Plastic Panel Mounting

1. INTRODUCTION

1.1 Purpose

This document provides the qualification test summary of TE Connectivity plastic panel mounting of HDC connector.

1.2 Scope

This specification covers the electrical, mechanical and environmental performance of plastic panel mounting.

1.3 Conclusion

Based on the test results, all meet the requirements according to TE Connectivity Design Objectives 108-137479.

1.4 Product Description

Name	Remarks
HB-LM-TOP	HB insert locking mounting top parts
HB-PLM-PM-BASE	HB insert plastic mounting bottom parts, plane mounting

1.5 Qualification Test Sequence

Test or Examination	Test Group				
	A	B	C	D	E
	Test Sequence[1)]				
Visual and dimensional examination	1,3	1,4	1,5	1,6	1,5
Retention force		3	4		4
Mechanical strength impact	2				
Mechanical Operation (Durability)		2			
Vibration, Random				3	
Shock				4	
Contact Resistance				2,5	
Cold			2		
Dry Heat			3		
Damp Heat, cyclic					3
Rapid Change of temperature (Temperature Cycle)					2

***Notes:**

1) Numbers indicate the sequence in which the tests are performed.

2. TEST PROCEDURE

General				
No.	**Test Items**	**Requirements**		**Condition according to**
2.1	Visual and dimensional examination	Meets requirements of product drawing		Visual and dimensional examination IEC 60512-1-1/-2, Test 1a and 1b 6.2 of EN 61984
Mechanical				
2.2	Retention force	HB-LM-TOP: 200N HB-PLM-PM-BASE: 250N		Test load applied in axial direction, test speed:20mm/min, permissible shift contacts of 1.0mm, Test 15a of IEC 60512-15-1
2.3	Mechanical strength impact	Connector and internal insulation shall no damage to impair normal use. A reduction of clearance and creepage distance is not allowed. 6.18.1 & 6.18.3 of EN 61984		Dropping height: - 750mm for specimens of mass≤ 250g - 500mm for specimens of mass>250g Dropping cycles:8 positions in 45° step, one cycles per position IEC 60512-7-2 Test 7b
2.4	Mechanical Operation (Durability)	500 operation cycles without load No damage likely to impair normal use 6.14.1 of EN 61984		Shall be engaged and disengaged by means of A) a device simulating normal operating conditions at the speed of approximately 50mm/min B) manual mating/un-mating 300 Max. cycle per hour IEC 60512-9-1 Test 9a 7.3.9 of EN 61984
2.5	Vibration, Random	No damage likely to impair function No discontinuities greater than t>1µs		Frequency:5~150Hz Per EN 61373, Category 1, Class B (IEC60068-2-6 Test Fc)
2.6	Shock	No damage likely to impair function No discontinuities greater than t>1µs		Acceleration:50m/s^2 Duration:30ms Total 18 shocks (three positive and three negatives in each of the three orthogonal axes) Per EN 61373
Electrical				
2.7	Contact Resistance	Initial	Max.5mΩ	Test current: 1A Measure points[a] at the end of the termination Max three contacts per specimen plus protective earthing, if any IEC 60512-2-2 Test 2b
		Final	The change of contact resistance shall be no more than 50 % of the reference value or ≤5 mΩ. The higher value is permissible	

Environmental			
2.8	Cold	No damage likely to impair function	Subject mated specimen to -40℃ Duration time:16h, Test Ab Per IEC 60512-11-10 Test 11j (IEC 60068-2-1)
2.9	Dry Heat	No damage likely to impair function	Subject mated specimen to +125℃ Duration time:168h Test Bb Per IEC 60512-11-9 Test 11i (IEC 60068-2-2)
2.10	Damp Heat, cyclic	No damage likely to impair function	Subject mated specimen to Min ambient temperature: 25℃ Max ambient temperature: 45℃ Number of cycles:21 Duration time:12h+12h Variant 1 IEC 60512-11-12 Test 11m
2.11	Rapid Change of temperature (Temperature Cycle)	No damage likely to impair function	Subject mated specimen to Ta=-40±2℃ to Tb=+125±2℃, duration t1: 1h each extreme, 100 cycles IEC 60512-11-4 Test 11d (IEC 60068-2-14 Test Na)
[a] measuring point: at the conductor as close as possible to the termination, if this is not possible, the conductor resistance shall be recalculated.			

3. SUMMARY OF TEST RESULTS:

Examination of product – all test group

Test Group	Test Item	Test Result	Requirement	Judgment
Group A	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
	Mechanical strength impact	No physical damage	No damage likely to impair function	passed
	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
Group B	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
	Mechanical Operation (Durability)	No physical damage	After 500 operation cycles, No damage likely to impair normal use	passed
	Retention force	No physical damage	Retention force meet the specification	passed
	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed

Group C	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
	Cold	No physical damage	No damage likely to impair function	passed
	Dry Heat	No physical damage	No damage likely to impair function	passed
	Retention force	No physical damage	Retention force meet the specification	passed
	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
Group D	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
	Contact Resistance	1.94 mΩ Max.	The change of contact resistance shall be no more than 50 % of the reference value or ≤5 mΩ. The higher value is permissible	passed
	Vibration, Random	No breakdown or flashover	No damage likely to impair function No discontinuities greater than t>1µs	passed
	Shock	No breakdown or flashover	No damage likely to impair function No discontinuities greater than t>1µs	passed
	Contact Resistance	1.99 mΩ Max.	The change of contact resistance shall be no more than 50 % of the reference value or ≤5 mΩ. The higher value is permissible	passed
	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
Group E	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed
	Rapid Change of temperature (Temperature Cycle)	No physical damage	No damage likely to impair function	passed
	Damp Heat, cyclic	No physical damage	No damage likely to impair function	passed
	Retention force	No physical damage	Retention force meet the specification	passed
	Visual and dimensional examination	No physical damage	Meets requirements of product drawing	passed