

# 3M™ Mini D Ribbon (MDR) Connectors

.050" Boardmount Compliant Pin Vertical Receptacle - Shielded

102 Series



- Wiper-on-wiper contact for reliable repetitive plugging
- Rugged die cast metal case construction
- Contacts: 14, 20, 26, 36, 40, 50, 68 and 80
- See Regulatory Information Appendix (RIA) for chemical compliance information.

Date Modified: November 13, 2008

TS-0961-C  
Sheet 1 of 3

## Physical

**Insulation Material:** Glass Reinforced Polyester (PBT)

Flammability: UL 94V-0

Color: Black

**Contact Material:** Copper Alloy

### Plating

Underplating: 80  $\mu$ " [ 2.0  $\mu$ m ] Nickel

Wiping Area: See Ordering Information

Compliant Tails: See Ordering Information

### Body

Material: Zinc Alloy

Plating: Nickel

### Shroud & Latch Hook

Material: Steel

Plating: Nickel

**Marking:** 3M Logo and Part Number

## Electrical

**Current Rating:** 1 A

**Insulation Resistance:**  $> 5 \times 10^8 \Omega$  at 500 V<sub>DC</sub>

**Withstanding Voltage:** 500 V<sub>RMS</sub> for 1 Minute

## Environmental

**Temperature Rating:** -20°C to +85°C

UL File No.: E68080

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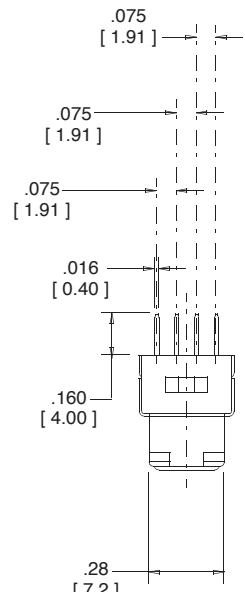
# 3M™ Mini D Ribbon (MDR) Connectors

.050" Boardmount Compliant Pin Vertical Receptacle - Shielded

102 Series



Contact Quantity	Dimension				
	A	B	C	D	E
14	.300 [ 7.62 ]	.93 [ 23.6 ]	1.16 [ 29.5 ]	.50 [ 12.6 ]	.77 [ 19.5 ]
20	.450 [ 11.43 ]	1.08 [ 27.45 ]	1.31 [ 33.4 ]	.65 [ 16.4 ]	.92 [ 23.4 ]
26	.600 [ 15.24 ]	1.23 [ 31.3 ]	1.46 [ 37.2 ]	.80 [ 20.2 ]	1.07 [ 27.2 ]
36	.850 [ 21.59 ]	1.48 [ 37.6 ]	1.71 [ 43.5 ]	1.05 [ 26.6 ]	1.32 [ 33.5 ]
40	.950 [ 24.13 ]	1.58 [ 40.2 ]	1.81 [ 46.1 ]	1.15 [ 29.1 ]	1.42 [ 36.1 ]
50	1.200 [ 30.48 ]	1.83 [ 46.5 ]	2.06 [ 52.4 ]	1.40 [ 35.5 ]	1.67 [ 42.4 ]
68	1.650 [ 41.91 ]	2.28 [ 57.9 ]	2.51 [ 63.8 ]	1.85 [ 46.9 ]	2.12 [ 53.8 ]
80	1.950 [ 49.53 ]	2.58 [ 65.6 ]	2.81 [ 71.5 ]	2.15 [ 54.5 ]	2.42 [ 61.5 ]



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

[ ] Dimensions for Reference Only

Note:  
1. Use mounting screws to PCB when using Junction Shells.

## Ordering Information

**102XX - R2XX XX**

Contact Quantity  
(See Table)

Lockstand Thread  
0 = M2.6 (Special order)  
1 = M2.5 (Standard)

PCB Press Fit Hole Compatibility  
C = Cu/pre-flux PCB holes. Contacts with gold flash tail plating (App. E1 & C1 apply)  
T = Solder plated PCB holes. Contacts with gold flash tail plating (App. E1 & C1 apply)

Wiping Area Plating  
S = 30 μm [0.76 μm] Min. Gold  
FB = 8 μm [0.2 μm] Min. Gold with Lubricant

Note:  
2. Assembly tools: 3M™ Stopper Block 10991-XX and 3M™ Press Block 10992-XX.

TS-0961-C  
Sheet 2 of 3

# 3M™ Mini D Ribbon (MDR) Connectors

.050" Boardmount Compliant Pin Vertical Receptacle - Shielded

102 Series

Contact Quantity	Dimension	
	A	B
20	.450 [ 11.43 ]	.931 [ 23.64 ]
36	.850 [ 21.59 ]	1.481 [ 37.61 ]
40	.950 [ 24.13 ]	1.581 [ 40.15 ]
68	1.650 [ 41.91 ]	2.281 [ 57.93 ]
80	1.950 [ 49.53 ]	2.581 [ 65.55 ]

## Recommended Board Layout Viewed from Connector Side



Contact Quantity	Dimension	
	C	D
14	.78 [ 20.0 ]	.93 [ 23.64 ]
20	.94 [ 23.9 ]	1.08 [ 27.45 ]
26	1.09 [ 27.6 ]	1.23 [ 31.26 ]
36	1.33 [ 33.9 ]	1.48 [ 37.61 ]
40	1.44 [ 36.5 ]	1.58 [ 40.15 ]
50	1.69 [ 42.8 ]	1.83 [ 46.50 ]
68	2.13 [ 54.2 ]	2.28 [ 57.93 ]
80	2.44 [ 61.9 ]	2.58 [ 65.55 ]



## Recommended Panel Cut-Out

Note: Panel thickness .079 [ 2.00 ] Max.



Contact Quantity	A	B
14	.300 [ 7.62 ]	.931 [ 23.64 ]
26	.600 [ 15.24 ]	1.231 [ 31.26 ]
50	1.200 [ 30.48 ]	1.831 [ 46.50 ]

\*Note: Plated-through mounting holes

## Notes:

1. Listed below are the PCB hole sizes and tolerances recommended for use with the 3M MDR Compliant Pin Vertical Receptacle. The insertion force is designed not to exceed 147N (33lbs) per pin

### Recommended Hole Size in Millimeters:

#### For Copper plus Pre-Flux Coated PBC Holes

##### Option 1

- Drilled Dia. 0.85 +0/-0.020 mm
- Finished Dia. 0.68 to 0.79 mm
- Cu Plating 0.025 mm minimum

##### Option 2

- Drilled Dia 0.80 +0.025/-0.020 mm
- Finished Dia 0.68 to 0.78 mm
- Cu Plating 0.025 mm minimum

#### For Copper and Solder Plated PCB Holes

##### Option 1

- Drilled Dia. 0.85 +0.03/-0.03 mm
- Finished Dia. 0.65 to 0.81 mm
- Tin Lead Plating 0.015 mm maximum

##### Option 2

- Drilled Dia 0.80 +0.02/-0.02mm
- Finished Dia 0.68 to 0.81 mm
- Cu Plating 0.015mm minimum

2. Board thickness: .095 ± .010 to .125 ± .010

3. Assembly Tooling:  
(See Ordering Information)

TS-0961-C  
Sheet 3 of 3

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# Regulatory Information Appendix

## 3M Electronic Solutions Division/Interconnect

### EUROPE

#### Appendix E1: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product is RoHS Compliant 2005/95/EC.**

“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. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E2: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.**

“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. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E3: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

**This product contains lead in the solder tail area in excess of the maximum concentration value allowed.**

Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E4: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC, as amended by EU Commission Decision 2005/717/EC, as amended by EU Court of Justice Decision 2008/C 116/04

**This product contains decaBDE in the insulating material in excess of the maximum concentration allowed for finished products subject to EU RoHS that are placed on the EU market after June 30, 2008.**

Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

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## Appendix E5: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product contains lead in excess of the maximum concentration value allowed but is compliant by exemption under Item 6 of the Annex to the Directive.**

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In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

## CHINA

### Appendix C1: China RoHS



Electronic Industry Standard of the People’s Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does not** contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

### Appendix C2: China RoHS



Electronic Industry Standard of the People’s Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product’s life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称 (Part or Component Name)	有毒有害物质或元素 (Hazardous Substances or Elements)					
	铅(Pb)	汞(Hg)	镉(Cd)	六价铬(Cr(VI))	多溴联苯(PBB)	多溴二苯醚(PBDE)
端子镀层(contact plating)	×	○	○	○	○	○
○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.) ×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)						

# Appendix C3: China RoHS



Electronic Industry Standard of the People’s Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers (excluding decaBDE); or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

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产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

部件名称 (Part or Component Name)	有毒有害物质或元素 (Hazardous Substances or Elements)					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
合金 (Metal alloy)	×	○	○	○	○	○
<p>○：表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.)</p> <p>×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.)</p>						

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