



3. PRODUCT DESCRIPTION

3.1. Parts - The system consists of the following parts:

3.1.1. FEMALE P.C. BOARD CONNECTOR ASSEMBLY, consisting of a housing and a number of receptacles press-fitted in the housing. Female connector assemblies are intended to be soldered to Printed Circuit Boards to accommodate interconnections to printed wiring circuitry.

3.1.2. MALE TABS, Male tabs are intended to be soldered on Printed Circuit Boards.

3.1.3. MALE CONNECTOR ASSEMBLY, consisting of a housing and a number of contacts crimped to appropriate wires and locked in the housing.

3.2. Type - When Female Connector Assemblies are used in combination with Male Tabs soldered to Printed Circuit Boards, or with Male Connector Assemblies, this System provides adaptability to any center arrangement of 2,5 mm (= .0984 inch) minimum or one multiple of it.

3.3. Design and Construction

3.3.1. General - Connector Assemblies and Tabs shall be of the design, construction and physical dimensions as specified on the applicable product drawings.

3.3.2. Material and Finish -

A. Housings - The houses are moulded of NORYL Flammability rating 94V1 (SE-1)

B. Terminals - Terminals shall be fabricated of brass conforming DIN Specifications.

They shall be tinplated with copper underlayer

3.4. Application - By this system, connections between Printed Circuit Boards and between wire and Printed Circuit Boards, can be made in perpendicular and inline position. Perpendicular connections can be made to both sides of the Printed Circuit Board to which the Female Connector Assemblies are mounted.

3.4.1. Typical Application - See fig.1 on page 3 and fig.5 on page 13.


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Fig. 1. Typical Application

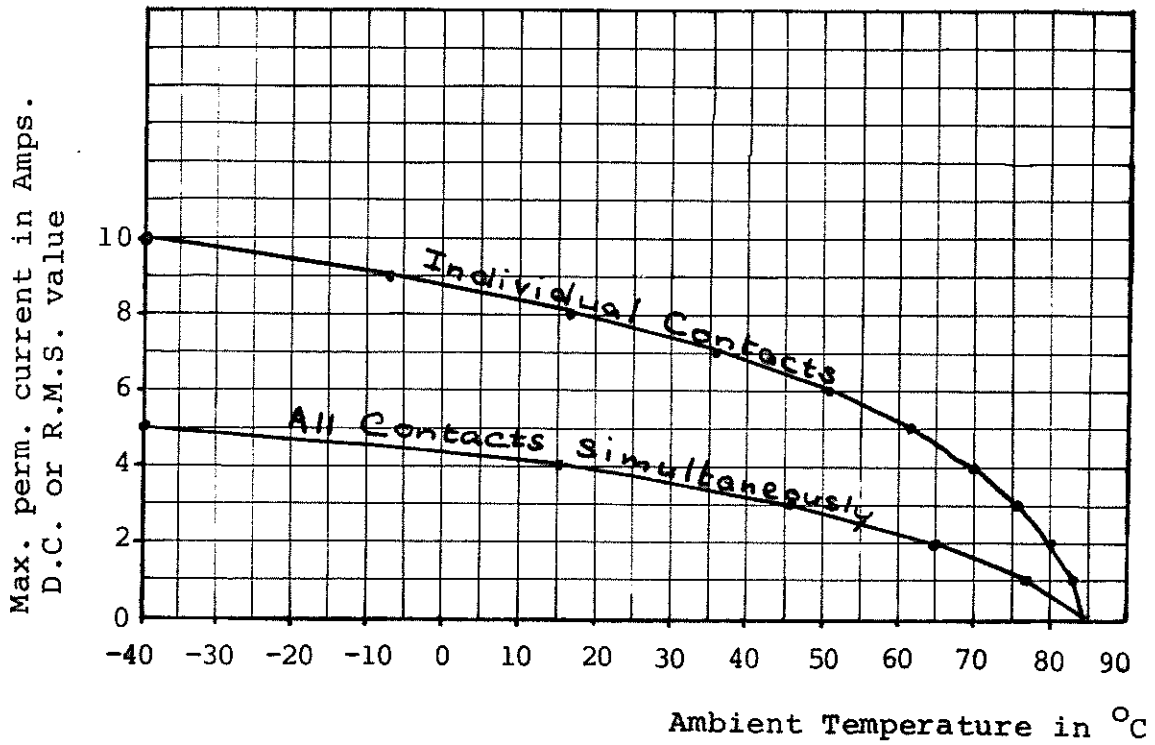
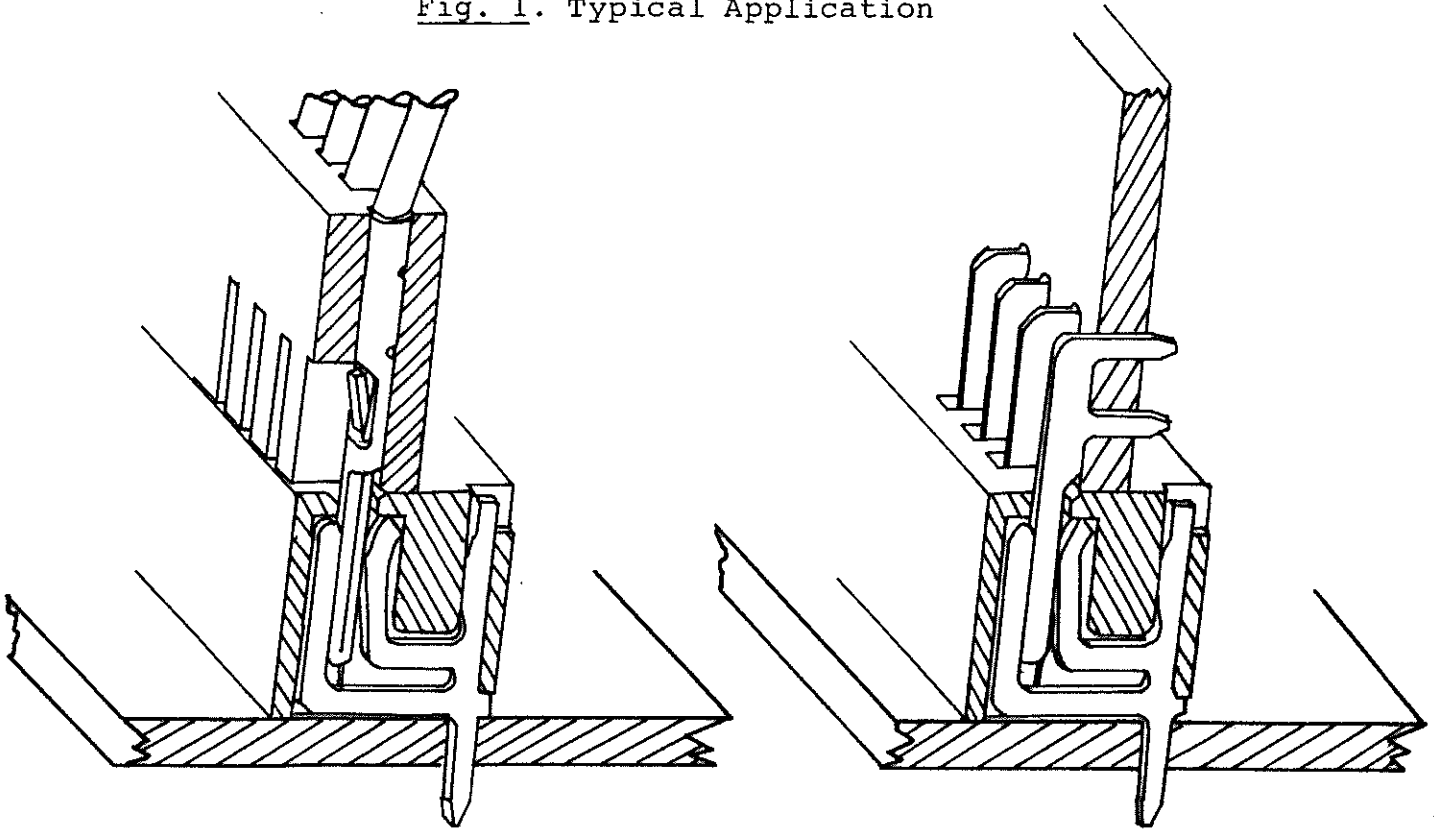


Fig. 2

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4. PERFORMANCE AND TEST DESCRIPTION

4.1. Temperature rating -

Each assembly shall be capable of continuous operation throughout an ambient temperature range of -40°C to +85°C.

4.2. Current rating -

The maximum permissible current shall be as specified in fig. 2, on page 3.

4.3. Voltage rating -


The rated voltage shall be 354 Volts D.C. or A.C. peak as specified in I.E.C. 130-1 clause 5.

4.4. Test Conditions -

Unless specifically stated, tests and examinations required by this specification shall be executed under any combination of conditions as specified in I.E.C. 68-1 clause 5.3.

4.5. Test Samples -

The samples submitted for test shall include Female P.C. Board Connector Assemblies whether or not soldered to Printed Circuit Boards. Tabs soldered to Printed Circuit Boards and Male Connector Assemblies with contacts crimped to appropriate wires in Test Groups as mentioned below. The dimensions, plating and mounting shall be as specified on the applicable Product and Customer drawings.

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- 4.5.1. TEST GROUP I - The samples contained in this group shall consist of Female P.C. Board Connector Assemblies with the required number of Tabs, all soldered to Printed Circuit Boards in one of the arrangements mentioned in Paragraph 3.4. This arrangement depends on application (Reference Figures 3 and 4 for board dimensions)
- 4.5.2. TEST GROUP II - The samples contained in this group shall consist of Female and Male Connector Assemblies. The Female P.C. Board Connector Assemblies are soldered to Printed Circuit Boards in one of the arrangements mentioned in Paragraph 3.4. This arrangement depends on application. (Reference Figure 3 for board dimensions). Male Connector Assemblies contain Crimp-on Snap-in Contacts crimped to appropriate wires.
- 4.5.3. TEST GROUP III - The samples contained in this group shall consist of Female P.C. Board Connector Assemblies not soldered to Printed Circuit Boards.
- 4.5.4. TEST GROUP IV - The samples contained in this group shall consist of Male Connector Assemblies with Crimp-on Snap-in Contacts crimped to appropriate wires.
- 4.5.5. TEST GROUP V - The samples contained in this group shall consist of Male Tabs not soldered to Printed Circuit Boards.
- 4.5.6. TEST GROUP VI - The samples contained in this group shall consist of Crimp-on Snap-in Contacts crimped to appropriate wires.

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5. QUALITY ASSURANCE PROVISIONS

5.1. Qualification Inspection

5.1.1. Sample Selection -

Connector assemblies and contacts shall be prepared in accordance with applicable Product- and Customer drawings.

They shall be selected at random from current production.

Number of testsamples in accordance with I.E.C. 130-1 clause 9.

5.1.2. Test sequence -

Qualification inspection shall be verified by testing the samples to the test sequence as specified under 6.2.

5.1.3. Acceptance -


When testing the samples as specified, all results will fall within the specification limits 99% of the time with a confidence level of 95%. Failures attributed to equipment, test set-up or operator deficiencies will not disqualify the product. When product failure occurs, corrective action will be taken and samples shall be re-submitted for qualification.

5.1.4. Test Report -

A report containing test data-analysis and product performance evaluation shall be issued at the completion of the qualification test program.

5.2. Quality Conformance Inspection

Sampling procedures shall be in accordance with MIL-STD-105. The applicable AMP Quality Inspection Plan will specify the Sampling and Acceptance Quality Level to be used. Dimensional and functional requirements will be in accordance with the applicable Product drawings.

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## 6. TEST SCHEDULE FOR TYPE TESTS

6.1. The testschedule, table 1 and 2 on page 8 and 9, shows all tests, conditions of tests as well as the requirements to be met for each type of connector.

6.2. The testsequence, table 3 page 10, shows the order in which the tests shall be carried out.

### 6.2.1. Test Groups and Test Lots -

The various Test Groups shall be divided into the following number of Test Lots:

Test Groups I - II and III - 4 Lots each.

Test Group IV - 3 Lots.

Test Groups V - VI - 1 Lot each.


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TABLE 1

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Test Description	Clause of I.E.C.130-1	Conditions of test	Requirements
Examination of Product	11-12		Meets requirements of product drawings
* Termination Resistance	14.1 14.1.3	25% of all contacts, with a min. of 2- of each sample shall be measured. The E.M.F. of the measuring circuit shall not exceed 20mV. I = 100mA max. Measuring points see fig.5	10 milliohm max.
Insulation Resistance	14.4	100 ± 15 V	1000 Megohm min.
Voltage Proof	14.5	1 minute 1000 V	No breakdown or flashover
Damp Heat accelerated	18.2.2	I.E.C. 68-2-4, Test D Not under mechanical and electrical load	
Cold	18.2.3	I.E.C. 68-2-1, Test Aa; -40°C Not under mechanical and electrical load	
Damp heat long term.	18.3	I.E.C. 68-2-3, Test C Severity: 21 days half lot mated, half lot unmated. Not under mech. and electrical load	
Dry Heat	18.2.1	I.E.C. 68-2-2 Test Ba; + 85°C Not under mechanical and electrical load	
Rapid Change of Temperature	18.4	I.E.C. 68-2-14; Test Na, -40°C/+85°C; 6 cycles ½ hour/½ hour Not under mechanical and electrical load	

\* In I.E.C. 130-1 called: Contact Resistance

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TABLE 2

NUMBER 108-190-11  
 AMP SECURITY CLASSIFICATION Unrestricted

TEST DESCRIPTION	Clause of I.E.C.130-1	CONDITIONS OF TEST	REQUIREMENTS
Salt Mist	18.7	I.E.C. 68-2-11, Test Ka 1 x 24 hours half lot mated half lot unmated	
Insertion/Extraction Force	16.1	Measuring force to insert and extract male contacts in female connector assemblies	5 N max./contact 1 N min./contact
Mechanical Endurance	19.	Number of operations: 25 Frequency of operations 10/minute. Minimum time between successive operations 1 second	
Vibration	16.4	I.E.C. 68-2-6, Test Fc Procedure B4; 10-55 Hz Displacement 0,75 mm peak. Wires to be used: 0,12 - 0,35 mm <sup>2</sup> with insulation outer diameter 1,0 - 1,4 mm	No discontinuity above 1 microsecond
Contact Retention		Apply an axial load of: 10 N to female contacts 30 N to Crimp-on Snap-in contacts	Contacts will not dislodge from housings
Tensile Strength of Crimp termination	15.4	I.E.C. 68-2-21, Test Ua	20 N min. for 0,12 mm <sup>2</sup> wires 70 N min. for 0,35 mm <sup>2</sup> wires
Solderability		E.I.A. RS-178-A Solderability Test Standard Test condition 1	5% max. dewetting of functional area
Resistance to Soldering Heat	15.3	I.E.C. 68-2-20, Test Tb Method 1A	No functional damaging

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TABLE 3


Test or Examination	LOT:	Group I-II				Group III-IV *				V	VI
		1	2	3	4	1	2	3	4	1	1
Examination of Product		X	X	X	X	X	X	X	X	X	X
Termination Resistance		X	X	X	X						
Insulation Resistance						X	X	X			
Voltage Proof						X	X	X			
Insertion/Extraction Force		X	X								
Contact Retention						X					
Tensile Strength (half lot)											X
Damp Heat Long Term				X				X			
Change of Temperature					X						X
Dry Heat		X				X					
Tensile Strength (half lot)											X
Damp Heat Accelerated 2 cycl.									X	X	
Mechanical Endurance			X								
Insertion/Extraction Force			X								
Damp Heat Accelerated 1 cycl.		X				X					
Termination Resistance		X	X	X	X						
Insulation Resistance					X	X					
Voltage Proof					X	X					
Salt Mist			X				X				
Cold		X				X					
Damp Heat Accelerated 5 cycl.		X				X					
Termination Resistance		X	X								
Mechanical Endurance			X								
Insertion/Extraction Force		X	X								
Vibration					X						
Termination Resistance			X		X						
Insulation Resistance						X	X	X			
Voltage Proof						X	X	X			
Contact Retention						X					
Solderability									X	X	
Resistance to Soldering Heat									X		
Examination of Product		X	X	X	X	X	X	X	X	X	X

\* Note: For Group IV only Lot 1, 2 and 3.

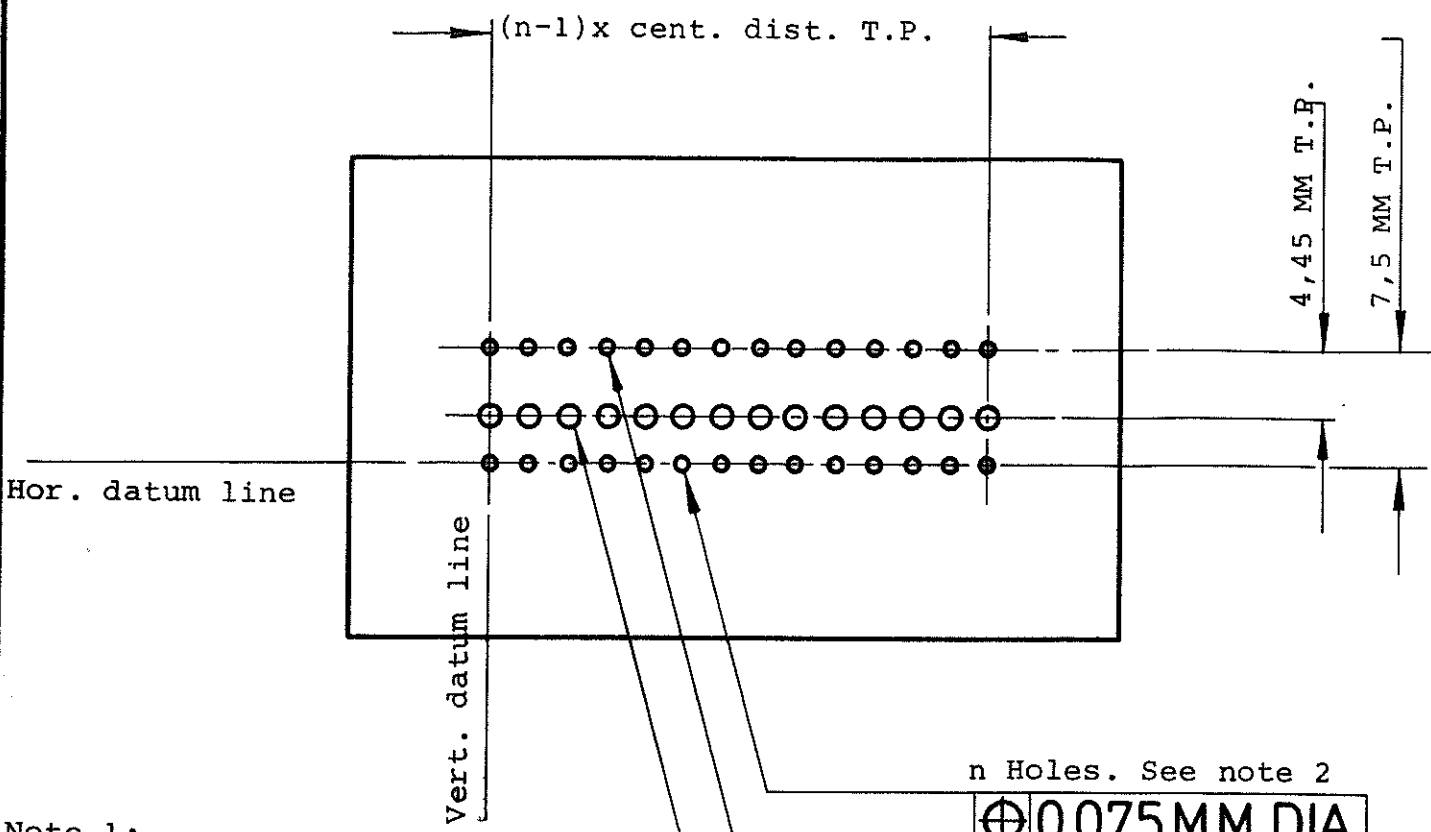
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Note 1:  
Material, board dimensions and dimensions of copper pads to be determined by the customer.

Note 2:  
Preferred holes sizes are:  
+ 0,1      + 0,1      + 0,1  
0,8 - 0,0; 0,9 - 0,0; 1,0 - 0,0 mm, depending on number of positions of connector.  
For information please contact AMP Engineering Department.

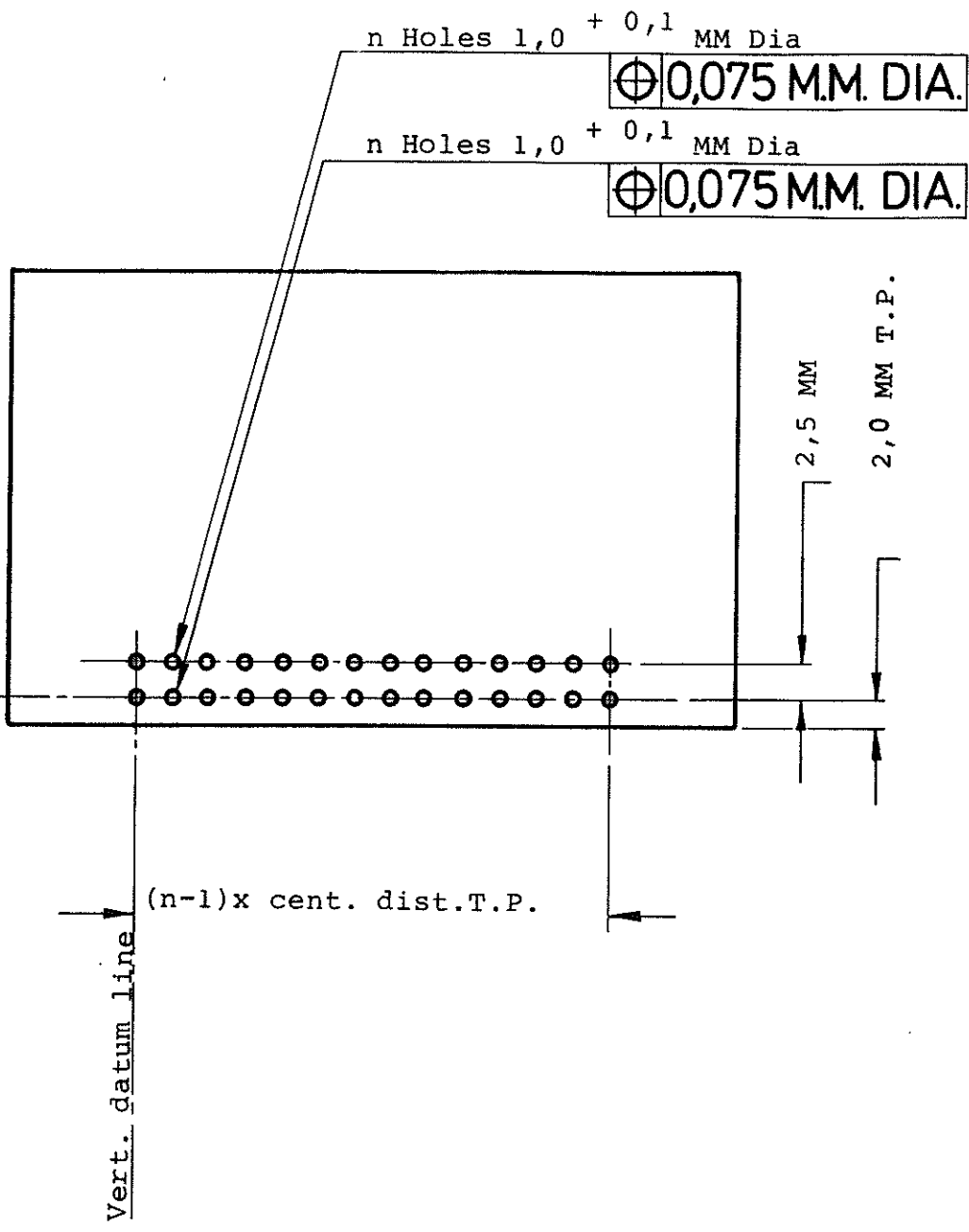
n Holes. See note 2  
Ø 0,075 M.M. DIA.  
 n Holes. See note 2  
Ø 0,075 M.M. DIA.  
 n Holes 1,5 ± 0,05 MM Dia  
Ø 0,075 M.M. DIA.

Hole pattern for typical printed circuit test board for female connector assembly

figure 3

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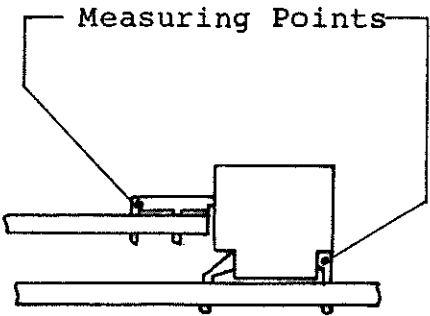
Note :  
 material, board dimensions  
 and dimensions of copper pads to be  
 determined by the customer.

Hole pattern for typical printed circuit  
 test board for tabs. (F-Type only)

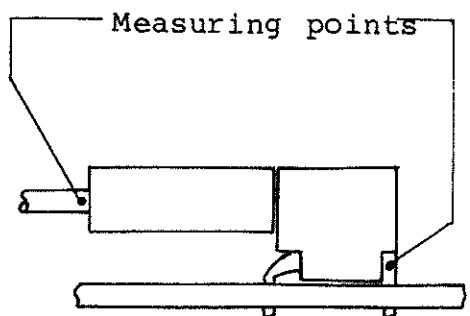
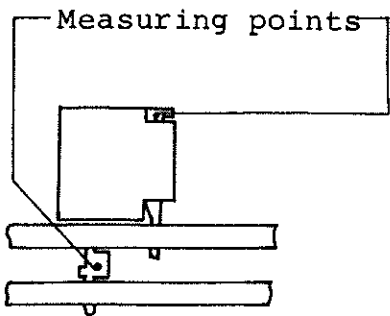
Figure 4.

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In-line Application

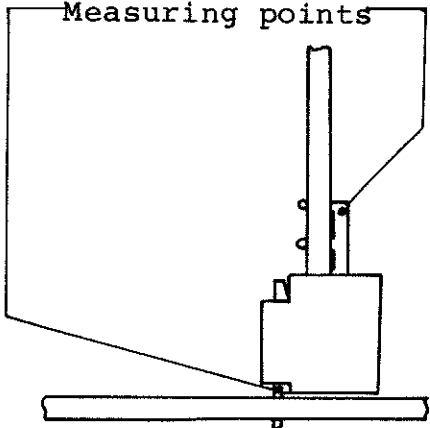


Board-to-Board

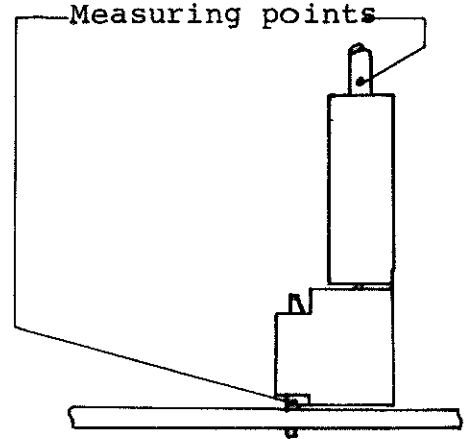


Wire-to-Board

Perpendicular Application I

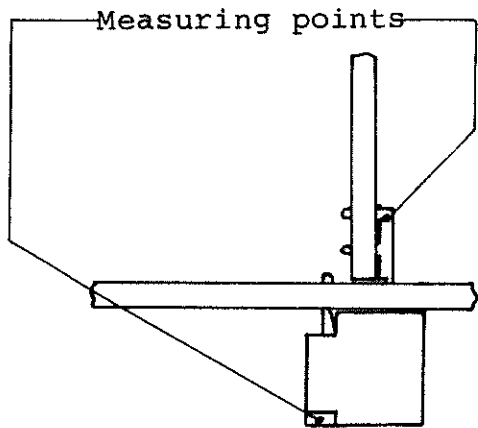


Board-to-Board

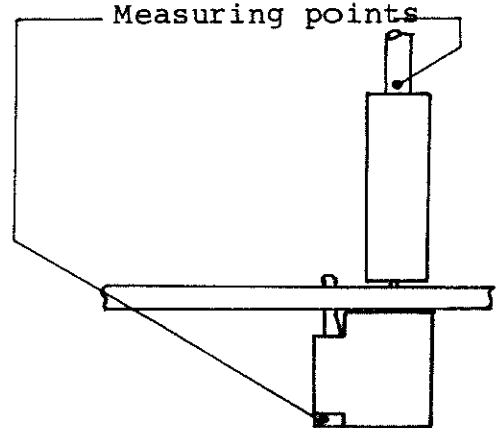


Wire-to-Board

Perpendicular Application II



Board-to-Board



Wire-to-Board

Measuring points for termination resistance test

Figure 5

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