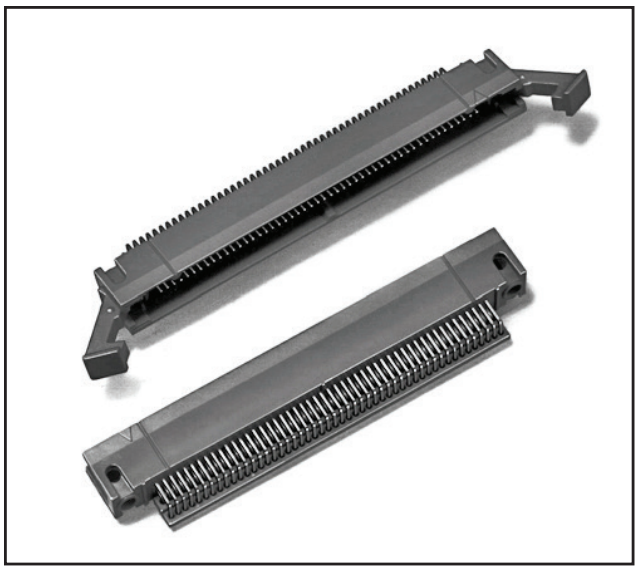
3M™ 4-Wall, Tripolarized Header

.050" × .100" Latch/Ejector, PTH & SMT Straight, PTH Right Angle 810 Series



- Tripolarized for robust alignment when mating to 820 series socket
- 50 mil × 100 mil halves the connector length vs. traditional 100 mil x 100 mil products
- Latching Ejector for rugged high performance applications
- Available for through hole or surfacemount attachment
- High temperature plastic for lead free surfacemount or Paste-in-Hole soldering methods
- Four-wall shroud provides contact protection
- Contacts: 20, 26, 36, 40, 50, 60, 68, 80 and 100
- See the Regulatory Information Appendix (RIA) in the "RoHS compliance" section of www.3Mconnectors.com for compliance information

Date Modified: April 2, 2013

Physical

Insulation:	
Material:	High Temperature Plastic (LCP)
Flammability:	UL 94V-0
Color:	Black
Contact:	
Material:	Copper Alloy
Plating:	
Underplating:	100 µ" [2.54 mm] Nickel
Wiping Area:	30 µ" [0.76 mm] Gold
Solder Tails:	Matte Tin or Tin Lead (See Ordering Information)
Marking:	3M Logo, Part Number and Orientation Triangle
Mating Compatibility:	820 Series (TS-0254)

Electrical

Current Rating:	3.00 A, 1 Contact Powered 2.00 A, 4 Contacts Powered 0.75 A, All Contacts powered Rating Conditions: EIA-364-070 Method 2, 30 degrees C maximum temperature rise, 20% derated. Reference appropriate 3M Product Specification for detailed current derating curves.
Insulation Resistance:	$> 1 \times 10^9\ \Omega$ at 500 V_{DC}
Withstanding Voltage:	500 V_{RMS} at Sea Level

Environmental

Temperature Rating:	-55°C to +105°C
Process Rating:	Maximum 260°C (Profile per J-STD-020C)
Moisture Sensitivity Level:	1 (per J-STD-020C)

UL File No.: E68080

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3M™ 4-Wall, Tripolarized Header

.050" × .100" Latch/Ejector, PTH & SMT Straight, PTH Right Angle — 810 Series

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

[ ] Dimensions for Reference Only

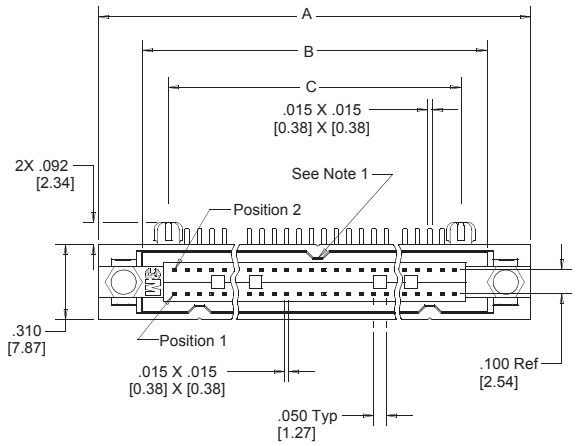
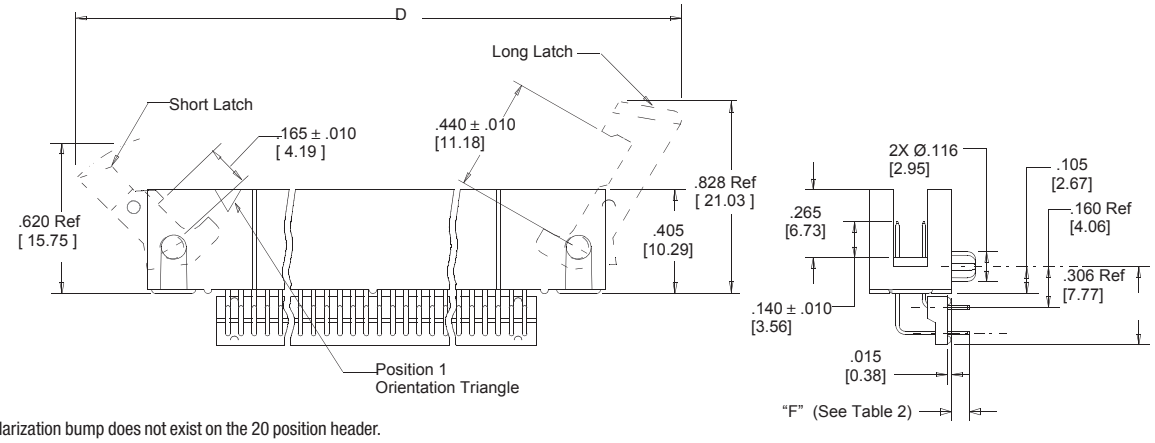


Table 1					
Contact Quantity	Dimensions				
	A	B	C	D Short (Ref.)	D Long (Ref.)
020	1.060 [26.92]	0.722 [18.34]	0.500 [12.70]	1.671 [42.44]	1.842 [46.79]
026	1.210 [30.73]	0.872 [22.15]	0.650 [16.51]	1.821 [46.25]	1.992 [50.60]
036	1.460 [37.08]	1.122 [28.50]	0.900 [22.86]	2.071 [52.60]	2.242 [56.95]
040	1.560 [39.62]	1.222 [31.04]	1.000 [25.40]	2.171 [55.14]	2.342 [59.49]
050	1.810 [45.97]	1.472 [37.39]	1.250 [31.75]	2.421 [61.49]	2.592 [65.84]
060	2.060 [52.32]	1.722 [43.74]	1.500 [38.10]	2.671 [67.84]	2.842 [72.19]
068	2.260 [57.40]	1.922 [48.82]	1.700 [43.18]	2.871 [72.92]	3.042 [77.27]
080	2.560 [65.02]	2.222 [56.44]	2.000 [50.80]	3.171 [80.54]	3.342 [84.89]
100	3.060 [77.72]	2.722 [69.14]	2.500 [63.50]	3.671 [93.24]	3.842 [97.59]

Table 2	
PCB Thickness	"F" Solder Tail Length ± .010
.062 [1.57]	.090 [2.29]
.094 [2.39]	.112 [2.84]
.125 [3.18]	.143 [3.63]



Notes:
1. This polarization bump does not exist on the 20 position header.
2. Recommended to be mated to the .050" X .100" Wiremount Socket 820 Series.

Ordering Information

PTH Right Angle Header

81XXX - 5X0X03 - XX

- **81XXX** — Contact Quantity (See Table 1)
- **5X0X03** — Ejector/Latch System:
  - 0 = None (Special Order)
  - 5 = With Short Ejectors Installed (Special Order)
  - 6 = With Long Ejector Latches Installed (Standard)
- **5X0X03** — Contact Tail:
  - 2 = Solder Tail for .062 [1.57] PC Board (Standard)
  - 3 = Solder Tail for .094 [2.39] PC Board (Special Order)
  - 4 = Solder Tail for .125 [.318] PC Board (Special Order)
- **XX** — Plating suffix:
  - blank = 125 µ" tin lead tails (RIA E3 & C2 apply)
  - RB = 250 µ" matte tin tails (RIA E1 & C1 apply)

Ejector Latches

(If Ordered Separately)

Long Latches
3505-28B (black)

Short Latches
3505-29B (black)

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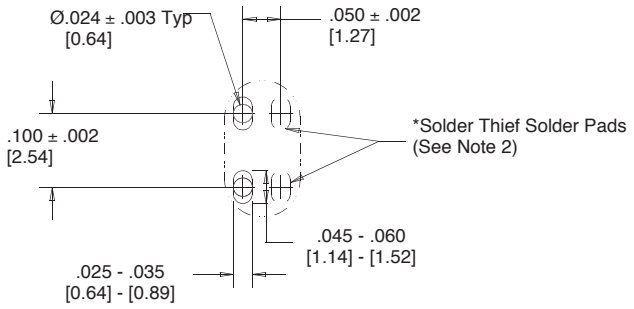
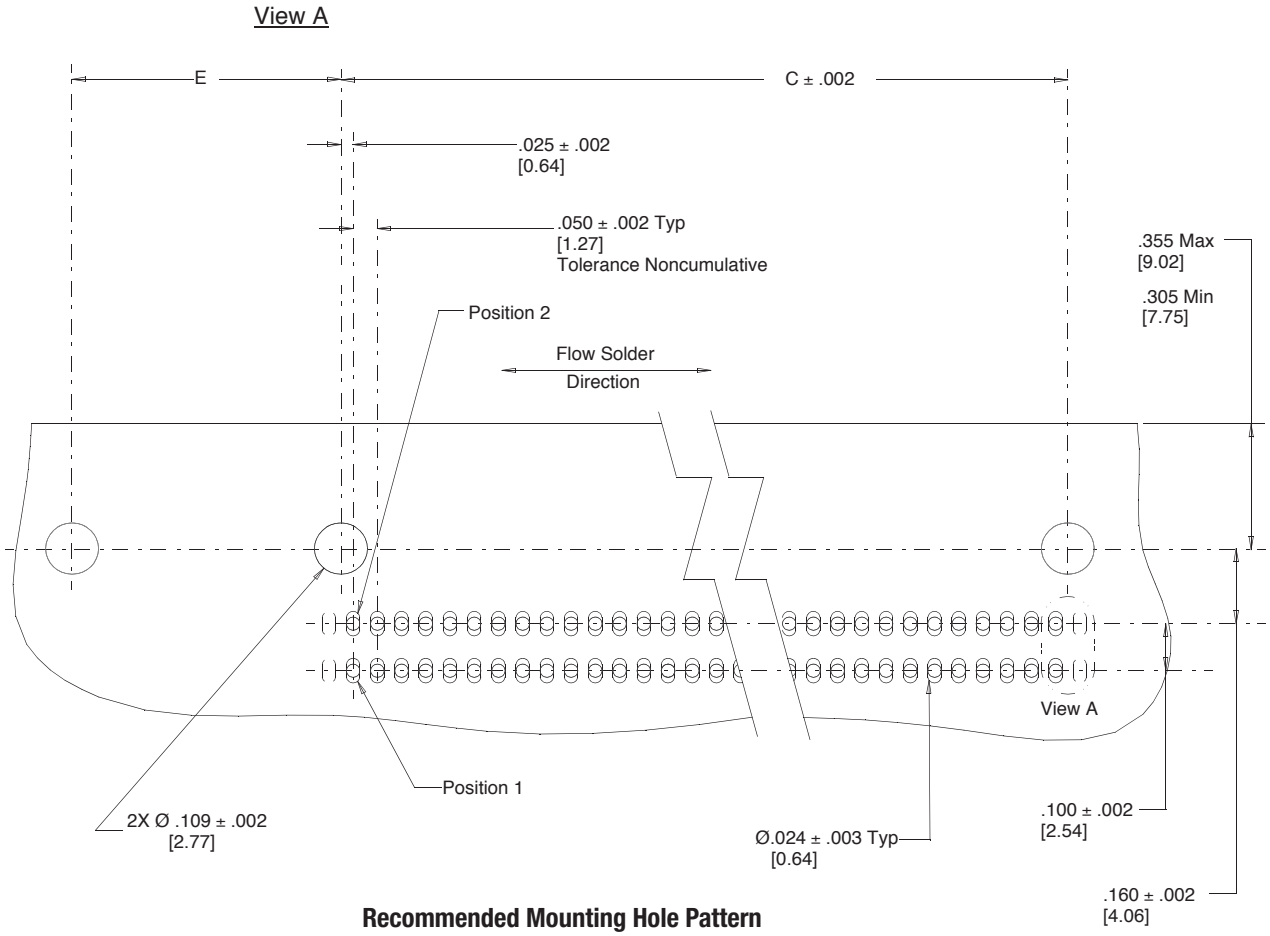


Table 3	
Ejector Latches	**Dimension E Min**
None	.575 [14.61]
Long	1.010 [25.65]
Short	.885 [22.48]

*Solder Thief Solder Pads required only on Solder side of PC Board.



Recommended Mounting Hole Pattern
PTH Right Angle Header
(shown for mounting side of PC Baord)

Notes:

1. Recommended to process PC Boards through the solder bath such that the connector enters end first (two solder tails at a time). This will help prevent solder bridging.
2. A Dummy or Solder Thief Solder Pad at the end of each row is recommended on the bottom or solder side of the PC Board in order to help prevent solder bridging on the end solder tails. The solder thiefs are only required on the end of the rows which leave the solder bath last.
3. In order to facilitate soldering it is recommended that ejector latches be installed after the soldering process.

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3M™ 4-Wall, Tripolarized Header

.050" × .100" Latch/Ejector, PTH & SMT Straight, PTH Right Angle 810 Series

Table 4					
Contact Quantity	Dimensions				
	A	B	C Short (Ref.)	C Long (Ref.)	D
020	1.060 [26.92]	0.722 [18.34]	1.671 [42.44]	1.842 [46.79]	0.860 [21.84]
026	1.210 [30.73]	0.872 [22.15]	1.821 [46.25]	1.992 [50.60]	1.010 [25.65]
036	1.460 [37.08]	1.122 [28.50]	2.071 [2.60]	2.242 [56.95]	1.260 [32.00]
040	1.560 [39.62]	1.222 [31.04]	2.171 [55.14]	2.342 [59.49]	1.360 [34.54]
050	1.810 [45.97]	1.472 [37.39]	2.421 [61.49]	2.592 [65.84]	1.610 [40.89]
060	2.060 [52.32]	1.722 [43.74]	2.671 [67.84]	2.842 [72.19]	1.860 [47.24]
068	2.260 [57.40]	1.922 [48.82]	2.871 [72.92]	3.042 [77.27]	2.060 [52.32]
080	2.560 [65.02]	2.222 [56.44]	3.171 [80.54]	3.342 [84.89]	2.360 [59.94]
100	3.060 [77.72]	2.722 [69.14]	3.671 [93.24]	3.842 [97.59]	2.860 [72.64]

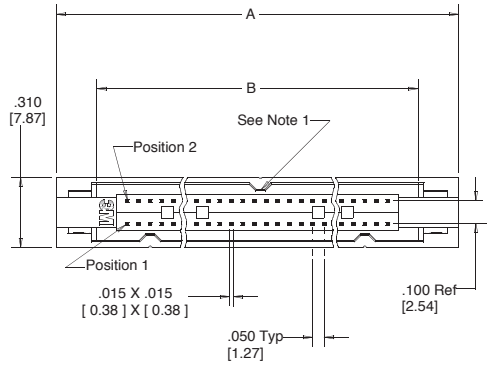
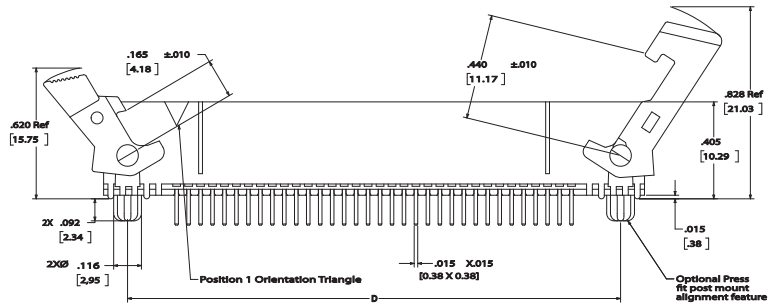
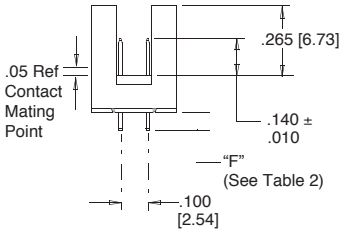


Table 5	
PCB Thickness	"F" Solder Tail Length ± .010
.062 [1.57]	.092 [2.34]
.094 [2.39]	.110 [2.79]





Notes:

1. This polarization bump does not exist on the 20 position header.
2. Recommended to be mated to the .050" x .100" 820 Series Socket.

Ordering Information

PTH Straight Header

81XXX - 6X0X0X - XX

Ejector Latches
(If Ordered Separately)

Long Latches
3505-28B (black)

Short Latches
3505-29B (black)

Contact Quantity
(See Table 4)

Ejector/Latch System:
0 = None (Special Order)
5 = With Short Ejectors Installed (Special Order)
6 = With Long Ejector Latches Installed (Standard)

Contact Tail:
2 = Solder Tail for .062 [1.57] PC Board (Standard)
3 = Solder Tail for .094 [2.39] PC Board (Special Order)
4 = Solder Tail for .125 [.318] PC Board (Special Order)

Board Mounting Options:
1 = None (Special Order)
3 = Press fit posts both ends (Standard)

Plating suffix:
blank = 125 µ" tin lead tails (RIA E3 & C2 apply)
RB = 250 µ" matte tin tails (RIA E1 & C1 apply)

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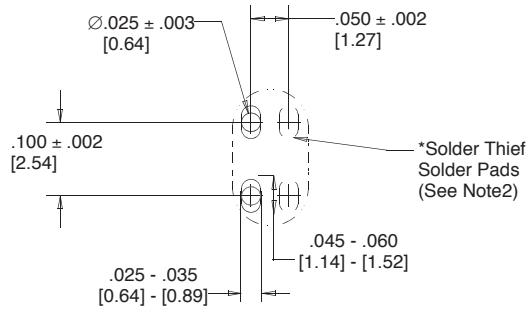
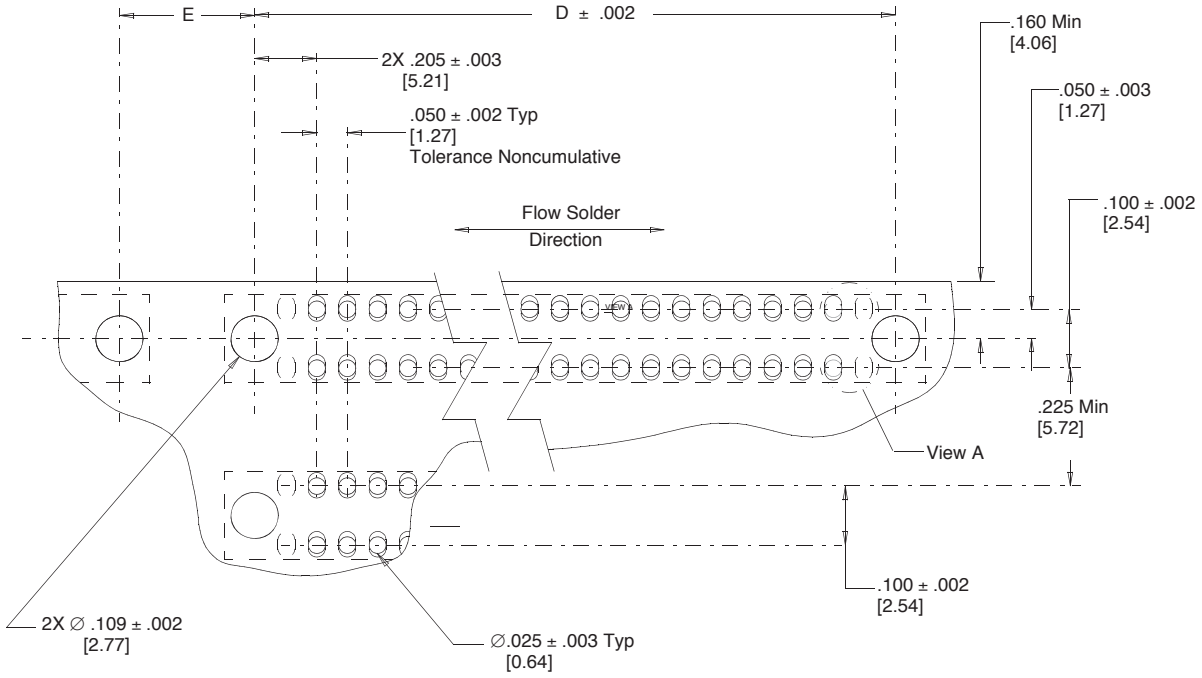


*Solder Thief Solder Pads required only on Solder side of PC Board.

View A

Table 6	
Ejector/Latches	**Dimension E (Min)**
None	.215 [5.46]
Long	.650 [16.51]
Short	.525 [13.34]



Recommended Mounting Hole Pattern
PTH Vertical Header
(shown for mounting side of PC Board)

Inch
[Imm]

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

[ ] Dimensions for Reference Only

Note:

1. Recommended to process PC Boards through the solder bath such that the connector enters end first (two solder tails at a time). This will help prevent solder bridging.
2. A Solder Thief Solder Pad (Dummy Pad) at the end of each row is recommended on the bottom or solder side of the PC Board in order to help prevent solder bridging on the end solder tails. The Solder Thiefs are only required on the end of the rows which leave the solder bath last.

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3M™ 4-Wall, Tripolarized Header

.050" × .100" Latch/Ejector, PTH & SMT Straight, PTH Right Angle — 810 Series

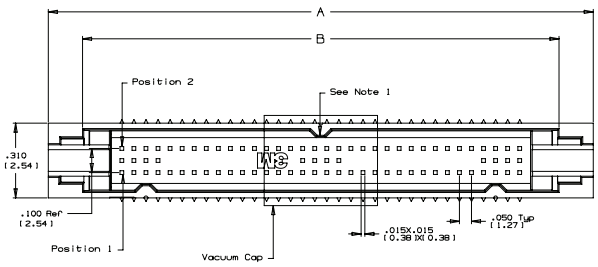
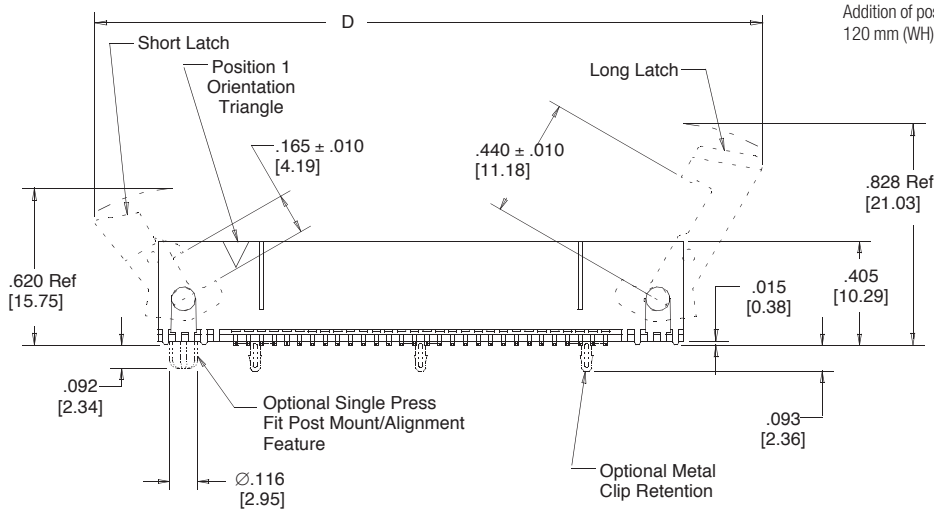
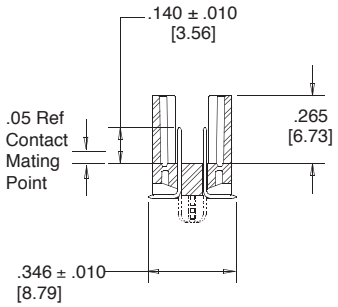


Table 7					
Contact Quantity	Dimensions				
	A	B	D Short (Ref.)	D Long (Ref.)	Tape & Reel Suffix
020	1.060 [26.92]	0.722 [18.34]	1.671 [42.44]	1.842 [46.79]	WF
026	1.210 [30.73]	0.872 [22.15]	1.821 [46.25]	1.992 [50.60]	WF
036	1.460 [37.08]	1.122 [28.50]	2.071 [2.60]	2.242 [56.95]	WG
040	1.560 [39.62]	1.222 [31.04]	2.171 [55.14]	2.342 [59.49]	WG
050	1.810 [45.97]	1.472 [37.39]	2.421 [61.49]	2.592 [65.84]	WG
060	2.060 [52.32]	1.722 [43.74]	2.671 [67.84]	2.842 [72.19]	WG
068	2.260 [57.40]	1.922 [48.82]	2.871 [72.92]	3.042 [77.27]	WH
080	2.560 [65.02]	2.222 [56.44]	3.171 [80.54]	3.342 [84.89]	WH
100	3.060 [77.72]	2.722 [69.14]	3.671 [93.24]	3.842 [97.59]	WH

Notes: Latches supplied in the "open" position unless specified otherwise
Suffix determined with no posts or clips.
Addition of posts or clips may increase suffix.
120 mm (WH) is the maximum width of pocket tape.





Inch
[Imm]

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

[ ] Dimensions for Reference Only

Notes:
1. This polarization bump does not exist on the 20 position header.
2. Recommended to be mated to the .050" X .100" 820 Series Wiremount Socket.

Ordering Information

SMT Straight Header

81XXX - 6X0C0X - XX - XX

Contact Quantity
(See Table 7)

Ejector/Latch System:
0 = None (Special Order)
5 = With Short Ejectors Installed (Special Order)
6 = With Long Ejector Latches Installed (Standard)

Board Mounting Options:
1 = None
4 = Press Fit Post Mount at Position 1 end
7 = Metal retention clips
8 = #1 end press fit post & metal retention clips (Special Order)

Plating suffix:
blank = 125 µ" tin lead tails (RIA E3 & C2 apply)
RB = 250 µ" matte tin tails (RIA E1 & C1 apply)

Packaging Options:
Blank = Trays
WX = Tape & Reel Package (see table)

Ejector Latches

(If Ordered Separately)

Long Latches
3505-28B (black)

Short Latches
3505-29B (black)

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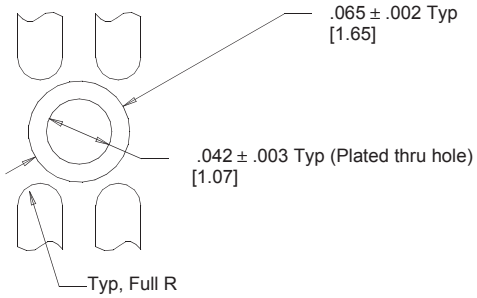
.050" × .100" Latch/Ejector, PTH & SMT Straight, PTH Right Angle 810 Series

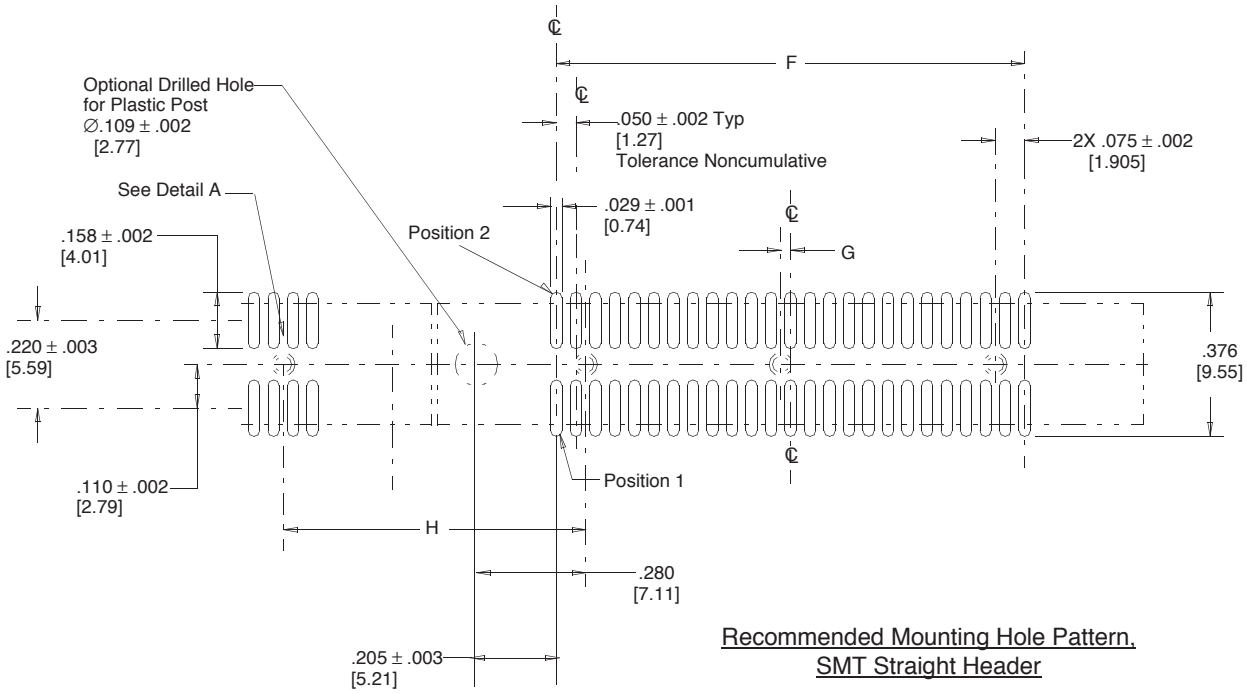


Detail A

Optional plated thru hole
for metal clip retention

Ejector Latches	Dimensions
	H Min
None	.775 [19.69]
Long	1.085 [27.56]
Short	1.21 [30.73]

No. of Positions	Dimensions	
	F	G
20	.450 [11.43]	N/A
26	.600 [15.24]	.025 [0.64]
36	.850 [21.59]	N/A
40	.950 [24.13]	N/A
50	1.200 [30.48]	.025 [.64]
60	1.450 [36.83]	0.000
68	1.650 [41.91]	0.000
80	1.950 [49.53]	0.000
100	2.450 [62.23]	0.000



Recommended Mounting Hole Pattern,
SMT Straight Header

(Shown for mounting side of PC Board)

TS-0253-K
Sheet 7 of 7

Important Notice

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