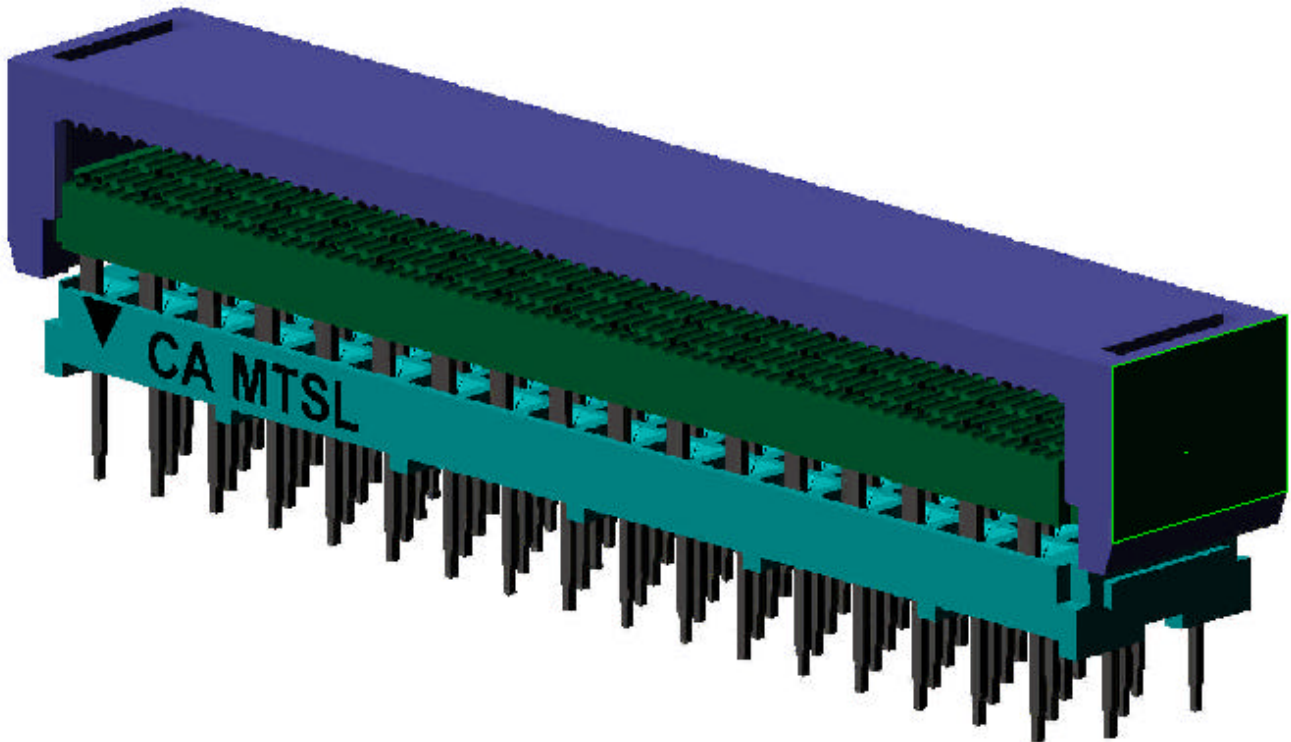

SPECIFICATION

MTSL CONNECTOR SERIES



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2.0 SCOPE

- 2.0 This specification establishes the performance and quality requirements for the CA MTSL series of slim line insulation displacement, printed circuit board mounted transition plug connectors. This unshielded connector terminates with .025 centerline flat unshielded 30 AWG cable and single conductor cable having various insulations such as PVC, FEP, TPE and Polypropylene.
- 2.0 Should any difference occur between this specification and any document specified in Section 2, this specification shall prevail. In addition, if any difference occurs between this specification and the individual part drawings, then the part drawings shall prevail.

2.0 APPLICABLE DOCUMENTS

Reference documents listed below shall be the latest revision unless otherwise specified. Should a conflict occur between this specification and any of the listed documents then this specification shall prevail.

| | | |
|---------|---|---------------|
| EIA-364 | Electrical Connector Test Procedures Including Classifications. | Environmental |
| 620373 | CA Drawing – MTSL Connector Assembly | |

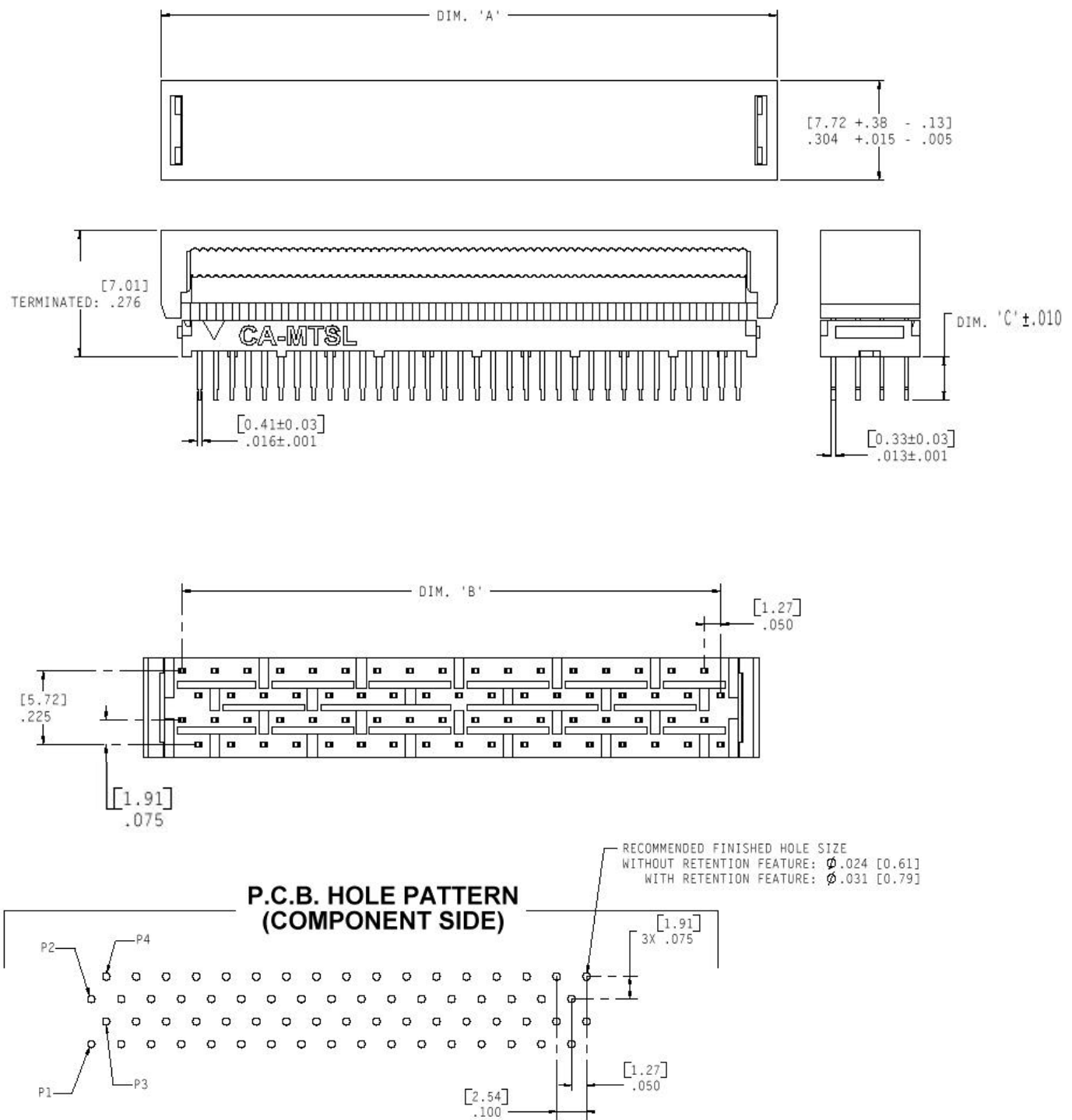


FIG.1 MTSL CONNECTOR

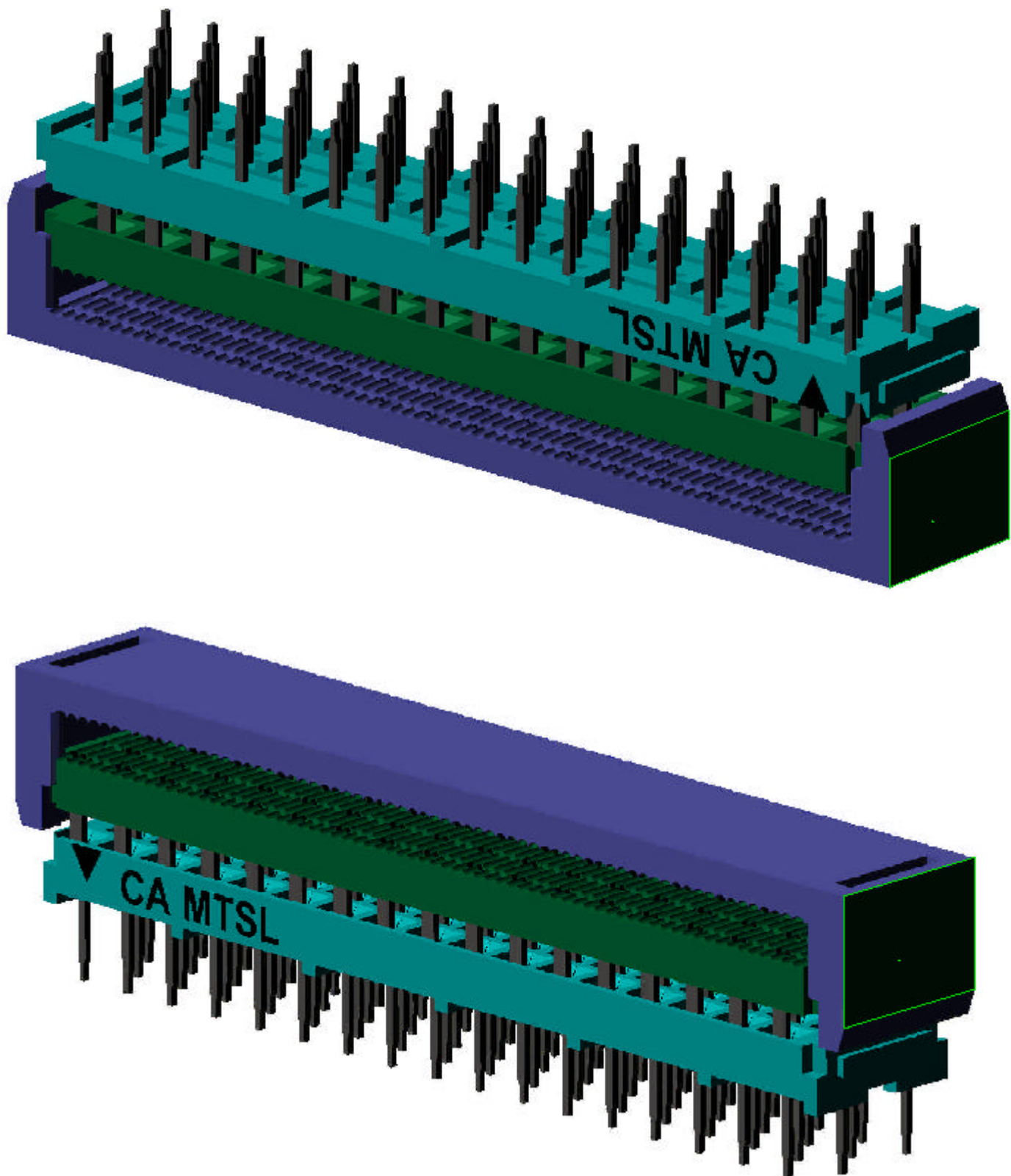


Fig. 2 MTSL CONNECTOR – DETAIL VIEWS

3.0 APPLICATION FEATURES

3.1 MATERIALS

- Housing - Base, Retainer and Cover - 30% Glass Filled Polyester (PBT), UL94V-0, color black.
- Contact - Phosphor Bronze, 100μ" 90/10 tin/lead alloy all over 50μ" min. nickel.

3.2 IDT CABLE

Connector will terminate 30AWG solid and stranded .025 centerline flat unshielded cable and single conductor cable having FEP, TPE, PVC, or Polypropylene insulation.

3.3 RATINGS

- Voltage - 30 VAC. Rating is based on testing approvals by UL, and C-UL Wiring Harness Component programs.
- Current - 0.5 Amp per contact unless limited by the cable being used.
- Temperature - -65°C to 125°C unless limited by the cable being used.

3.4 RECOGNITION AND CERTIFICATION

- UL: Product Category ECBT2
Connectors For Use In Data, Signal, Control and Power Applications
File No. E95981
- C-UL: Product Category ECBT8
Connectors For Use In Data, Signal, Control and Power Applications Certified For Canada
File No. E95981

4.0 CHARACTERISTICS

Unless specified in the test sequences show in Sect. 5, all tests shall be performed at current atmospheric conditions.

4.1 ENVIRONMENTAL

- 4.1.1 Thermal Shock
Condition: EIA 364-32, subject mated connectors to 5 cycles between -55°C and 105°C.
There shall be no physical damage and shall meet requirements of subsequent tests.
- 4.1.2 Humidity-temperature Cycling
Condition: EIA364-31. Method III, Test Condition A (96 hours), subject mated connectors to 10 cycles between 25°C and 65°C at 95% relative humidity. Non-energized, omit 7a and 7b.
There shall be no physical damage and shall meet requirements of subsequent tests.
- 4.1.3 Temperature Life
Condition: EIA364-17, Test Condition 4, subject mated connectors to 105°C for 250 hours.
There shall be no physical damage and shall meet requirements of subsequent tests.
- 4.1.4 Mixed Flowing Gas
Condition: EIA364-65, Class II for 10 days
There shall be no physical damage and shall meet requirements of subsequent tests.

4.2 ELECTRICAL

- 4.2.1 Withstanding Voltage
Condition: EIA364-20, Method C.
Between adjacent contacts of mated connectors: 500Vrms at sea level applied for 1 minute.
- 4.2.2 Low Level Contact Resistance
Conditions: EIA364-23, except 100mA maximum test current and 50 mV maximum open circuit voltage. Initial Low Level Contact Resistance shall not exceed 35 mΩ. Delta LLCR shall not exceed 15mΩ.
- 4.2.3 Insulation Resistance
Conditions: EIA364-21, test voltage 500Vdc.
Between adjacent contacts of mated connectors:
1 Gighm minimum.

4.3 MECHANICAL

4.3.1 Vibration

Conditions: EIA364-28, Cond.II. Subject mated connectors to 10 Hz to 500 Hz, 10g's peak for 1 hour in each of 3 mutually perpendicular planes.
There shall be no discontinuities of 1 μ sec. duration or longer.

4.3.2 Physical Shock

Condition: EIA364-27, test Condition A, subject mated connectors to 30 g's peak acceleration, half sine wave pulses of 11 milliseconds, 3 shocks applied along 3 mutually perpendicular planes, total 18 shocks.
There shall be no discontinuities of 1 μ sec. duration or longer.

5.0 TEST SCHEDULE

5.1 GENERAL

This test schedule shows the tests and the order in which they will be carried out and the requirements to be met in each test.

Before testing commences, the connectors shall be stored for at least 24 hours under normal climatic conditions for testing.

In the following test sequence tables, where an EIA test is specified without a letter suffix, the latest approved version shall be used.

5.2 TEST SAMPLES

5.2.1 Test Sample Preparation

Samples are removed at random from CA Final Inspection (current production) and are prepared according to the requirements and severity of the tests to be conducted as specified in ANSI/EIA 364 or other referenced documents.

5.3 TEST SEQUENCES & PERFORMANCE

5.3.1 TEST GROUP 1 - General Examination

Representative specimens are subjected to the following Visual Inspection and Examination to determine that the connectors are acceptable to be included in the following six (6) Test Groups.

Minimum 25 specimens - Permitted defects zero

| Test Phase | Test | | | Measurements to be Performed | | Comments/ Requirements |
|------------|---------------------|------------------|-------------------------------|---|------------------|--|
| | Title | EIA 364 Test No. | Severity or condition of test | Title | EIA 364 Test No. | |
| 1.1 | General Examination | | Unmated Connectors | Visual Inspection | 18 | There shall be NO defects that would impair normal operation |
| | | | | Examination of dimensions and plating thickness | 23 | Dimensions shall comply with this document |

5.3.2 TEST GROUP 2 - Vibration and Shock.

Minimum 5 specimens - Permitted defects zero

| Test Seq. | Test | | Requirements |
|--------------|--|------------|--|
| | Title | EIA 364 | |
| 2.1 | Initial Low Level Contact Resistance (LLCR) | 23 | 50mV max open circuit at 100mA max. <35mΩ |
| 2.2 | Vibration | 28 | No discontinuities of 1μs or longer duration. EIA364-46 |
| 2.3 | Shock | 27 | No discontinuities of 1μs or longer duration. EIA364-46 |
| 2.4 | Change in Low Level Contact Resistance (ΔLLCR) | 23 | Same as 2.2 Delta LLCR shall not exceed 15mΩ |
| 2.5 | General Examination | 18 | Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation. |

5.3.3 TEST GROUP 3 - Temperature Life and Vibration.

Minimum 5 specimens - Permitted defects zero

| Test Seq. | Test | | Requirements |
|-----------|--|---------|--|
| | Title | EIA 364 | |
| 3.1 | Initial Low Level Contact Resistance (LLCR) | 23 | 50mV max open circuit at 100mA max. <35mΩ |
| 3.2 | Temperature Life | 17 | Condition 4, 105°C for 1000hr There shall be no physical damage. |
| 3.3 | Change in Low Level Contact Resistance (ΔLLCR) | 23 | Same as 3.1 Delta LLCR shall not exceed 15mΩ |
| 3.4 | Vibration | 28 | No discontinuities of 1μs or longer duration. EIA364-46 |
| 3.5 | Change in Low Level Contact Resistance (ΔLLCR) | 23 | Same as 3.1 Delta LLCR shall not exceed 15mΩ |
| 3.6 | General Examination | 18 | Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation. |

5.3.4 TEST GROUP 4 - Thermal Shock and Humidity- Temperature cycling.

Minimum 5 specimens - Permitted defects zero

| Test Seq. | Test | | Requirements |
|-----------|---|---------|--|
| | Title | EIA 364 | |
| 4.1 | Insulation Resistance | 21 | Test Voltage 500Vdc. 1G Ω min. |
| 4.2 | Dielectric Withstanding Voltage | 20 | Test voltage 500Vrms for 1 minute |
| 4.3 | Initial Low Level Contact Resistance (LLCR) | 23 | 50mV max open circuit at 100mA max. <35m Ω |
| 4.4 | Thermal Shock | 32 | 5 cycles between -55°C and 105°C. There shall be no physical damage. |
| 4.5 | Change in Low Level Contact Resistance (Δ LLCR) | 23 | Same as 4.3 Delta LLCR shall not exceed 15m Ω |
| 4.6 | Humidity-temp. Cycling | 31 | 10 cycles between 25°C & 65°C at 95%rh for 240hr |
| 4.7 | Change in Low Level Contact Resistance (Δ LLCR) | 23 | Same as 4.3 Delta LLCR shall not exceed 15m Ω |
| 4.8 | Insulation Resistance | 21 | Test Voltage 500Vdc. 1G Ω min. |
| 4.9 | Dielectric Withstanding Voltage | 20 | Test voltage 500Vrms for 1 minute |
| 4.10 | General Examination | 18 | Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation. |

5.3.5 TEST GROUP 5 - Mixed Flowing Gas

Minimum 5 specimens - Permitted defects zero

| Test Seq. | Test | | Requirements |
|-----------|--|---------|--|
| | Title | EIA 364 | |
| 5.1 | Initial Low Level Contact Resistance (LLCR) | 23 | 50mV max open circuit at 100mA max. <35mΩ |
| 5.2 | Mixed Flowing Gas | 65 | Class II for 10 days There shall be no physical damage |
| 5.3 | Change in Low Level Contact Resistance (ΔLLCR) | 23 | Same as 4.3 Delta LLCR shall not exceed 15mΩ |
| 5.4 | General Examination | 18 | Unmated connectors. Visual and dimensional inspection. There shall be no defects to impair normal operation. |

6.0 QUALITY PROVISIONS

6.1 ACCEPTANCE

Acceptance of the MTSL Series of connectors is based on meeting the Performance Criteria as detailed in Section 5.3 of this specification.

6.2 RE-QUALIFICATION

Re-qualification will be a requirement when there are significant changes to form, fit or function, materials, or changes to production process that would effect the performance requirements of these products.

6.3 RE-TESTING

Connectors stored for a period of more than 36 months after the release of the lot shall be tested prior to delivery according to Test & Performance Group 4 requirements.

6.4 INSPECTION DATA

Inspection and test data shall be recorded, evaluated, and maintained as evidence of performance to these provisions.

| | | | | | |
|--|------------------|--|------------------|---|------------------|
| Initiated By: Carmen C. Long (Sign on file) | Date 10/01/01 | Engineering Approval: A.jochen (Sign on file) | Date 10/01/01 | Quality Approval: Ian Morrell (Sign on file) | Date 10/01/01 |
|--|------------------|--|------------------|---|------------------|

| REV. | DESCRIPTION | DATE | INITIALS |
|------|-----------------|----------|----------|
| A | See D.O. # 3137 | 8-20-98 | A. J. |
| B | See D.O. # 3257 | 11-10-98 | A. J. |
| C | See D.O. # 4035 | 6-28-00 | I. M. |
| D | See D.O. # 4629 | 10/01/01 | C.C.L. |