



SPECIFICATION

宏致電子股份有限公司

桃園縣中壢市東園路13號

No.13, Dongyuan Rd., Jhongli City,

Taoyuan County 320, Taiwan (R.O.C.)

TEL: +886-3-463-2808

FAX: +886-3-463-1800

SPEC. NO.: PS-92213-XXXXX-XXX REVISION: B

PRODUCT NAME: 3.5mm PITCH WTB WAFER CONN.

PRODUCT NO: 92213、92233、2248 Series

PREPARED: LIANG JU DATE: 2019/06/10	CHECKED: KUANG EN DATE: 2019/06/10	APPROVED: KUANG EN DATE: 2019/06/10
--	---	--



Aces P/N: **92213 series**

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: **2** OF **9**

1	REVISION HISTORY	3
2	SCOPE.....	4
3	APPLICABLE DOCUMENTS	4
4	REQUIREMENTS	4
5	PERFORMANCE	5
6	PRODUCT QUALIFICATION AND TEST SEQUENCE.....	9



Aces P/N: **92213 series**

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 3 OF 9

1 Revision History

Rev.	ECN #	Revision Description	Prepared	Date
O	ECN-1512243	NEW SPEC	Lerry	15/12/15
A	ECN-1704130	Refer to TE Spec modify SPEC Add 92213 and 92248	Snow	17/04/10
B	ECN-1906167	Update the per pin current 2A to 3A	Liang Ju	19/06/10

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 4 OF 9

2 SCOPE

This specification covers performance, tests and quality requirements for 3.5mm Pitch WTB Wafer Conn..

3 APPLICABLE DOCUMENTS

EIA-364 ELECTRONICS INDUSTRIES ASSOCIATION
TE-108-5216

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-V0

4.3 Ratings

- 4.3.1 Voltage: 12±1 Volts DC (per pin)
- 4.3.2 Current: **3 Amperes (per pin)**
- 4.3.3 Operating Temperature : -50°C to +120°C

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

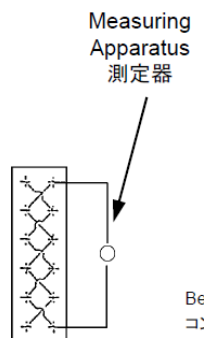
REVISION: B

ECN No: ECN-1704130

PAGE: 5 OF 9

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
Termination Resistance (Specified Current)	Test Current (A)	Resistance mV/A (max.)	Subject mated contacts assembled in housing to 13V Max. Open circuit at 1A., Fig.1 (TE Spec. 109-5311-2)
	1	Initial : 5 Final : 10	
Termination Resistance (Low Level)	5 mΩ Max. (Initial) 10 mΩMax. (Final)		Subject mated contacts assembled in housing to closed circuit current of 10 mA Max. at open circuit voltage of 20 mV Max. Fig.1 (TE Spec. 109-5311-1)
Dielectric Withstanding Voltage	No creeping discharge or flashover shall occur.		1.8 kVAC for 1 min Test between adjacent circuits of mated connectors. (TE Spec.109-5301)
Insulation Resistance	100 MΩ Min. (Initial) 100 MΩ Min. (Final)		Impressed voltage 500 V DC. Test between adjacent circuits of mated Connectors. Fig.2 (TE Sepec. 109-5302)
Current Leakage	3 mA Max.		12 V DC impressed 60°C Humidity'90 ~ 95% 1h (TE Spec. 109-5312) <div style="text-align: center;">  </div>
Temperature rise	60°C Max. under loaded specified current.		Measure temperature rising by energized current. Fig.3 (TE Spec. 109-5310)
Current Cycling	10 mV / A Max. (Final) 10 m_ Max. (Final)		Applied corrent ; Fig. 3 45 min "ON" 15 min "OFF" 200 cycles

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 6 OF 9

MECHANICAL

Vibration (High Frequency)	No electrical discontinuity greater than 1 μ sec. shall occur. 10 m_ Max. (Final) 10 mV / A Max. (Final)		Vibration Frequency : 20 ~ 200-20 Hz / 1 min Accelerated Velocity : 44 m / s ² (4.5 G) Vibration Direction : X, Y, Z Duration : 8 h each (TE Spec. 109-5202) Fig.4
Mating /Unmating Force	Number of Position	Force (N) max.	Operation Speed : 100 mm / min. Measure the force required to unmate connectors. (TE Spec. 109-5206) Insertion: with the lock Extraction: without the lock
	18	128	
	20	230	
Strength of lock	98N min.		Measure connector locking strength. Operation Speed : 100 mm / min (TE Spec. 109-5210)
Contact Retention Force	20 N Min.		Apply an axial pull-off load to crimped wire. Operation Speed : 100 mm / min (TE Spec. 109-5212)
Durability	30 cycles		Repeated mating / unmating by hand, 30 cycles (TE Spec. 109-5215)

ENVIRONMENTAL

Item	Requirement	Standard
Solder ability	Tin plating: Solder able area shall have minimum of 95% solder coverage.	And then into solder bath, Temperature at 235 \pm 5 $^{\circ}$ C, for 3 \pm 0.5 sec. (TE Spec. 109-5203)
Thermal Shock	See Product Qualification and Test Sequence Group 5	- 30 $^{\circ}$ C / 120 min, 80 $^{\circ}$ C / 120 min Making this a cycle, repeat 5 cycles (TE Spec. 109-5103)
Humidity	See Product Qualification and Test Sequence Group 5	Mated Connector, 90~95 % R.H. 60 $^{\circ}$ C 48 h (TE Spec. 109-5105-2)
Low Temperature test	See Product Qualification and Test Sequence Group 7	- 50 $^{\circ}$ C \pm 5 $^{\circ}$ C, 120 h (TE Spec. 109-5108)
Temperature life(Heat)	See Product Qualification and Test Sequence Group 8	120 $^{\circ}$ C, Duration : 120 h (TE Spec. 109-5104)

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 7 OF 9

Fig 1

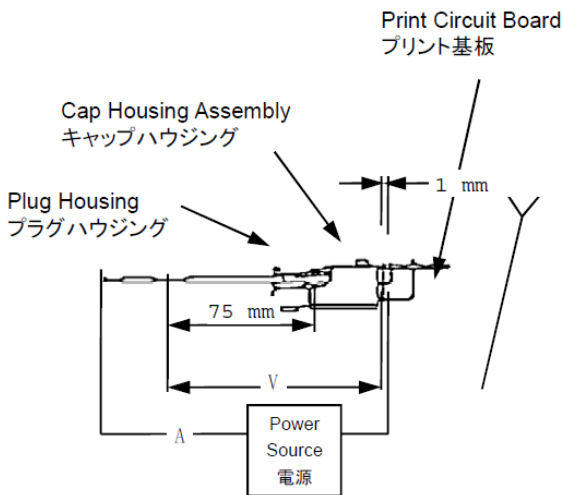


Fig 2

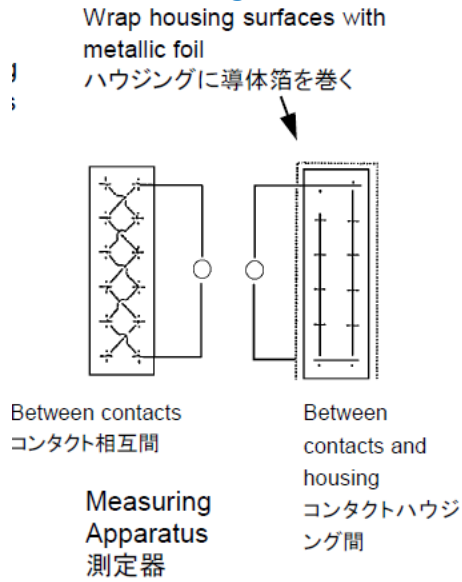


Fig.3

Wire Size 電線サイズ (mm ²)	Current Max. 電流値 (A)
0.2 mm ²	DC 6 A
0.3 mm ²	DC 8 A
0.5 mm ²	DC 11 A
0.85 mm ²	DC 15 A
1.25 mm ²	DC 19 A

No. of Pos. 極数	Reduction Coefficient 減少係数
1	1
2~3	0.75
4~5	0.6
6~8	0.55
9~12	0.5
13 & Over	0.4

通電電流 = 電流値 X 減少係数

Loaded Current = Current Max. X Reduction coefficient

Note : The acceptable current carrying capacity is obtained by the specified maximum coefficient obtained by the number of contacts above table.

注記: 通電電流は各電線サイズに対応する電流値と、極数に対応する減少係数との積から算出される。

TITLE: **3.5MM PITCH WTB WAFER CONN.**

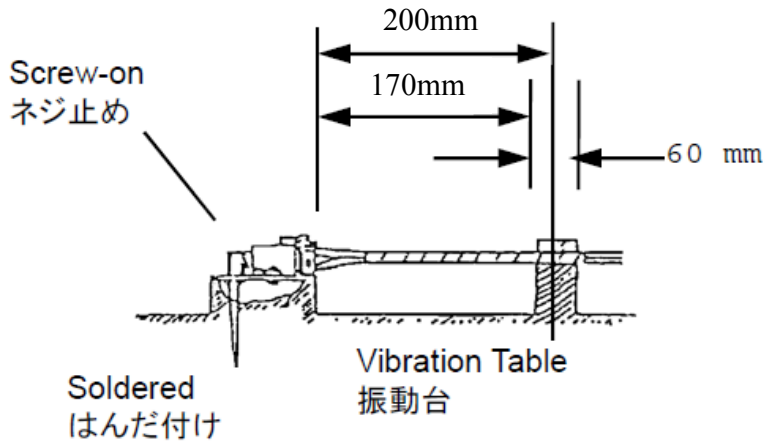
RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 8 OF 9

Fig.4





Aces P/N: **92213 series**

TITLE: **3.5MM PITCH WTB WAFER CONN.**

RELEASE DATE: 2019/06/10

REVISION: B

ECN No: ECN-1704130

PAGE: 9 OF 9

6 PRODUCT QUALIFICATION AND TEST SEQUENCE

Test or Examination	Test Group										
	1	2	3	4	5	6	7	8	9	10	11
	Test Sequence										
Examination of Product	1	1	1,7	1,7	1,7	1,3	1	1	1	1	1
Termination Resistance (Specified Current)	4,7		3,6	3,9	3,6		3,6				
Termination Resistance (Low Level)	3,6		2,5	2,8	2,5		2,5	2,4	2,4		
Dielectric Withstanding Voltage				5,11							
Insulation Resistance				4,10							
Current Leakage											2
Temperature rise					4						
Current Cycling										2	
Vibration			4								
Mating /Unmating Force	2										
Strength of lock							7				
Contact Retention Force		2									
Durability	5										
Solder ability						2					
Thermal Shock							4				
Humidity				6							
Low Temperature test								3			
Temperature life(Heat)									3		
Sample Size	5	5	5	5	5	5	5	5	5	5	5