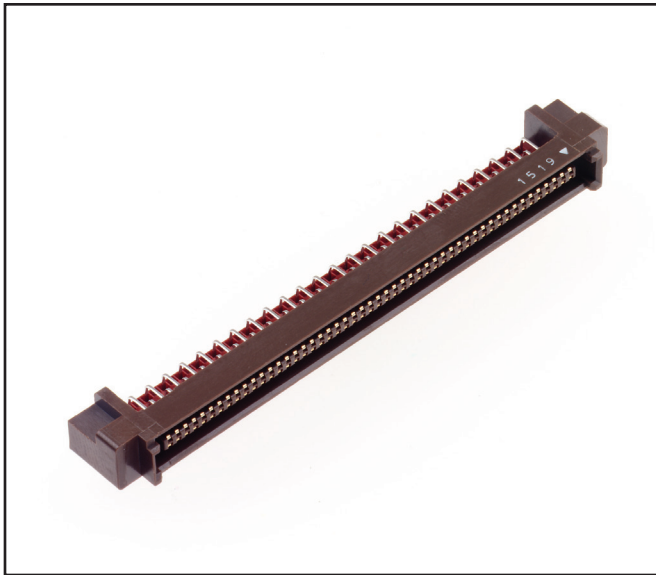


# 3M™ Pak 50 Plug

.050" Low Profile, Right Angle, Stacking Plug

P50L Series



- Low profile 0.276" (7 mm) from PCB surface
- High temperature insulator compatible with IR and wave soldering
- Glass filled 46 Nylon alignment plate offers high temperature resistance
- Optional plug standoffs allow offset of mated board by 1.0 - 4.0 mm
- Retention clips stabilize connector to the board during wave soldering
- RoHS Compliant. See the Regulatory Information Appendix (RIA) in the "RoHS Compliance" section of [www.3Mconnector.com](http://www.3Mconnector.com) for compliance information (RIA E1 and C1 apply)

Date Modified: December 14, 2010

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Sheet 1 of 4

## Physical

### Insulator:

Material: Glass Filled PPS

Flammability: UL 94V-0

Color: Brown

Alignment Plate: Glass filled Nylon (Black)

Contact Material: Phosphor Bronze

### Plating:

Underplating: Nickel

Wiping Area: Gold Flash

Solder Tails: Gold Flash

Retaining Clips: Tin-Copper

Mating Compatibility: TS-1146, TS-2054

## Electrical

**Current Rating:** 0.5 A

**Insulation Resistance:**  $> 1 \times 10^9 \Omega$  at 500 V<sub>DC</sub>

**Withstanding Voltage:** 650 V<sub>AC</sub> for 1 minute

## Environmental

**Temperature Rating:** -55°C to +85°C

**Process Rating:** 260°C MSL1 (per J-STD-020C)

UL File No.: E68080



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**800-225-5373**

# 3M™ Pak 50 Plug

.050" Low Profile, Right Angle, Stacking Plug

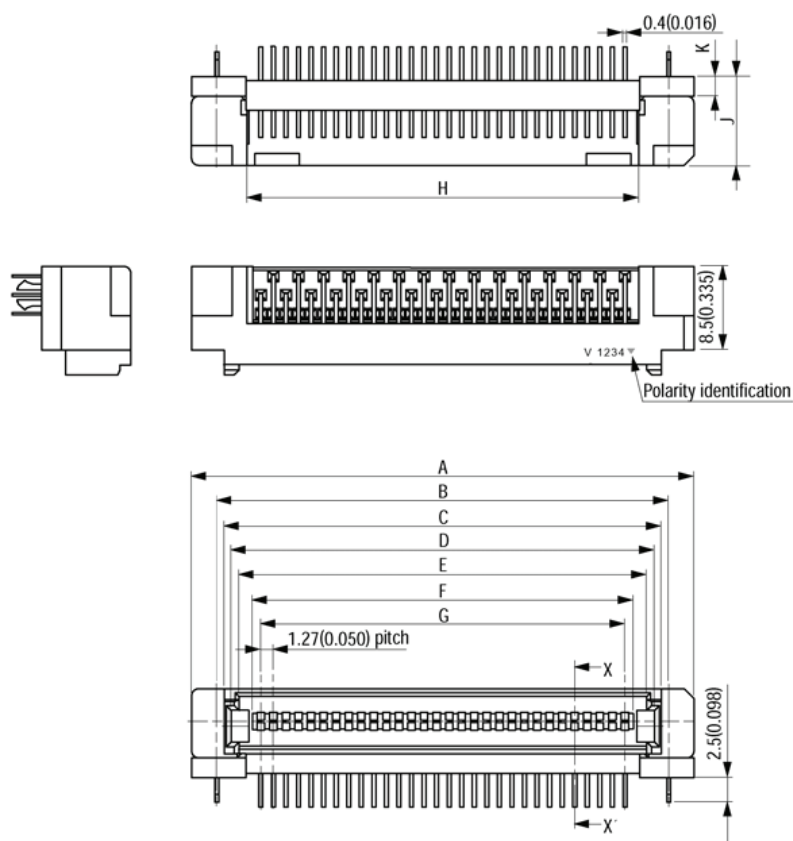
P50L Series

**Product Table / Dimensions**

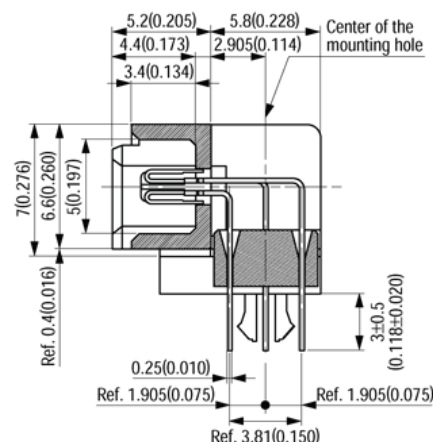
| Contact Quantity | A                | B                | C                | D                | E                | F                | G                | H                |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 20               | 25.43<br>[1.001] | 20.32<br>[0.800] | 18.83<br>[0.741] | 17.43<br>[0.686] | 15.83<br>[0.623] | 13.13<br>[0.517] | 11.43<br>[0.450] | 14.23<br>[0.560] |
| 30               | 31.78<br>[1.251] | 26.67<br>[1.050] | 25.18<br>[0.991] | 23.78<br>[0.936] | 22.18<br>[0.873] | 19.48<br>[0.767] | 17.78<br>[0.700] | 20.58<br>[0.810] |
| 40               | 38.13<br>[1.501] | 33.02<br>[1.300] | 31.53<br>[1.241] | 30.13<br>[1.186] | 28.53<br>[1.123] | 25.83<br>[1.017] | 24.13<br>[0.950] | 26.93<br>[1.060] |
| 50               | 44.48<br>[1.751] | 39.37<br>[1.550] | 37.88<br>[1.491] | 36.48<br>[1.436] | 34.88<br>[1.373] | 32.18<br>[1.267] | 30.48<br>[1.200] | 33.28<br>[1.310] |
| 60               | 50.83<br>[2.001] | 45.72<br>[1.800] | 44.23<br>[1.741] | 42.83<br>[1.686] | 41.23<br>[1.623] | 38.53<br>[1.517] | 36.83<br>[1.450] | 39.63<br>[1.560] |
| 80               | 63.53<br>[2.501] | 58.42<br>[2.300] | 56.93<br>[2.241] | 55.53<br>[2.186] | 53.93<br>[2.123] | 51.23<br>[2.017] | 49.53<br>[1.950] | 52.33<br>[2.060] |
| 100              | 76.23<br>[3.001] | 71.12<br>[2.800] | 69.63<br>[2.741] | 68.23<br>[2.686] | 66.63<br>[2.623] | 63.93<br>[2.517] | 62.23<br>[2.450] | 65.03<br>[2.560] |

**Connector Height**

| Height Code | J               | K              |
|-------------|-----------------|----------------|
| RR2         | 8.0<br>[0.315]  | 1.0<br>[0.039] |
| RR3         | 8.5<br>[0.335]  | 1.5<br>[0.059] |
| RR4         | 9.0<br>[0.354]  | 2.0<br>[0.079] |
| RR5         | 9.5<br>[0.374]  | 2.5<br>[0.098] |
| RR6         | 10.0<br>[0.394] | 3.0<br>[0.118] |
| RR7         | 11.0<br>[0.433] | 4.0<br>[0.157] |



**X-X' Cross Section**



## Ordering Information

**P50L - XXXP - XXX - DA** (RIA E1 and C1 apply)

Contact Quantity:  
See Table

Standoff Height  
RR2 = 1.0 mm [0.039"]  
RR3 = 1.5 mm [0.059"]  
RR4 = 2.0 mm [0.079"]  
RR5 = 2.5 mm [0.098"]  
RR6 = 3.0 mm [0.118"]  
RR7 = 4.0 mm [0.157"]

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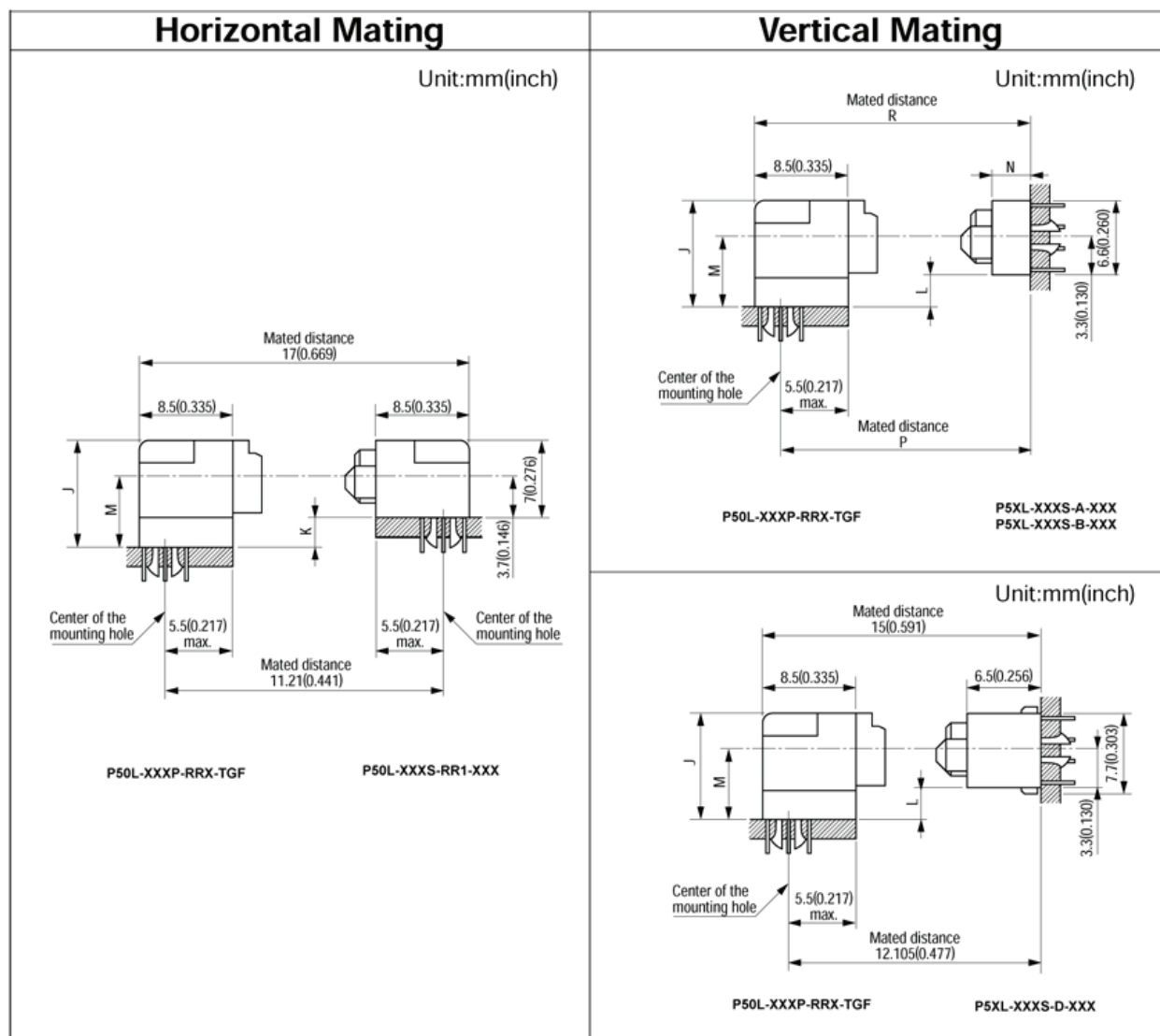


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### .050" Low Profile, Right Angle, Stacking Plug

## P50L Series



| Part Number                        |   | P50L-XXXP-RR2-TGF | P50L-XXXP-RR3-TGF | P50L-XXXP-RR4-TGF | P50L-XXXP-RR5-TGF | P50L-XXXP-RR6-TGF | P50L-XXXP-RR7-TGF |
|------------------------------------|---|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| P50L-XXXS-RR1-XXX                  | J | 8.0 [0.315]       | 8.5 [0.335]       | 9.0 [0.354]       | 9.5 [0.374]       | 10.0 [0.394]      | 11.0 [0.433]      |
|                                    | K | 1.0 [0.039]       | 1.5 [0.059]       | 2.0 [0.079]       | 2.5 [0.098]       | 3.0 [0.118]       | 4.0 [0.157]       |
|                                    | M | 4.7 [0.185]       | 5.2 [0.205]       | 5.7 [0.224]       | 6.2 [0.244]       | 6.7 [0.264]       | 7.7 [0.303]       |
| P50L-XXXS-A-XXX<br>P51L-XXXS-A-XXX | J | 8.0 [0.315]       | 8.5 [0.335]       | 9.0 [0.354]       | 9.5 [0.374]       | 10.0 [0.394]      | 11.0 [0.433]      |
|                                    | L | 1.4 [0.055]       | 1.9 [0.075]       | 2.4 [0.094]       | 2.9 [0.114]       | 3.4 [0.134]       | 4.4 [0.173]       |
|                                    | M | 4.7 [0.185]       | 5.2 [0.205]       | 5.7 [0.224]       | 6.2 [0.244]       | 6.7 [0.264]       | 7.7 [0.303]       |
|                                    | N | 3.5 [0.138]       | 3.5 [0.138]       | 3.5 [0.138]       | 3.5 [0.138]       | 3.5 [0.138]       | 3.5 [0.138]       |
|                                    | P | 9.105 [0.358]     | 9.105 [0.358]     | 9.105 [0.358]     | 9.105 [0.358]     | 9.105 [0.358]     | 9.105 [0.358]     |
|                                    | R | 12.0 [0.472]      | 12.0 [0.472]      | 12.0 [0.472]      | 12.0 [0.472]      | 12.0 [0.472]      | 12.0 [0.472]      |
| P50L-XXXS-B-XXX<br>P51L-XXXS-B-XXX | J | 8.0 [0.315]       | 8.5 [0.335]       | 9.0 [0.354]       | 9.5 [0.374]       | 10.0 [0.394]      | 11.0 [0.433]      |
|                                    | L | 1.4 [0.055]       | 1.9 [0.075]       | 2.4 [0.094]       | 2.9 [0.114]       | 3.4 [0.134]       | 4.4 [0.173]       |
|                                    | M | 4.7 [0.185]       | 5.2 [0.205]       | 5.7 [0.224]       | 6.2 [0.244]       | 6.7 [0.264]       | 7.7 [0.303]       |
|                                    | N | 4.5 [0.177]       | 4.5 [0.177]       | 4.5 [0.177]       | 4.5 [0.177]       | 4.5 [0.177]       | 4.5 [0.177]       |
|                                    | P | 10.105 [0.398]    | 10.105 [0.398]    | 10.105 [0.398]    | 10.105 [0.398]    | 10.105 [0.398]    | 10.105 [0.398]    |
|                                    | R | 13.0 [0.512]      | 13.0 [0.512]      | 13.0 [0.512]      | 13.0 [0.512]      | 13.0 [0.512]      | 13.0 [0.512]      |
| P50L-XXXS-D-XXX<br>P51L-XXXS-D-XXX | J | 8.0 [0.315]       | 8.5 [0.335]       | 9.0 [0.354]       | 9.5 [0.374]       | 10.0 [0.394]      | 11.0 [0.433]      |
|                                    | L | 1.4 [0.055]       | 1.9 [0.075]       | 2.4 [0.094]       | 2.9 [0.114]       | 3.4 [0.134]       | 4.4 [0.173]       |
|                                    | M | 4.7 [0.185]       | 5.2 [0.205]       | 5.7 [0.224]       | 6.2 [0.244]       | 6.7 [0.264]       | 7.7 [0.303]       |

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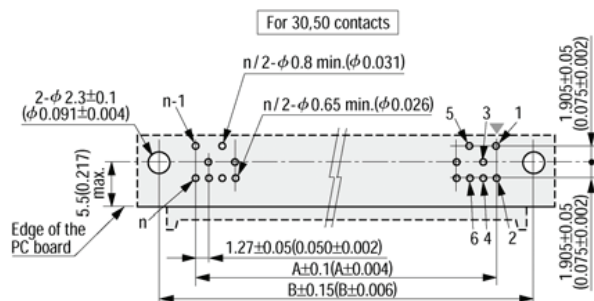
# 3M™ Pak 50 Plug

.050" Low Profile, Right Angle, Stacking Plug

P50L Series

## Printed Circuit Board Layout (Component side view)

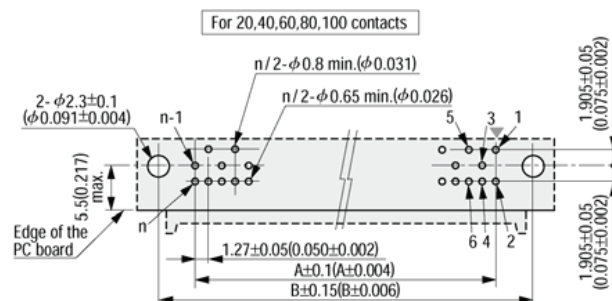
Unit:mm(inch)



▽=Polarity identification

Recommended PCB Thickness  $t=1.6\pm0.19(0.063\pm0.007)$

"n" is number of contacts.



### ■ Dimensions

| No. of contacts | 20              | 30              | 40              | 50              | 60              | 80              | 100             |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| A               | 11.43<br>(0.45) | 17.78<br>(0.70) | 24.13<br>(0.95) | 30.48<br>(1.20) | 36.83<br>(1.45) | 49.53<br>(1.95) | 62.23<br>(2.45) |
| B               | 20.32<br>(0.80) | 26.67<br>(1.05) | 33.02<br>(1.30) | 39.37<br>(1.55) | 45.72<br>(1.80) | 58.42<br>(2.30) | 71.12<br>(2.80) |

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