

Size 22 Contacts, Removable Crimp and **Solder Printed Board Mount**

Two Performance Levels For Best Cost / Performance Ratio

UL Recognized File #E49351

CSA Recognized File #LR54219

Telecommunication UL File #14098

ODD series connectors are professional / industrial quality high density connectors recommended for use in sheltered, non-corrosive indoor environments having normal ventilation.

ODD series connectors utilize precision machined, removable contacts having closed barrel crimp terminations and solder cup wire terminations. For printed board mount application, straight solder printed board mount and right angle (90°) angled solder terminations are available.

Six standard contact variants are offered in arrangements of 15, 26, 44, 62, 78, and 104 contacts. ODD series connectors



are mateable and compatible with other high density D-subminiature connectors conforming to MIL-DTL-24308, and are UL and CSA recognized.

A wide variety of unique accessories are available.



For RoHS options see page 52.

ODD SERIES TECHNICAL CHARACTERISTICS

MATERIALS AND FINISHES:

Insulators: Glass filled polyester per ASTM D5927,

UL 94V-0, black color.

Contacts: Precision machined copper alloy.

Contact Plating: Professional quality - gold flash over nickel plate.

Other finishes available upon request.

Shells: Steel with tin plate; zinc plate with chromate seal, stainless steel passivated. Other materi-

als and finishes available upon request.

Mounting Spacers: Nylon; copper alloy or steel with zinc plate and

chromate seal or tin plate; phosphor bronze with tin plate; stainless steel, passivated.

Vibration Lock Systems:

Slide lock and lock tabs, steel with nickel

Push-On Fasteners: Phosphor bronze or beryllium copper with tin plate.

Jackscrew Systems: Brass or steel with zinc plate and chromate

seal or clear zinc plate or tin plate; stainless

steel, passivated.

Hoods: Composite and plastic, UL 94V-0; brass or steel with zinc plate and chromate seal.

Aluminum; aluminum with electroless nickel plate. For aluminum hoods, zinc content is

1% maximum. Die cast zinc.

Low magnetic versions are available, contact Technical Sales.

MECHANICAL CHARACTERISTICS:

Removable Contacts: Insert contact to rear face of insulator and release from rear face of insulator. Size 22

contact, male - 0.030 inch [0.76mm] mating diameter. Female contacts - rugged "Robi-D" open entry design or PosiBand closed entry

design, see page 1 for details.

Fixed Contacts, Board Female open entry contacts - both rugged **Mounted Applications:** Robi-D design and standard design available

to customer requirements. Closed entry contacts are PosiBand design, see page 1 for

Contact Retention

In Insulator: 9 lbs. [40 N]. **Contact Terminations:**

Closed barrel crimp, wire sizes 22 AWG [0.3mm²] through 30 AWG [0.05mm²]. Solder cup wire, 0.035 inch [0.89mm] hole diameter

for 22 AWG [0.3mm²] wire maximum.

0.020 inch [0.5mm] or 0.030 inch [0.76mm] termination diameter straight and Right Angle (90°) printed board mount contact terminations.

Shells: Male shells may be dimpled for EMI/ESD ground

Polarization: Trapezoidally shaped shells and polarized

Jackscrews and riveted fasteners with 0.120 **Mounting To** Angle Brackets:

inch [3.05mm] clearance hole, and threaded riveted fasteners with 4-40 threads and poly-

ster lock inserts.

Mounting To Printed Board: Rapid installation push-on fasteners and

mounting posts

Locking Systems: Jackscrews and vibration locking systems. **Mechanical Operations:**

500 operations minimum per IEC 60512-5 for open entry female contact.

1000 operations minimum per IEC 60512-5 for

PosiBand closed entry female contact.

ELECTRICAL CHARACTERISTICS:

Contact Current Rating:

Open Entry Contacts: 5 amperes nominal Closed Entry Contacts, tested per UL 1977:

> 12 amperes, 2 contacts energized. 10 amperes, 6 contacts energized. 7.5 amperes, 26 contacts energized. 6.5 amperes, 65 contacts energized. 5.0 amperes, 104 contacts energized.

See temperature rise curves on page 2 for details.

Initial Contact Resistance: 0.010 ohms maximum for open entry.

0.005 ohms maximum for closed entry.

Proof Voltage: 1000 V r.m.s. **Insulator Resistance:** 5 G ohms.

Clearance and Creepage Distance [minimum]: 0.042 inch [1.06mm].

-55°C to +125°C.

Working Voltage: 300 V r.m.s.

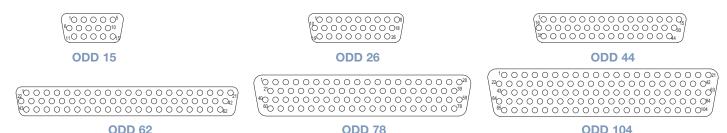
CLIMATIC CHARACTERISTICS:

Temperature Range: Damp Heat, Steady State: 10 days.

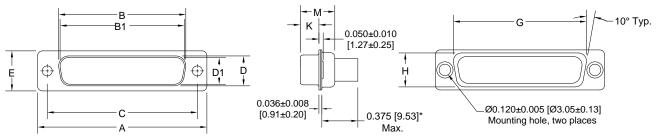


CONTACT VARIANTS

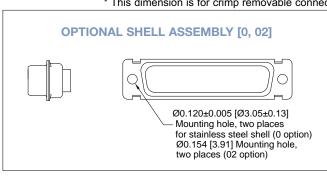
FACE VIEW OF MALE OR REAR VIEW OF FEMALE

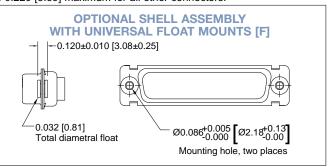


STANDARD SHELL ASSEMBLY



* This dimension is for crimp removable connectors. 0.220 [5.59] maximum for all other connectors.





CONNECTOR VARIANT SIZES	A ±0.015 [0.38]	B ±0.005 [0.13]	B1 ±0.005 [0.13]	C ±0.005 [0.13]	D ±0.005 [0.13]	D1 ±0.005 [0.13]	E ±0.015 [0.38]	G ±0.010 [0.25]	H ±0.010 [0.25]	K ±0.005 [0.13]	M ±0.010 [0.25]
ODD 15 M	1.213 [30.81]		<u>0.666</u> [16.92]	<u>0.984</u> [24.99]		0.329 [8.36]	<u>0.494</u> [12.55]	<u>0.759</u> [19.28]	<u>0.422</u> [10.72]	<u>0.233</u> [5.92]	0.422 [10.72]
ODD 15 F ODD 15 S	1.213 [30.81]	<u>0.643</u> [16.33]		<u>0.984</u> [24.99]	<u>0.311</u> [7.90]		<u>0.494</u> [12.55]	<u>0.759</u> [19.28]	<u>0.422</u> [10.72]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]
ODD 26 M	<u>1.541</u> [39.14]		<u>0.994</u> [25.25]	1.312 [33.32]		<u>0.329</u> [8.36]	<u>0.494</u> [12.55]	1.083 [27.51]	<u>0.422</u> [10.72]	<u>0.233</u> [5.92]	<u>0.422</u> [10.72]
ODD 26 F ODD 26 S	<u>1.541</u> [39.14]	<u>0.971</u> [24.66]		<u>1.312</u> [33.32]	<u>0.311</u> [7.90]		<u>0.494</u> [12.55]	1.083 [27.51]	<u>0.422</u> [10.72]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]
ODD 44 M	<u>2.088</u> [53.04]		<u>1.534</u> [38.96]	<u>1.852</u> [47.04]		<u>0.329</u> [8.36]	<u>0.494</u> [12.55]	<u>1.625</u> [41.28]	<u>0.422</u> [10.72]	<u>0.230</u> [5.84]	<u>0.426</u> [10.82]
ODD 44 F ODD 44 S	2.088 [53.04]	1.511 [38.38]		1.852 [47.04]	<u>0.311</u> [7.90]		<u>0.494</u> [12.55]	1.625 [41.28]	<u>0.422</u> [10.72]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]
ODD 62 M	2.729 [69.32]		<u>2.182</u> [55.42]	2.500 [63.50]		0.329 [8.36]	<u>0.494</u> [12.55]	<u>2.272</u> [57.71]	<u>0.422</u> [10.72]	<u>0.230</u> [5.84]	<u>0.426</u> [10.82]
ODD 62 F ODD 62 S	<u>2.729</u> [69.32]	2.159 [54.84]		<u>2.500</u> [63.50]	<u>0.311</u> [7.90]		<u>0.494</u> [12.55]	<u>2.272</u> [57.71]	<u>0.422</u> [10.72]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]
ODD 78 M	<u>2.635</u> [66.93]		<u>2.079</u> [52.81]	<u>2.406</u> [61.11]		<u>0.441</u> [11.20]	<u>0.605</u> [15.37]	<u>2.178</u> [55.32]	<u>0.534</u> [13.56]	<u>0.230</u> [5.84]	<u>0.426</u> [10.82]
ODD 78 F ODD 78 S	2.635 [66.93]	2.064 [52.43]		<u>2.406</u> [61.11]	<u>0.423</u> [10.74]		<u>0.605</u> [15.37]	2.178 [55.32]	<u>0.534</u> [13.56]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]
ODD 104 M	2.729 [69.32]		<u>2.212</u> [56.18]	2.500 [63.50]		<u>0.503</u> [12.78]	<u>0.668</u> [16.97]	<u>2.302</u> [58.47]	<u>0.596</u> [15.14]	<u>0.230</u> [5.84]	<u>0.426</u> [10.82]
ODD 104 F ODD 104 S	2.729 [69.32]	2.189 [55.60]		2.500 [63.50]	<u>0.485</u> [12.32]		<u>0.668</u> [16.97]	<u>2.302</u> [58.47]	<u>0.596</u> [15.14]	<u>0.243</u> [6.17]	<u>0.429</u> [10.90]



REMOVABLE CRIMP CONTACTS CODE 1

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.

Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

FEMALE CONTACT A ØB -0.150 [3.81]-

Part Number: FC8122D

FEMALE PART NUMBER	WIRE SIZE AWG/[mm²]	А	ØВ	ØС
FC8122D	22 / 24 / 26 / 28 / 30	<u>0.529</u>	<u>0.035</u>	<u>0.047</u>
	[0.3/0.25/0.12/0.08/0.05]	[13.44]	[0.89]	[1.19]

MALE CONTACT A Ø0.030 [0.76] Ø0.150 [3.81] - ØC

Part Number: MC8122D

MALE PART NUMBER	WIRE SIZE AWG/[mm²]	Α	ØB	ØС
MC8122D	22 / 24 / 26 / 28 / 30	<u>0.531</u>	<u>0.035</u>	<u>0.047</u>
	[0.3/0.25/0.12/0.08/0.05]	[13.49]	[0.89]	[1.19]

PLATING:

STANDARD FINISH: Gold flash over nickel plate.

OPTIONAL FINISHES: 0.000030 [0.76] gold over nickel by adding "-14" suffix onto part number. Example: FC8122D-14

0.000050 inch [1.27] gold over nickel by adding "-15" suffix onto part number. Example: MC8122D-15

REMOVABLE CRIMP CONTACTS CODE 1

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.



FEMALE CONTACT "CLOSED ENTRY" DESIGN 00.047 [1.19] -0.520 [13.21] -0.150 [3.81] 00.035 [0.89]

FEMALE	WIRE SIZE
PART NUMBER	AWG/[mm²]
FC8022D2	22 / 24 / 26 / 28 / 30 [0.3/0.25/0.12/0.08/0.05]

Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

PLATING:

STANDARD FINISH: Gold flash over nickel plate.

OPTIONAL FINISHES: 0.000030 [0.76 i] gold over nickel by adding "-14" suffix onto part number. Example: FC8022D2-14 0.000050 inch [1.27] gold over nickel by adding "-15" suffix onto part number. Example: FC8022D2-15

For information regarding CRIMP TOOLS & CRIMPING TOOL TECHNIQUES, see page 78.



The crimp area of this contact is not protected when fully seated in the connector molding. These contacts require shrink tubing after installation. Wire cannot be removed from molding after insertion. Not suitable for fully loaded connector.

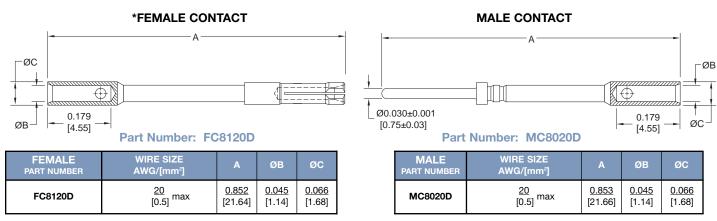
REMOVABLE CRIMP CONTACTS

20 AWG CONTACTS

20 AWG [0.5 mm²]

Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.



^{*} FEMALE POSIBAND CLOSED ENTRY CONTACTS ARE AVAILABLE, SEE PAGE 56 FOR DETAILS.

PLATING:

STANDARD FINISH: Gold flash over nickel plate.

OPTIONAL FINISHES: 0.000030 [0.76] gold over nickel by adding "-14" suffix onto part number. Example: FC8120D-14

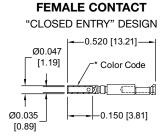
0.000050 inch [1.27] gold over nickel by adding "-15" suffix onto part number. Example: MC8020D-15

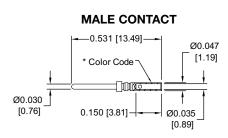
REMOVABLE THERMOCOUPLE CRIMP CONTACTS

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.



Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.





TYPE	MATERIAL	FEMALE PART NUMBER	MALE PART NUMBER	COLOR CODE*	WIRE SIZE AWG [mm²]
к	CHROMEL (+)	FC8022D2CH	MC8022DCH	WHITE	22 / 24 / 26 [0.3 / 0.25 / 0.12]
	ALUMEL (-)	FC8022D2AL	MC8022DAL	GREEN	22 / 24 / 26 [0.3 / 0.25 / 0.12]
т	COPPER (+)	FC8022D2CU	MC8022DCU	RED	22 / 24 / 26 [0.3 / 0.25 / 0.12]
	CONSTANTAN (-)	FC8022D2CO	MC8022DCO	YELLOW	22 / 24 / 26 [0.3 / 0.25 / 0.12]
E	CHROMEL (+)	FC8022D2CH	MC8022DCH	WHITE	22 / 24 / 26 [0.3 / 0.25 / 0.12]
	CONSTANTAN (-)	FC8022D2CO	MC8022DCO	YELLOW	22 / 24 / 26 [0.3 / 0.25 / 0.12]

For more information on the availability of Type J thermocouple contacts, please contact Technical Sales.

For more information about thermocouple contacts with printed circuit board solder termination, please contact Technical Sales.

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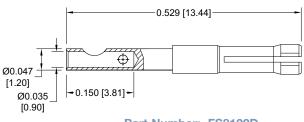


REMOVABLE SOLDER CUP CONTACTS CODE 2

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.

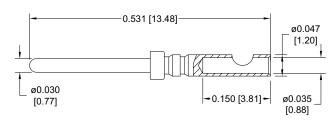
Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number

FEMALE CONTACT



Part Number: FS8122D

MALE CONTACT



Part Number: MS8122D

PLATING:

STANDARD FINISH: Gold flash over nickel plate.

OPTIONAL FINISHES: 0.000030 [0.76] gold over nickel by adding "-14" suffix onto part number. Example: FS8122D-14

0.000050 inch [1.27] gold over nickel by adding "-15" suffix onto part number. Example: MS8122D-15

REMOVABLE SOLDER CUP CONTACTS CODE 2

CONTACTS MAY BE SUPPLIED WITH CONNECTOR OR ORDERED SEPARATELY.

Note: Connectors can be kitted with all applicable crimp contacts, contact Technical Sales for connector part number.



FEMALE CONTACT

"CLOSED ENTRY" DESIGN -0.520 [13.21] Ø0.047 [1.19] Ø0.035 [0.89] -0.150 [3.81]

FEMALE	WIRE SIZE		
PART NUMBER	AWG/[mm²]		
F\$8022D2	22 [0.3] max		

PLATING:

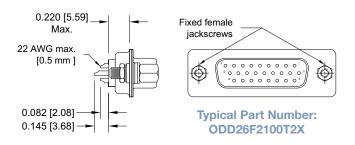
STANDARD FINISH: Gold flash over nickel plate.

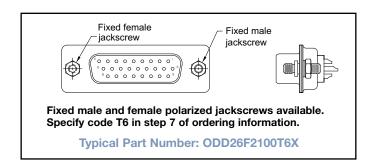
OPTIONAL FINISHES: 0.000030 [0.76] gold over nickel by adding "-14" suffix onto part number. Example: FS8022D2-14 0.000050 inch [1.27] gold over nickel by adding "-15" suffix onto part number. Example: FS8022D2-15

For information regarding INSERTION & REMOVAL TOOLS, see page 78.

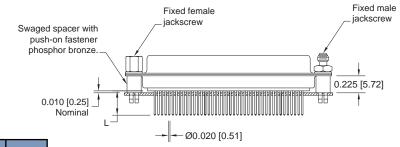


FIXED SOLDER CUP TERMINATION CODE 21





STRAIGHT PRINTED BOARD MOUNT TERMINATION CODE 3 AND 32



Typical Part Number: ODD62F3S60T6X

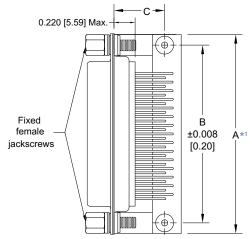
Code No.	L
3	<u>0.150</u> [3.81]
32	<u>0.300</u> [7.62]

For straight printed board mount contacts specify code no. in step 4 of ordering information



RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION



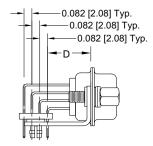


ODD**5**** 0.450 [11.43] CONTACT EXTENSION							
PART NUMBER	A*1	В	C	D			
ODD15*5****	1.204	<u>0.984</u>	<u>0.528</u>	<u>0.450</u>			
	[30.58]	[24.99]	[13.41]	[11.43]			
ODD26*5****	<u>1.532</u>	<u>1.312</u>	<u>0.528</u>	<u>0.450</u>			
	[38.91]	[33.32]	[13.41]	[11.43]			
ODD44*5****	2.072	<u>1.852</u>	<u>0.528</u>	<u>0.450</u>			
	[52.63]	[47.04]	[13.41]	[11.43]			
ODD62*5****	<u>2.720</u>	2.500	<u>0.528</u>	<u>0.450</u>			
	[69.09]	[63.50]	[13.41]	[11.43]			
ODD78*5****	<u>2.626</u>	<u>2.406</u>	<u>0.573</u>	<u>0.450</u>			
	[66.70]	[61.11]	[14.55]	[11.43]			

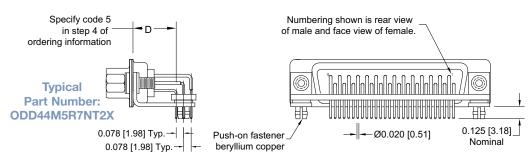
See next page for size 104 Right Angle (90°) Connectors.

NOTE:

*1 "A" dimension applies for metal angle brackets only. Consult Accessories D-subminiature catalog for "A" dimension when plastic brackets are used.

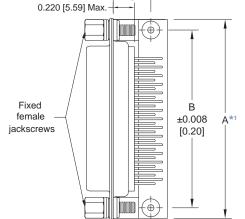


Typical Part Number: ODD78M5R7NT20

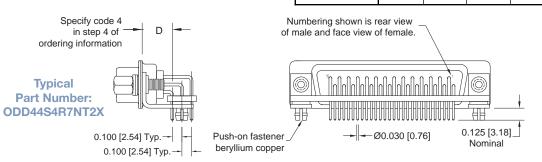


RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION

CODE 4, 0.314 [7.98] CONTACT EXTENSION



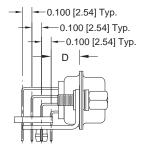
ODD**4**** 0.314 [7.98] CONTACT EXTENSION							
PART NUMBER	A*1	В	С	D			
ODD15*4****	1.204	<u>0.984</u>	<u>0.414</u>	<u>0.314</u>			
	[30.58]	[24.99]	[10.52]	[7.98]			
ODD26*4****	<u>1.532</u>	<u>1.312</u>	<u>0.414</u>	<u>0.314</u>			
	[38.91]	[33.32]	[10.52]	[7.98]			
ODD44*4***	2.072	1.852	<u>0.414</u>	<u>0.314</u>			
	[52.63]	[47.04]	[10.52]	[7.98]			
ODD62*4****	<u>2.720</u>	2.500	<u>0.414</u>	<u>0.314</u>			
	[69.09]	[63.50]	[10.52]	[7.98]			
ODD78*4****	2.626	<u>2.406</u>	<u>0.414</u>	<u>0.314</u>			
	[66.70]	[61.11]	[10.52]	[7.98]			



See next page for size 104 Right Angle (90°) Connectors.

NOTE:

*1 "A" dimension applies for metal angle brackets only. Consult Accessories D-subminiature catalog for "A" dimension when plastic brackets are used.

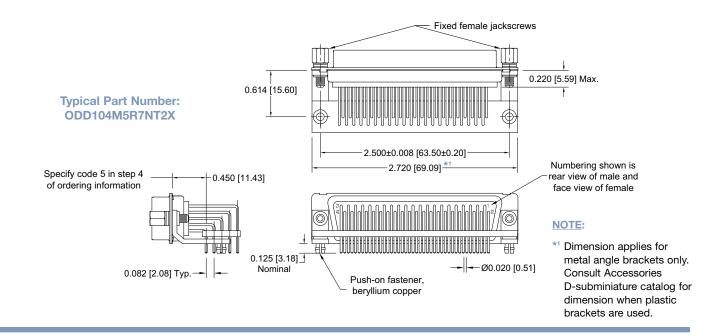


Typical Part Number: ODD78M4R7NT20



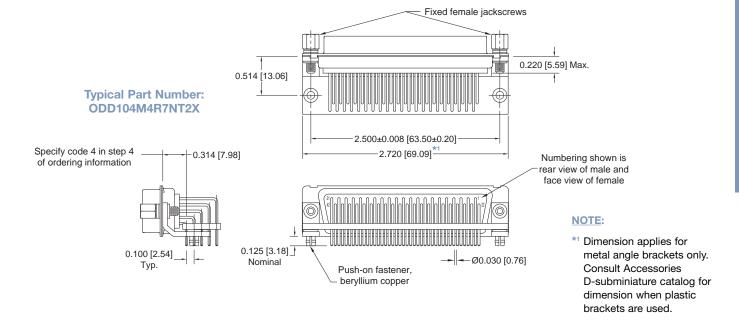
RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION

CODE 5, 0.450 [11.43] CONTACT EXTENSION CONTACT VARIANT 104



RIGHT ANGLE (90°) PRINTED BOARD MOUNT TERMINATION

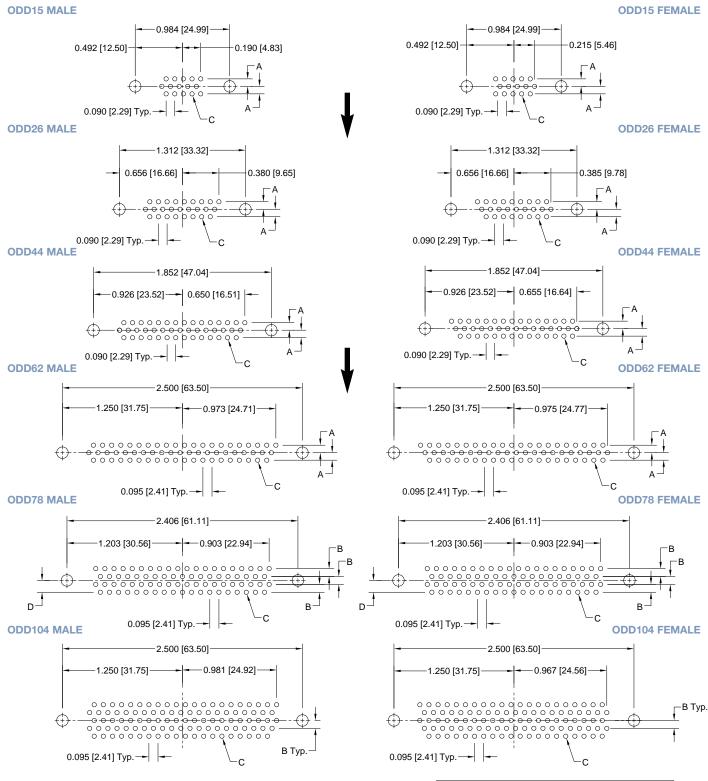
CODE 4, 0.314 [7.98] CONTACT EXTENSION CONTACT VARIANT 104





RIGHT ANGLE (90°) AND STRAIGHT PRINTED BOARD CONTACT HOLE PATTERN

MOUNT CONNECTOR WITH MATING FACE POSITIONED TO FOLLOW DIRECTION OF ARROWS.



SUGGESTED PRINTED BOARD HOLE SIZES:

Suggest 0.123 \pm 0.003 [3.12 \pm 0.08] Ø hole for mounting connector with push-on fasteners.

CODE NUMBER	A	В	ØС	О
4	<u>0.100</u>	<u>0.100</u>	<u>0.045</u>	<u>0.100</u>
	[2.54]	[2.54]	[1.14]	[2.54]
3, 32, 5	<u>0.078</u>	<u>0.082</u>	<u>0.035</u>	<u>0.123</u>
	[1.98]	[2.08]	[0.89]	[3.12]



ORDERING INFORMATION - CODE NUMBERING SYSTEM

Specify Complete Connector By Selecting An Option From Step 1 Through 8

*1 STEP 6 - HOODS

- 0 None.
- J Hood, Top Opening, Plastic.
- L Hood, Side Opening, Plastic.
- Y Hood, Top Opening, Plastic with Rotating Male Jackscrews. Available in size 78 and 104 only.
- Y6 Hood, Top Opening, Plastic with Rotating Male and Female Polarized Jackscrews. Available in size 78 and 104 only.
- Z Hood, Top or Side Opening, Robust Extended Height, Composite and Plastic with Rotating Male Jackscrews. Available in size 15, 26, 44, 62 and 78 only.
- H Hood, Top Opening, Metal. Available in size 26, 44, 62, and 78 only.
- G Hood, EMI/RFI, Die Cast Zinc.
- AN Lightweight Aluminum Hood, nickel finish.
- AC Lightweight Aluminum Hood, no finish.
- W Hood, Top or Side Opening, Plastic. Available in size 15, 26, and 44 only.
- N Push-on Fastener, for Right Angle (90°) Mounting.
- *2 F Ferrite Inductor.
- *2Q Ferrite Inductor with Push-on Fastener, for Right Angle (90°) Mounting Brackets.

Inductor, 4-40 Threads, 0.375 [9.53] Length. *1 For additional information on accessories listed in steps 5, 6 and 7,

R7 - Bracket, Mounting, Right Angle (90°) Metal, Swaged to Connector with 4-40 Threads with Cross Bar.

R8 - Bracket, Mounting, Right Angle (90°) Metal, Swaged to

Swaged Spacer, 4-40 Threads, 0.225 [5.71] Length.

Swaged Spacer with Push-on Fasteners, 4-40 Threads,

Swaged Spacer with Push-on Fastener for use with Ferrite

Connector with 4-40 Locknut with Cross Bar.

S2 - Swaged Spacer, 4-40 Threads, 0.125 [3.18] Length.

Swaged Locknut, 4-40 Threads.

0.225 [5.71] Length.

Connector with 0.120 [3.05] Ø Mounting Hole with Cross Bar.

- see Accessory Catalog. *2 Ferrite inductor is available on contact types 32 and 5 only. For more information on ferrite inductors, see page 7.
- *3 VL, V3 and V5 locking systems are not available for connector variants 62, 78 and 104. Jackscrews are highly recommended to minimize damage to contacts on variants with high mating forces
- *4 For stainless steel dimpled male versions contact Technical Sales.

For information regarding CRIMP TOOLS & CRIMPING TOOL TECHNIQUES, see page 78.