SPECIFICATION

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SPEC. NO.: PS-92206-XXXXX-XXX **REVISION:** C

PRODUCT NAME: PITCH 2.5mm WTB Wafer Conn. T/H D/R R/A

PRODUCT NO: 92206 92223 92224 92411 92509 SERIES

PREPARED:	CHECKED:	APPROVED:
CHANGCHEN	**DAVID**	**DAVID**
DATE: **2018/05/19**	DATE: **2018/05/19**	DATE: **2018/05/19**

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
1	1502069	NEW SPEC	Ben	15/02/05
O	1505195	Vibration:DC12V 0.1A -> 0.1A	Ben	15/05/18
A	1601229	A new increase of 92223 / 92224 series	XUYANGYANG	16/01/14
B	ECN-1601229	修改環境溫度	Liang ju	19/02/15
C	ECN-1909037	A new increase of 92411 / 92509 series	CHANGCHEN	19/09/03

2 SCOPE

This specification covers performance, tests and quality requirements for PITCH 2.5mm WTB Wafer Conn. T/H D/R R/A Type

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3 APPLICABLE DOCUMENTS

3.1 EIA364:ELECTRONICS INDUSTRIES ASSOCIATION
3.2 CTS-17.01.03-A1 & EIA-364

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

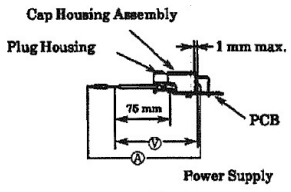
4.2.1 Contact: High performance copper alloy (Brass)
Finish: (a) Contact Area: Tin plated.
(b) Under plate: Nickel-plated overall.
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-HB

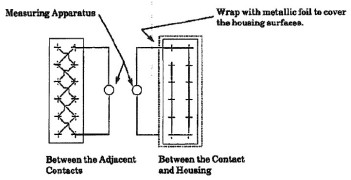
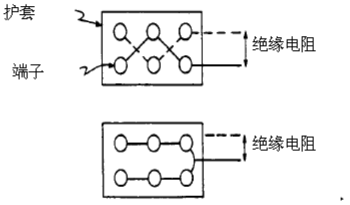
4.3 Ratings

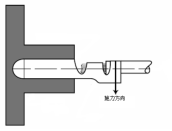
4.3.1 Current: 5 Amperes (per pin)
4.3.2 Operating Temperature : -40℃ ~105℃
4.3.3 Normal humidity:60±15%

5 Performance

5.1. Test Requirements and Procedures Summary

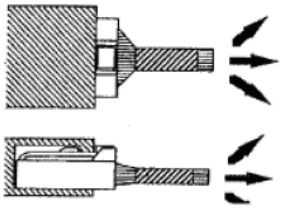
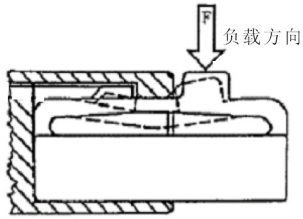
Item	Requirement	Standard
Confirmation of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensionally and functionally inspected per applicable drawings and application specification. **(CTS-17.01.03-A1-6.2.1)**
Hand feeling	There is no obvious blocking or such a touch.	Insert and drag the terminal，sheath and connector with the hand and check the tactile**(CTS-17.01.03-A1-6.3.7)**
ELECTRICAL		
Item	**Requirement**	**Standard**
Termination Resistance (Low Level)	0.5mm² Initial:5mΩMax. Final: 10mΩMax.	Subject mated contacts assembled in housing to closed circuit current of 1± 0.05A max. at open circuit voltage of 12V max.  **Fig 1.**
Current Leakage	≤3mA	Take an embedded connector,wire selection max wire diameter.AC 14V voltage was applied between the adjacent termanals and the peak leakage cuurent was measured. **(CTS-17.01.03-A1-6.4.6)**
Low voltage current tolerance	The initial: ≤5 mΩ Environmenttal resisance test period/later: ≤10 mΩ	Enter 10mA current at the opening of the maximum 20mV and calculate the contact resistance. **(CTS-17.01.03-A1-6.4.2)**
Insulation Resistance	100 M Ω Min.(Init ial) 100 M Ω Min.(Final)	Measured by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connectors. Fig.3 Condition DC 500 V. Fig.3**(CTS-17.01.03-A1-6.4.4)**

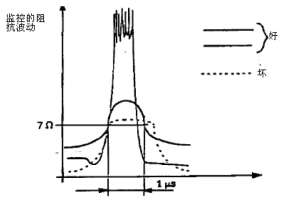
		 **Fig 3.**
Dielectric Withstanding Voltage	No obvious rupture or break down	Measured by applying test potential between the adjacent contacts, and between the contacts and ground in the mated connectors. Connector must withstand test potential of 1kVAC for1minute, **(CTS-17.01.03-A1-6.4.5)**  图 9 绝缘电阻测试
Temperature rise	30° C, max. under loaded specified current.	After having a half number of contacts series-wired（AVSS 0.5mm^2）, apply the specified current to the connector in the draft-free test chamber, and after reaching the established temperature, measure the temperature of the wire crimp of the contact. a: pass the Imax through the connector b:Pass the Imax*Kd through all theholes in the connector. **(CTS-17.01.03-A1-6.4.3)** 孔位数 / 折减系数: 1 / 1; 2到3 / 0.75; 4到5 / 0.6; 6到8 / 0.55; 9到12 / 0.5; 13到20 / 0.4; 21到30 / 0.3; >30 / 0.2 线径/mm^2 / I max/A: 0.3 / 8; 0.5 / 11; 0.85 / 15; 1.25 / 18; 2 / 25; 3 / 33; 5 / 45; 8 / 57; 15 / 78
Over Current Loading	The appearance meets the r sheath to change slightly	Take an embedded connector,wire selection max wire diameter,put the connector water dry in the no-wind condition,and input the corresponding current and length in the following table . **(CTS-17.01.03-A1-6.5.1)** Current load

		电流 A / 时间 16.5 / 60 min 20.5 / 200s 22.5 / 10s 30 / 1s - / -
Resistance to slow sliding	Comply with group 12 test.	At room temperature,the working terminal and the female terminal are listed in table 9 **(CTS-17.01.03-A1-6.6.1)** 滑动距离 / 滑动频率 / 滑动次数 / 开路电压 / 通电电流 0.23mm / 1~2 Hz / 10,000次 / 最大20 mV / 10 mA
The bending strength of terminal	After 15s,the terminal can't be torn apart	This test is only applicable to the common terminal,Fix the end of the press,pressing the position up,as shown in figure 2,apply 15N force along the diagram and then release after 15s,the terminal were then rotated 180°and 90°respectively. **(CTS-17.01.03-A1-6.3.4)**  图 2 端子弯曲强度测试 表 3 端子弯曲强度施加力 端子材料厚度/mm / 施力值/N ≤ 0.20 / 4 ≤ 0.30 / 10 ≤ 0.40 / 15 > 0.40 / 20

MECHANICAL

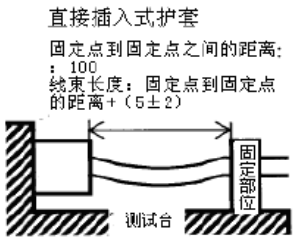
Item	Requirement	Standard
Connector locking force	100N Min。	A pair interlocking connectors is required to pull a solid measurement from the other end at a speed of 50mm/min when the end is fixed and the device is in the junction. According to the connector lock structure, in the axial direction and relative to the surface of the five direction tilt 45°the easiest way to make the direction of unlocked device. **(CTS-17.01.03-A1-6.3.12)**

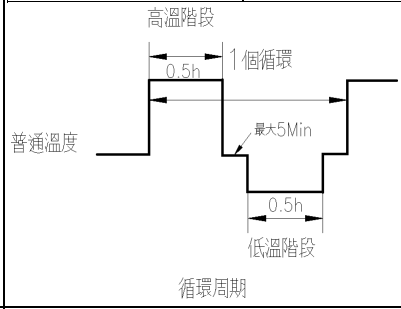
		 锁合力测试
Terminal holding force	40N Min。	Will be a better terminal and wire crimping chimeric within the sheath,and then in the shaft up to 50mm/min speed drawing of the wire,try point distance terminal pressure parte of 100mm,measuuring terminal load from the sheath when pulled of . **(CTS-17.01.03-A1-6.3.6)**
Mating Force	8 PIN 58.8N Max 12 PIN 68.6N Max 16 PIN 88.2N Max 20 PIN 98N Max FOR CHANGAN 70N Max	Measure the force required to mate connector with locking latch by operating at 50 mm a minute. **(CTS-17.01.03-A1-6.3.10)**
Unmating Force	8 PIN 58.8N Max 12 PIN 68.6N Max 16 PIN 88.2N Max 20 PIN 98N Max FOR CHANGAN 70N Max	Measure the force required to unmate connector without locking latch set in effect, by operating at 50 mm a minute. **(CTS-17.01.03-A1-6.3.11)**
Housing Lock Strength	100N Min.	Determine strength of housing locking mechanism. Operate at a rate of 50mm a minute**(CTS-17.01.03-A1-6.3.12)**
Unlock the force	20N Max	In a embedded with terminal connector,according to the connector after the insert lock structure,at the most easy to lock in tectonic unlock on the connector load,measure the lock or unlock the required load moment**(CTS-17.01.03-A1-6.3.13)**  。

Durability	Termination Resistance (Low Level)(Final) 0.5mm² 10mΩ max.	Mate and unmate connectors for 50 Cycles. **(CTS-17.01.03-A1-6.6.2)**
Mechanical shock	Transient breaking time≤1ms	Take a pair of connectors with full terminals,and select the maximum diameter of the terminal adaptor.All hole series,and install it on the impact test bench,up/down,left/right before/back with six direction 980m/s² acceleration ,Three times in each direction,10ms at a time **(CTS-17.01.03-A1-6.6.4)**  图 11 振动试验中的阻抗

ENVIRONMENTAL

Item	Requirement	Standard
Heat resistance	See Product Qualification and Test Sequence Group6	Take a pair of connectors with built-in terminals,the maximum diameter of the terminal fitting.Put it in the 100±3℃ high temperature box in the test 120h,in type waterproof connector,strapping all wires,to make it to 30°,The tilt of the tilt is tilted to the waterproof bolt,plus 30N negative. After the test is completed,the connector is removed and adjusted to room temperature. (CTS-17.01.03-A1-6.7.1)
Solderability	Solderable area shall have solder coverage of 95% minimum.	After immersing a soldering area of the cap assembly posts in flux (rosineous methanol solution) for 5 to 10 seconds, immerse it in a soldering bath of 230° C±5° C (tin 60% lead 40%) for 3±0.5 seconds,and then inspect the connector by using approx. X10 magnifying glass.
Resistance to Cold	Termination resistance (Low Level)	Subject mated connectors to exposure of -40° C for 24 hours.

Vibration	Transient breaking time ≤1ms; Connector impedance changes ≤7Ω/μs.	Take an embedded connector,wire selection max wire diameter,connector all the holes in series and install them on the vibrating table(the following figure).vibrate 6h in the top/bottom、left/right、front/rear three directions,standards are show in table,the same time,the current on both ends of the series wire is continuous through 12V and 1A.During the experiment,the transient and impedance changes of the connector were checked. (CTS-17.01.03-A1-6.6.3)  振动标准 5~15 Hz 10 mm (p-p) | 15~25 Hz 44.1 m/s² | 25~100 Hz 19.6 m/s² | 100~200 Hz 4.9 m/s² Fig.4

Thermal Shock	Comply with group 5 test.	Take a pair of connectors with built-in terminals to insert,and the wire is selected with the most flattering diameter of the terminal tongue,As shown in figure in the cold strike type of connector try humming gartic street test are shown in table ,300 repeat cycle. During the test,check the teansient condition of the current,and the impedance fluctuation of the connector should not exceed 7Ω,After the test is completed,the connector will be removed and the connector will be left after 2h(CTS-17.01.03-A1-6.7.3) 高温/℃ (high temperature/℃) | 低温/℃ (low temperature/℃) 70 | -40 
Humidity	Comply with group 17 test.	Subject mated connectors to steady state humidity at 40° C and 90-95% R.H 96 hours.
Resistance to Solder Heat	No Physical damage shall occur. Tab retention force 9.8N min.	Dip between 3 mm and top of solder tab of cap housing assembly into solder bath (tin 60%,lead40%) at 250° C±5° C for 5±0.5 seconds and lock into appearance and meas tab retention force as bellow. Measurements of tab retention for cut tab at bending area after dipped and measure the force of tab to move when pushing toward the direction by arrow mark.

6 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Confirmation of Product	1	1	1.5	1.4	1.10	1.5	1.3	1,4	1,3	1,11		1,3	1,9	1,9	1,9	1,4	1,9
Hand feeling	6				8												
Termination Resistance								2,5		2,10			2,8	2,8	2,8	2,5	2,8
Insulation Resistance										3,9			3,7	3,7	3,7		3,7
Over Current Loading			3														
Resistance to slow sliding				2													
Dielectric Withstanding Voltage										4,8			4,6	4,6	4,6		4,6
Temperature rise	4							3								3	
Current Leakage									2								
Low voltage current tolerance	3		2.4	3	3.5.7	2											
Mating Force	2				2					5							
Unmating Force	5									7							
Housing Lock Strength											1			10	10		10
Durability					4					6							
The bending strength of terminal	8																
Terminal holding force	7				9												

Heat resistance						3							5				
Resistance to Cold														5			
Vibration						4									5		
Humidity																	5
Solderability												2					
Mechanical shock							2										
Thermal Shock					6												
Connector locking force		3															
Unlock the force		2															
Sample Size	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

表 5 试验要求

步骤	1	2	3	4
方法	用厚度仪测量端子间的间隙	在端子弹簧的接触部位应用负载 60s	释放端子弹簧部位的负载	试验后，测量端子最佳置换位置的剩余接触负载