

3M Science.
Applied to Life.™



3M™ Molded-On Cable Assemblies

Creative Connections.

3M™ Molded-On Cable Assemblies offer a rugged, one-piece design, fully customized to your specifications. Product portfolio includes socket, PCB, and DIP connector options, various cable options, and special features to meet the durability, versatility and affordability needs in a wide variety of uses and applications.

Design



3M's molded cable assemblies offer a rugged, one-piece design, fully customized to your specifications. This design, combined with our extra-strong beryllium copper contacts, produces a connector/cable assembly that stands up to repeated insertions and withdrawals. The molded design also offers outstanding protection from the elements for maximum electrical performance. An added bonus of this process is a connector with integral strain relief and closed connector ends, resulting in a space-saving lower height profile.

Flexibility

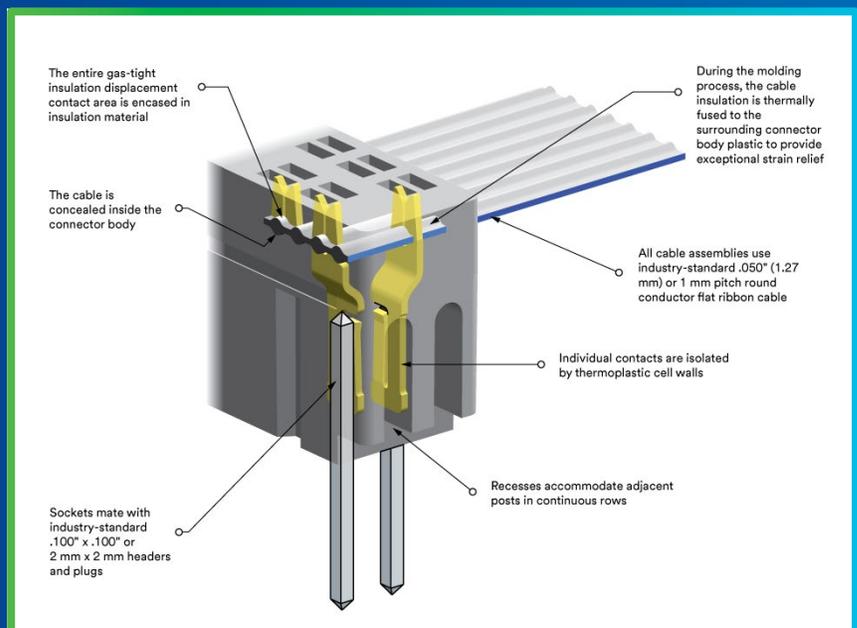


3M's molded cable assemblies also offer the versatility you need. In addition to the standard molded harnesses like socket, PCB, and DIP assemblies, this product can be customized for special needs. It comes in a wider selection of sizes than you will find elsewhere and can be mated with industry standard .100" and 2 mm spacing applications. Special features include high and low profile sockets, matte tin and gold pin plating options, board retention options, latching ears, polarization, pull tabs, keying and custom labeling.

Real World Applications

- Network and telecommunications equipment
- Test and measurement equipment
- Data processing equipment
- Printers & other PC peripherals
- High vibration applications
- Medical monitors, MRIs and other specialized equipment
- Solar Inverter

3M™ Molded-On Cable Assembly, .100" x .100" Socket



Features and Benefits

Features	Advantages	Benefits
Molded-on process produces low-profile connector	Lower height profile	Space-saving, unrestricted cooling air flow in high density applications
Integrated (molded-in) strain relief	No assembly of additional strain relief required: additional product security	Cost and time savings; lower parts count helps reduce costs and accelerates installation time
Multiple keying and polarization options	Insures correct position and orientation of connection	Helps reduce assembly time and costs in preventing defects in installation
Optional pull tabs	Prevents damage to cable and connectors when unplugging assemblies	Provides quick and easy disassembly for reconfiguration and repair; helps reduce replacement costs
Optional hold down feature (compliant pin tail) on PCB and DIP connectors	Holds connection in place during soldering process	No need for applying weights for processing; less rework; lower applied cost
Multiple industry standard cable options	Adaptable for many applications	Only one system for different requirements and specifications
Rugged one-piece interconnect	Long life span, high reliability	Low lifetime cost, no purchase of necessary spare parts

Cable Options

Connector Spacing	AWG	3M Cable Series	Technical Data Sheet	Pitch	Conductor Type	Insulation Material	Special Feature	Cable Temperature Rating
.100"	26	3801	TS-0063	.050"	Stranded	PVC		-20C to + 105°C
		3811	TS-0122	.050"	Stranded	PVC	Color coded	-20C to + 105°C
	28	3365	TS-0080	.050"	Stranded	PVC		-20C to + 105°C
		HF365	TS-2334	.050"	Stranded	PO		-40°C to + 105°C
		3355	TS-0317	.050"	Stranded	TPE		-40C to + 105°C
		3601	TS-0553	.050"	Stranded	FEP		-55C to + 200°C
		3539	TS-0058	.050"	Stranded	PVC	Medium flex	-20C to + 105°C
		3319	TS-0059	.050"	Stranded	PVC	High flex	-20°C to + 105°C
		3302	TS-0123	.050"	Stranded	PVC	Color coded	-20C to + 105°C
		HF539	TS-2565	.050"	Stranded	PO	Medium flex	-40C to + 105°C
HF319	TS-2342	.050"	Stranded	PO	High flex	-40C to + 105°C		
2mm	28	3625	TS-0452	1mm	Stranded	PVC		-20C to +105C
		3250	TS-2694	1mm	Stranded	PVC	High Flex	-20C to +105C

*"RoHS Compliant 2005/95/EC" means that the product or part ("Product") does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. This information represents 3M's knowledge and belief, which may be based in whole or in part on information provided by third party suppliers to 3M.

3M™ Molded-On Connectors

Description	.100" x .100" Molded-on Socket, Low and High Profile	.100" x .100" Molded-on Two- Row, PCB, Standard and Retention Contacts	.100" x .300" and .100" x .600" Molded-on DIP, Standard and Retention Contacts	2 mm x 2 mm Molded-on Socket, Low Profile	2 mm x 2 mm Molded-on Two-Row, PCB, Low Profile
Cable Pitch	.050" (1.27 mm)	.050" (1.27 mm)	.050" (1.27 mm)	1 mm (0.039")	1 mm (0.039")
Physical					
Insulation Material	Glass Filled Polyester (PBT)- Flammability Rating: UL 94V0	Glass Filled Polyester (PBT)- Flammability Rating: UL 94V0	Glass Filled Polyester (PBT)- Flammability Rating: UL 94V0	Glass Filled Polyester (PBT)- Flammability Rating: UL 94V0	Glass Filled Polyester (PBT)- Flammability Rating: UL 94V0
Color	Gray	Gray	Gray	Gray	Gray
Contact Material	Copper Alloy	Copper Alloy	Copper Alloy	Copper Alloy	Copper Alloy
Plating	In Socket Wiping Area, 30 μm [0.76 μm] Gold, Underplated with 50-150 μm [1.27-3.81 μm] Nickel	300-400 μm [7.62-10.16 mm] Matte Tin, Underplated with 50-150 μm [1.27-3.81 μm] Nickel	300-400 μm [7.62-10.16 μm] Matte Tin or 15 μm [0.38 μm] or 30 μm [0.76 μm] Gold, Underplated with 50-150 μm [1.27-3.81 μm] Nickel	Wiping Area, 30 μm Average Gold, Underplate and U-Slot: 50-150 μm [1.27-3.81 μm] Nickel	300-400 μm [7.62-10.16 μm] Matte Tin, Underplate and U-Slot: 50-150 μm [1.27-3.81 μm] Nickel
Marking	Low Profile: 3M logo and Orientation Triangle High Profile: Orientation Triangle	3M logo	3M logo and Orientation Triangle	3M logo and Orientation Triangle	3M logo
Wire Accommodation	26 & 28 AWG Solid or Stranded	26 & 28 AWG Solid or Stranded	26 & 28 AWG Solid or Stranded	28 AWG Stranded	28 AWG Stranded
Electrical					
Current Rating	1A	1A	1A	1A	1A
Insulation Resistance	>1 × 10Ω	>1 × 10Ω	>1 × 10Ω	>1 × 10Ω	>1 × 10Ω
Withstanding Voltage	1000V	1000V	1000V	1000V	1000V
Environmental					
Temperature Rating	-55°C to 105°C	-55°C to 105°C	-55°C to 105°C	-55°C to 105°C	-55°C to 105°C
Technical Data Sheet #	TS-0632	TS-2153	TS-2152	TS-0525	TS-2151

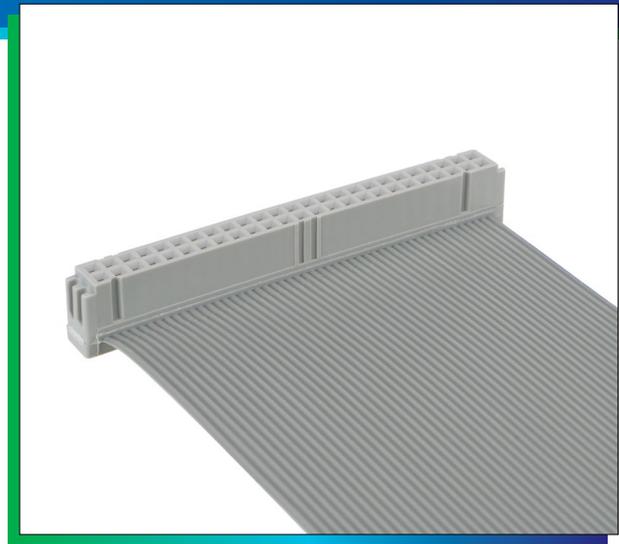
Molded-On Sockets Mating Chart

Description	Technical Sheet	Boardmount Header	Technical Sheet	Pinless Header	Technical Sheet	Wiremount Plug	Technical Sheet
1M Series Sockets (10, 16, 19, 30, 36, 39)	TS-2149	2500 Series	TS-0770	6400 Series	TS-0161	4600 Series	TS-0086
		3000 Series	TS-0771 TS-0772 TS-0478				
2M AA Series	TS-2150	1512 Series	TS-0808				
2M AB Series							
2M AC Series	TS-2150	1512 Series 1552 Series	TS-0808 TS-2199				
2M AD Series							

3M™ Molded-On Socket Connector

1M Series, .100" x .100"

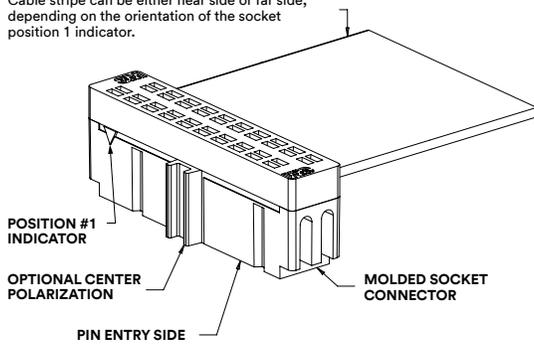
- Mates with industry standard .025 mm square pins on .100 x .100 inch centers
- High and low profiles available
- Both accommodate typical header latches (short and long)
- Slotted ends allow mating to continuous row headers
- Industry standard polarization
- Molded on polarity keys available in selective positions
- One-piece, molded-on construction with integral strain relief
- Closed-end construction
- Modular tooling allows customized designs



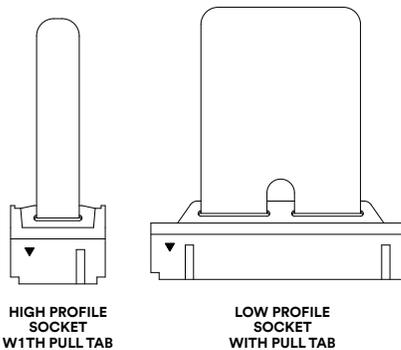
Product Outline

RED OR BLUE STRIPE

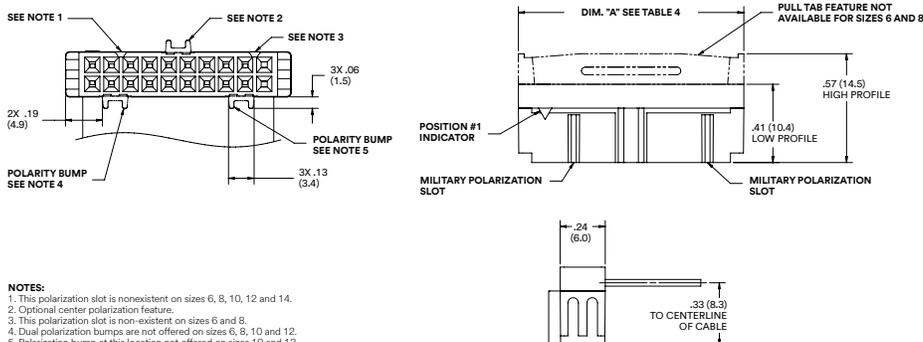
Cable stripe can be either near side or far side, depending on the orientation of the socket position 1 indicator.



PULL TAB FEATURES VARY WITH CONNECTOR SIZE



Product Dimensions (mm)



Product Table 4

CONTACT QTY	DIM A
6	.48 (12.2)
8	.58 (14.7)
10	.68 (17.3)
12	.78 (19.8)
14	.88 (22.4)
16	.98 (24.9)
20	1.18 (30.0)
24	1.38 (35.1)
26	1.48 (37.6)
30	1.68 (42.7)
34	1.88 (47.8)
36	1.98 (50.3)
40	2.18 (55.4)
50	2.68 (68.1)
60	3.18 (80.8)
64	3.38 (85.9)

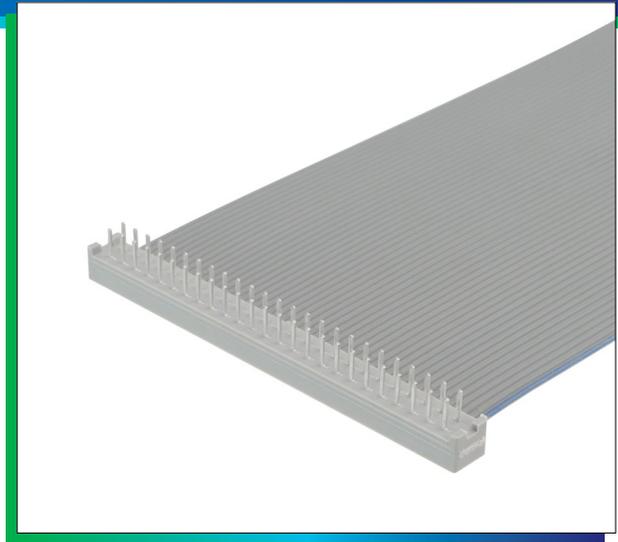
Tolerance Inch (mm)

Tolerance Unless Noted			
mm	.0	.00	.000
Inch	±.1	±.01	±.005

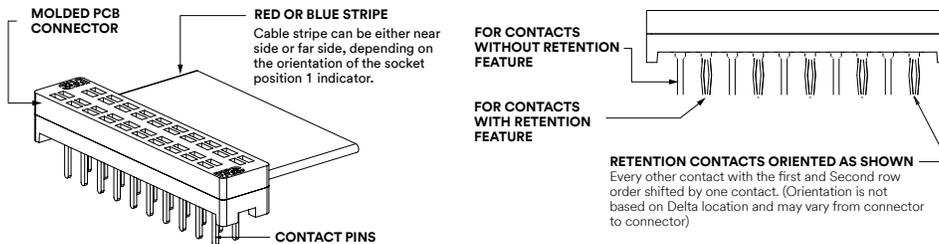
[] Dimensions for Reference only

3M™ Molded-On PCB 1M Series, .100" x .100"

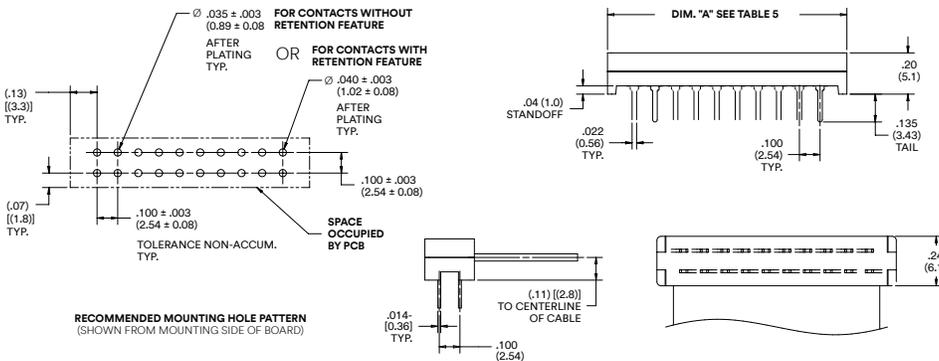
- Mates with industry standard .100 x .100 inch board pattern
- Standard and retention contacts available
- .040 inch high solder stand-off facilitates flux removal; additional heights available
- Low profile permits close PC board spacing
- One-piece, molded-on construction with integral strain relief
- Closed-end construction
- Modular tooling allows customized designs



Product Outline



Product Dimensions (mm)



Product Table 5

CONTACT QTY	DIM A
6	.46 (11.7)
8	.56 (14.2)
10	.66 (16.8)
12	.86 (21.8)
14	.96 (24.4)
16	1.16 (29.5)
20	1.36 (34.5)
24	1.46 (37.1)
26	1.66 (42.1)
30	1.86 (47.2)
34	1.96 (49.8)
36	2.16 (54.9)
40	2.36 (59.9)
50	2.66 (67.6)
60	3.16 (80.3)
64	3.36 (85.3)

Tolerance Inch (mm)

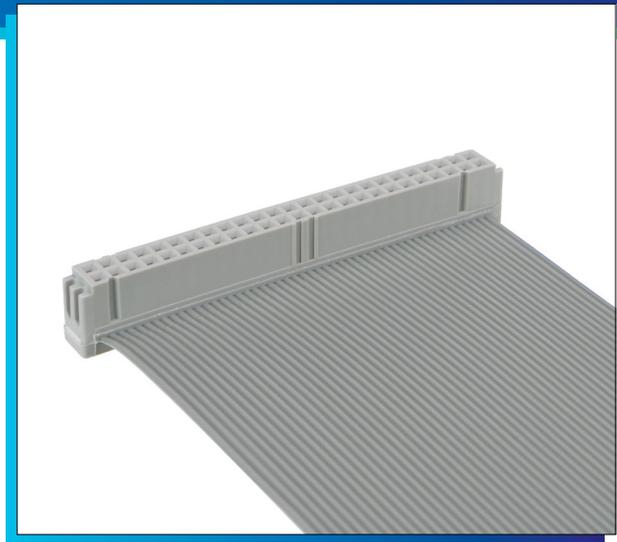
Tolerance Unless Noted			
mm	.0	.00	.000
Inch	±.1	±.01	±.005

[] Dimensions for Reference only

3M™ Molded-On Socket

2M Series, 2mm x 2mm

- Mates with industry standard 2 mm x 2 mm headers
- Optional latching ear feature to mate to latch/eject headers
- Center bump polarity feature available
- Low profile allows close stacking between components and boards
- One-piece, molded-on construction with integral strain relief
- Closed-end construction
- Modular tooling allows customized designs



Product Outline

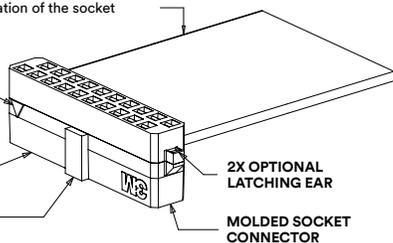
RED OR BLUE STRIPE

Cable stripe can be either near side or far side, depending on the orientation of the socket position 1 indicator.

POSITION #1 INDICATOR

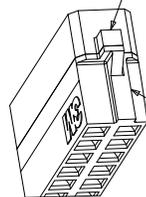
PIN ENTRY SIDE

OPTIONAL CENTER POLARIZATION

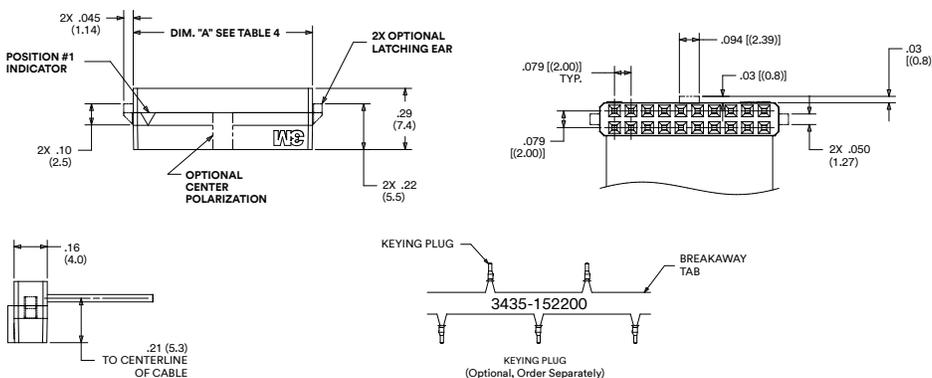


2X OPTIONAL LATCHING EAR

2X OFFSET KEY FEATURE



Product Dimensions (mm)



Product Table 4

CONTACT QTY	DIM A
6	.27 (6.9)
8	.38 (9.6)
10	.46 (11.6)
16	.69 (17.6)
20	.85 (21.6)
22	.93 (23.6)
24	1.01 (25.6)
26	1.09 (27.6)
30	1.24 (31.6)
34	1.39 (35.3)
40	1.64 (41.6)
44	1.79 (45.5)
50	2.03 (51.6)

Tolerance Inch (mm)

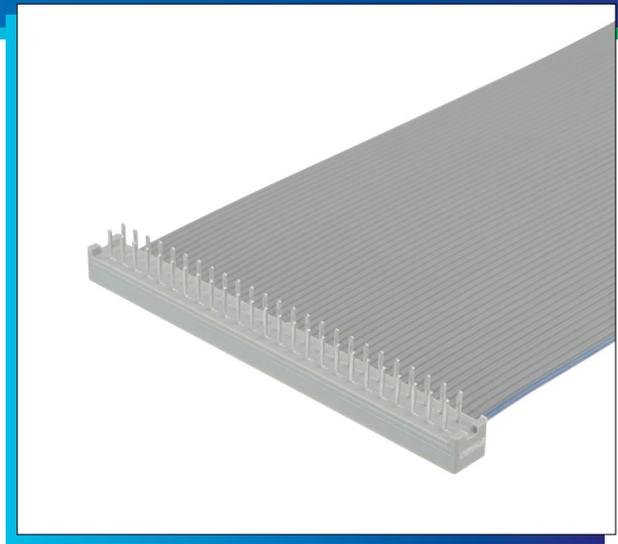
Tolerance Unless Noted			
mm	.0	.00	.000
Inch	±.1	±.01	±.005

[] Dimensions for Reference only

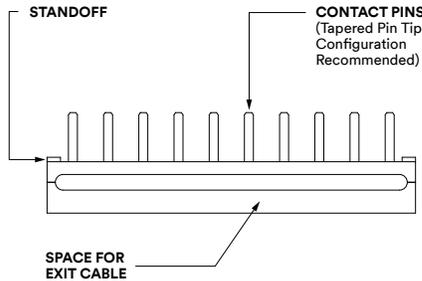
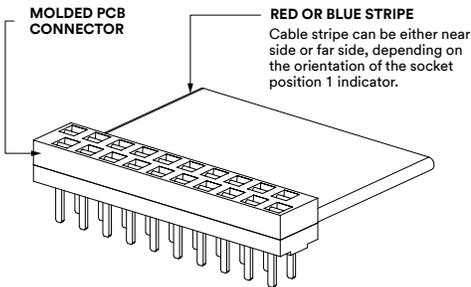
3M™ Molded-On PCB

2M Series, 2mm x 2mm

- Mates with industry standard 2 mm x 2 mm board pattern
- Eliminates header socket for lower installed cost
- Minimizes PC board space
- Low profile allows close stacking between components and boards
- One-piece, molded-on construction with integral strain relief
- Closed-end construction
- Modular tooling allows customized designs



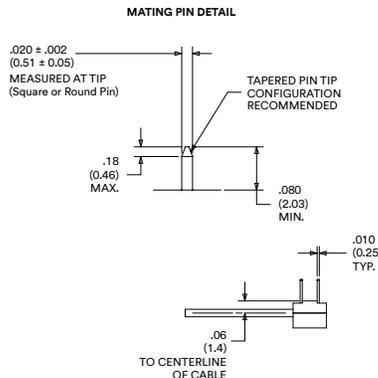
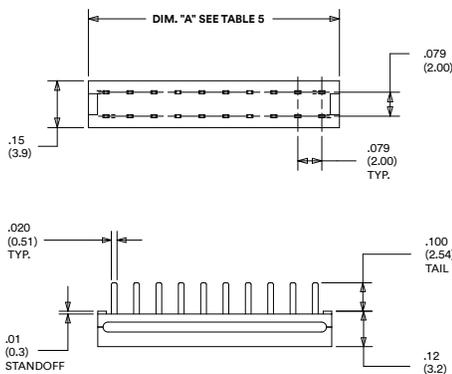
Product Outline



Product Table 5

CONTACT QTY	DIM A
06	.27 (6.9)
08	.35 (8.9)
10	.43 (10.9)
12	.51 (12.9)
16	.67 (16.9)
20	.82 (20.9)
26	1.06 (26.9)
30	1.22 (31.0)
36	1.46 (37.0)
40	1.61 (41.0)
44	1.77 (45.0)
50	2.01 (51.1)

Product Dimensions (mm)

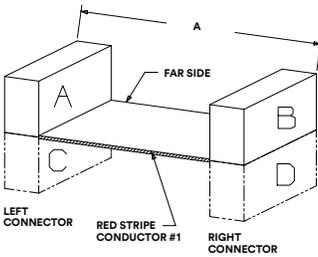


Tolerance Inch (mm)

Tolerance Unless Noted			
mm	.0	.00	.000
Inch	±.1	±.01	±.005

[] Dimensions for Reference only

Ordering Information



Notes

1. A fan-out assembly, with multiple connectors on one end, requires a drawing submittal and review.
2. See ordering information for connector orientation options.

Tolerance Inch (mm)

Length (Dim A) Tolerance		
Min	Max	Tol
1.7	10.0	± 0.3
10.0	20.0	± 0.5
20.0	40.0	± 0.6
40.0	120.0	± 1.0
120.0		± 2.0

3M™ Cable Assembly, .100" 1M Series

Connector Types (Left and Right)

Socket, Low Profile (.41")

- 10 = with Military Polarization slots
- 16 = with Centerbump and Military Polarization slots
- 19 = with Dual Bump and Military Polarization slots

Socket, Regular Profile (.56")

- 30 = with Military Polarization slots
- 36 = with Centerbump and Military Polarization slots
- 39 = with Dual Bump and Military Polarization slots

PCB, 2-Row

- A0 = Straight Matte Sn Solder Tail
- A1 = Retention Matte Sn Solder Tail

1M XX XX - XXX - XXXX - XXX.X - XX - XX - XX - X

Number of Cable Conductors

Cable Product Series (Refer to Cable Options table on page 3: Connector spacing 0.100")

Assembly Length Tip-to-Tip inches (Dim A in inches) Example: 001.7 = 1.7" Min

Marking

- 0 = No Marking
- 1 = Label - Date Code
- 2 = Inkstamp - Date Code

Left Right Centerbump Orientation Options
0 = None
1 = Inside
2 = Outside

Left Right Connector Feature Options
0 = No Pull Tab or Keying Required
1 = Pull Tab (Socket only)
2 = Keying Required, specify position(s)
3 = Pull Tab and Keying Required, specify position(s)

Connector Orientation Options (Left and Right)
AB = Up-Up
AD = Up-Down
CB = Down-Up
CD = Down-Down

3M™ Cable Assembly, 2 mm 2M Series

Connector Types (Left and Right)

Socket, Low Profile (.29")

- AA = no Centerbump, no Latching Ear
- AB = Centerbump, no Latching Ear
- AC = no Centerbump, with Latching Ear
- AD = Centerbump, with Latching Ear

PCB, 2-Row

- BD = Matte Sn Plating, Straight Solder Tail

2M XX XX - XXX - XXXX - XXX.X - XX - XX - XX - X

Number of Cable Conductors

Cable Product Series (Refer to Cable Options table on page 3: Connector spacing 0.100")

Assembly Length Tip-to-Tip inches (Dim A in inches) Example: 001.7 = 1.7" Min

Marking

- 0 = No Marking
- 1 = Label - Date Code
- 2 = Inkstamp - Date Code

Left Right Centerbump Orientation Options
0 = None
1 = Inside
2 = Outside

Left Right Connector Feature Options
0 = No Keying Required
4 = Keying Required, specify position(s)

Connector Orientation Options (Left and Right)
AB = Up-Up
AD = Up-Down
CB = Down-Up
CD = Down-Down

Safety Data Sheet: Consult Safety Data Sheet before use.

Regulatory: For regulatory information about this product, contact your 3M representative.

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