

COMPONENT SPECIFICATION**M60 SERIES CONNECTORS**

DECEMBER 1996

CONTENTS:

SECTION	TITLE	PAGE
1	Description of Connector and Intended Application	2
2	Marking of Connector and/or Package	2
3	Ratings	2
Appendix 1	Test Methods and Performance	4

PREPARED BY: *Wendy Bone***ISSUE****C/NOTE****DATE**APPROVED BY: *A.J. Gallagher*

01

04.11.96

02

3672

13.12.96

AUTHORISED BY: *Jam*

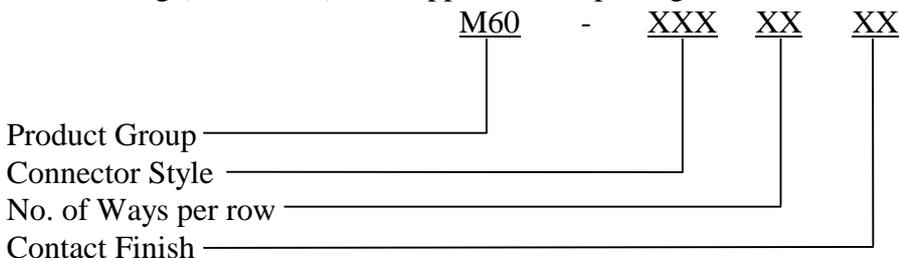
COMPONENT SPECIFICATION M60 SERIES CONNECTORS

1. DESCRIPTION OF CONNECTOR AND INTENDED APPLICATION.

A selection of 0.8mm pitch connectors, comprising vertical surface mount plugs and sockets of varying heights. Board-to-board spacing is obtained by the selection of an appropriate height plug and socket.

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:



Connector Style:

- Surface Mount plug (4mm high) 604
- Surface Mount plug (5mm high) 605
- Surface Mount plug (6mm high) 606
- Surface Mount socket (4mm high) 614
- Surface Mount socket (6mm high) 616

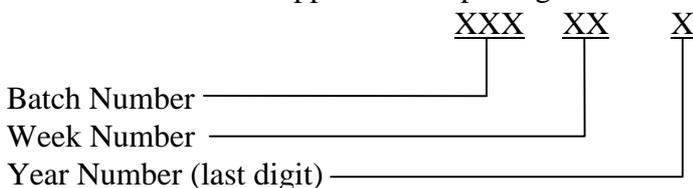
No. of Ways:

- 10+10, 15+15, 20+20, 25+25, 30+30,
- 40+40, 50+50

Finish:

- Selective Gold/Tin..... 22

The batch code shall appear on the package and shall be of the following style:



The batch number is 001 to 999 repeated each week.

3. RATINGS.

3.1. MATERIAL & FINISH.

Materials:

- Mouldings PPS, UL94V-0
- Contacts Phosphor Bronze
- Fixtures Phosphor Bronze

Finish:

- Contacts 0.5µ min Gold on contact face, 1µ min 90/10 Tin/lead on tails, over 1.27µ min Nickel
- Fixtures 2µ min 90/10 Tin/Lead over 1µ min Nickel

COMPONENT SPECIFICATION
M60 SERIES CONNECTORS (continued)

3. RATINGS (continued).

3.2. ELECTRICAL CHARACTERISTICS.

Rated Current.....	0.5A AC/DC
Rated Voltage	100V AC/DC
Maximum contact resistance (initial)	40 mΩ
Maximum contact resistance (after conditioning)	25 mΩ
Dielectric Withstanding Voltage	300V AC rms for 1 minute
Minimum insulation resistance	1000 MΩ

3.3. ENVIRONMENTAL CHARACTERISTICS.

Temperature Range.....	-55°C to +100°C
------------------------	-----------------

3.4. MECHANICAL CHARACTERISTICS.

High temperature, short term (no electrical load).....	10 seconds at 260°C
Maximum insertion force per contact (initial).....	1.0N
Maximum insertion force per contact (after 30 cycles).....	0.8N
Minimum withdrawal force per contact (initial)	0.1N
Minimum withdrawal force per contact (after 30 cycles).....	0.1N

COMPONENT SPECIFICATION M60 SERIES CONNECTORS (continued)

APPENDIX A - TEST METHODS AND PERFORMANCE.

A1.1. TEST CONDITIONS.

Unless otherwise specified, all tests and measurements shall be performed under the following conditions in accordance with MIL-STD-202:

Temperature	15° to 35°C
Humidity	45% to 75% RH
Atmospheric pressure.....	650 to 800mmHg

A1.2. TEST METHODS.

A1.2.1. Electrical.

i) Contact Resistance.

Solder a plug and a socket to PC Boards and mate them together. Measure the contact resistance using the 4-terminal method as shown in Figure 1. Apply the low-level condition of 20mV max. for the open circuit voltage, and 10mA DC max. for the closed circuit current. Contact resistance must not exceed the values stated in section 3.2.

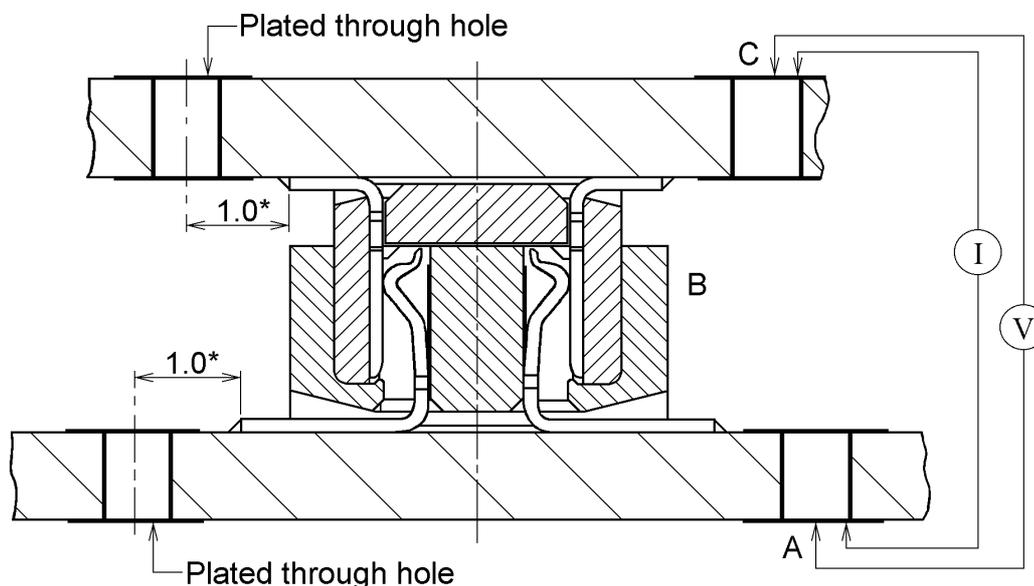


Figure 1: Contact Resistance

Note: Contact resistance is defined as R_{ABC} , i.e. the electrical resistance from point A on the back face of the lower PCB, through contact point B, to point C on the back face of the upper PCB. * = 2.0mm on the next line.

ii) Dielectric Withstanding Voltage.

Mate a plug and socket together (not soldered to a PC Board). Apply between neighbouring contacts a 300V AC rms current for 1 minute in accordance with MIL-STD-202, Method 301. No creeping discharge, flash-over or insulator break-down is allowed.

iii) Insulation Resistance.

Mate a plug and socket together (not soldered to a PC Board). Apply between neighbouring contacts a 100V DC voltage. Measurement is taken in accordance with MIL-STD-202, Method 302. Insulation resistance must not be less than the value stated in section 3.2.

COMPONENT SPECIFICATION
M60 SERIES CONNECTORS (continued)

APPENDIX A - TEST METHODS AND PERFORMANCE (continued).

A1.2. TEST METHODS (continued).

A1.2.2. Environmental.

i) Thermal Shock.

Solder a plug and a socket to PC Boards and mate them together. Expose the mated connectors to the following environment:

Temperature	-55° (30 min.) → +85°C (30 min.)
Transition time	5 minutes max.
Number of cycles	5

Contact resistance before and after the test must meet the values stated in section 3.2. Detrimental damage affecting the performance must not occur.

ii) Humidity.

Solder a plug and a socket to PC Boards and mate them together. Expose the mated connectors to the following environment in accordance with MIL-STD-202, Method 103 Condition B:

Temperature	40° ±2°C
Humidity	90% to 95% RH
Duration	96 hours

Contact resistance before and after the test must meet the values stated in section 3.2.

iii) Salt Spray.

Solder a plug and a socket to PC Boards and mate them together. Expose the mated connectors to the following environment in accordance with MIL-STD-202, Method 101 Condition B:

Temperature	35°C
Salt water density	5% (by weight)
Duration	48 hours

Contact resistance before and after the test must meet the values stated in section 3.2. Detrimental damage affecting the performance must not occur.

iv) Gas.

Solder a plug and a socket to PC Boards and mate them together. Expose the mated connectors to the following environment:

Chamber temperature	25° ±2°C
Humidity	75% RH
Gas	H ₂ S, 10ppm
Duration	24 hours

Contact resistance before and after the test must meet the values stated in section 3.2. Detrimental damage affecting the performance must not occur.

COMPONENT SPECIFICATION **M60 SERIES CONNECTORS (continued)**

APPENDIX A - TEST METHODS AND PERFORMANCE (continued).

A1.2. TEST METHODS (continued).

A1.2.2. Environmental (continued).

v) Vibration.

Solder a plug and a socket to PC Boards and mate them together. Place the mated connectors on a vibrator machine, and apply the following vibration in accordance with MIL-STD-202, Method 201. Care should be taken to fix the boards firmly to the vibrator machine to avoid any unnecessary resonance of the boards. During the testing, run a 100mA DC current to check for any electrical discontinuity. The test cycle must cover the following parameters:

- a) Frequency..... 10Hz → 55Hz → 10Hz over 1 minute approx.
- b) Directions..... Three mutually perpendicular directions
- c) Total amplitude..... 1.52mm
- d) Sweep duration Two hours for each direction, totalling 6 hours.

Contact resistance before and after testing must meet the values specified in section 3.2. No electrical discontinuity greater than 10 μseconds must occur during testing. Looseness amongst parts, chipping, breakage or other detrimental damage must not occur.

vi) Shock.

Solder a plug and a socket to PC Boards and mate them together. Place the mated connectors on a shock machine, and apply the following shock in accordance with MIL-STD-202, Method 213 Condition A. Care should be taken to fix the boards firmly to the shock machine to avoid any unnecessary resonance of the boards. During the testing, run a 100mA DC current to check for any electrical discontinuity. The test cycle must cover the following parameters:

- a) Maximum shock 50g (490m/s²)
- b) Standard duration..... 11 milliseconds
- c) Wave form Half-sinusoidal

No electrical discontinuity greater than 10 μseconds must occur during testing. Looseness amongst parts, chipping, breakage or other detrimental damage must not occur.

vii) Solderability.

Dip the solder tine of a plug and socket connector in a flux of RMA or R type for 5 to 10 seconds. Then dip the tine into a solder bath (245° ±0.5°C) for 5 ±0.5 seconds. This test is in accordance with MIL-STD-202, Method 208. More than 95% of the dipped surface must be evenly wet.

A1.2.3. Mechanical.

i) Repeated Insertion/Withdrawal Force.

Solder a plug and a socket to PC Boards. Place the boards onto a push-on/pull-off machine. Repeat insertion and withdrawal for 30 cycles, at a speed of 25 ±3mm/min. along the mating axis. Insertion and withdrawal forces before and after the test must conform to those stated in section 3.4.

ii) Electrical Continuity Durability.

Solder a plug and a socket to PC Boards. Place the boards onto a push-on/pull-off machine. Repeat insertion and withdrawal for 30 cycles, at a speed of 25 ±3mm/min. along the mating axis. Contact resistance before and after the test must meet the values stated in section 3.2.