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ELECTRONICS

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Jameco Part Number 1578648

# 3M™ Four-Wall Header

.100" x .100" Low Profile, SMT Straight, Straight and Rt Angle Through-Hole

2500 Series



- Low profile, space saving design
- Center slot polarization prevents mis-insertions and reduces insertion time
- Dual slot polarization means broader compatibility with competitive polarization designs (not 10 pos.)
- Optional retainer clip for locking sockets in place and increasing connection reliability in vibration-prone environments
- Optional high temperature insulator suitable for “no lead” soldering operations
- High temperature option in through-hole version suitable for “paste in hole” reflow soldering techniques
- Exposed solder tails (on right angle version) provide ease of cleaning and reduced repair costs
- Straight surface mount version available
- See regulatory information appendix (RIA) for chemical compliance information

Date Modified: March 24, 2008

TS-0770-E  
Sheet 1 of 5

## Physical

### Insulator

Material: Glass Filled Polyester (PBT), Glass Filled Polyester (PCT)-  
High Temperature Option  
Flammability: UL 94V-0  
Color: Gray (PBT), Beige (PCT) or Black (PCT)  
Contact Material: Copper Alloy

### Plating

Underplating: 100  $\mu$ " [ 2.54  $\mu$ m ] Nickel - Overall  
Wiping Area: Gold (See Ordering Information)  
Solder Tails: 200  $\mu$ " [ 5.08  $\mu$ m ] Tin Lead or Matte Tin (See Ordering Information)

Marking: 3M Logo, Part Identification Number and Orientation Triangle

## Electrical

Current Rating: 2 A  
Insulation Resistance:  $>1 \times 10^9$  W at 500 V<sub>DC</sub>  
Withstanding Voltage: 1000 V<sub>RMS</sub> at Sea Level

## Environmental

Temperature Rating: -55°C to +105°C  
Process Rating: 260°C, (High Temperature and PCT insulator versions only), single pass,  
(profile per J-STD-020C) PBT insulator version, maximum molded  
insulator temperature 191°C (solder wave process only)  
Moisture Sensitivity Level: 1 (per J-STD-020C)

UL File No.: E68080

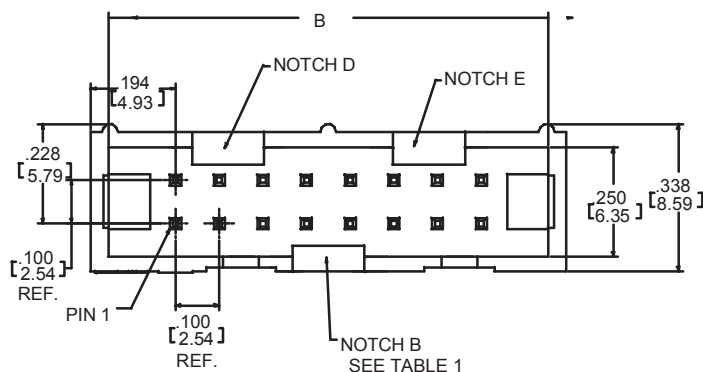


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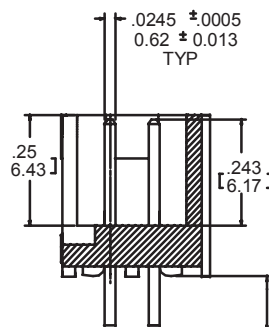
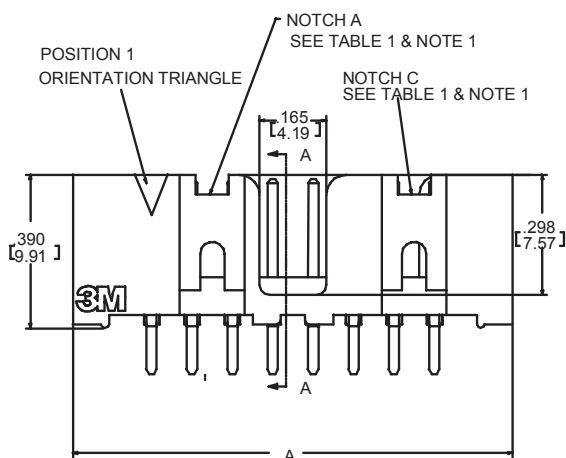
## .100" x .100" Low Profile, Straight Through-Hole

## 2500 Series



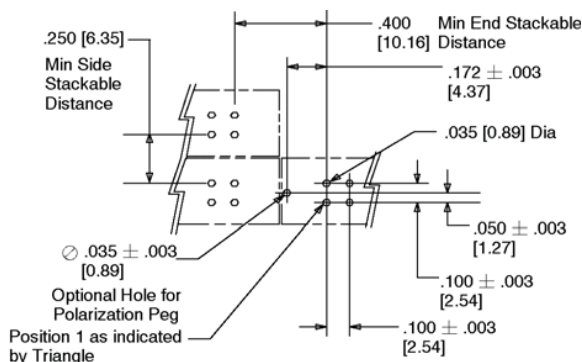
Tolerance Unless Noted			
	.0	.00	.000
Inch	± .1	± .01	± .003

[ ] Dimensions for Reference only



.112 +/- .01[2.84] for 02&K2 versions  
.155 +/- .01[3.94] for 03 versions

SECTION A-A



**Recommended P.C. Board Hole Pattern**  
(Shown for mounting side of board.)

Table 1					
Pin Qty	Dimensions				Polarizing Notches
	A		B		
10	.788	(20.02)	.708	(17.98)	BC
14	.988	(25.10)	.908	(22.06)	BCDE
16	1.088	(27.64)	1.008	(25.60)	ABCDE
20	1.288	(32.72)	1.208	(30.68)	ABCDE
24	1.488	(37.80)	1.408	(35.76)	ABCDE
26	1.588	(40.34)	1.508	(38.30)	ABCDE
30	1.788	(45.42)	1.708	(43.38)	ABCDE
34	1.988	(50.50)	1.908	(48.46)	ABCDE
40	2.288	(58.12)	2.208	(56.08)	ABCDE
50	2.788	(70.82)	2.708	(68.78)	ABCDE
60	3.288	(83.52)	3.208	(81.48)	ABCDE
64	3.488	(88.60)	3.408	(86.56)	ABCDE

Notes:

1. Notches A & C will accommodate 3M Polarizing Keys (3M Part #3518 or N3518).
2. Contact tails .0245 [0.622] wire with .0075 [0.191] corner radii & .028 [.072] diagonal.
3. See page 4 for kink tail positions.
4. Solder stand offs facilitate .01 clearance above board for reflow soldering.

## Ordering Information

Prefix:

Blank = Std. Temp. Gray (PBT)(UB or UG Pltg. Req'd)

N = High Temp. Beige (PCT)(UB or UG Pltq. Req'd)

N = High Temp. Black (PCT)(RB Pltq. Req'd)

**X25XX-60XX-XX**

Pin Quantity:  
(See Table 1)

Solder Tail —

02 = for .062 [1.57] thick board  
03 = for .094 to .125 [2.39 to 3.18]  
thick board  
K2 = for .062 [1.57] thick board

Plating:

UG = 15μ" [0.38μm] Gold with 200μ" [5.08μm] 60:40

Tin-Lead Solder Tails (RIA E3 & C2 apply)

UB = 30μ" [0.76μm] Gold with 200μ" [5.05μm] 60:40

Tin-Lead Solder Tails (RIA E3 & C2 apply)

RB = 30μ" [0.76μm] Gold with 200μ" [5.08μm]

Matte Tin Solder Tails (RIA E1 & C1 apply)

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Sheet 2 of 5



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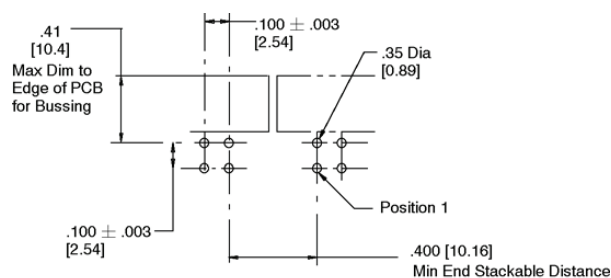
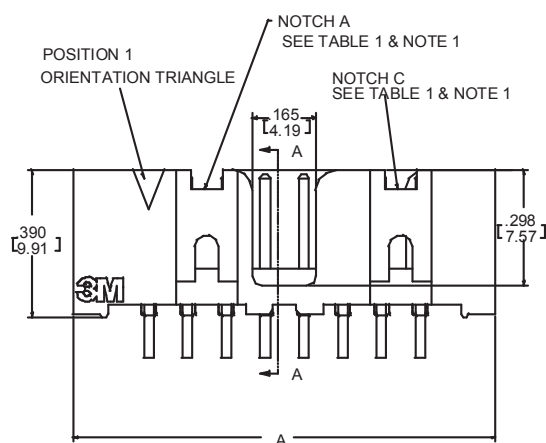
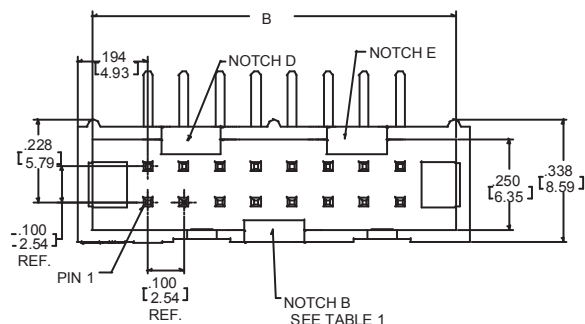
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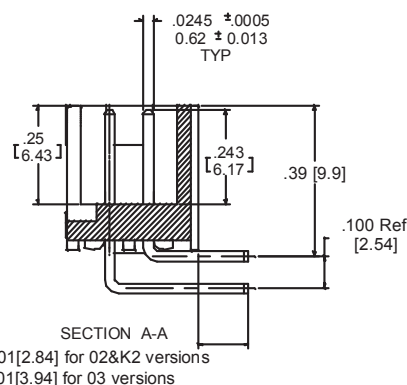
## .100" x .100" Low Profile, Straight Through-Hole

## 2500 Series



### Recommended Mounting Hole Pattern

Table 1					
Pin Qty	Dimensions				Polarizing Notches
	A		B		
10	.788	(20.02)	.708	(17.98)	BC
14	.988	(25.10)	.908	(22.06)	BCDE
16	1.088	(27.64)	1.008	(25.60)	ABCDE
20	1.288	(32.72)	1.208	(30.68)	ABCDE
24	1.488	(37.80)	1.408	(35.76)	ABCDE
26	1.588	(40.34)	1.508	(38.30)	ABCDE
30	1.788	(45.42)	1.708	(43.38)	ABCDE
34	1.988	(50.50)	1.908	(48.46)	ABCDE
40	2.288	(58.12)	2.208	(56.08)	ABCDE
50	2.788	(70.82)	2.708	(68.78)	ABCDE
60	3.288	(83.52)	3.208	(81.48)	ABCDE
64	3.488	(88.60)	3.408	(86.56)	ABCDE



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

[ ] Dimensions for Reference only



Notes:

1. Notches A & C will accommodate 3M Polarizing Keys (3M Part #3518 or N3518).
2. Contacts tails .0245 [0.622] wire with .0075 [0.191] corner radii & .028 [.071] diagonal.
3. See page 4 for kink tail positions.

## Ordering Information

Prefix:

Blank = Std. Temp. Gray (PBT)(UB or UG Pltg. Req'd)  
N = High Temp. Beige (PCT)(UB or UG Pltg. Req'd)  
N = High Temp. Black (PCT)(RB Pltg. Req'd)

**X25XX-50XX-XX**

Pin Quantity:  
(See Table 1)

### Solder Tail

02 = for .062 [1.57] thick board  
03 = for .094 to .125 [2.39 to 3.18] thick board  
K2 = for .062 [1.57] thick board

Plating:

UB = 15μ" [0.38μm] Gold with 200μ" [5.08μm] 60:40  
 Tin-Lead Solder Tails (RIA E3 & C2 apply)  
 UB = 30μ" [0.76μm] Gold with 200μ" [5.05μm] 60:40  
 Tin-Lead Solder Tails (RIA E3 & C2 apply)  
 RB = 30μ" [0.76μm] Gold with 200μ" [5.08μm]  
 Matte Tin Solder Tails (RIA E1 & C1 apply)

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Sheet 3 of 5

**3M**

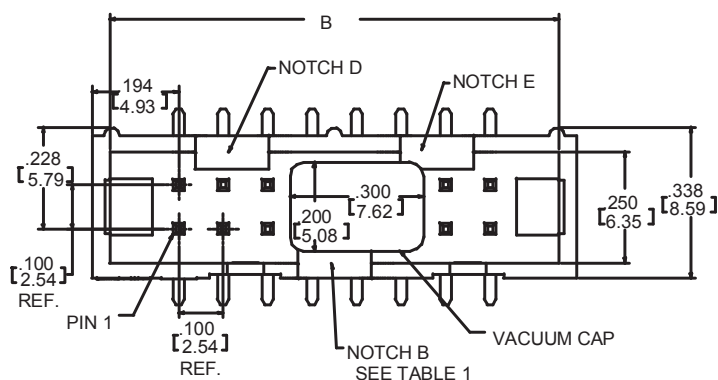
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## .100" x .100" Low Profile, Straight Through-Hole

## 2500 Series



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

[ ] Dimensions for Reference only

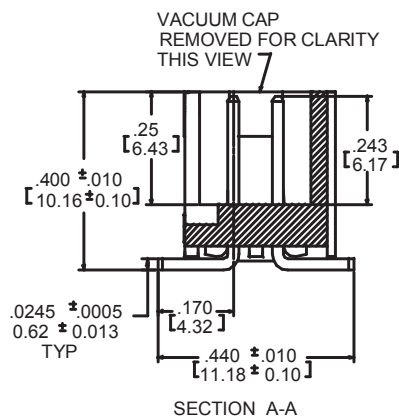
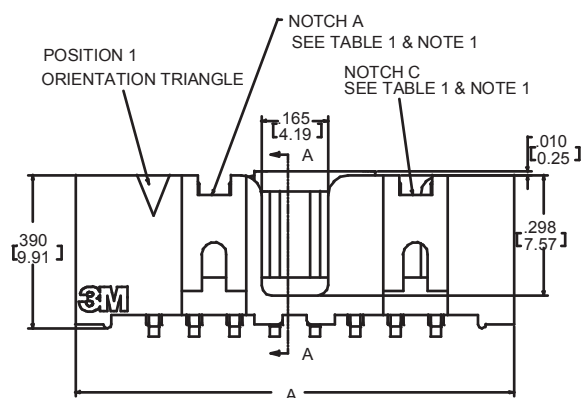
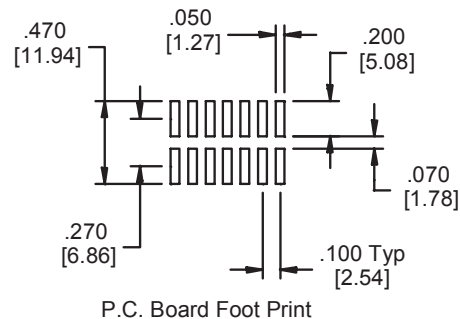


Table 1

Pin Qty	Dimensions		Polarizing Notches	Tape and Reel Pkg Code
	A	B		
10	.788 (20.02)	.708 (17.98)	BC	WD (44 mm)
14	.988 (25.10)	.908 (22.06)	BCDE	WD (44 mm)
16	1.088 (27.64)	1.008 (25.60)	ABCDE	WE (56 mm)
20	1.288 (32.72)	1.208 (30.68)	ABCDE	WE (56 mm)
24	1.488 (37.80)	1.408 (35.76)	ABCDE	WE (56 mm)
26	1.588 (40.34)	1.508 (38.30)	ABCDE	WF (72 mm)
30	1.788 (45.42)	1.708 (43.38)	ABCDE	WF (72 mm)
34	1.988 (50.50)	1.908 (48.46)	ABCDE	WF (72 mm)
40	2.288 (58.12)	2.208 (56.08)	ABCDE	WG(88 mm)
50	2.788 (70.82)	2.708 (68.78)	ABCDE	WG (88 mm)
60	3.288 (83.52)	3.208 (81.48)	ABCDE	WH (120 mm)
64	3.488 (88.60)	3.408 (86.56)	ABCDE	WH (120 mm)

Notes:

1. Notches A & C will accommodate 3M Polarizing Key N3518.
2. Vacuum cap will be centered on connectors with odd # of pins/row. It will be offset away from pin 1 on connectors having an even # of pins per row (shown).
3. Coplanarity .004 for less than 30 position. .006 for 30 and above.



## Ordering Information

Prefix: \_\_\_\_\_  
N = High Temp Black (PCT) (RB Plating Req'd)

Pin Quantity:  
(See Table)

**X25XX-6V0C-XX -XX**

—Packaging Options:  
WX = tape & reel packaging (see table 1)

Plating:  
RB = 30μ" [0.76μm] Gold with 200μ" [5.08μm] Matte  
Tin Solder Tails (RIA E1 & C1 apply)

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Sheet 4 of 5

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# 3M™ Four-Wall Header

.100" x .100" Low Profile, Straight Through-Hole

2500 Series

2500 & 3000 Series Shrouded Header					
Total Number of Pins	Number of Tails Kinked	Positions Kinked			
10	4	3	4	7	8
14	4	3	4	11	12
16	4	3	4	13	14
20	4	3	4	17	18
24	4	3	4	21	22
26	4	3	4	23	24
30	4	5	6	25	26
34	4	7	8	27	28
36	4	7	8	27	28
40	4	7	8	33	34
50	4	7	8	43	44
60	4	11	12	49	50
64	4	11	12	53	54

Kinked Tail Detail:  
Kink is located .05" below bottom surface of plastic.  
External radius of kink toward part centerline.

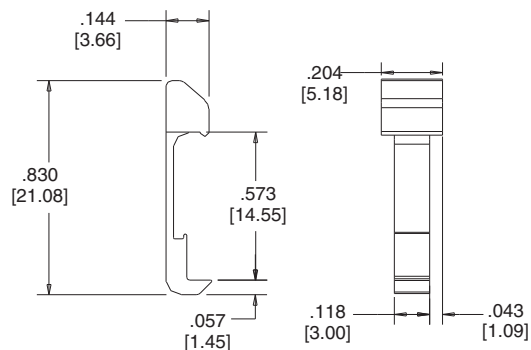
Connector Pin Qty	Dimension A
10	.81 (20.6)
14	1.02 (25.9)
16	1.12 (28.4)
20	1.32 (33.5)
24	1.52 (38.7)
26	1.63 (41.4)
30	1.83 (46.4)
34	2.03 (51.6)
40	2.33 (59.2)
50	2.83 (71.9)
60	3.33 (84.6)
64	3.53 (89.7)

**3505-8XXX**

Connector Pin Count:  
(See Table)

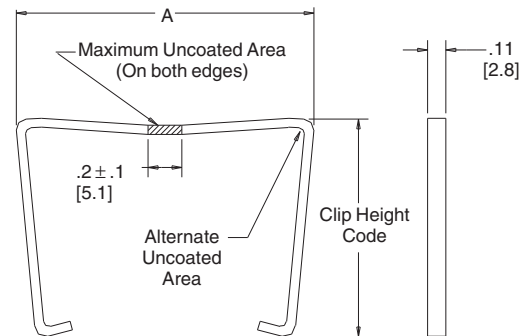
Clip Height Code  
0 = .31 [ 7.9 ] for Sockets W/O Strain Relief  
1 = .53 [ 13.5 ] for Sockets with Strain Relief

Part Number	Material	Color
3505-33B	Nylon	Black
3505-33	Nylon	Gray



Long Snap In Latch

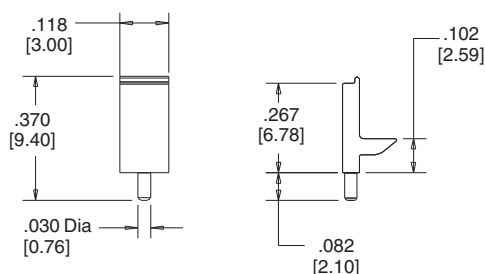
Note: Latches not compatible with reflow soldering. For reflow soldering, attach latches after soldering.



Short/Long Socket Retainer Clip

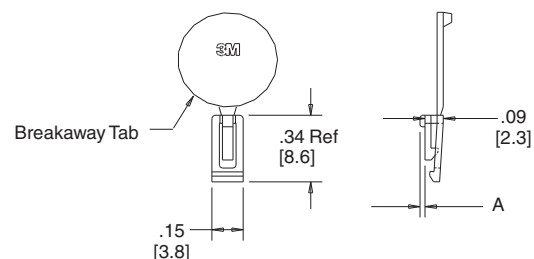
Note: Stainless steel with gray polyurethane coating.

Part Number	Material	Color
3201-3	PCT	Black
3201-1	PBT	Gray



Polarizing Post

Part Number	Material	Color	Dim A
N3518	LCP	Black	0.02
3518	PBT	Gray	0.02



Note: 3M™ Scotch-Weld™ Epoxy Adhesive 2216 B/A

Polarizing Keys

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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.

**This product contains decaBDE in the insulating material in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/717/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 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; 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; 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; 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)	×	○	○	○	○	○
○: 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.)						

### Important Notice

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