
2mm HM 8 COLUMN CONNECTOR

1. SCOPE .

1.1. CONTENT:

This specification covers the performance, test and quality requirements for the 2mm HM 8 column connector system.

These connectors are two-piece devices to interconnect 2 printed circuit boards. Receptacle connectors and pin connectors are through hole devices with ACTION PIN* contacts.

Connectors are in 5 configurations and can be upgraded to 7 row configurations.

1.2. QUALIFICATION:

When tests are performed on the subject product line, the procedures specified in IEC 60512 shall be used unless otherwise indicated.

All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS:

2.1. TYCO ELECTRONICS DOCUMENTS:

114-19029	Application specification
501-60081	Test Report

2.2. OTHER DOCUMENTS:

IEC 60512	Test Specification
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*Z-PACK and ACTION PIN are trademarks

3. REQUIREMENTS:

3.1. DESIGN AND CONSTRUCTION:

Product shall be of design, construction and physical dimensions specified in the applicable product drawing.

3.2. MATERIALS:

Contacts: CuSn 4 (Phosphor Bronze), plating in contact area:
 1) Gold over nickel or...
 2) Palladium nickel + gold flash over nickel or...
 3) Other Engineering approved alternative.

Housings: Thermoplastic polyester GF PBT or GF PBT/PC Blend
 color grey UL 94V0

3.3. RATINGS AND CHARACTERISTICS:

Rated Voltage: 500 V r.m.s. contact to contact
 Current rating: 1,5A / contact at 70°C (fully loaded)
 Voltage proof: 750 V r.m.s. contact to contact
 Temperature: -55°C through 125°C
 Insulation resistance: 10⁴ MΩ min.
 Contact resistance: 20 mΩ max.
 Mech. operations: 250 matings / unmatings
 Air/creepage distance: 0,8 mm min.

3.4. PRINTED WIRING BOARDS:

Plated holes 0,6 ± 0,05 mm.
 1,4 - 5,6 mm thick (backplanes)
 1,4 - 4,2 mm thick (daughtercards)

3.5. PERFORMANCE AND TEST DESCRIPTION:

The product is designed to meet electrical, mechanical and environmental performance specified in figure 1 as tested per the test sequence in figure 2.
 All tests are performed at ambient environmental conditions per IEC specification 60512-1 unless otherwise specified.

Test Items	Requirements	Procedures
Examination of product	Meets requirements of product drawing.	IEC60512-2-1a Visual inspection.
ELECTRICAL		
Contact resistance (LLCR)	20milliohm max per contact, ΔR < 5 milliohms per contact final.	IEC60512-2-2a. Subject specimens to 100 mA maximum and 20 millivolts maximum open circuit voltage.
Insulation Resistance	10,000 megaohm minimum. 1,000 megaohm minimum final.	IEC60512-2-3a. Test between any adjacent contacts at 100 volts DC of mated specimens. Duration: 1 minute

Voltage Proof	No breakdown and flashover	IEC60512-2-4a. Method B. 750VAC r.m.s Test between adjacent contacts of mated specimens.
Electrical load and temperature	1.0A at 70°C, 1000h Max. temperature 125°C	IEC60512-5-9b. All contacts loaded
Contact disturbance	Max. disturbance 1 microsecond	IEC60512-2-2e. 6 contacts/connector Mated
MECHANICAL		
Test Items	Requirements	Procedures
Vibration	No physical damage No discontinuity > 1 μ s	IEC60512-4-6d. 10 sweepings in each direction 10-500Hz, Amplitude 0,35 mm or a= 50 m/s ² Mated, 2h in three axes. See figure 3
Physical shock.	No physical damage No discontinuity > 1 μ s	IEC60512-4-6c Acceleration 490 m/s ² duration of impact 11 ms 5 shocks in 2 directions in 3 axes See figure 3
Gauge retention force	Gauge shall be retained	IEC60512-8-16e 15g gauge dimensions see figure 4
Engagement / separation force	Engagement max 0,75N / contact Separation min. 0,15N / contact	IEC60512-7-13a Speed 10 mm/s. max. rest min. 30 s.
Contact retention in insert	Axial displacement max. 0,1 mm	IEC60512-8-15a 5N in mating and unmating direction.
Mechanical operations	125 cycles (total number of operations 2x125)	IEC60512-5-9a
Static load, traverse	No displacement of the connector on the pc board likely to impair normal operation.	IEC60512-5-8a Unmated see fig 5 F1 = 50N F2 = 40N F3 = 25N

ENVIRONMENTAL		
Test Items	Requirements	Procedures
Rapid change of temperature	Measure Insulation Resistance and Voltage Proof	IEC60512-6-11d -55°C / +125°C 5 cycles 30 min. / temp Mated
Dry heat	Measure Insulation Resistance	IEC60512-6-11l 125°C 16h Mated
Damp heat cycle	Measure Insulation Resistance, Contact resistance and Voltage Proof	IEC60512- 6-11m 40°C upper temperature
Cold	No physical damage	IEC60512- 6-11j -55°C 2h
Damp heat steady state	Measure Insulation Resistance, Contact resistance and Voltage Proof	IEC60512- 6-11m 40°C 93% RH 21 days
Corrosion industrial atmosphere	Measure Contact resistance	IEC 60068-2-60 (Kc) 50% Mated 4 days 500 ± 100 mm ³ / m ³ SO ₂ 100 ± 20 mm ³ / m ³ H ₂ S

Fig. 1

3.6. PRODUCT QUALIFICATION AND REQUALIFICATION:

Test or Examination	Test Group			
	1	2	3	4
	Test Sequence (a)			
Visual Examination	1,5,7,10,15,19,21,27	1,5,12,18	1,8	1,8
Contact resistance (LLCR)	3,8,11,24	3,6,10,13	2,5	2,5
Insulation Resistance	13,17,23	7,14	4	6
Voltage proof	14,25	8,15	6	7
Electrical load and temperature				4
Vibration	6			
Physical shock.	9			
Gauge retention force		2,16		
Engagement / separation force	2,26		7	
Contact retention in insert	4			
Mechanical operations		4,11		3
Static load, traverse		17		
Rapid change of temperature	12			
Dry heat	16			
Damp heat cycle 1 st cycle	18			
Damp heat cycle 5 cycles	22			
Cold	20			
Damp heat steady state			3	
Corrosion industrial atmosphere		9		
Sample size	3pcs	3pcs	3pcs	3pcs

NOTE:

(a) Numbers indicate sequence in which tests are performed.

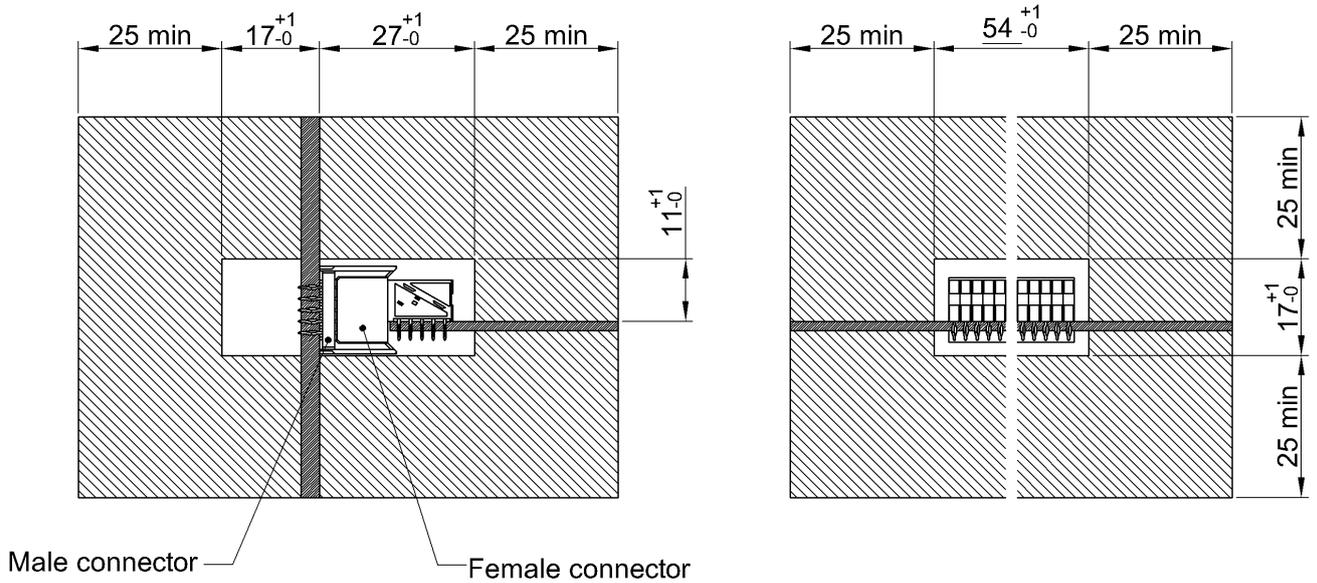
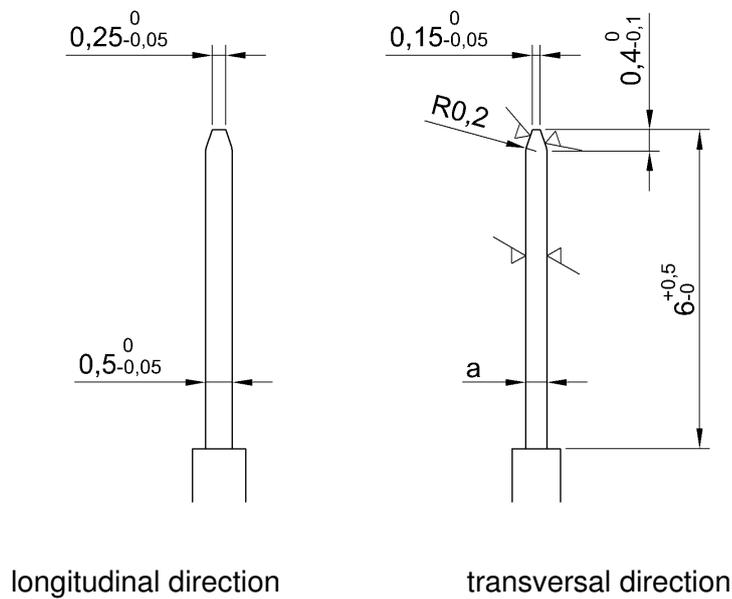


Figure 3: Fixture for dynamic stress tests.



Application	a	Mass
Sizing	0,40 to 0,39	-
Retention force	0,36 to 0,35	16g to 15g

Figure 4: Sizing and retention force gauge for female contacts.

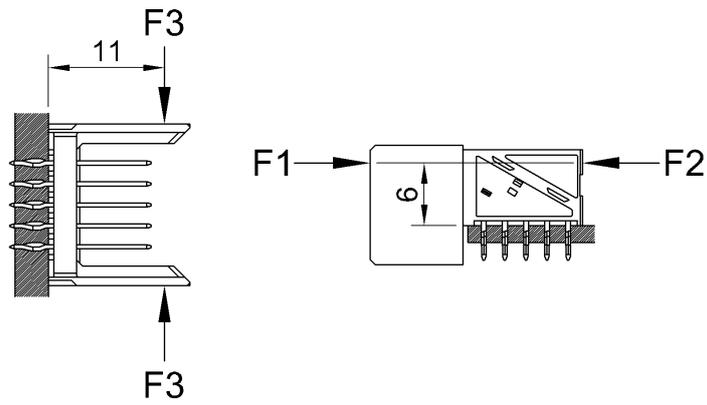


Figure 5: Test arrangement and application forces for static load test.