



SPECIFICATION

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SPEC. NO.: PS-91235-XXXXX-XXX REVISION: 0

PRODUCT NAME: 2.2MM PITCH WTB WAFER CONN.

PRODUCT NO: 91235-XXXXX-XXX

PREPARED: CANDY DATE: 2013/9/11	CHECKED: JERRY DATE: 2013/9/11	APPROVED: JASON DATE: 2013/9/11
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1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
0	ECN-1309014	NEW SPEC	CANDY	2013/9/11

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2 SCOPE

This specification covers performance, tests and quality requirements for [2.2mm Pitch WTB Wafer Conn..](#)

3 APPLICABLE DOCUMENTS

24012NDS05 [1]

4 REQUIREMENTS

4.1 Design and Construction

- 4.1.1 Product shall be of design, construction and physical dimensions specified on applicable product drawing.
- 4.1.2 All materials conform to R.o.H.S. and the standard depends on TQ-WI-140101.

4.2 Materials and Finish

- 4.2.1 Contact: High performance copper alloy ([Brass](#))
Finish: (a) Contact Area: [Tin plated](#).
(b) Under plate: [Nickel-plated overall](#).
- 4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0

4.3 Ratings

- 4.3.1 Voltage: [13±1 Volts DC \(per pin\)](#)
- 4.3.2 Current: [1 Amperes \(per pin\)](#)
- 4.3.3 Operating Temperature : [-40°C to +120°C](#)

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5 Performance

5.1. Test Requirements and Procedures Summary

Item	Requirement	Standard																																			
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.																																			
ELECTRICAL																																					
Item	Requirement	Standard																																			
Voltage Drop	<div>Table 3.2.3</div> <table><tr><td>Type</td><td>TH</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>TH+H</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Initial value</td><td>10 or less</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>After the durability test</td><td>30 or less</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Minute electric current circuit. Initial value and value after the durability test</td><td>30 or less</td><td></td><td></td><td></td><td></td><td></td></tr></table>	Type	TH							TH+H						Initial value	10 or less						After the durability test	30 or less						Minute electric current circuit. Initial value and value after the durability test	30 or less						1.Energize the following circuits at the 15V voltages and 6A currents with the male and female connectors fitted.After the amount of voltage drop is stabled at a distance of 200mm away from the crimped section,measure the voltage drop.Subtracting the wire resistance of 200mm,determine the contact resistance. 2.Wire size[mm²] : 0.3 ;Electric resistance[mΩ/m] : 50.2
Type	TH																																				
	TH+H																																				
Initial value	10 or less																																				
After the durability test	30 or less																																				
Minute electric current circuit. Initial value and value after the durability test	30 or less																																				
Leak current	Initial : 10 μ A max. Final : 1mA max.	Put a pair of connectors in 60±5℃ and humidity of 90%~95% for 1hr. Voltage: 13VDC.																																			
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 500 V DC between adjacent terminals. (EIA-364-21)																																			
Dielectric Withstanding Voltage	No discharge, flashover or breakdown.	500 VAC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors.																																			
Temperature rise	Before the test 55° C MAX After the test 65° C MAX	1.Energize a connector whose half of total poles is connected in series (half pole energization) and that whose single pole only is connected in series (single pole energization) in a windless room. After reaching at a saturated temperature, measure the temperature of the terminal surface near to the contact section. see Fig 2.Type:TH; Wire size[mm²] : 0.3 ;Test current [A] : single pole:6A/half pole:4A																																			

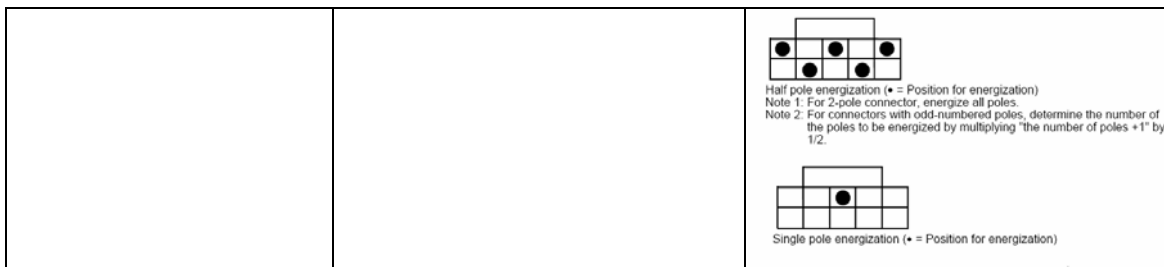
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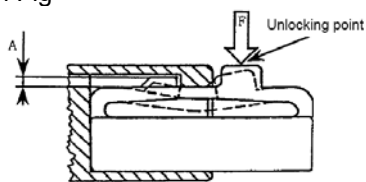
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MECHANICAL

Item	Requirement	Standard
Insertion and removal forces of connector	60N Max.	The sample should be mounted in the tester and fully mated/unmated the number of cycles specified at the rate of 100±5 mm/min.
Strength of lock test	98N Min.	Fit a male housing to female one and fix the one side of the housing with the housing lock operated. When the other housing is pulled at a constant speed of approximately 20 mm/min, measure a load at which the locking system is detached or broken. However, pull the housing in the five directions shown below. Additional measurements shall be made in the directions where are considered to be necessary in terms of the connector structure (use).
Terminal retention force (board type connector)	19.6N Min.	Apply axial pull out force at the speed rate of 200±5 mm/minute. On the terminal assembled in the housing.
Unlocking force	58.8N Max.	Apply a load to the loading point of the unlocking force to measure a load at which the load A shown in Fig 
Repetitive insertion and removal forces test	1. Insertion and removal force test 2 Voltage drop test 3 Temperature rise test	The sample should be measured insertion and removal forces test and voltage drop test and temperature rise test at 5 times and 20 repetitive insertion and removal forces test.

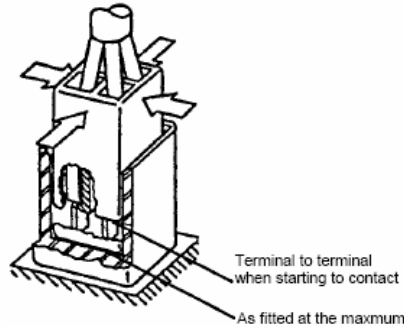
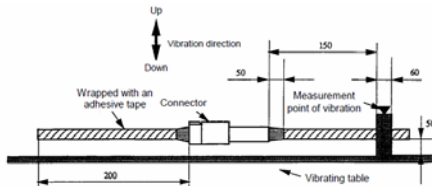
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ENVIRONMENTAL		
Item	Requirement	Standard
Pry resistance	<ol style="list-style-type: none"> 1. Voltage drop 2. Temperature rise 3. Connector insertion / separation force 	<p>Pry a pair of connectors around the top with a force of 78N 10 cycles.</p> 
Vibration	<ol style="list-style-type: none"> 1. Voltage drop test 2. Temperature rise test 	<p>Vibration Acceleration: 66.6 m/s^2 Vibration Frequency: 10-50-10 Hz Cycle/8min Duration: Up and down directions for 4hours forward and rearward directions for 2hours. Right and left directions for 2hours.</p>
Impact resistance	Voltage drop test	<p>Set the connector to a vibrating table as shown in Fig 3.3.4. Vibrate the connector at a vibration acceleration of 66.6 m/s^2 for 1h while change the vibration frequency between 10 Hz and 55 Hz consecutively at intervals of 8 min.</p> 
Current cyclic resistance	<ol style="list-style-type: none"> 1. Voltage drop 2. Wire fixing strength 3. Temperature rise 4. Terminal retention force 	<p>After energizing a connector for which half of the poles are connected in series for 45 min at an ambient temperature in 70°C, half the energization for 15 min. Assuming that these procedures are 1 cycle, conduct the test 300 cycles</p>
Fuse matching test	No physical damage	<p>After passing the current i_1 for 24 h, pass the current i_2 for 1 h as one cycle</p>

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Resistance to rush current test	1.Voltage drop test 2.Temperature rise test	For a connector for which half of the poles are connected in series as specified in Temperature rise test, conduct the following tests (a) and (b) at an ambient temperature of 60°C. The applicable wire size shall be as shown in Temperature rise test. (a) Power on 1 minute 、power off 9 minutes as one cycle, repeated 1000 cycles (b) Power on 10 sec 、power off 590 sec as one cycle, repeated 1000 cycles
Heat resistance	1. Voltage drop test 2. Temperature rise test 3. Terminal retention force test (board type connector) 4. Strength of lock test	Leave a connector under fitted conditions in a thermostatic chamber kept at 100° C for 120 h. Then, take it out from the chamber and leave it to stand until it returns to normal temperature.
Cold resistance	1. Voltage drop test 2. Temperature rise test 3. Terminal retention force test (board type connector) 4. Strength of lock test	Leave a connector under fitted conditions in a thermostatic chamber kept at -40°C+0 -10 for 120 h.
Dust resistance	Voltage drop	Put a connector under fitted conditions in a gastight enclosure 1000 mm in length,width and height at a distance of 150 mm from the inside wall.After diffusing Portland cement of approximately 1.5kg for 1h by blowing air for 10 s every 15 min,take the connector out from the enclosure and perform insertion and removal 3 times.
Resistance to sulfurous acid	Voltage drop	Leave a connector under fitted conditions in a chamber of sulfurous acid gas kept at an ambient temperature of 40°C, concentration of 500 ppm and humidity of 90 to 95% or more for 8 h. The measurement shall be made immediately after taking the connector out from the chamber
Ozone resistance	Voltage drop	A pair of connectors kept at 40±2°C . Then in the ozone of 50±5 PPHM for 24hrs(JIS K 6301), take out and leave them at the room temperature.



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Weatherability	1. Voltage drop test 2. Strength of lock test	Conduct the test by Method 1, Class 4A as specified in NES M0135 "Weatherability" with connector fitted.
Prying resistance 2 test	No physical damage	Pry a pair of connectors around the top with a force of 78N 10 cycles.
Prying resistance and current cyclic resistance	After the durability tests 1, 2 and 3, the performance requirements specified in Section Voltage drop shall be met. After the durability test 3, the performance requirements specified in Section "Temperature rise" shall be met.	(1) Repetitive insertion and removal forces test (2) Prying resistance test (3) Current cyclic resistance test (4) After the durability tests 1 to 3, the performance requirements specified in the following sections shall be met.

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6 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Voltage drop test	1										
Leak current test		1									
Insulation resistance test			1								
Withstand voltage test				1							
Temperature rise test					1						
Insertion and removal forces of connector						1					
Strength of lock							1				
Terminal retention force (board type connector)								1			
Unlocking force									1		
Repetitive insertion and removal forces test										1	
Prying resistance test											1
Sample Size	10	10	10	10	5	10	10	10	10	10	10

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Test or Examination	Test Group										
	12	13	14	15	16	17	18	19	20	21	22
	Test Sequence										
Vibration resistance test	1										
Impact resistance test		1									
Current cyclic resistance test			1								
Fuse matching test				1							
Resistance to rush current test					1						
Heat resistance test						1					
Cold resistance test							1				
Dust resistance								1			
Resistance to sulfurous acid									1		
Ozone resistance										1	
Weatherability											1
Sample Size	10	10	10	10	10	10	10	10	10	10	10



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Test or Examination	Test Group										
	23	24									
	Test Sequence										
Prying resistance 2 test	1										
Prying resistance and current cyclic resistance		1									
Sample Size	10	10									