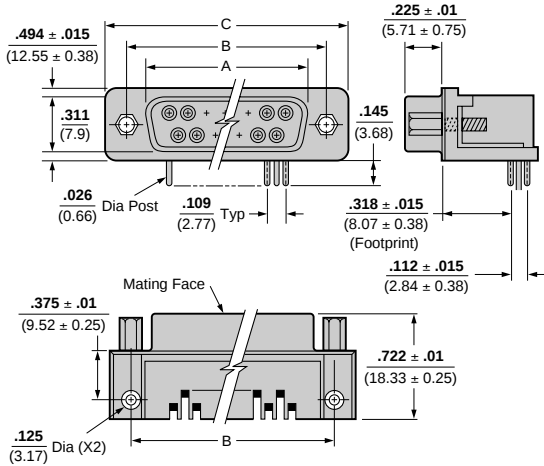
MRS Series
Right Angle Termination
.318 Footprint



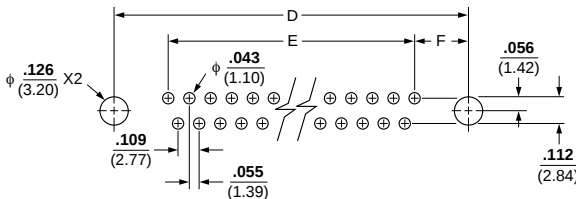
FEATURES

- UL, CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connectors
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes
- Ferrite option for added EMI/RFI noise suppression

DIMENSIONS



PCB LAYOUT



MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only
Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Brass 0.040 (1.20) diameter
Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket with tin plated leads

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs
Contact Separation Force: Four ounces, minimum
Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: Precision formed contact 5.0 amps with 20 AWG wire
Contact Resistance: Precision formed contact 8 milliohms maximum
Contact Resistance: 1000 Vac minimum
Insulation Resistance: 5000 megohms minimum
Temperature Rating: -55° C to + 125° C

Number of Contact Positions	A	B	C	D	E	F
	0.010	0.005	0.015	0.005	0.005	0.005
	0.25	0.13	0.38	0.13	0.13	0.13
9 (E)	0.643	0.984	1.213	0.984	0.436	0.274
	16.33	24.99	30.81	24.99	11.08	6.96
15 (A)	0.971	1.312	1.541	1.312	0.763	0.274
	24.66	33.32	39.14	33.32	19.38	6.96
25 (B)	1.511	1.852	2.088	1.852	1.308	0.272
	38.38	47.04	53.04	47.04	33.22	6.91
37 (C)	2.159	2.500	2.729	2.50	1.963	0.269
	54.84	63.50	69.32	63.50	49.86	6.83

HOW TO ORDER

MRS - B F - 25 S - N - 15 - F

Series — MRS

Shell Size — B (9 positions), F (15 positions), 25 (25 positions), 37 (37 positions)

Precision Formed Contact — F (Ferrite), S (Standard)

No. of Positions — 9, 15, 25, 37

Contact Type — P – Male (plug), S – Female (socket)

Blank – Without ferrite
F – With ferrite

Plating Options
Blank – 8 microinch gold (Standard)
15 – 15 microinch gold
30 – 30 microinch gold

Mounting Option
See Page 1-3

MRS Series
Right Angle Termination .318 Footprint

Mounting Options

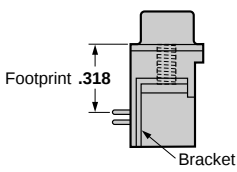
Option M

0.375 mounting flange hole dimension, with 0.130 diameter non-threaded mounting holes, and with riveted threaded inserts.

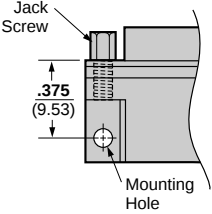
Option MJ

Includes Option M and with jack screws assembled to connector.

Option M



Option MJ



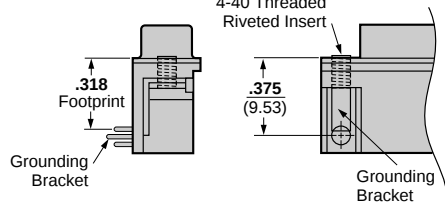
Option N

With grounding brackets (locking-type) and with riveted threaded inserts.

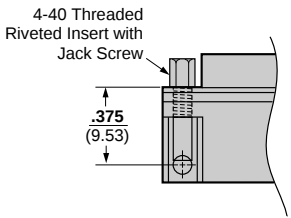
Option NJ

Includes Option N and with jack screws assembled to connector.

Option N



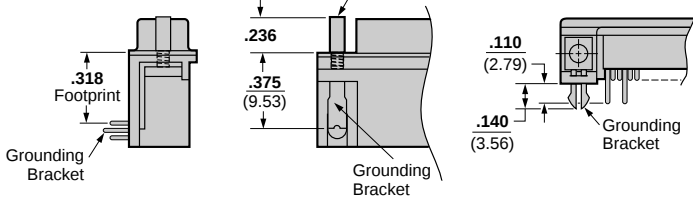
Option NJ



Option NS

With grounding brackets (locking-type) and with round 4-40 fixed standoff.

Option NS



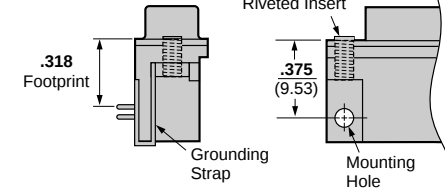
Option O

With grounding straps, with 0.125 diameter non-threaded mounting holes, and with riveted threaded inserts.

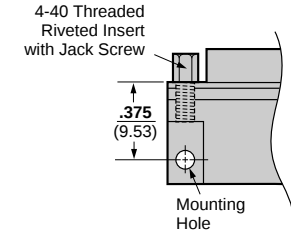
Option OJ

Includes Option O and with round 4-40 fixed standoff.

Option O



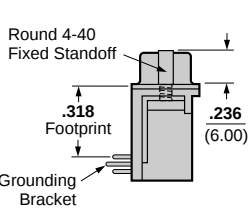
Option OJ



Option OS

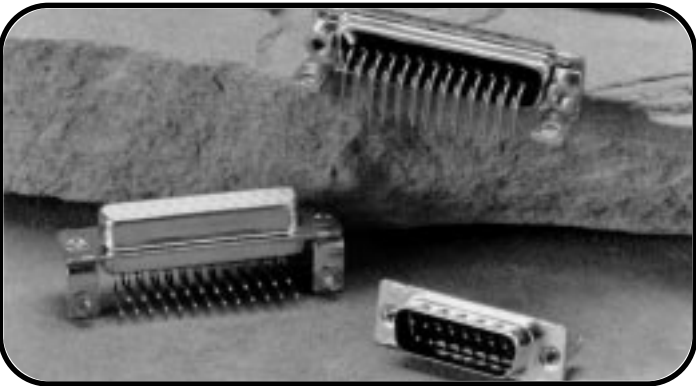
With grounding straps, with 0.125 diameter non-threaded mounting holes, and with round 4-40 fixed standoff.

Option OS



D-SUBMINIATURE CONNECTORS

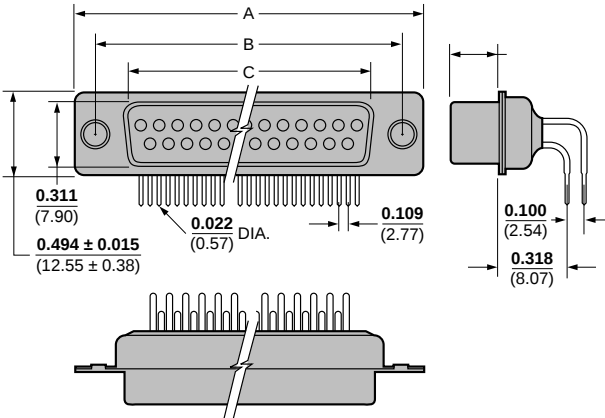
MRSF Series
Right Angle Termination
Filtered Capacitor Contact



FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connectors
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes
- Ferrite option for added EMI/RFI noise suppression

DIMENSIONS



MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only
Insert: PBT thermoplastic, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Copper alloy, gold plated
Socket: Copper alloy, gold plated

Contact Finish: Gold flash over nickel on entire contact, 30 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket (standard)

Riveted Insert: Brass material, nickel finish

Bracket and Board Lock: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: Maximum 0.8N per pair of mating contacts

Contact Engagement Force: Maximum 0.8N per pair of mating contacts

Electrical Characteristics

Mating Cycles: 500 minimums

Contact Current Rating: 5.0 amps or 7.5 amps contact

Operating Voltage: 250V

Test Voltage Between Contacts: 1000 50/60 Hz, 1 min.

Resistance per Based Contact: $\leq 2.7m$ ohm/A (MIL-C-24308)

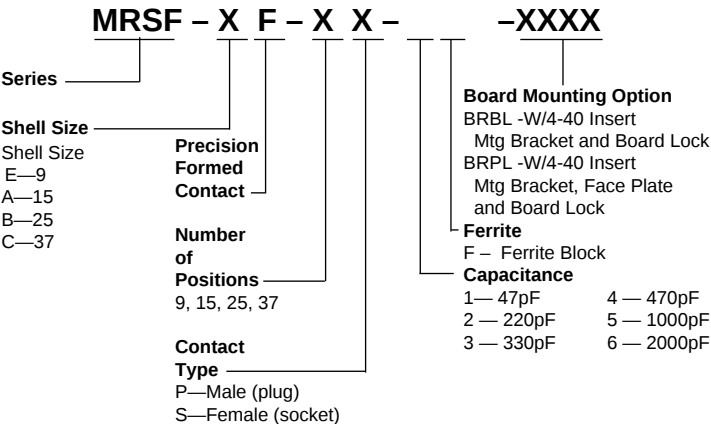
Test Voltage Between Shell and Contact : 1000 Vac 50/60 Hz minimum

Insulation Resistance: 5000 megohms minimum

Temperature Rating: -67° F to + 311° F

Number of Contact Positions	A	B	C	D	E	F
	0.015	0.005	0.010	0.005	0.005	0.005
	0.38	0.13	0.25	0.13	0.13	0.13
9 (E)	1.213	0.984	0.643	0.984	0.436	0.274
	30.81	24.99	16.33	24.99	11.08	6.96
15 (A)	1.541	1.312	0.971	1.312	0.763	0.274
	39.14	33.32	24.66	33.32	19.38	6.96
25 (B)	2.088	1.852	1.511	1.852	1.308	0.272
	53.04	47.04	38.38	47.04	33.32	6.91
37 (C)	2.729	2.500	2.159	2.500	1.963	0.269
	69.32	63.50	54.84	63.50	49.86	6.83

HOW TO ORDER



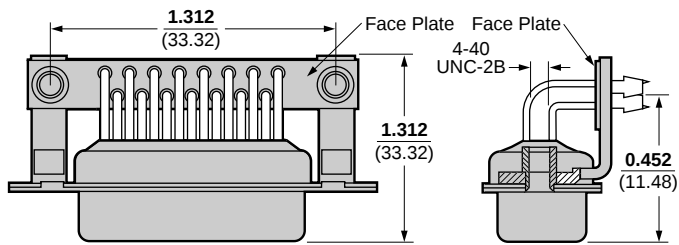
D-SUBMINIATURE CONNECTORS

MRSF Series
Right Angle Termination
Filtered Capacitor Contact

Options

Option BRPL Without Ferrite

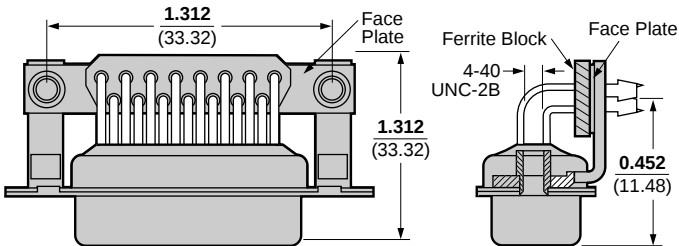
Shown with 4-40 insert, face plate, mounting bracket and board



MAXCONN - (Back to Table of Contents)

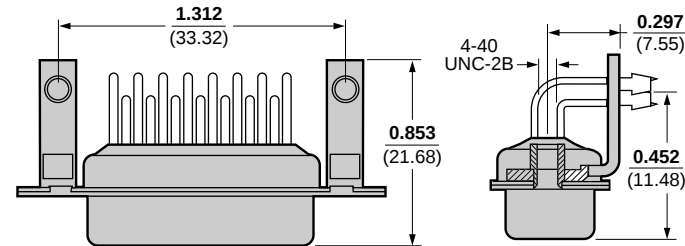
Option BRPL With Ferrite

Shown with 4-40 insert, face plate, mounting bracket and board

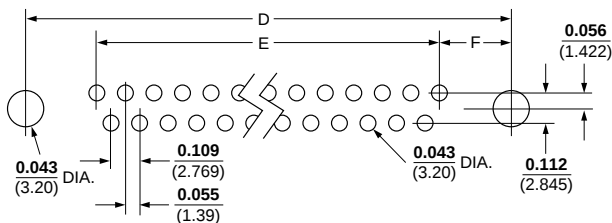


Option BRBL Type

Shown with 4-40 insert, mounting bracket and board



PCB LAYOUT (TOP VIEW)



D-SUBMINIATURE CONNECTORS

MRL Series

Right Angle Termination

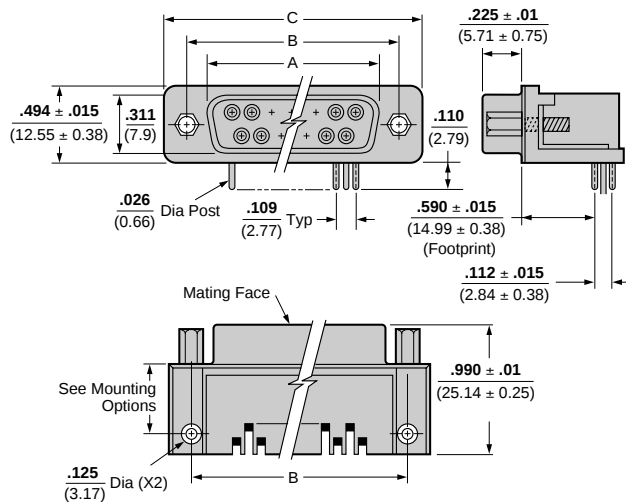
.590 Footprint



FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connectors
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes

DIMENSIONS



PCB LAYOUT

Contact factory for PCB layout options.

MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only

Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Brass 0.040 (1.20) diameter

Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: Four ounces, minimum

Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: Precision formed contact 5.0 amps with 20 AWG wire

Contact Resistance: Precision formed contact 8 milliohms maximum

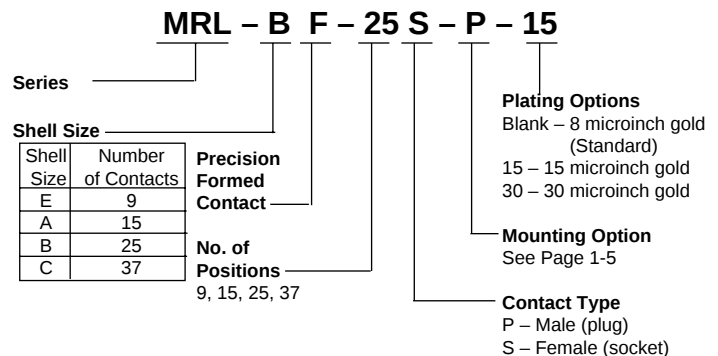
Contact Resistance: 1000 Vac minimum

Insulation Resistance: 5000 megohms minimum

Temperature Rating: -55° C to + 125° C

	A	B	C	D	E	F
Number of Contact Positions	0.010 0.25	0.005 0.13	0.015 0.38	0.005 0.13	0.005 0.13	0.005 0.13
9 (E)	0.643 16.33	0.984 24.99	1.213 30.81	0.984 24.99	0.436 11.08	0.274 6.96
15 (A)	0.971 24.66	1.312 33.32	1.541 39.14	1.312 33.32	0.763 19.38	0.274 6.96
25 (B)	1.511 38.38	1.852 47.04	2.088 53.04	1.852 47.04	1.308 33.22	0.272 6.91
37 (C)	2.159 54.84	2.500 63.50	2.729 69.32	2.500 63.50	1.963 49.86	0.269 6.83

HOW TO ORDER

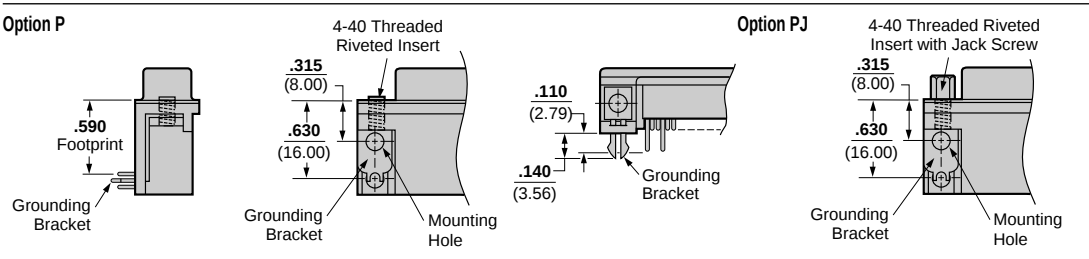


MRL Series
Right Angle Termination .590 Footprint

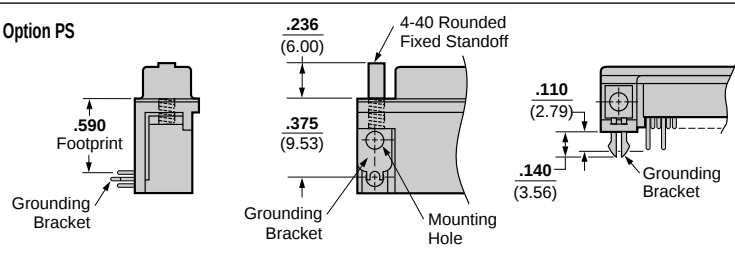
Mounting Options

Option P
With grounding brackets (locking type) and with riveted threaded inserts

Option PJ
Includes Option P and with jack screws assembled to connector

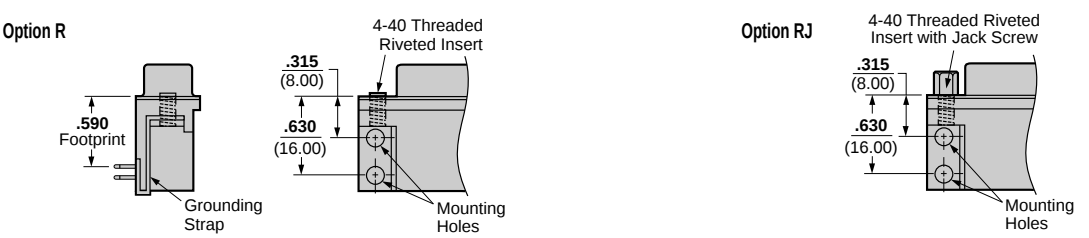


Option P S
With grounding brackets (locking type) and with 4-40 fixed standoff.



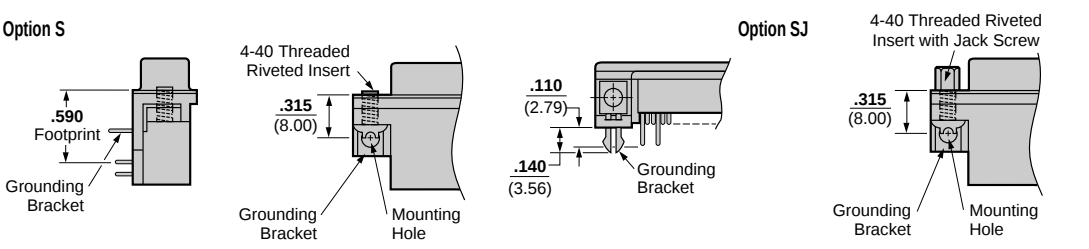
Option R
With 0.315 and 0.630 (combination) mounting flange holes, with grounding straps, with 0.125 diameter non-threaded holes, and with riveted threaded inserts.

Option RJ
Includes Option R and with jack screws assembled to connector.



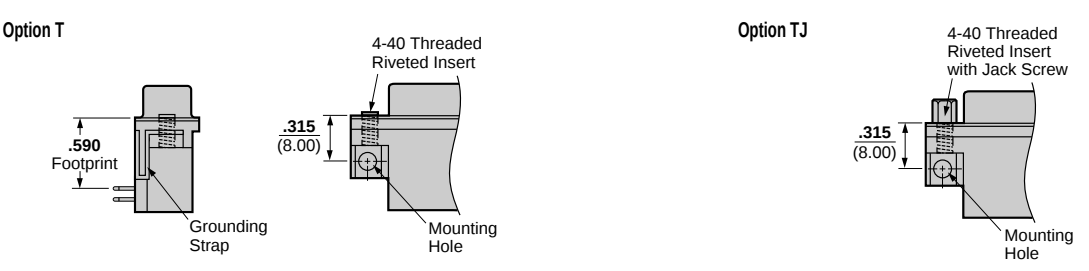
Option S
Short mounting flange with 0.315 mounting flange hole dimension, with grounding brackets (locking type) and with riveted threaded inserts

Option SJ
Includes Option S and with jack screws assembled to connector



Option T
Short mounting flange with 0.315 mounting flange hole dimension, with grounding brackets (locking type) and with riveted threaded inserts.

Option TJ
Includes Option T and with jack screws assembled to connector.

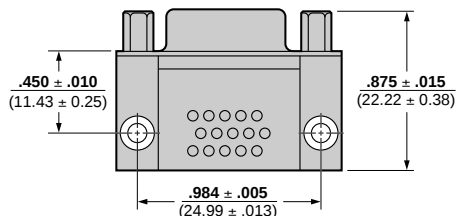


MRH Series

High-Density, Right Angle Termination .350 Footprint



- ULand CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connectors
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes
- Ferrite option for added EMI/RFI noise suppression

[illegible]

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only

Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Brass 0.040 (1.20) diameter

Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: Four ounces, minimum

Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: 5.0 amps with 20 AWG wire

Contact Resistance: 8 milliohms maximum

Contact Resistance: 1000 Vac minimum

Insulation Resistance: 5000 megohms minimum

Temperature Rating: -55° C to + 125° C

Number of Contact Positions	A	B	C	D	E	F	G
	0.010 0.25	0.005 0.13	0.015 0.38	0.005 0.13	0.005 0.13	0.005 0.13	0.005 0.13
15 (E)	0.643 16.33	0.984 24.99	1.213 30.81	0.984 24.99	0.492 12.50	0.215 5.45	0.090 2.29
26 (A)	0.971 24.66	1.312 33.32	1.541 39.14	1.312 33.32	0.656 16.66	0.385 9.78	0.090 2.29
44 (B)	1.511 38.38	1.852 47.04	2.088 53.04	1.852 47.04	0.926 23.52	0.655 16.64	0.090 2.29
62 (C)	2.169 54.84	2.500 63.50	2.729 69.23	2.500 63.50	1.250 31.75	0.974 24.75	0.095 2.41

Number of Contact Positions	A	B	C	D	E	F	G
	0.010	0.005	0.015	0.005	0.005	0.005	0.005
	0.25	0.13	0.38	0.13	0.13	0.13	0.13
15 (E)	0.656 18.92	0.984 24.99	1.213 30.81	0.984 24.99	0.492 12.50	0.215 5.45	0.090 2.29
26 (A)	0.994 25.25	1.312 33.32	1.541 39.14	1.312 33.32	0.656 16.66	0.385 9.78	0.090 2.29
44 (B)	1.543 38.95	1.850 47.04	2.088 53.04	1.852 47.04	0.926 23.52	0.655 16.64	0.090 2.29
62 (C)	2.182 55.42	2.500 63.50	2.729 69.23	2.500 63.50	1.250 31.75	0.974 24.75	0.095 2.41

MRH Series, High-Density
Right Angle Termination .350 Footprint

Mounting Options

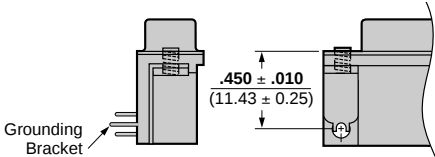
Option N

Grounding brackets (locking type)

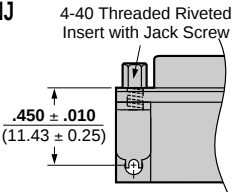
Option NJ

Includes option N and with jack screws assembled to connector.

Option N



Option NJ



Special MRH Receptacle Connectors Available (15 position only)

Part Number	Description
MRH-EF-15S-N9B	With number 9 position blocked
MRH-EF-15S-NJ9B	With number 9 position blocked, and with jack screws
MRH-EF-15S-N9V	With number 9 position void
MRH-EF-15S-NJ9V	With number 9 position void, with jack screws
MRH-EF-15S-N9R	With number 9 position recessed (Industry standard blue color housing)
MRH-EF-15S-NJ9R	With number 9 position recessed, with jack screws (Industry standard blue color housing)

HOW TO ORDER

MRH - E F - 15 S - N - 15 - F

Series: MRH

Shell Size: E (15 contacts), A (26 contacts), B (44 contacts), C (62 contacts)

Precision Formed Contact: E, A, B, C

Number of Positions: 15, 26, 44, 62

Blank - Without Ferrite
F - With Ferrite
(Only available in 15 position)

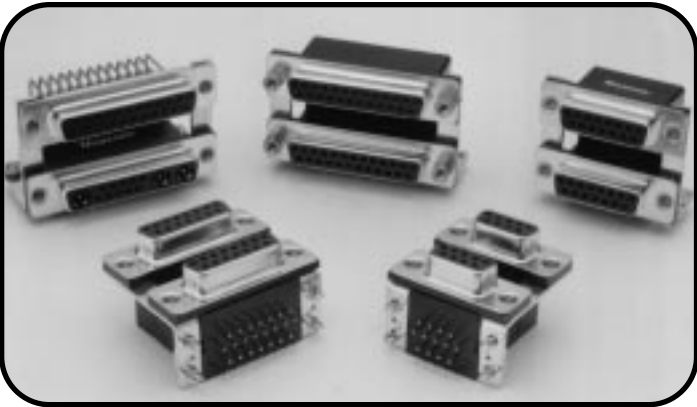
Plating Options
Blank - 8 microinch gold (Standard)
15 - 15 microinch gold
30 - 30 microinch gold

Mounting Option
N - Grounding brackets
NJ - Grounding brackets with jack screws

Contact Type
P - Male (plug)(15 and 26 only)
S - Female (socket)

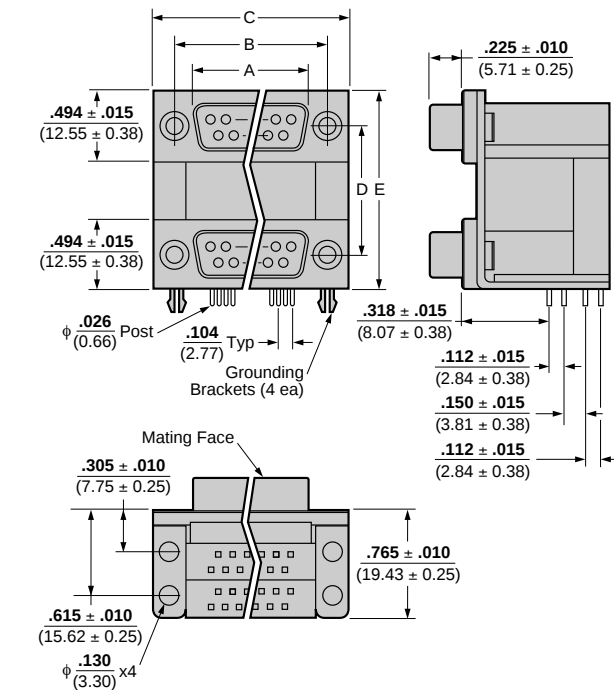
D-SUBMINIATURE CONNECTORS

MST Series
Dual-Port Connectors
9/9, 15/15, 25/25, 37/37



FEATURES

- UL and CSA recognized E107337 and E145613
- Vertical dual port construction allows for space savings on the panel and printed circuit board
- Meets EIA, RS232C and RS449 standards for data communication input/output connection
- Three types of mounting options are available for exceptional grounding to the printed circuit board
- Available in 0.625, 0.750, and 0.900 heights
- Bright tin shell for exceptional conductivity and grounding
- Grounding indentations (dimples) on plug shell



MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples on plug only)
Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated
Contact Material
Pin: Brass 0.040 (1.20) diameter
Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs
Contact Separation Force: Four ounces, minimum
Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: Precision machined contact 5.0 amps with 20 AWG wire
Contact Resistance: Precision machined contact 8 milliohms maximum
Dielectric Withstanding Voltage: 1000 Vac minimum
Insulation Resistance: 5000 megohms minimum
Temperature Rating: -55° C to + 125° C

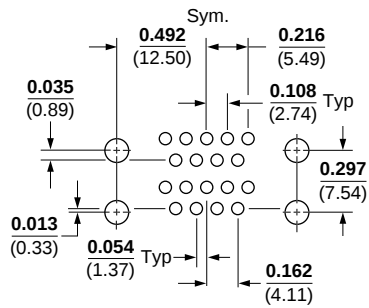
Number of Contact Positions (Shell Size)	A 0.010 0.25	B 0.005 0.13	C 0.015 0.38	D 0.010 0.25	E 0.015 0.38
9 (E)	0.643 16.33	0.984 24.99	1.230 30.81	0.625 15.88	1.119 28.42
15 (A)	0.971 24.66	1.312 33.32	1.541 39.41	0.750 19.05	1.244 31.60
25 (B)	1.511 38.38	1.852 47.04	2.088 53.04	0.900 22.86	1.394 35.41
37 (C)	2.159 54.84	2.500 63.50	2.729 69.32		

D-SUBMINIATURE CONNECTORS

MST Series
Dual-Port Connectors
9/9, 15/15, 25/25, 37/37

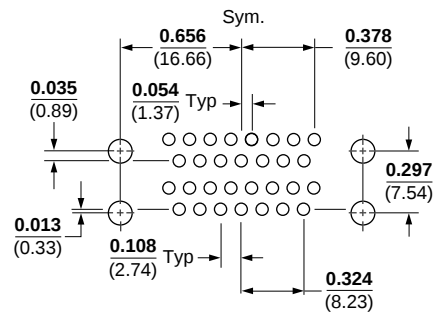
PC Board Layouts (Top View Standard Configurations)

PCB Layout - 9/9

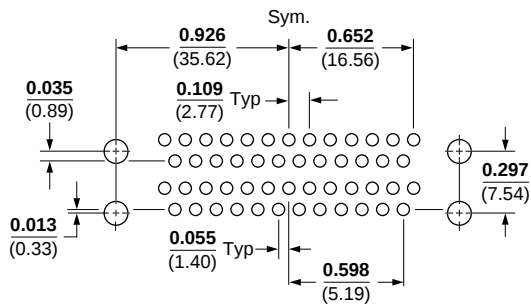


MAXCONN - (Back to Table of Contents)

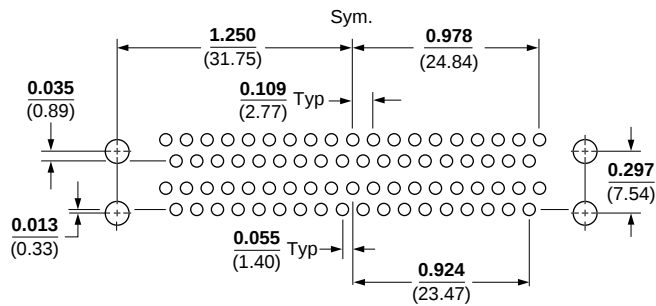
PCB Layout - 15/15



PCB Layout - 25/25



PCB Layout - 37/37



D-SUBMINIATURE CONNECTORS

MST Series Dual-Port Connectors

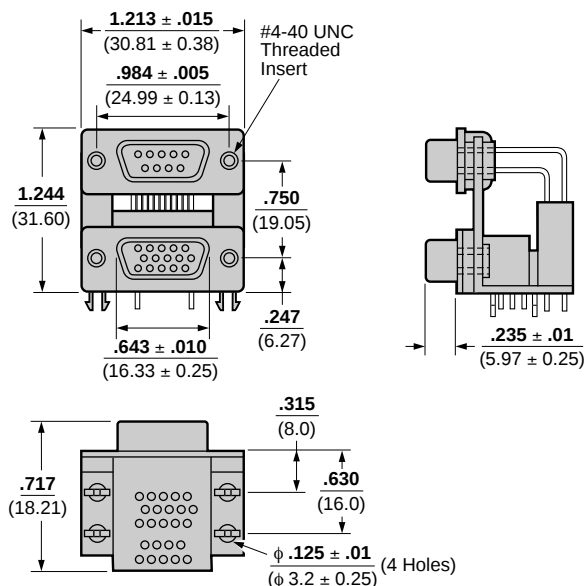
MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Dimensions MST-9S/HD15S-BN

9 Position Female (Top)

15 Position Female High Density (Bottom)

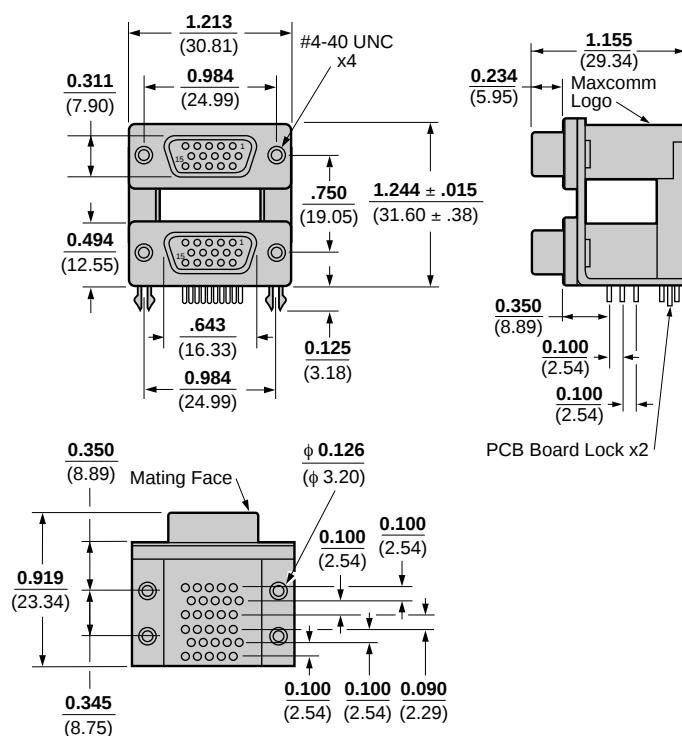


PCB LAYOUT - 9S/15SHD

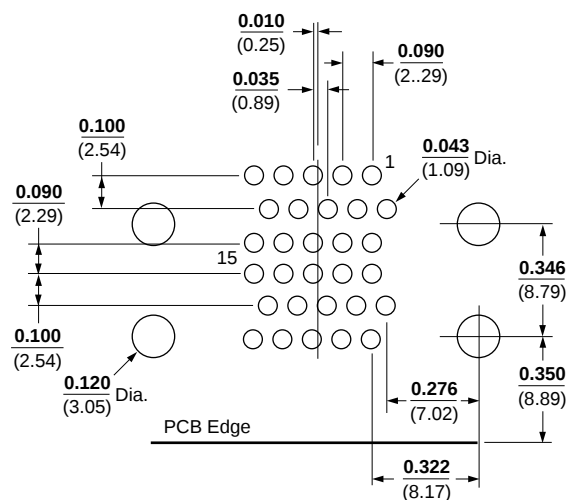
Dimensions MST-HD15S/HD15S-BN

15 Position Female High Density (Top)

15 Position Female High Density (Bottom)



PCB LAYOUT - 15SHD/15SHD



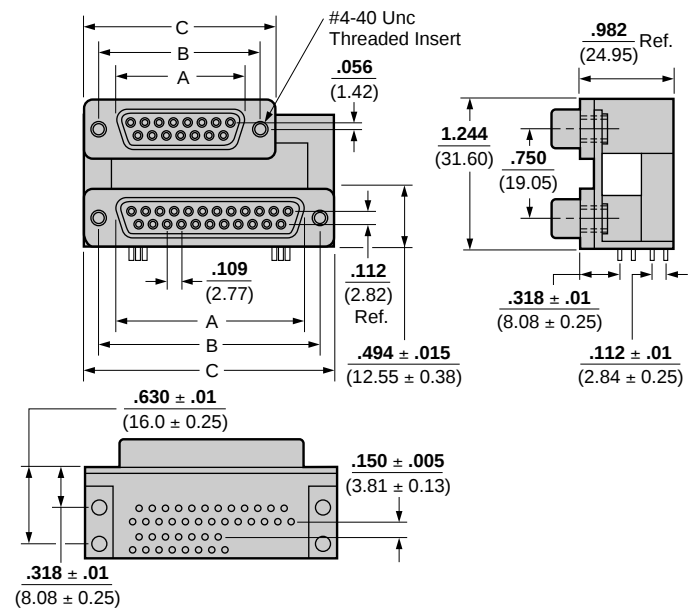
Note: Please contact the factory for any configuration not shown.

D-SUBMINIATURE CONNECTORS

MST Series

Dual-Port Connectors

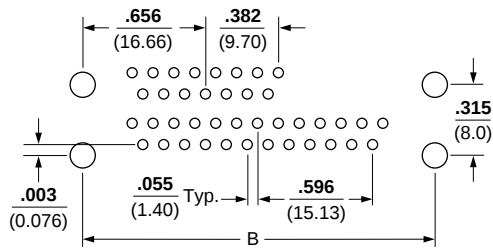
Dimensions MST-15X/25X-BN



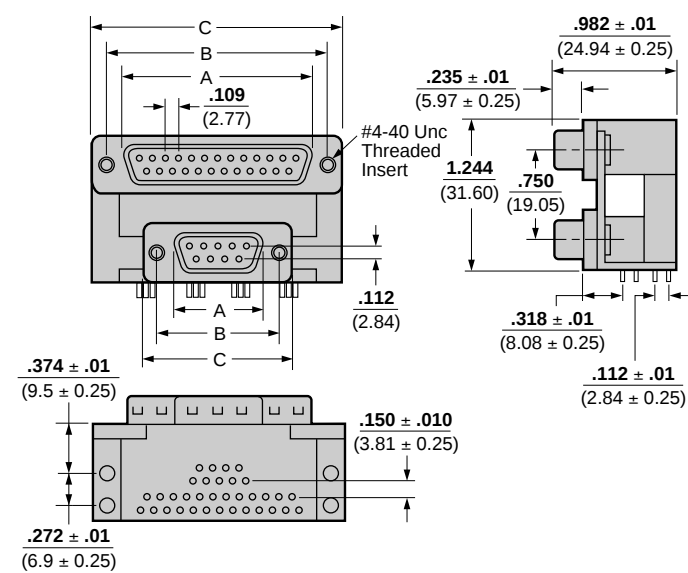
MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

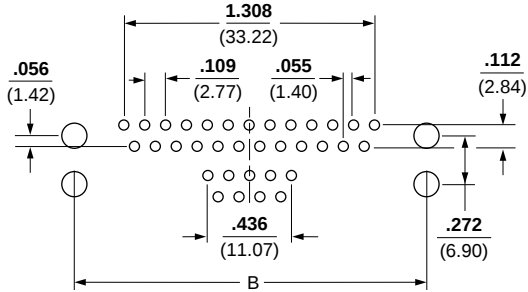
PCB Layout - 15/25



Dimensions MST-25X/9X-BN



PCB Layout - 25/9



Note: Please contact the factory for any configuration not shown.

MST Series Dual-Port Connectors

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

13W3 COAXIAL (BOTTOM)

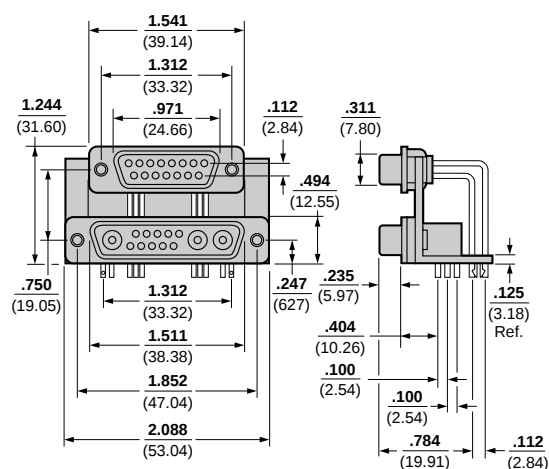
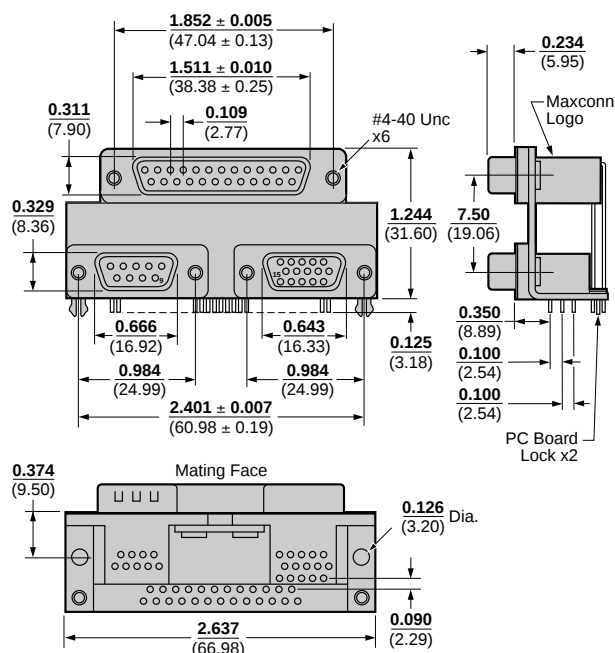


Figure 10: Dimensions for 12-hole 1.575 inch diameter panel. The diagram shows a top and bottom view of a rectangular panel with 12 circular holes arranged in a 3x4 grid. Dimensions are given in inches and millimeters. Top view dimensions: width .109 (2.76), height .275 (6.99), hole diameter $\phi .041 \pm .003$ ($\phi 1.04 \pm 0.076$), hole pitch .055 (1.40), hole diameter .112 (2.84), hole pitch .100 (2.54), hole diameter .436 (11.08), hole pitch .100 (2.54), hole diameter .404 (10.26). Bottom view dimensions: width .085 (2.16), height .275 (6.99), hole diameter .055 (1.40), hole pitch .109 (2.76), hole diameter .350 (8.89), hole pitch .085 (2.16). The right edge is labeled "Edge of PCB".

9 POSITION & HIGH DENSITY 15 POSITION (BOTTOM)



1-14

D-SUBMINIATURE CONNECTORS

MST Series
Right Angle Termination

Mounting Options

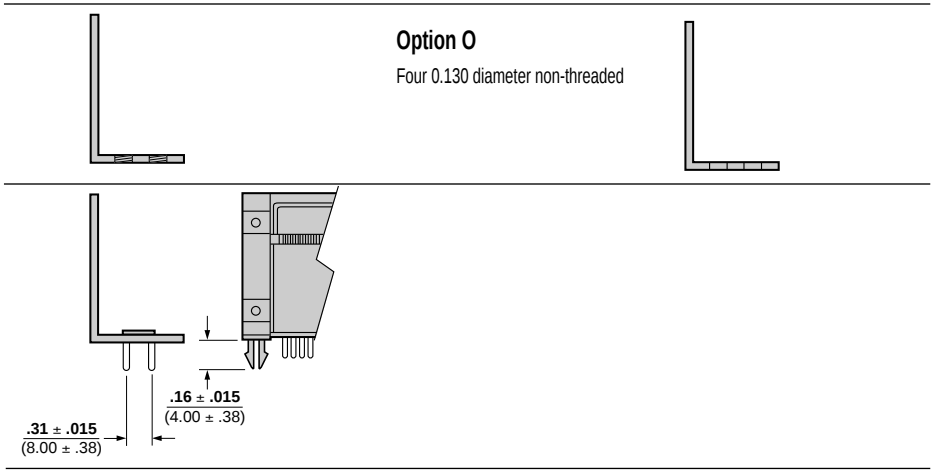
Option K
Four threaded (4-40) mounting holes

MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Option N
Four grounding brackets (locking type)

Option O
Four 0.130 diameter non-threaded



HOW TO ORDER

MST 25 P / 25 S — A N J 15

Series — MST

Number of Positions (Top) — 25
9, 15, 25, 37, HD15

Top Connector Gender — P — Plug
S — Socket

Number of Positions (Bottom) — 25
9, 15, 25, 37, HD15, 13W3

Bottom Connector Gender — S — Socket
P — Plug

Center to Center Dimension — A
*(D Dimension on Drawing)
A — 0.625
B — 0.750 (Most standard)
C — 0.900

Plating Option — 15

Jack Screw (4-40) — J — Four jack screws installed
Blank — Without jack screws

Mounting Options — N
O — Four 0.130 diameter non-threaded mounting holes
K — Four threaded (4-40) mounting holes
N — Four grounding brackets
N2 — Two grounding brackets

*Applies to standard configurations. Example: 9 over 9. All others are B — 0.750 footprint center to center dimensions.

PLATING OPTIONS

Designation	Plating Description
Blank	Gold flash over 100 microinch (min.) nickel on entire contact area with additional 5 microinch gold (making a total of 8 microinch gold) on mating end of pin for a length of 0.196 (5.0) min. and 0.118 (3.0) min. on the socket
15	100 microinch (min.) nickel on the entire contact area with 15 microinch gold on mating end of pin for a length of 0.196 (5.00mm) min. and 0.118 (3.00mm) min. on the socket. 150 microinch of bright tin-lead is plated on the termination end of the contact
30	100 microinch (min.) nickel on the entire contact area with 30 microinch gold on mating end of pin for a length of 0.196 (5.00mm) min. and 0.118 (3.00mm) min. on the socket. 150 microinch of bright tin-lead is plated on the termination end of the contact

Note: Please contact the factory for any configuration not shown.

D-SUBMINIATURE CONNECTORS

MSD Series Slimline Right-Angle .197 (5mm) Footprints



FEATURES

- Provides two optimum space saving footprints
- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communications input/output connectors
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization

MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples)

Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material:

Pin – Brass

Socket – Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of the contact

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: 1.0 kg, minimum (total connector)

Contact Engagement Force: 12.7 kg, maximum (total connector)

Electrical Characteristics

Contact Current Rating: 3.0 amps

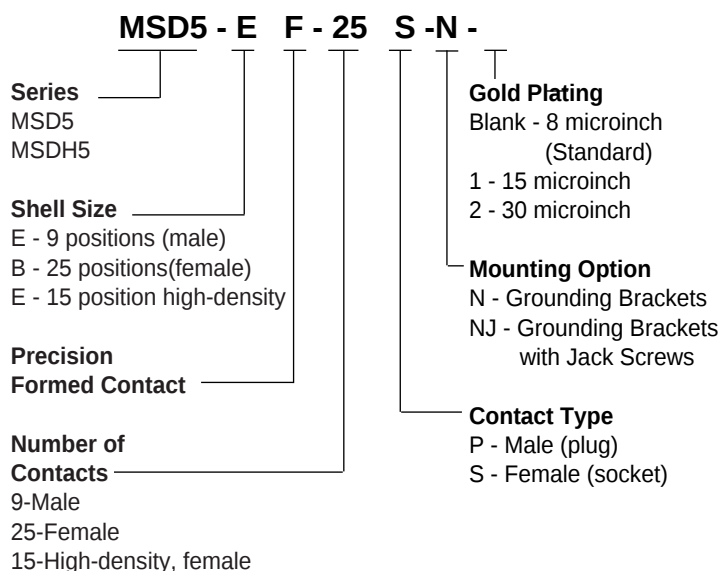
Contact Resistance: 20 milliohms maximum

Dielectric Withstanding Voltage: 500 Vac minimum (250 Vdc)

Insulation Resistance: 5000 megohms (5000Vdc) minimum

Temperature Rating: -55° C to + 125° C

HOW TO ORDER



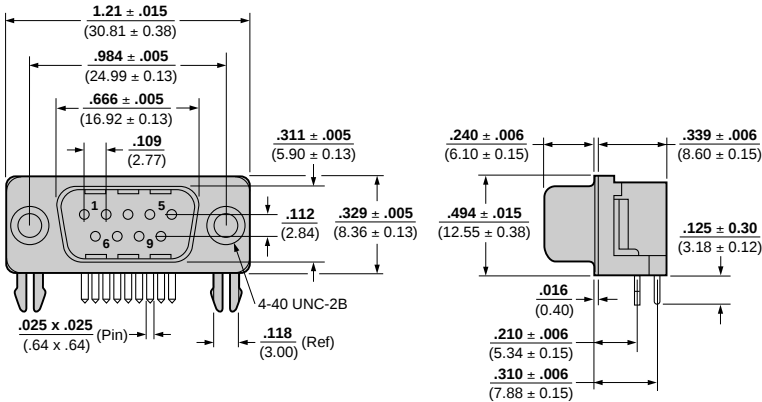
D-SUBMINIATURE CONNECTORS

MSD Series
Slimline Right-Angle
.197 (5mm) Footprints

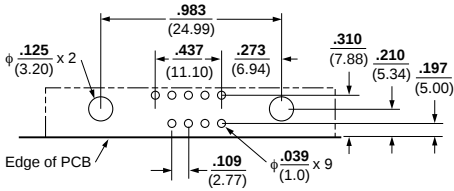
MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

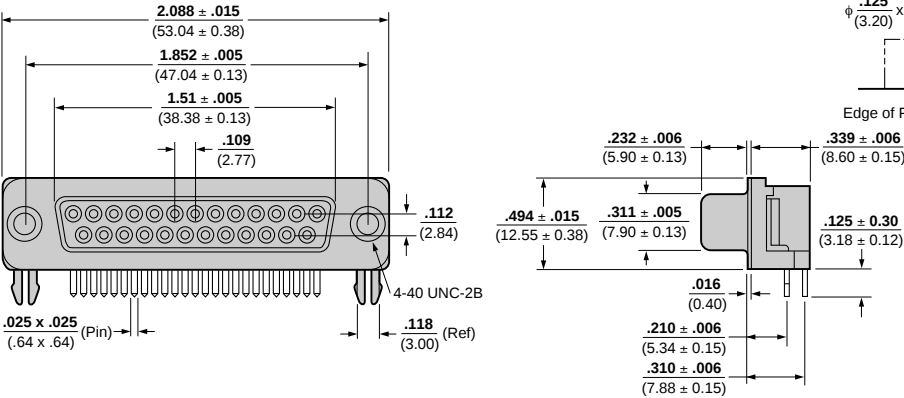
DIMENSIONS
9 POSITION MALE



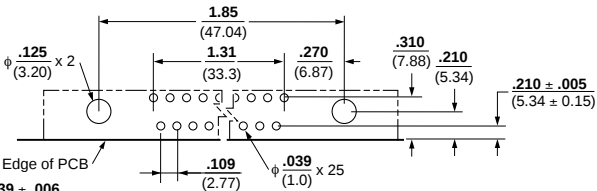
PCB LAYOUT



DIMENSIONS
25 POSITION FEMALE



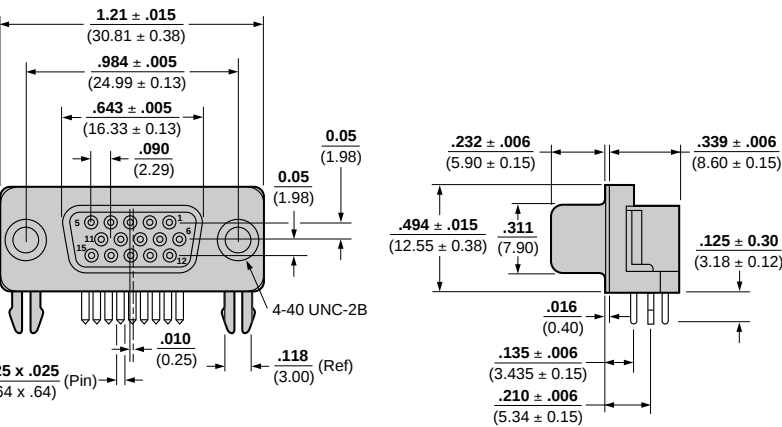
PCB LAYOUT



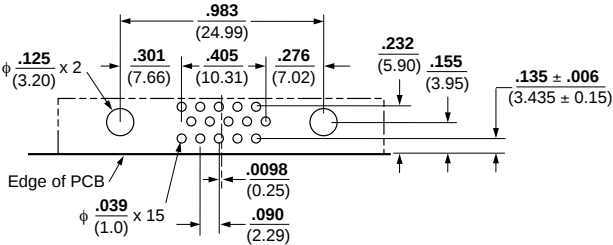
DIMENSIONS - .197 (5mm)

15 POSITION FEMALE

PART NUMBER MSDH5-EF-15S-N



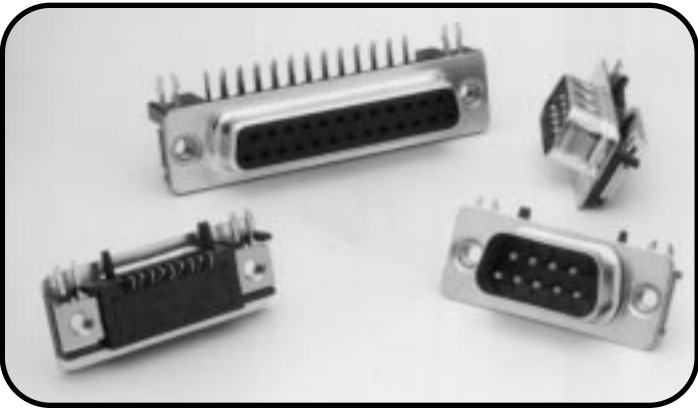
PCB LAYOUT



D-SUBMINIATURE CONNECTORS

MSMD Series

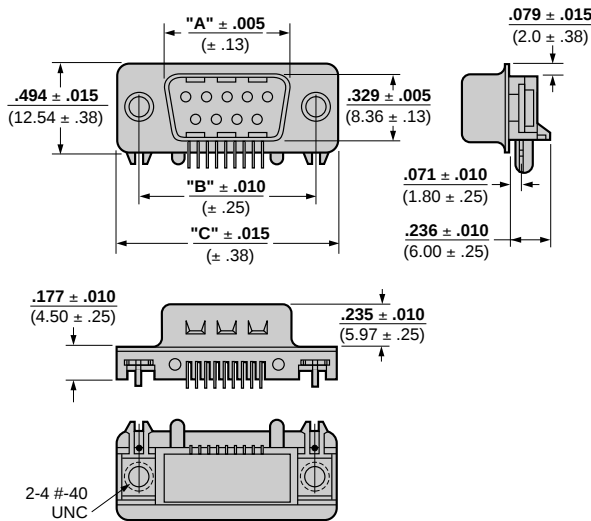
Surface Mount, Right Angle



FEATURES

- Meets EIA, RS232C and RS449 standards for data communications
- Bright tin shell for exceptional conductivity and grounding
- D-shape connector for polarization

DIMENSIONS



Number of Contact Positions	A	B	C	D
9	0.660 16.92	0.984 24.99	0.213 30.81	0.551 14.00
15	0.994 25.25	1.312 33.32	1.541 39.14	1.011 25.69
25	1.534 38.96	1.852 47.04	2.008 53.04	1.557 39.54

MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
 Patents Issued: 4.878.856, 4.818.239
 4.857.017, 5.288.244

Performance Specifications

Materials and Finish

- Shell:** Steel material, tin finish and indentations (dimples)
- Insert:** Thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated
- Contact Material:**
 - Pin – Brass
 - Socket – Phosphor bronze
- Contact Finish:** Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of the contact

Riveted Insert: Brass material, nickel finish

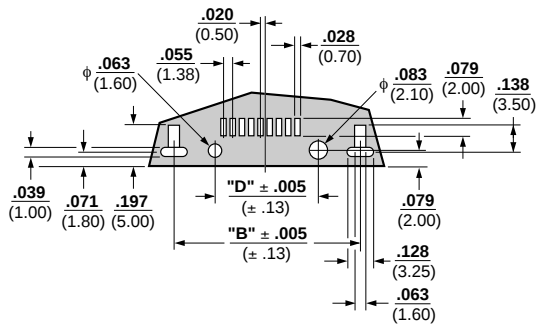
Mechanical Characteristics

- Contact Retention:** Precision formed contact 10 lbs
- Contact Separation Force:** 1.0 kg, minimum (total connector)
- Contact Engagement Force:** 12.7 kg, maximum (total connector)

Electrical Characteristics

- Contact Current Rating:** 3.0 amps
- Contact Resistance:** 20 milliohms maximum
- Dielectric Withstanding Voltage:** 500 Vac minimum (250 Vdc)
- Insulation Resistance:** 5000 megohms (5000Vdc) minimum
- Temperature Rating:** -55° C to + 125° C

PCB LAYOUT



HOW TO ORDER

MSMD – E

F – 9 P – N J –

Series

Shell Size

Precision Formed Contact

Number of Positions

Gold Plating

Mounting Option

Contact Type

Blank – 8 microinch
15 – 15 microinch
30 – 30 microinch

N – Grounding Bracket
NJ – Grounding Bracket with Jack Screws

P – Male (plug)
S – Female (socket)

D-SUBMINIATURE CONNECTORS

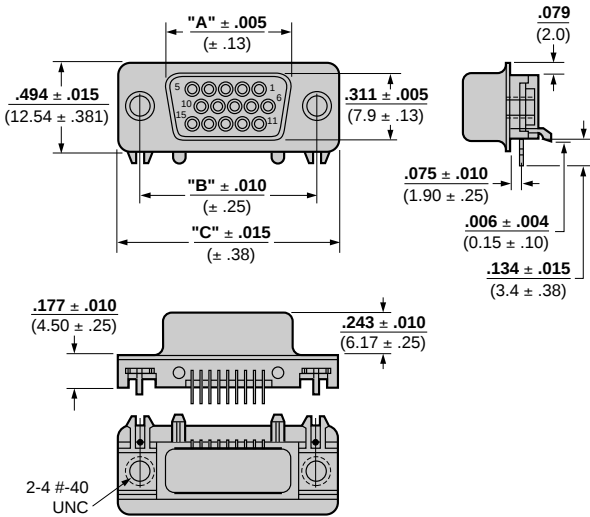
MSMDH Series
Surface Mount, High
Density, Right Angle



FEATURES

- Meets EIA, RS232C and RS449 standards for data communications
- Bright tin shell for exceptional conductivity and grounding
- D-shape connector for polarization

DIMENSIONS



Number of Contact Positions	A	B	C	D
15	0.643 16.33	0.984 24.99	1.213 30.81	0.630 10.00

MAXCONN - (Back to Table of Contents)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples)

Insert: Thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material:

Pin – Brass

Socket – Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of contact

Riveted Insert: Brass material, nickel finish

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: 1.0 kg, minimum (total connector)

Contact Engagement Force: 12.7 kg, maximum (total connector)

Electrical Characteristics

Contact Current Rating: 3.0 amps

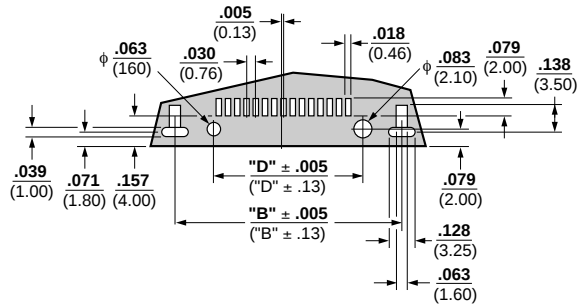
Contact Resistance: 20 milliohms maximum

Dielectric Withstanding Voltage: 500 Vac minimum (250 Vdc)

Insulation Resistance: 5000 megohms (5000Vdc) minimum

Temperature Rating: -55° C to + 125° C

PCB LAYOUT



HOW TO ORDER

MSMDH – E F – 15 S – N –

Series

Shell Size
E

Precision Formed
Contact

Number of Positions
15

Contact Type
S – Female (socket only)

Gold Plating
Blank – 8 microinch
15 – 15 microinch
30 – 30 microinch

Mounting Option
N – Grounding Bracket
NJ – Grounding Bracket
with Jack Screws

D-SUBMINIATURE CONNECTORS

MD Series

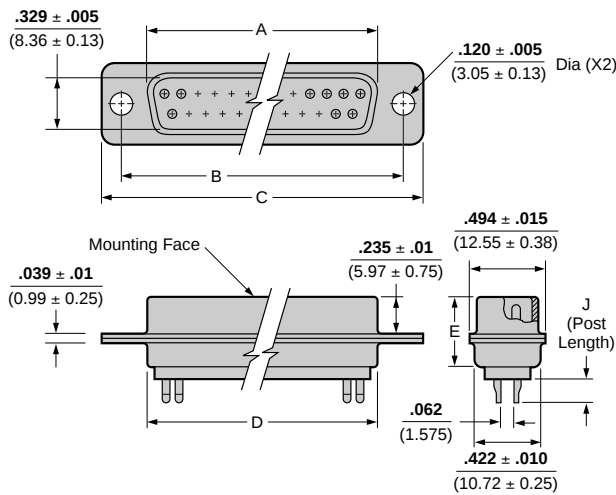
Vertical Pin and Solder Cup Termination



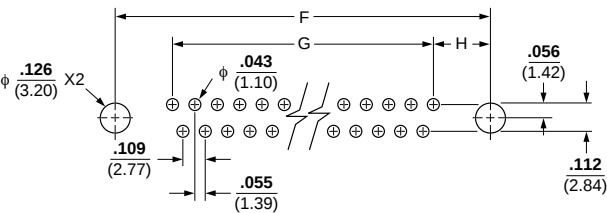
FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connections
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes
- Two types of contact termination, solder cup and vertical pin
- Accessories are available

DIMENSIONS



PCB LAYOUT



MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only
Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated
Contact Material
Pin: Brass 0.040 (1.20) diameter
Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs
Contact Separation Force: Four ounces, minimum
Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: Precision formed contact 5.0 amps with 20 AWG wire
Contact Resistance: Precision formed contact 8 milliohms maximum
Contact Resistance: 1000 Vac minimum
Insulation Resistance: 5000 megohms minimum
Temperature Rating: -55° C to + 125° C

Number of Contact Positions	A 0.010 0.25	B 0.005 0.13	C 0.015 0.38	D 0.010 0.25	E 0.015 0.38	F 0.005 0.13	G 0.005 0.13	H 0.005 0.13
9	0.666	0.984	1.213	0.759	0.426	0.984	0.436	0.274
(E)	16.92	24.99	30.81	19.28	10.828	24.99	11.08	6.96
15	0.994	1.312	1.541	1.083	0.426	1.312	0.763	0.274
(A)	25.25	33.32	39.14	27.51	10.81	33.32	19.39	6.96
25	1.535	1.852	2.088	1.625	0.429	1.852	1.309	0.272
(B)	38.96	47.04	53.04	41.30	10.90	47.04	33.24	5.40
37	2.182	2.500	2.729	2.272	0.429	2.501	1.963	0.269
(D)	55.42	63.50	69.32	55.71	10.90	63.50	49.86	6.82

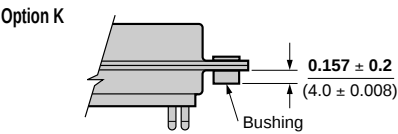
Dimensions for post length (J):
Solder Cup: 0.125 (3.17)
P.C. Pin: 0.125 (3.17)
Pin Diameter: 0.025 (0.635)

MD Series
Vertical Pin and Solder Cup Termination

Mounting Options

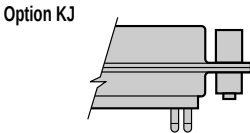
Option K

With #4-40 threaded riveted bushing



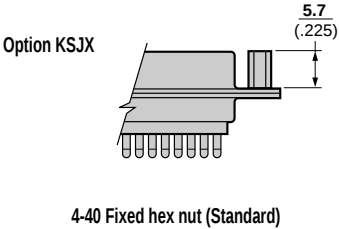
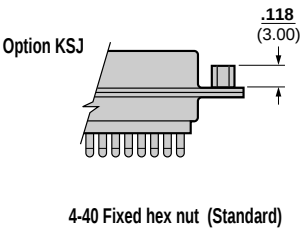
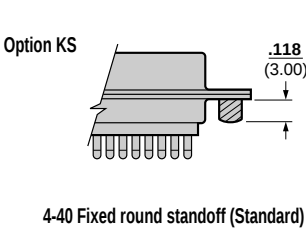
Option KJ

With #4-40 threaded riveted bushing and jack screws assembled to connector



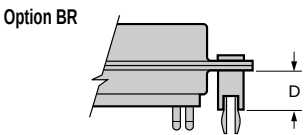
Option KS, KSJ, and KSJX

Standard fixed hex and fixed rounded standoff sizes 3.0(0.118), 4.0(0.157), 5.7(0.225), 6.0(0.236), 6.35(0.25), 6.5(0.256)



Option BR1, BR2

With #4-40 threaded riveted bushing, and PCB brackets

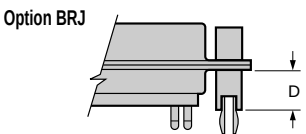


Dimensions

BR1 0.236 (6.00mm)
BR2 With ferrite

Option BRJ1, BRJ2

With #4-40 threaded riveted bushing, PCB brackets and jack screws assembled to connector



Dimensions

BRJ1 0.236 (6.00mm)
BRJ2 With ferrite

HOW TO ORDER

MD - E C - 25 P - K

Series ————

Shell Size ————

Shell Size	Number of Contacts
E	9
A	15
B	25
C	37

Precision Formed Contact
A – Solder cup
C – Vertical pin

No. of Positions
9, 15, 25, 37

Mounting Option
(As shown above)

Contact Type
P – Male (plug)
S – Female (socket)

D-SUBMINIATURE CONNECTORS

MDH Series

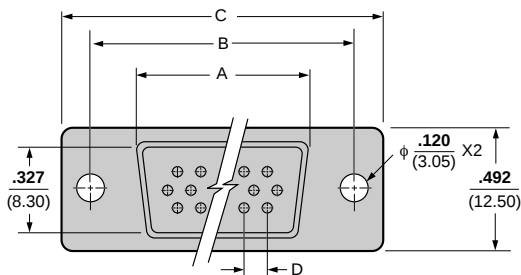
High Density Vertical Pin and Solder Cup Termination



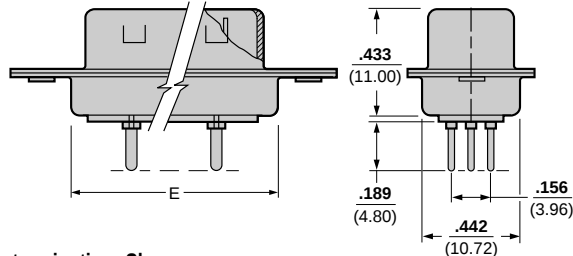
FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connectors
- Bright tin shell for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Five shell sizes
- Two types of contact termination, solder cup and vertical

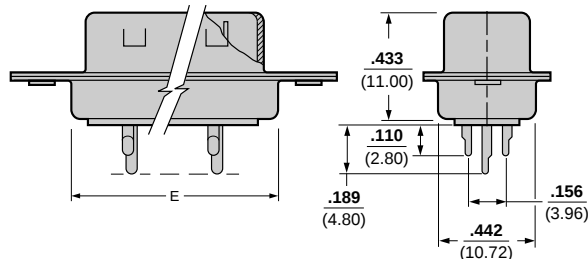
DIMENSIONS



Vertical pin termination: Shown



Solder clip termination: Shown



MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples on plug only)

Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Brass 0.040 (1.20) diameter

Socket: Phosphor bronze

Contact Finish: Gold flash over nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs

Contact Separation Force: Four ounces, minimum

Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

Contact Current Rating: Precision formed contact 5.0 amps with 20 AWG wire

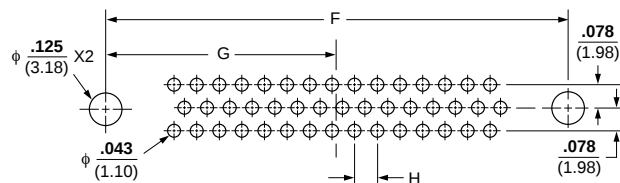
Contact Resistance: Precision formed contact 8 milliohms maximum

Dielectric Withstanding Voltage: 1000 Vac minimum

Insulation Resistance: 5000 megohms minimum

Temperature Rating: -55° C to + 125° C

PCB LAYOUT



Vertical pin termination recommended hole pattern

HOW TO ORDER

MDH - E C - 25 P - K

Series _____

Shell Size _____

Mounting Option (See page 1-23) _____

Contact Type _____

P - Male (plug)

S - Female (socket)

Shell Size	Number of Contacts
E	15
A	26
B	44
C	62
D	78

Precision Formed Contact

A - Solder cup

C - Vertical pin

No. of Positions

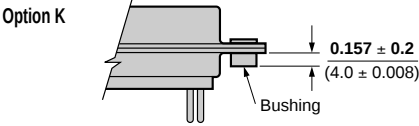
15, 26, 44, 62, 78

MDH Series
High-Density, Vertical Pin and
Solder Cup Termination

Mounting Options

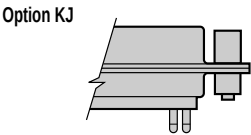
Option K

With riveted threaded 4-40 bushing



Option KJ

With #4-40 threaded riveted clinch nuts and
jack screws assembled to connector

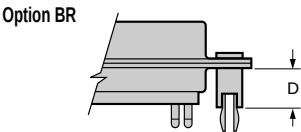


Option KS (Not Shown)

With #4-40 threaded round standoff on PCB
side

Option BR1, BR2

With #4-40 threaded riveted brackets

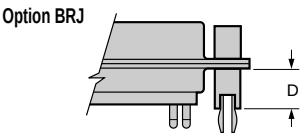


Dimensions

BR1 0.236 (6.00mm)
BR2 With ferrite

Option BRJ1, BRJ2

With #4-40 threaded riveted brackets and
jack screws assembled to connector



Dimensions

BRJ1 0.236 (6.00mm)
BRJ2 With ferrite

Number of Contact Positions	A	B	C	D	E	F	G	H
15 Male	0.665	0.984	1.213	0.090	0.760	0.984	0.492	0.090
(E)	16.90	24.99	30.80	2.29	19.30	24.99	12.50	2.29
15 Female	0.642	0.984	1.213	0.090	0.760	0.984	0.492	0.090
(E)	16.30	24.99	30.80	2.29	10.30	24.99	12.50	2.29
26 Male	0.996	1.312	1.539	0.090	1.083	1.312	0.656	0.090
(A)	25.30	33.32	39.10	2.29	27.50	33.32	16.66	2.29
26 Female	0.972	1.312	1.539	0.090	1.083	1.312	0.656	0.090
(A)	24.79	33.32	39.10	2.29	27.50	33.32	16.66	2.29
44 Male	1.535	1.852	2.087	0.090	1.626	1.852	0.926	0.090
(B)	39.00	47.04	53.00	2.29	41.30	47.04	23.52	2.29
44 Female	1.512	1.852	2.0870	0.090	1.626	1.852	0.926	0.090
(B)	38.40	47.04	53.00	2.29	41.30	47.04	23.52	2.29
62 Male	2.181	2.500	2.728	0.095	2.272	2.500	1.250	0.095
(C)	55.40	63.50	69.30	2.41	57.70	63.50	31.75	2.41
62 Female	2.157	2.500	2.728	0.095	2.272	2.500	1.250	0.095
(C)	54.80	63.500	69.30	2.41	57.70	63.50	31.75	2.41
78 Male	2.406	2.406	2.638	0.089	2.178	2.406	1.203	0.089
(D)	61.12	61.12	67.00	2.41	55.32	61.12	30.56	2.41
78 Female	2.406	2.406	2.638	0.089	2.178	2.406	1.203	0.089
(D)	61.12	61.12	67.00	2.41	55.32	61.12	30.56	2.41

D-SUBMINIATURE CONNECTORS

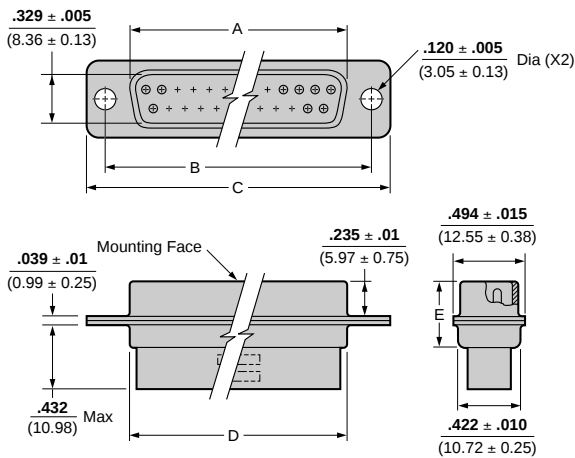
MC Series
Housing for
Crimp Contacts



FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connections
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Four shell sizes
- Crimp termination

DIMENSIONS



Number of Contact Positions	A	B	C	D	E
	0.010	0.005	0.015	0.010	0.015
	0.25	0.13	0.38	0.25	0.38
9	0.666	0.984	1.213	0.759	0.426
(E)	16.923	24.99	30.81	19.28	10.82
15	0.994	1.312	1.541	1.083	0.426
(A)	25.256	33.32	39.14	27.51	10.82
25	1.535	1.852	2.088	1.625	0.429
(B)	38.96	47.04	53.041	41.30	10.90
37	2.182	2.50	2.729	2.272	0.429
(C)	55.428	63.50	69.32	57.71	10.90

MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only
Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated
Contact Material
Pin: Brass 0.040 (1.20) diameter
Socket: Phosphor bronze

Contact Finish:
Type A: Gold flash over 100 microinch nickel on entire contact area with additional 15 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on socket
Type B: Gold flash over 100 microinch nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on socket

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs
Contact Separation Force: Four ounces, minimum
Contact Engagement Force: Nine ounces, maximum
Tensile Strength for Crimping Contact: With 24 AWG wire 10 pounds, for 26 AWG wire 7 pounds, and for 28 AWG wire 5 pounds

Electrical Characteristics

Contact Current Rating: Precision formed contact 5.0 amps with 20 AWG wire
Contact Resistance: Precision formed contact 8 milliohms maximum
Contact Withstanding Voltage: 1000 Vac minimum
Insulation Resistance: 5000 megohms minimum
Temperature Rating: -55° C to + 125° C

HOW TO ORDER

Series **MC - B** **25** **P - K**

Mounting Option (See page 1-13)

Contact Type
P – Male (plug)
S – Female (socket)

No. of Positions
9, 15, 25, 37

Shell Size	Number of Contacts
E	9
A	15
B	25
C	37

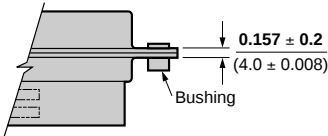
PIN SPECIFICATIONS

Wire Size Range		Ins. Dia. (Max.)	Contact Finish	Strip Form Contact		Loose Piece Contact No.	
AWG	(mm)			Pin	Socket	Pin	Socket
28-24	0.08-0.2	0.04 1.02	A	MP-AT	MS-AT	MP-AL	MS-AL
		0.04 1.02	B	MP-BT	MS-BT	MP-BL	MS-BL

MC Series
Housing for Crimp Contacts

Mounting Options

Option K
With 4-40 threaded riveted bushing

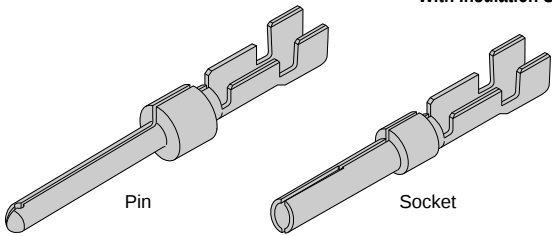


PACKAGING SPECIFICATIONS

Strip Form: 5,000 contacts per reel

Loose Piece: 1,000 per bag

With Insulation Support



D-SUBMINIATURE CONNECTORS

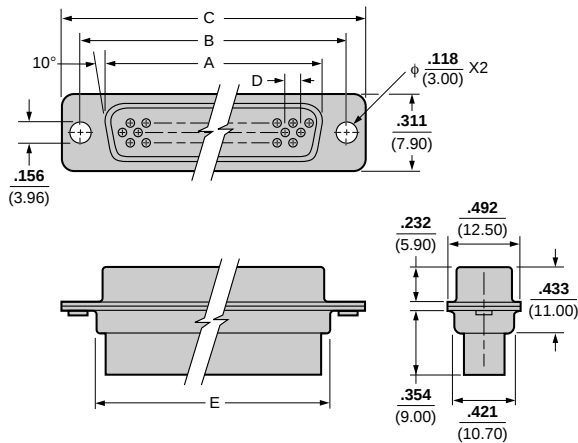
MCH Series
High Density Housing for
Crimp Contacts



FEATURES

- UL and CSA recognized E107337 and E145613
- Meets EIA, RS232C and RS449 standards for data communication input/output connections
- Bright tin shells for exceptional conductivity and grounding
- Indentations for exceptional grounding and mating retention
- D-shape connector for polarization
- Five shell sizes
- Crimp termination

DIMENSIONS



MAXCONN - [\(Back to Table of Contents\)](#)

UL, UL-DUXR, and CSA Recognized
Patents Issued: 4.878.856, 4.818.239
4.857.017, 5.288.244

Performance Specifications

Materials and Finish

Shell: Steel material, tin finish and indentations (dimples) on plug only
Insert: PBT thermoplastic, black color, 30% glass filled, self-extinguishing, 94V-0 rated

Contact Material

Pin: Brass 0.040 (1.20) diameter
Socket: Phosphor bronze

Plating Options:

- Type A Gold flash over 100 microinch nickel on entire contact area with additional 15 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket.
- Type B Gold flash over 100 microinch nickel on entire contact area with additional 5 microinch gold on mating end of pin for a length of 0.196 (5.00mm) minimum and 0.118 (3.00mm) minimum on the socket.

Mechanical Characteristics

Contact Retention: Precision formed contact 10 lbs
Contact Separation Force: Four ounces, minimum
Contact Engagement Force: Nine ounces, maximum

Electrical Characteristics

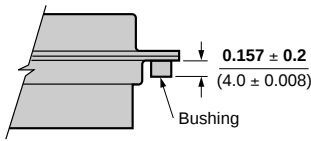
Contact Current Rating: 5.0 amps with 20 AWG wire
Contact Resistance: 8 milliohms maximum
Contact Resistance: 1000 Vac minimum
Insulation Resistance: 5000 megohms minimum
Temperature Rating: -55° C to + 125° C

Number of Contact Positions	A	B	C	D	E
15 Male	0.666	0.984	1.213	0.090	0.759
(E)	16.92	24.99	30.80	2.29	19.28
15 Female	0.643	0.984	1.213	0.090	0.760
(E)	16.33	24.99	30.80	2.29	19.30
26 Male	0.994	1.312	1.539	0.090	0.847
(A)	25.25	33.32	39.10	2.29	21.51
26 Female	0.971	1.312	1.539	0.090	1.083
(A)	24.66	33.32	39.10	2.29	27.50
44 Male	1.510	1.852	2.087	0.090	1.6.26
(B)	38.35	47.04	53.00	2.29	41.30
44 Female	1.510	1.852	2.087	0.090	1.6.26
(B)	38.35	47.04	53.00	2.29	41.30
62 Male	2.182	2.500	2.728	0.095	2.272
(C)	55.42	63.50	69.30	2.41	57.71
62 Female	2.159	2.500	2.728	0.095	2.272
(C)	54.84	63.50	69.30	2.41	57.71
78 Male	2.079	2.406	2.638	0.095	2.178
(D)	52.81	61.12	67.00	2.41	55.32
78 Female	2.079	2.406	2.638	0.095	2.178
(D)	52.43	61.12	67.00	2.41	55.32

MCH Series
High-Density Housing for
Crimp Contacts

Mounting Options

Option K
With riveted threaded 4-40 bushing



HOW TO ORDER

MCH – A – 26 – P – K

Series _____

Shell Size _____

Shell Size	Number of Contacts
E	15
A	26
B	44
C	62
D	78

Mounting Option
(See option K above)

Contact Type
P – Plug
S – Socket

No. of Positions
15, 26, 44, 62, 78

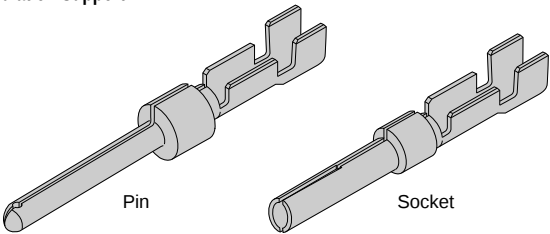
PIN SPECIFICATIONS

Wire Size Range AWG	Ins. Dia. (mm)	Ins. Dia. (Max.)	Contact Finish	Strip Form Contact		Loose Piece Contact No.	
				Pin	Socket	Pin	Socket
28-24	0.08-0.2	0.04 1.02	A	MPH-AT	MSH-AT	MPH-AL	MSH-AL
		0.04 1.02	B	MPH-BT	MSH-BT	MPH-BL	MSH-BL

Packaging Specifications

Strip Form: 5,000 contacts per reel
Loose Piece: 1,000 per bag

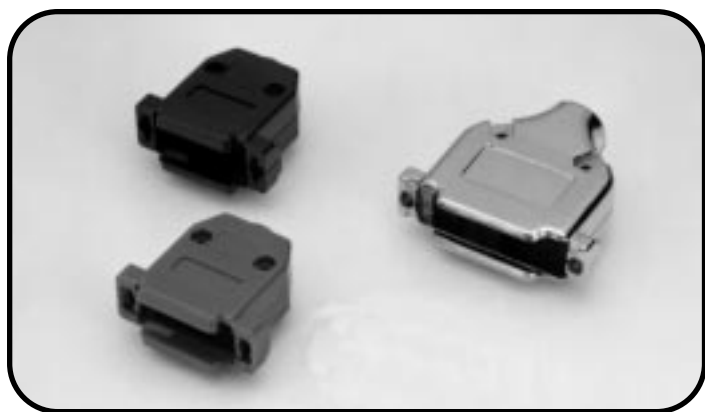
With Insulation Support



D-SUBMINIATURE HARDWARE

Hoods – Plastic, Metal

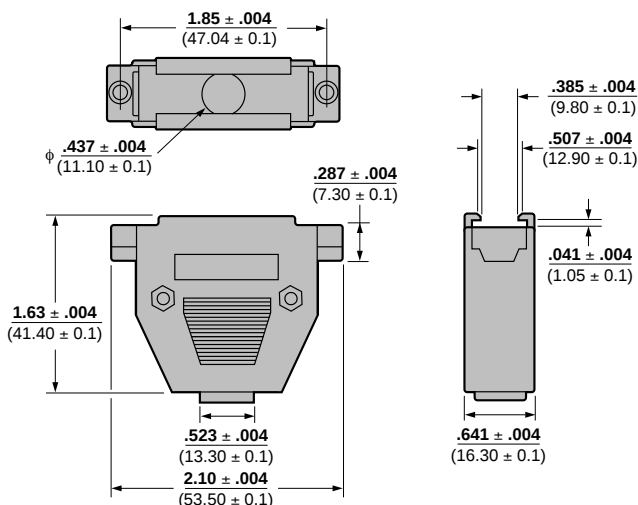
MAXCONN - [\(Back to Table of Contents\)](#)



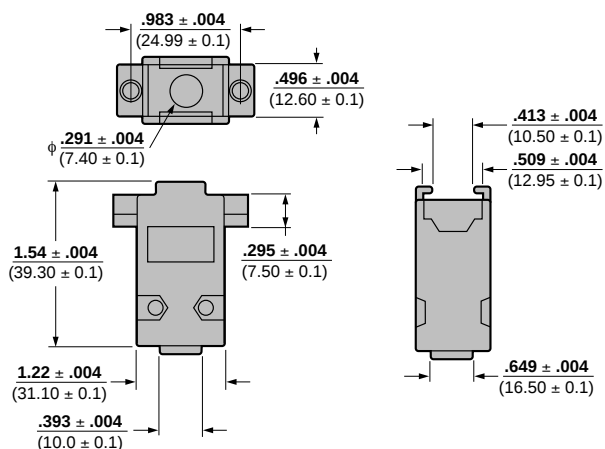
FEATURES

- Available in 9, 15, 25 and 37 positions
- Available in blue, ivory, black, medium grey and chrome
- Available in steel, nickel finish
- Supplied with saddle screws and washers

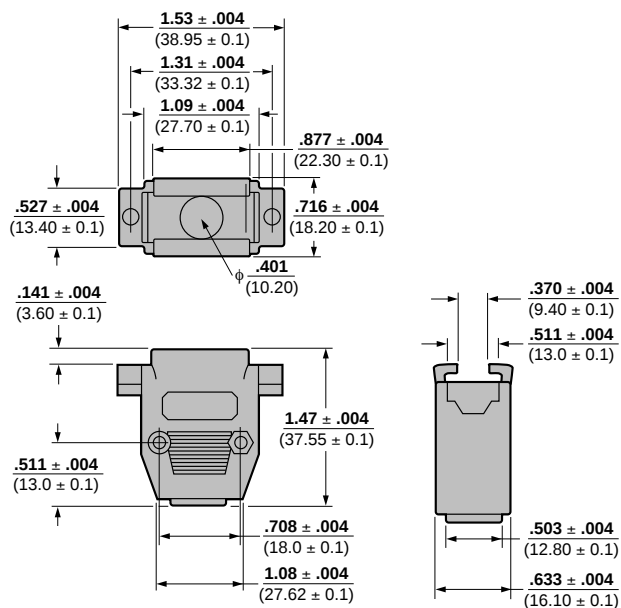
DIMENSIONS – 25 POSITIONS



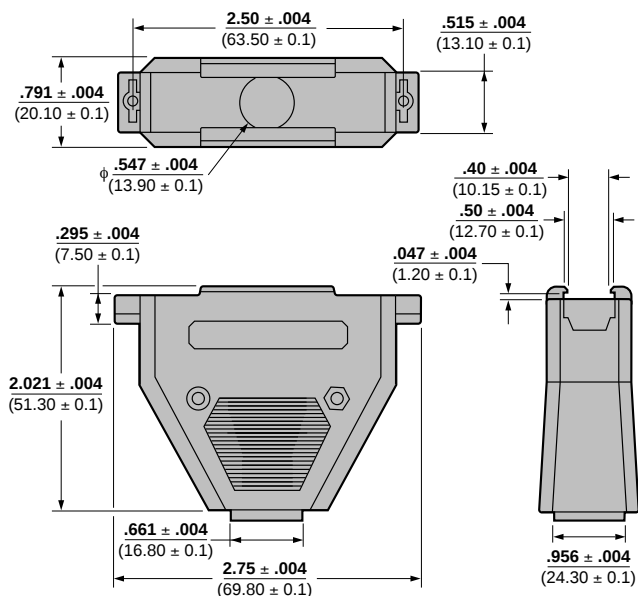
DIMENSIONS – 9 POSITIONS



DIMENSIONS – 15 POSITIONS



DIMENSIONS – 37 POSITIONS



HOW TO ORDER

HDM – 25

Series	Shell Size
HDM	ABS (UL 94V-0 rated) plastic, blue color
HDN	ABS (UL 94V-0 rated) plastic, ivory color
HDO	ABS (UL 94V-0 rated) plastic, black color
HDP	ABS (UL 94V-0 rated) plastic, medium grey color
HDC	ABS (UL 94V-0 rated) plastic, chrome color
HDCC	Steel material, nickel finish

D-SUBMINIATURE HARDWARE

Slide Lock Assembly

MAXCONN - [\(Back to Table of Contents\)](#)



Specifications

Slide Lock Assembly

Materials: Spring steel, 0.024 — 0.026 thick, tempered and heat treated to Rockwell RC44-46 specifications

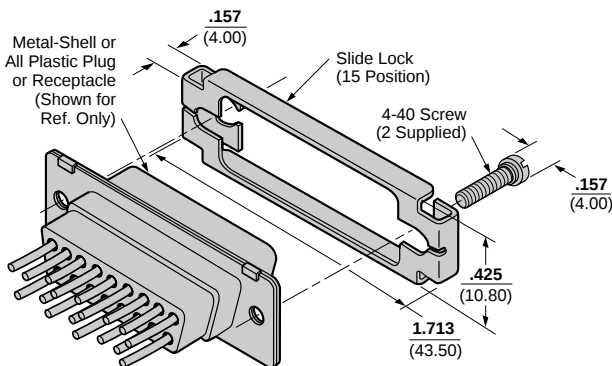
Finish: Nickel plated

4-40 Screw

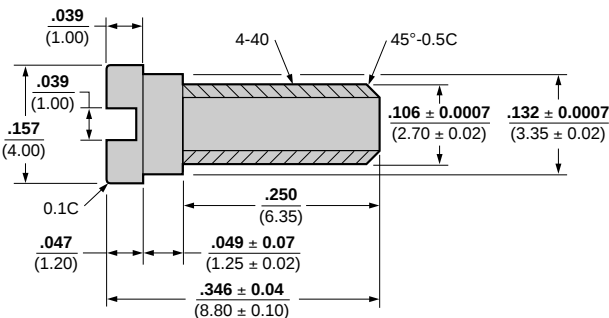
Material: Brass

Finish: None

DIMENSIONS



4-40 SCREW DIMENSIONS



PART NUMBER MDA51220-1

Accessories and Hardware

JACK SCREWS

