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.

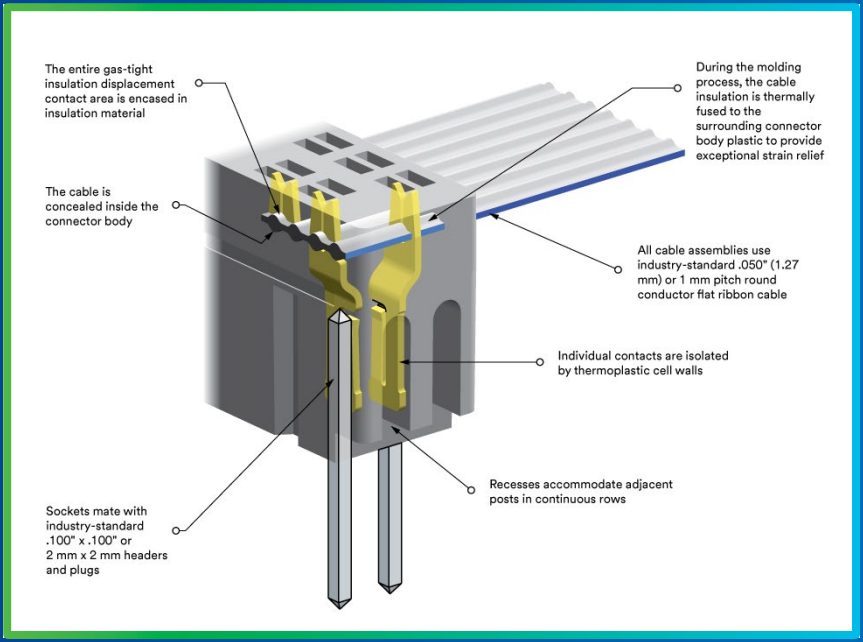
Flexibility

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

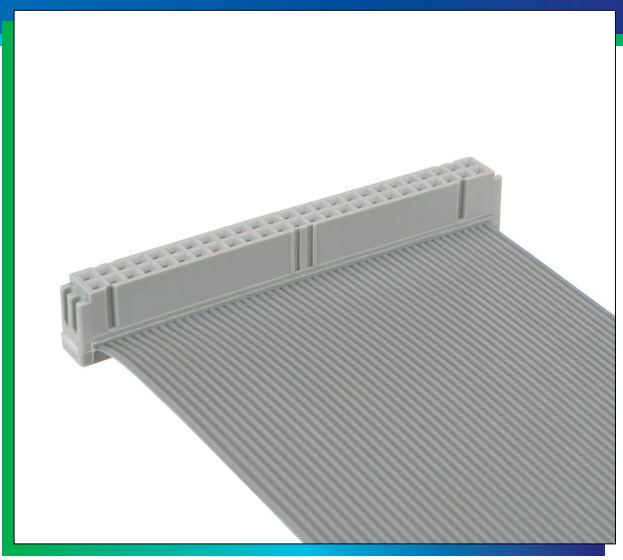
Description	.100" x .100" Molded-on Socket, Low and High Profile	.100" x .100" Molded-on Two-Row, PCB, Standard and Retention Contacts	.100" x .300" and .100" x .600" Molded-on DIP, Standard and Retention Contacts	2 mm x 2 mm Molded-on Socket, Low Profile	2 mm x 2 mm Molded-on Two-Row, PCB, Low Profile
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 µ"" [0.76 µm] Gold, Underplated with 50-150 µ"" [1.27-3.81 µm] Nickel	300-400 µ" [7.62-10.16 mm] Matte Tin, Underplated with 50-150 µ"" [1.27-3.81 µm] Nickel	300-400 µ" [7.62-10.16 µm] Matte Tin or 15 µ"" [0.38 µm] or 30 µ"" [0.76 µm] Gold, Underplated with 50-150 µ"" [1.27-3.81 µm] Nickel	Wiping Area, 30 µ" Average Gold, Underplate and U-Slot: 50-150 µ"" [1.27-3.81 µm] Nickel	300-400 µ" [7.62-10.16 ìm] Matte Tin, Underplate and U-Slot: 50-150 µ"" [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							

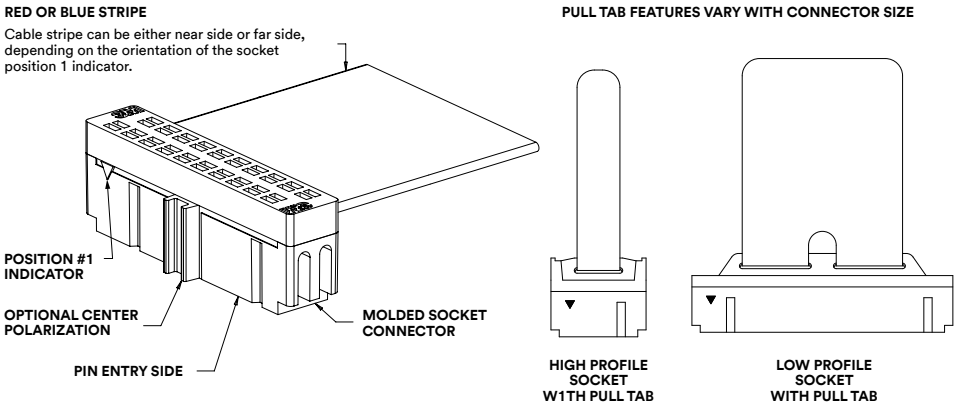
3M™ Molded-On Socket Connector

1M Series, .100” x .100”

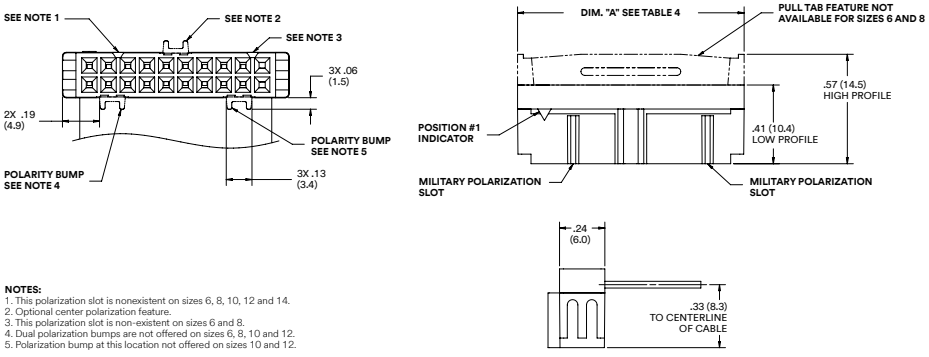


- Mates with industry standard .025 mm square pins on .100 x .100 inch centers
- High and low profiles available
- Both accommodate typical header latches (short and long)
- Slotted ends allow mating to continuous row headers
- Industry standard polarization
- Molded on polarity keys available in selective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

Product Outline



Product Dimensions (mm)



NOTES:
1. This polarization slot is nonexistent on sizes 6, 8, 10, 12 and 14.
2. Optional center polarization feature.
3. This polarization slot is non-existent on sizes 6 and 8.
4. Dual polarization bumps are not offered on sizes 6, 8, 10 and 12.
5. Polarization bump at this location not offered on sizes 10 and 12.

Product Table 4

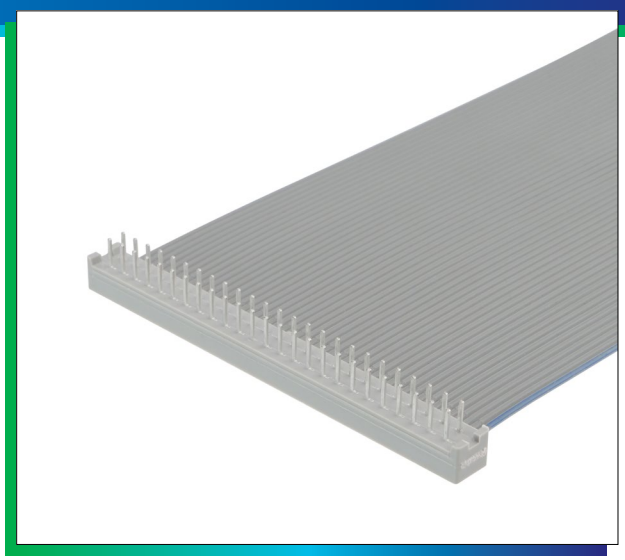
CONTACT QTY	DIM A
6	.48 (12.2)
8	.58 (14.7)
10	.68 (17.3)
12	.78 (19.8)
14	.88 (22.4)
16	.98 (24.9)
20	1.18 (30.0)
24	1.38 (35.1)
26	1.48 (37.6)
30	1.68 (42.7)
34	1.88 (47.8)
36	1.98 (50.3)
40	2.18 (55.4)
50	2.68 (68.1)
60	3.18 (80.8)
64	3.38 (85.9)

Tolerance Inch (mm)

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

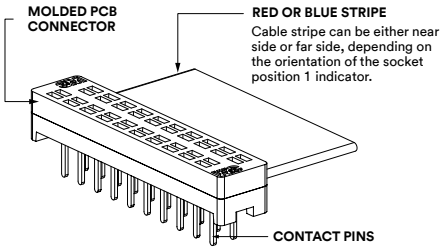
[ ] Dimensions for Reference only

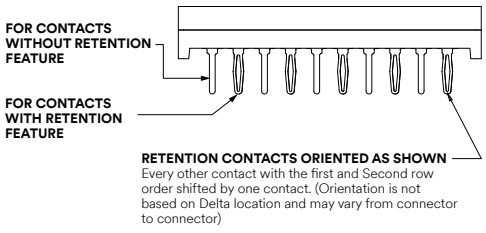
3M™ Molded-On PCB
1M Series, .100” x .100”



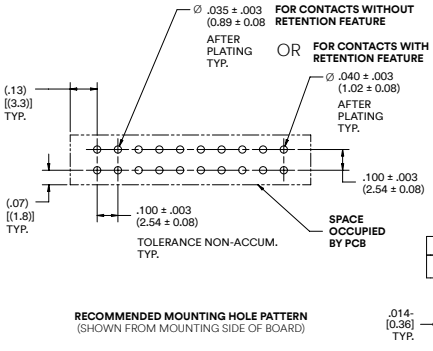
- Mates with industry standard .100 x .100 inch board pattern
- Standard and retention contacts available
- .040 inch high solder stand-off facilitates flux removal; additional heights available
- Low profile permits close PC board spacing
- One-piece, molded-on construction with integral strain relief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

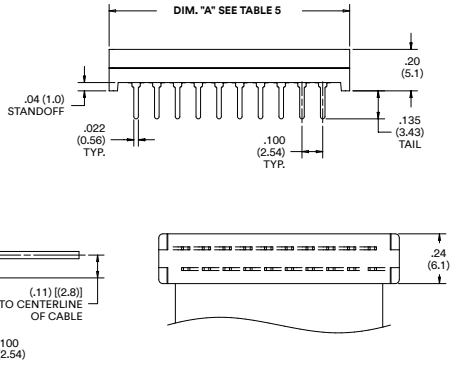
Product Outline





Product Dimensions (mm)





Product Table 5

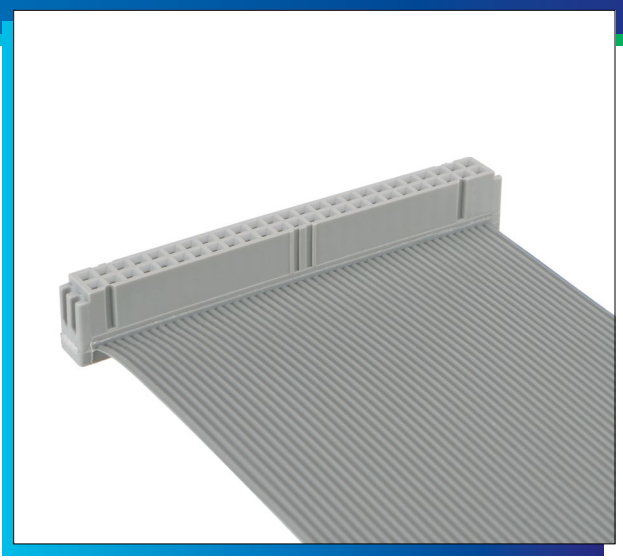
CONTACT QTY	DIM A
6	.46 (11.7)
8	.56 (14.2)
10	.66 (16.8)
12	.86 (21.8)
14	.96 (24.4)
16	1.16 (29.5)
20	1.36 (34.5)
24	1.46 (37.1)
26	1.66 (42.1)
30	1.86 (47.2)
34	1.96 (49.8)
36	2.16 (54.9)
40	2.36 (59.9)
50	2.66 (67.6)
60	3.16 (80.3)
64	3.36 (85.3)

Tolerance Inch (mm)

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

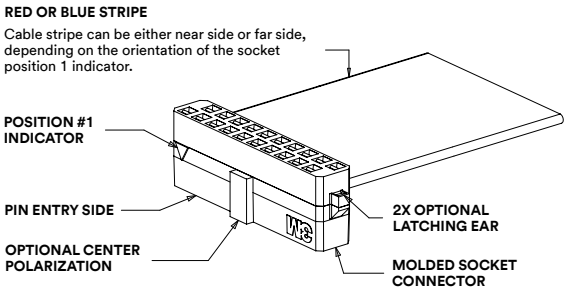
[ ] Dimensions for Reference only

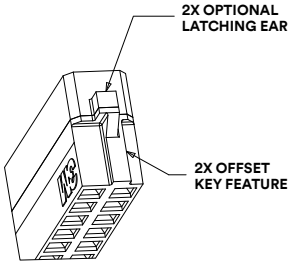
3M™ Molded-On Socket
2M Series, 2mm x 2mm



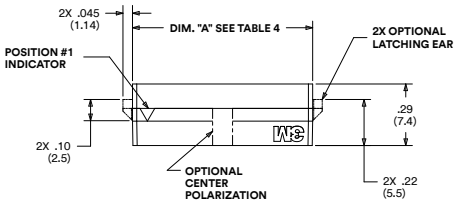
- Mates with industry standard 2 mm x 2 mm headers
- Optional latching ear feature to mate to latch/eject headers
- Center bump polarity feature available
- Low profile allows close stacking between components and boards
- One-piece, molded-on construction with integral strain relief
- Closed-end construction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

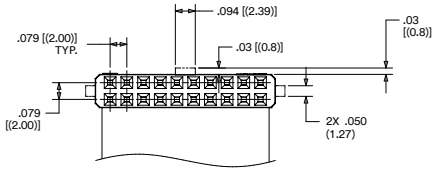
Product Outline

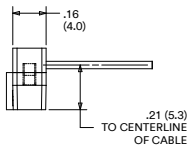


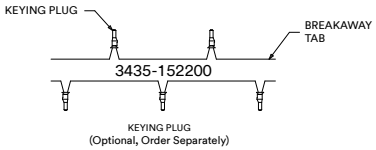


Product Dimensions (mm)









Product Table 4

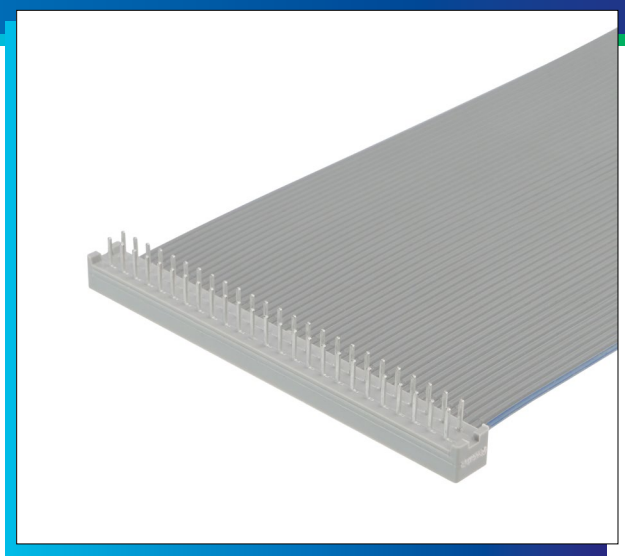
CONTACT QTY	DIM A
6	.27 (6.9)
8	.38 (9.6)
10	.46 (11.6)
16	.69 (17.6)
20	.85 (21.6)
22	.93 (23.6)
24	1.01 (25.6)
26	1.09 (27.6)
30	1.24 (31.6)
34	1.39 (35.3)
40	1.64 (41.6)
44	1.79 (45.5)
50	2.03 (51.6)

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

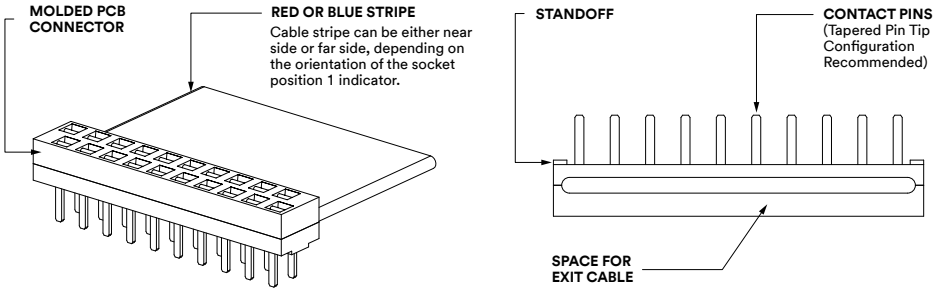


- Mates with industry standard 2 mm x 2 mm board pattern
- Eliminates header socket for lower installed cost
- Minimizes PC board space
- Low profile allows close stacking between components and boards
- One-piece, molded-on construction with integral strain relief
- Closed-end construction
- Modular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

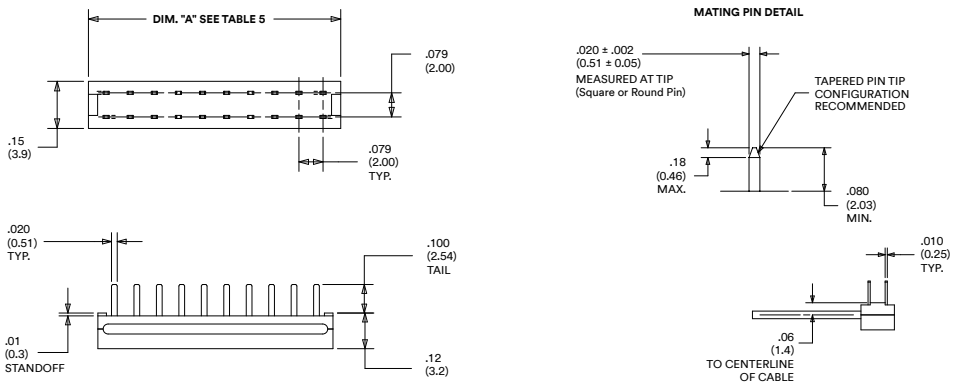
Product Table 5

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 Outline



Product Dimensions (mm)

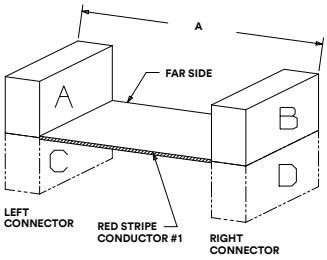


Tolerance Inch (mm)

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

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

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

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

Left Right Connector Feature Options
0 = No Pull Tab or Keying Required
1 = Pull Tab (Socket only)
2 = Keying Required, specifiy 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

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

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

3M™ Cable Assembly, 2 mm 2M Series

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

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

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

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

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

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

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

Safety Data Sheet: Consult Safety Data Sheet before use.

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

Technical Information: The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

Product Use: Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

Warranty, Limited Remedy, and Disclaimer: Unless a different warranty is specifically stated on the applicable 3M product packaging or product literature, 3M warrants that each 3M product meets the applicable 3M product specification at the time 3M ships the product. **3M MAKES NO OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY OR CONDITION ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.** If a 3M product does not conform to this warranty, then the sole and exclusive remedy is, at 3M's option, replacement or repair of the 3M product or refund of the purchase price.

Limitation of Liability: Except where prohibited by law, 3M will not be liable for any loss or damage arising from the 3M product, whether direct, indirect, special, incidental, or consequential, regardless of the legal or equitable theory asserted, including, but not limited to, warranty, contract, negligence, or strict liability.

Disclaimer: For industrial use only. Not intended, labeled or packaged for consumer sale or use.

Electronics Materials Solutions Division
3M Center 223-3S-32
St. Paul, MN 55144 -1000
United States

Phone: 1-800-251-8634
www.3M.com/interconnect

60-5005-0474-5