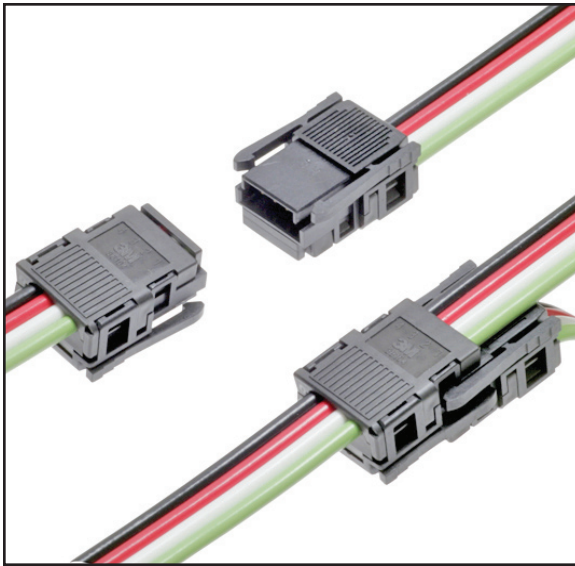


# 3M™ Link Connector

.100" IDC, Wiremount, Hermaphroditic

381 Series



- CC-Link/LT Industrial Automation Field Network.
- Hermaphroditic four-point contact mating structures reduces the number of components required to interconnect and ensures a reliable interconnect.
- Easy, labor saving, and reliable IDC termination.
- T-Tap termination enables mid-cable terminations without special preparation or handling of the cable or wires in order to interconnect field bus and power lines at any point.
- Easy field termination with no special wire preparation – no stripping, tinning or special tooling. Terminate wires with a common pliers.
- Design accepts multiple wire diameters of 1.8 to 2.54 mm (0.071 to 0.100"), conductor sizes of 18 and 20 AWG (0.50 - 0.75 mm<sup>2</sup>), and discrete wire or Flat Ribbon Cable on 2.54 mm (0.100") pitch.
- 5 Amp maximum current carrying capability per contact with all 4 contacts operating.
- Latching mechanism maintains a reliable interconnection in demanding field applications.
- RoHS compliant. See paragraphs E1 and C1 of Regulatory Information Appendix.

Date Modified: October 9, 2008

TS-2098-D  
Sheet 1 of 4

## Physical

### Insulation:

Material: Polyester (PBT) body, Nylon cover  
Flammability: UL 94V-0  
Color: See Table 1

### Contact:

Material: Copper Alloy

### Plating:

Underplating: 0.050 u" [1.27 um] minimum Nickel  
Wiping Area: 8 μ" [ 0.2 μm ] Gold with lubricant  
IDC: Nickel

**Wire Accommodation:** 18 AWG [0.75] Tinned stranded  
20 AWG [0.50] Tinned stranded

Wire Insulation: PVC

Mating Compatibility: 381 Series (Hermaphroditic) and 382 Series (Board Mount)

## Electrical

**Current Rating:** 5.0 A

**Voltage Rating:** 160 V

**Insulation Rating:**  $> 1 \times 10^6 \Omega$  at 500 V<sub>DC</sub>

**Withstanding Voltage:** 1,000 V<sub>RMS</sub> at Sea Level

## Environmental

**Temperature Rating:** -20°C to 70°C

**UL Rating:** 65°C

File No.: E68080

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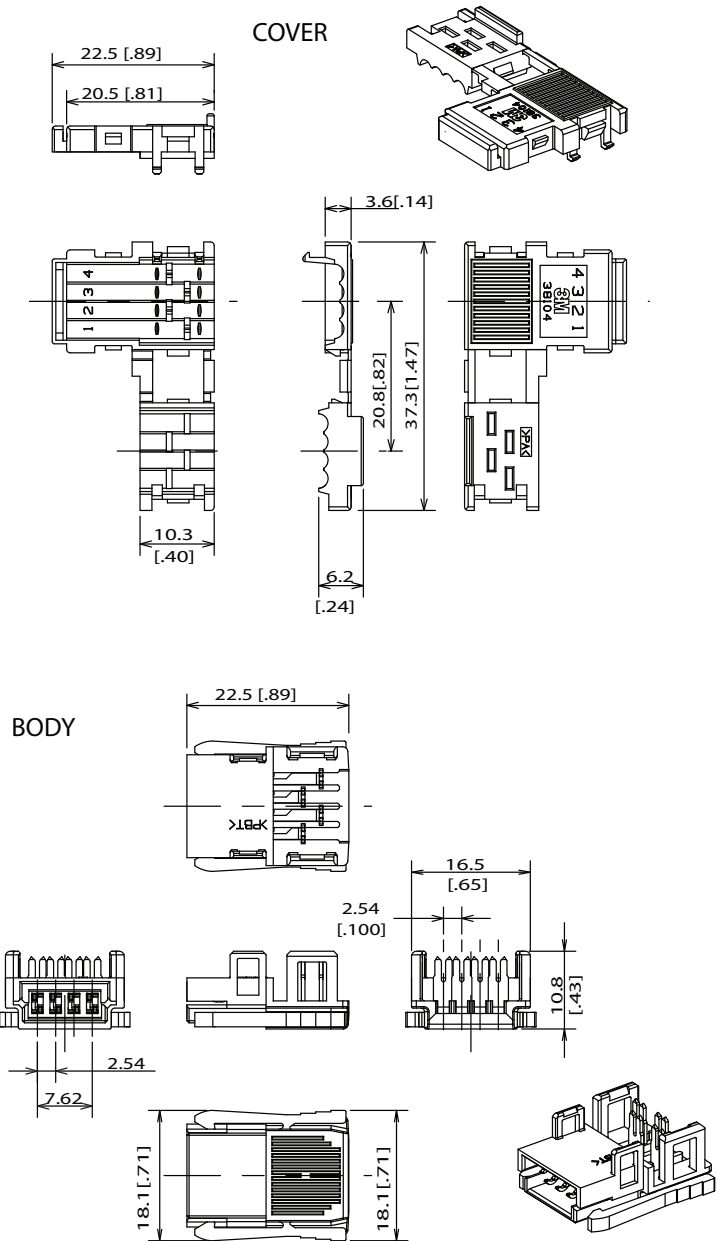
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# 3M™ Link Connector

.100" IDC, Wiremount, Hermaphroditic

381 Series

## Discrete Wire and Bonded Flat Cable Link Connectors (All connectors except 38104-M018-M0M FL)



mm [Inch]	
Tolerance Unless Noted	
0.0	0.00
mm	±.1 ±.10
[ ] Dimensions for Reference Only	

### Ordering Information

Note: See table 1 on sheet 3 for available products and color code designation.

### 38104 - X0XX - X0X FL (RIA E1 & C1 apply)

Cover Shape:

3M

0 = 0.1" Flat Cable

E = Discrete Wire 2.3 mm dia

F = Discrete Wire 2.0 mm dia

CC Link/LT:

M = 0.1" Flat Cable

A = Discrete Wire 2.3 mm dia

B = Discrete Wire 2.0 mm dia

Color:

See table 1 on sheet 4

Marking:

0 = 3M

M = CC Link/LT

Wire AWG:

18

20

Note: Terminate using common pliers or 3M™ Scotchlok™ E-9BM or E-9E crimping tools.

TS-2098-D  
Sheet 2 of 4

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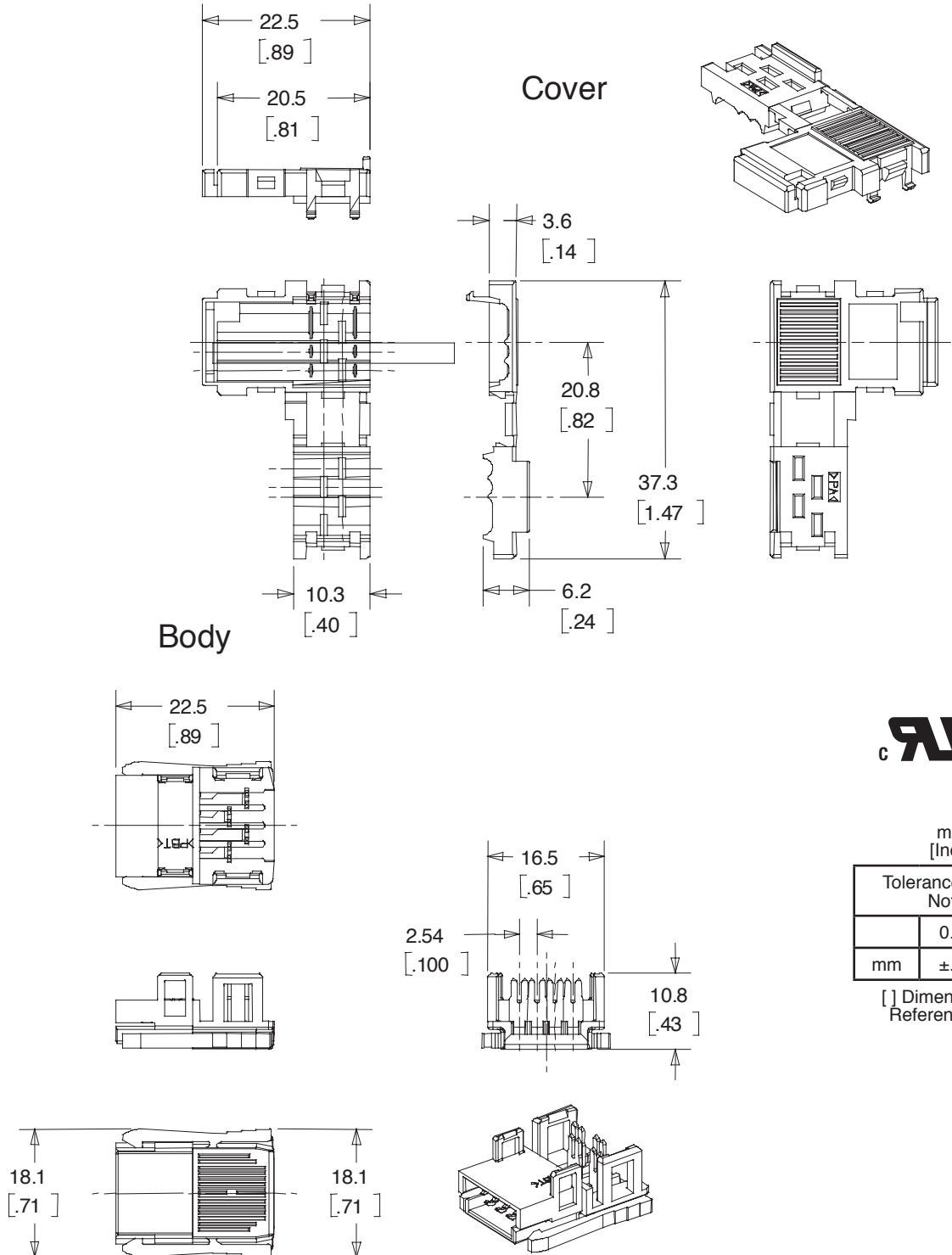
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# 3M™ Link Connector

.100" IDC, Wiremount, Hermaphroditic

381 Series

## 38104-M018-M0M FL CC-Link/LT Link Connector



mm [Inch]	
Tolerance Unless Noted	
0.0	0.00
mm	±.10

[ ] Dimensions for Reference Only

TS-2098-D  
Sheet 3 of 4

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# 3M™ Link Connector

.100" IDC, Wiremount, Hermaphroditic

381 Series

Table 1: Available Products and Color Code Designation

Product Number	Cover Shape O. D. / Wire Type	Wire Size AWG / mm <sup>2</sup>	Marking / Shape	Color		
				Body	Cover	Code
38104-0018-000 FL	2.54 Flat Cable	18 / 0.75	3M	Black	Black	0
38104-E018-E00 FL	2.1 - 2.4 Discrete	18 / 0.75	3M	Black	Orange	E
38104-F018-F00 FL	1.8 - 2.1 Discrete	18 / 0.75	3M	Black	Yellow	F
38104-0020-100 FL	2.54 Flat Cable	20 / 0.50	3M	Gray	Black	1
38104-E020-G00 FL	2.1 - 2.4 Discrete	20 / 0.50	3M	Gray	Orange	G
38104-F020-H00 FL	1.8 - 2.1 Discrete	20 / 0.50	3M	Gray	Yellow	H
38104-M018-M0M FL	2.54 Flat Cable	18 / 0.75	CC Link/LT	Blue	Blue	M
38104-A018-A0M FL	2.1 - 2.4 Discrete	18 / 0.75	CC Link/LT	Blue	D.Green	A
38104-B018-B0M FL	1.8 - 2.1 Discrete	18 / 0.75	CC Link/LT	Blue	L.Green	B

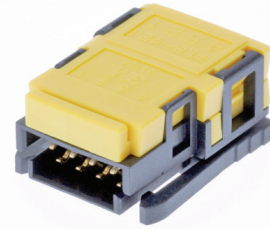
Note: Contact 3M Technical Service for cable or wire information



38104-0018-000 FL



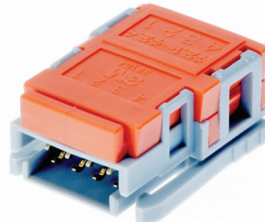
38104-E018-E00 FL



38104-F018-F00 FL



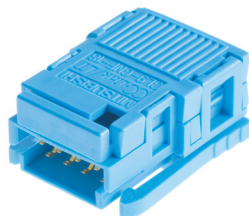
38104-0020-100 FL



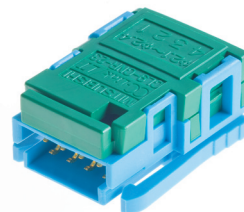
38104-E020-G00 FL



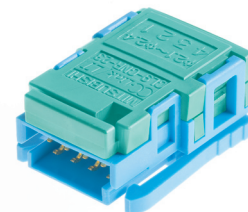
38104-F020-H00 FL



38104-M018-M0M FL



38104-A018-A0M FL



38104-B018-B0M FL

TS-2098-D  
Sheet 4 of 4

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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.

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 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.**

“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.

## 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.)						

RIA-2217B-E

# 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.

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)
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>						

### Important Notice

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

### Warranty; Limited Remedy; Limited Liability.

This product will be free from defects in material and manufacture for a period of one (1) year from the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**



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