M50 AND M52 SERIES CONNECTORS

JULY 2021

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1. DESCRIPTION OF CONNECTOR AND INTENDED APPLICATION

A range of 1.27mm pitch connectors, jumper sockets and IDC cable connectors, comprising vertical surface mount, vertical and horizontal throughboard, plugs and sockets of varying heights. Board-to-board spacing and configuration is obtained by the selection of an appropriate height plug and socket.

- M50 connectors are spaced 1.27mm between rows and based on 0.40mm square/round pins.
- M52 connectors are spaced 2.54mm between rows and based on 0.46mm square pins.

2. MARKING OF THE CONNECTOR AND/OR PACKAGE (ORDER CODE)

The marking (order code) shall appear on the package and shall be of the following style:

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Connector Style *</th>
<th>No. of contacts per row (00 for jumper sockets)</th>
<th>Contact Finish</th>
<th>Packing style (optional, can be blank)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5X</td>
<td>XXX</td>
<td>XX</td>
<td>XX</td>
<td>X</td>
</tr>
</tbody>
</table>

The marking (order code) for a Pin Header variant shall appear on the package and shall be of the following style:

<table>
<thead>
<tr>
<th>Product Group</th>
<th>Dimension A</th>
<th>Connector Style *</th>
<th>No. of Ways per row</th>
<th>Contact Finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5X</td>
<td>XXX</td>
<td>XXX</td>
<td>X</td>
<td>XX</td>
</tr>
</tbody>
</table>

* Connector Style: See individual drawings for connector details.
3. RATINGS
For M50 Pin Header variants, please see the relevant specifications for M50-350, 360 and 390. For M52 Pin Header variants, these are specified as “M52-PH”. Note: individual components may exceed above ratings – check individual customer information sheets.

3.1. MATERIAL & FINISH
All materials are listed on individual drawings.

Moulding Material:
- PCB connectors: High Temperature Thermoplastic, UL94V-0 Black
- IDC Cable connectors: 30% Glass Filled PBT, UL94V-0 Black
- Jumper Sockets: 30% Glass Filled PBT, UL94V-0
- Contact Material: Copper alloy

Contact Finish:
- M50-380: Nickel all over, Gold Flash on contact area
- Other connectors: 42 finish code: Nickel all over, Gold Flash on contact area, 100% Tin on tails
- Other connectors: 45 finish code: Gold Flash over Nickel

3.2. ELECTRICAL CHARACTERISTICS
Current Rating (per contact):
- M50-355, M50-365: 1.75A max
- M50-380, M50-90X, M50-91X: 0.5A max
- Others: 1A max

Contact Resistance (initial): 20mΩ max
Contact Resistance (after conditioning): 30mΩ max

Dielectric Withstanding Voltage (Voltage Proof):
- M50-380: 1,000V ACrms for 1 minute
- M50-310/312/430/470/480/490: 300V AC, 500V DC for 1 minute
- M50-311: 1,000V AC for 1 minute (initial), 250V AC for 1 minute (final)
- M50-19X/20X/320: 800V ACrms for 1 minute
- M50-310/312/430/470/480/490: 500V AC, 1,000V DC for 1 minute

Insulation Resistance:
- M50-355/365: 5,000MΩ min
- M50-310/312/430/470/480/490: 500MΩ min
- M50-90X/91X: 5MΩ min
- Others: 1,000MΩ min

3.3. ENVIRONMENTAL CHARACTERISTICS
Operating Temperature Range:
- M50-355/365: -55°C to +125°C
- M50-90X/91X: -20°C to +105°C
- Others: -40°C to +105°C

Vibration:
- M50-19X/20X/300/320/350/360/380/390, All M52: 50-2000Hz, 3.13Grms, duration 45mins
- M50-303/313/314/311/315: 10-55Hz, 10G, duration 2hrs
- Others: Not tested

Shock:
- M50-19X/20X/300/320/350/360/380/390, All M52: 30G for 11ms
- M50-310/315: 50G for 11ms
- M50-310/312/430/470/480/490: Not tested
3.4. MECHANICAL CHARACTERISTICS

Durability:
- M50-310/312/330/380/430/470/480/490/90X/91X ------------------- 100 operations
- M50-311 .............................................................................. 600 operations
- M50-315 .................................................................................. 25 operations
- M50-353/363/393 ................................................................. 500 operations
- Others ................................................................................. 300 operations

Insertion force (maximum):
- M50-19X/20X ..................................................................... 10N
- M50-320/330/380/90X/91X, M52-500/510 ......................... 1N per contact
- M50-310/312/430 ................................................................. 2N per contact
- M50-311 .............................................................................. 0.8N per contact
- M50-300/303/313/314/315, M52-501/505/511/515 ......... 1.5N per contact

Withdrawal force (minimum):
- M50-19X/20X ..................................................................... 1.3N
- M50-310/312/315/330/380/430/90X/91X ......................... 0.15N per contact
- M50-320, M52-500/510 .......................................................... 0.12N per contact
- M50-300, M52-501/505/511/515 ........................................ 0.1N per contact
- M50-303/313/314 .................................................................. 0.2N per contact

Contact Retention force (minimum):
- M50-19X/20X ..................................................................... 4N
- M50-300/320/350/360/390, M52-PH/501/505/511/515 ...... 9.8N per contact
- M50-310/312/430/470/480/490, M52-500/510 .............. 1.5N per contact
- M50-303/311/313/314/315 ...................................................... 3N per contact
- M50-353/363/393 .................................................................. 2N per contact

3.5. SOLDERING DATA

Solderability (PCB connectors):
- M50-311 .............................................................................. 230°C for 3 seconds
- M50-315 .............................................................................. 260°C for 3 seconds
- Others .................................................................................. 245°C for 5 seconds

Soldering heat resistance (PCB connectors) ........................................... 260°C for 10 seconds