# M55 SERIES: 1.27mm PITCH CONNECTORS

**MAY 2020**

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1. DESCRIPTION OF CONNECTOR SYSTEM
A range of 1.27mm (0.05") pitch connectors, male and female shrouded connectors for board-to-board and cable to board connection. All connector part numbers start with the series code M55.

The socket connectors are twin-beam female contacts, and these mate to solid pin male connectors. All board mount connectors are double row and Surface Mount, supplied in tape-and-reel packaging (pick-and-place caps included when applicable). All connector housings include location pegs for additional placement assistance on the PCB, and SMT side tabs for additional peel strength and strain relief when soldered down.

Both male and female connectors are available in Vertical or Horizontal orientations, with 3 height options on the Vertical connectors. The range can therefore be used for parallel board-to-board (mezzanine layouts), right-angle motherboard-to-daughterboard, or co-planar / edge-to-edge layouts. All housings include polarisation within the design.

All IDC female connectors are double row, horizontally mounted to a PVC ribbon cable and packed in individual bags. Connector housings feature a latch for quick and secure mating to the male half.

2. RATINGS

2.1. MATERIALS
All materials are listed on individual drawings.

Contacts .......................................................................................... Phosphor Bronze, Gold finish on contact area, 100% Tin on tails
Housing & Cap .................................................................................... LCP, UL94V-0
SMT Side Tabs .................................................................................... Brass, 100% Tin finish
Latch Cover* ...................................................................................... PA66, UL94V-0
Spring* ............................................................................................ Stainless Steel
Cable* .............................................................................................. PVC, UL2678, 30AWG

*Only present on M55-800 part numbers.

2.2. ELECTRICAL CHARACTERISTICS
M55-600XX42R to M55-710XX42R & M55-800XX42-XXXXA:
Current Rating:
  M55-600XX42R to M55-710XX42R .......................................................... 1.2A max per contact
  M55-800XX42-XXXXA ......................................................................... 0.5A max per contact
Contact Resistance (EIA-364-23B):
  Initial ................................................................................................... 25mΩ max
  After Conditioning ............................................................................. Additional 10mΩ max variation
Dielectric Withstanding Voltage (EIA-364-20C, Method B) ............. 500V AC for 1 minute
Insulation Resistance (EIA-364-21C):
  M55-600XX42R to M55-710XX42R ...................................................... 10GΩ min
  M55-800XX42-XXXXA ........................................................................ 1GΩ min
Voltage Rating .................................................................................... 100V AC
2.3. ENVIRONMENTAL CHARACTERISTICS

M55-600XX42R to M55-710XX42R & M55-800XX42-XXXXA:

Operating Temperature Range:
- M55-600XX42R to M55-710XX42R ........................................... -55°C to +125°C
- M55-800XX42-XXXXA .............................................................. -20°C to +105°C

Vibration (EIA-364-28D, Condition IV) ........................................ 10-2000Hz, 20G (196m/s²) peak, 1.52mm amplitude, duration 4 hours each axis, 12 hours total

Thermal Shock (EIA-364-32C, Condition III):
- M55-600XX42R to M55-710XX42R ........................................... -55°C to +125°C, 10 cycles, 30 mins each extreme
- M55-800XX42-XXXXA .............................................................. -20°C to +105°C, 10 cycles, 30 mins each extreme

Temperature Life (EIA-364-17B, Method A):
- M55-600XX42R to M55-710XX42R ........................................... +125°C, 96 hours
- M55-800XX42-XXXXA .............................................................. +105°C, 96 hours

Humidity (EIA-364-31B, Condition A) ........................................... 96 hours, 90-95% RH at +40°C

Salt Spray (EIA-364-26B) ............................................................... 24 hours at +35°C, concentration 5%

Solderability (EIA-364-52)
- M55-600XX42R to M55-710XX42R ........................................... +245±5°C for 5±0.5 seconds; maximum time of 10 seconds at maximum temperature, 260°C.
- M55-800XX42-XXXXA .............................................................. N/A

2.4. MECHANICAL CHARACTERISTICS

Durability (EIA-364-09C) ............................................................... 500 operations

Mating and Unmating Forces (EIA-364-13C):
- Insertion Force (per contact) ....................................................... 0.8N max
- Withdrawal Force (per contact) ................................................... 0.2N min

Contact Retention Force (EIA-364-29C) ......................................... 3.9N min per contact
APPENDIX 1

Mating Heights / Board-To-Board Heights for Vertical Connectors

<table>
<thead>
<tr>
<th>Female Connector Part number</th>
<th>Male Connector Part Number</th>
<th>Mating Height (Fully Mated)</th>
<th>Mating Height with 1.5mm separation</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55-600XX42R</td>
<td>M55-700XX42R</td>
<td>8.00mm</td>
<td>9.50mm</td>
</tr>
<tr>
<td>M55-600XX42R</td>
<td>M55-701XX42R</td>
<td>9.50mm</td>
<td>11.00mm</td>
</tr>
<tr>
<td>M55-600XX42R</td>
<td>M55-702XX42R</td>
<td>11.10mm</td>
<td>12.60mm</td>
</tr>
<tr>
<td>M55-601XX42R</td>
<td>M55-700XX42R</td>
<td>10.80mm</td>
<td>12.30mm</td>
</tr>
<tr>
<td>M55-601XX42R</td>
<td>M55-701XX42R</td>
<td>12.30mm</td>
<td>13.80mm</td>
</tr>
<tr>
<td>M55-601XX42R</td>
<td>M55-702XX42R</td>
<td>13.90mm</td>
<td>15.40mm</td>
</tr>
<tr>
<td>M55-602XX42R</td>
<td>M55-700XX42R</td>
<td>15.40mm</td>
<td>16.90mm</td>
</tr>
<tr>
<td>M55-602XX42R</td>
<td>M55-701XX42R</td>
<td>16.90mm</td>
<td>18.40mm</td>
</tr>
<tr>
<td>M55-602XX42R</td>
<td>M55-702XX42R</td>
<td>18.50mm</td>
<td>20.00mm</td>
</tr>
</tbody>
</table>

Mating Length for Horizontal Connectors (M55-60XX42R to M55-710XX42R)

- Fully Mated: .......................................................... 15.80mm
- With 1.5mm Separation: .............................................. 17.30mm

Mating Heights for Cable to Board Connectors

<table>
<thead>
<tr>
<th>Female Connector Part number</th>
<th>Male Connector Part Number</th>
<th>Mating Height (Fully Mated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M55-800XX42-XXXXA</td>
<td>M55-700XX42R</td>
<td>13.95mm</td>
</tr>
<tr>
<td>M55-800XX42-XXXXA</td>
<td>M55-701XX42R</td>
<td>15.45mm</td>
</tr>
<tr>
<td>M55-800XX42-XXXXA</td>
<td>M55-702XX42R</td>
<td>17.05mm</td>
</tr>
</tbody>
</table>

APPENDIX 2

Connector Misalignment

Misalignment tolerance for secure self centering – front view:

Align the bevel of the connector.
Misalignment tolerance for secure self centering – side view:

Align the bevel of the connector.

Misalignment angle for secure self centering:

APPENDIX 3

Contact Numbering

Female:
M55-60XXX42R
M55-610XX42R

Male:
M55-70XXX42R
M55-710XX42R
APPENDIX 4

Cable Assembly Orientations

All M55-800XX42-XXXXA cable assemblies are supplied in the orientation shown.

Wiring of connector:
- Contact ‘A1’ to Contact ‘A1’
- Contact ‘B1’ to Contact ‘B1’ etc.

Red Strip ‘B1’
Contact ‘A1’
Ident