

HARWIN



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 extremeM55-800XX42-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

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

Mating Length for Horizontal Connectors (M55-610XX42R to M55-710XX42R)

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

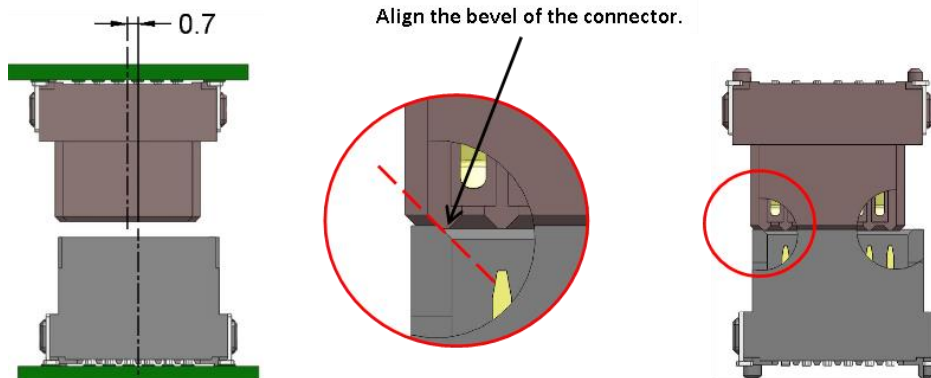
Mating Heights for Cable to Board Connectors

Female Connector Part number	Male Connector Part Number	Mating Height (Fully Mated)
M55-800XX42-XXXXA	M55-700XX42R	13.95mm
M55-800XX42-XXXXA	M55-701XX42R	15.45mm
M55-800XX42-XXXXA	M55-702XX42R	17.05mm

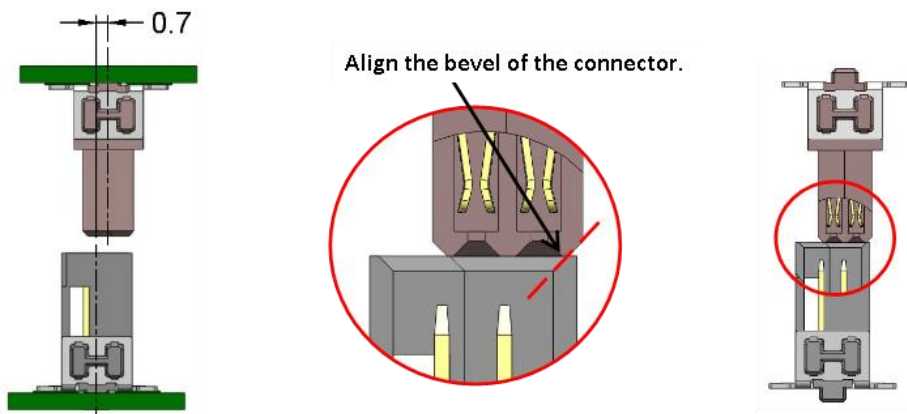
APPENDIX 2

Connector Misalignment

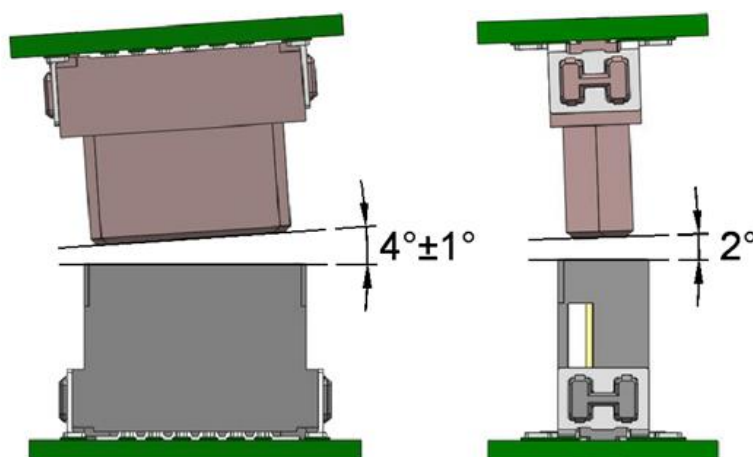
Misalignment tolerance for secure self centering – front view:



Misalignment tolerance for secure self centering – side view:



Misalignment angle for secure self centering:

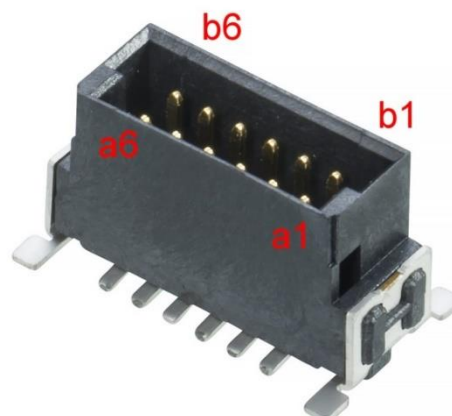
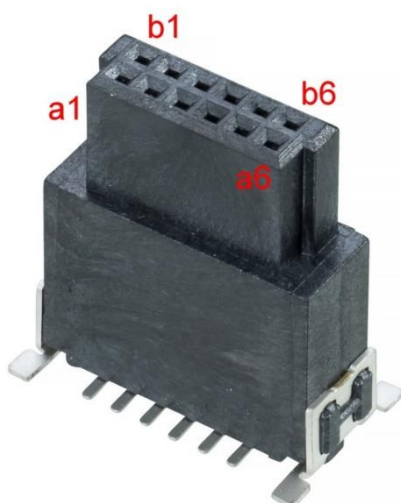


APPENDIX 3

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.

