SPECIFICATION

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SPEC. NO.: PS-51232-XXXXX-XXX **REVISION:** C

PRODUCT NAME: 0.8 mm PITCH WTB IDC CONNECTOR

PRODUCT NO: 51232-XXXXX-XXX: 51233-XXXXX-XXX

PREPARED:	CHECKED:	APPROVED:
STEVEN	**CARL**	**SEAN**
DATE: **2018/01/17**	DATE: **2018/01/17**	DATE: **2018/01/17**

1 REVISION HISTORY

Rev.	ECN #	Revision Description	Prepared	Date
1	ECN-1209318	NEW SPEC.	BERNIE	2012/09/27
2	ECN-1302177	1.Housing wall and wire tip=0.2→0.1mm 2.Modify Test Group 9 3.Contact Retention Force (Board Side) 0.20 Kgf Min→.0.15 Kgf Min→	BERNIE	2013/02/26
O	ECN-1305350	1.RELEASE 2. Modify Termination Depth D/d DIM.	BERNIE	2013/06/10
A	ECN-1309046	Mating method :20 degrees to mating→5 degrees to mating	BERNIE	2013/09/03
B	ECN-1402020	Perpendicular →0.5N→5N d=0.22+0.03/-0.04mm→d=0.22+0.05/-0.02mm Cancel UV glue for the application of the wire	BERNIE	2014/02/05
B	ECN-1801289	UL10625→UL11682	STEVEN	2018/01/17

2 SCOPE

This specification covers performance, tests and quality requirements for 0.8 mm pitch IDC connector.

3 APPLICABLE DOCUMENTS

EIA-364: ELECTRONICS INDUSTRIES ASSOCIATION

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.
Finish: (a) Contact Area: Refer to the drawing.
(b) Under plate: Refer to the drawing.
(c) Solder area: Refer to the drawing.
4.2.2 Housing: Thermoplastic or Thermoplastic High Temp., UL94V-0
4.2.3 Fitting Nail: Copper Alloy,
Finish: Refer to the drawing.

4.3 Ratings

4.3.1 Voltage: 30 Volts AC (per pin)
4.3.2 Current: AWG#32: 1.0 Amperes (per pin)
4.3.3 Operating Temperature : -40℃ to +85℃

5 Performance

5.1. Test Requirements and Procedures Summary

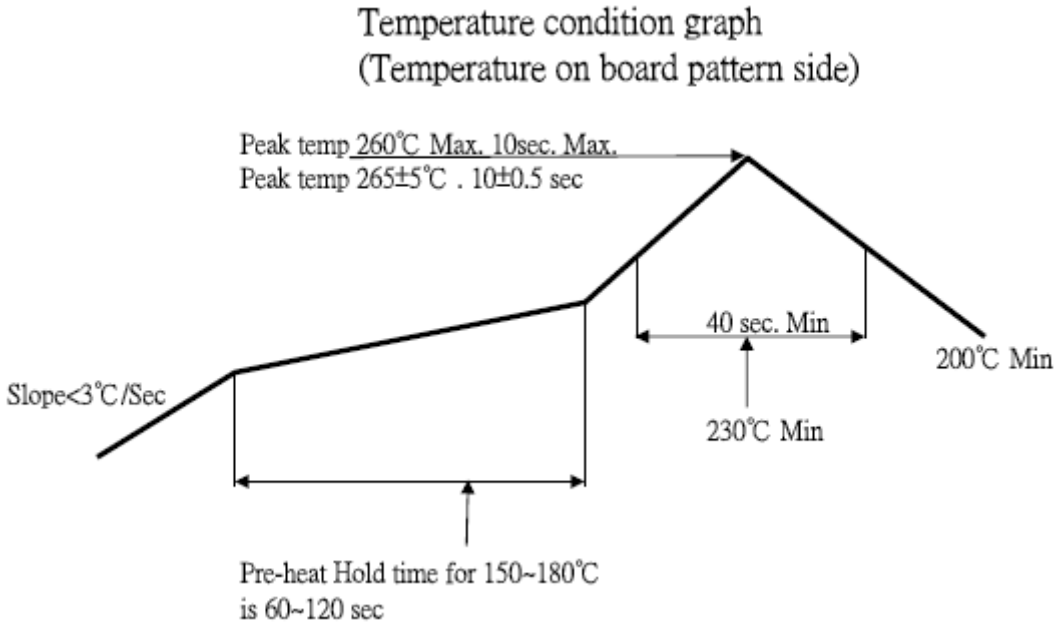
Item	Requirement	Standard
Examination of Product	Product shall meet requirements of applicable product drawing and specification.	Visual, dimensional and functional per applicable quality inspection plan.
ELECTRICAL		
Item	**Requirement**	**Standard**
Low Level Contact Resistance	20 m Ω Max.(initial)per contact 40 m Ω Max. after test.	Mate connectors, measure by dry circuit, 20mV Max., 100mA Max. (EIA-364-23)
Insulation Resistance	100 M Ω Min.	Unmated connectors, apply 250 V DC between adjacent terminals. (EIA-364-21)
Dielectric Withstanding Voltage	No discharge, flashover or breakdown. Current leakage: 2 mA max.	250V AC Min. at sea level for 1 minute. Test between adjacent contacts of unmated connectors. (EIA-364-20)
Temperature Rise	30℃ Max. Change allowed	Mate connector: measure the temperature rise at rated current until temperature stable. The ambient condition is still air at 25℃ (EIA-364-70,METHOD1,CONDITION1)
MECHANICAL		
Item	**Requirement**	**Standard**
Durability	10 cycles.	The sample should be mounted in the tester and fully mated and unmated the number of cycles specified at the rate of 25.4 ± 3mm/min.
Mating / Unmating Forces	Please see Item 8	Operation Speed： 25.4 ± 3 mm/minute.. Measure the force required to mate/unmate connector. (EIA-364-13)
Contact Retention Force (Board Side)	0.15 Kgf Min.	Operation Speed： 25.4 ± 3 mm/minute. Measure the contact retention force with tester.
Fitting Nail /Housing Retention Force	0.15 Kgf MIN.	Apply axial pull out force at the speed rate of 25.4 ± 3 mm/minute. On the fitting nail assembled in the housing.

Wire Pull Out Force	Refer to item 10	Operation Speed： 25.4 ± 3 mm/minute. Fix the crimped terminal, apply axial pull out force on the wire.
Vibration	1 μs Max.	The electrical load condition shall be 100 mA maximum for all contacts. Subject to a simple harmonic motion having amplitude of 0.76mm (1.52mm maximum total excursion) in frequency between the limits of 10 and 55 Hz. The entire frequency range, from 10 to 55 Hz and return to 10 Hz, shall be traversed in approximately 1 minute. This motion shall be applied for 2 hours in each of three mutually perpendicular directions. (EIA-364-28 Condition I)
Shock (Mechanical)	1 μs Max.	Subject mated connectors to 50 G's (peak value) half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction shall be applied along the three mutually perpendicular axes of the test specimen (18 shocks). The electrical load condition shall be 100mA maximum for all contacts. (EIA-364-27, test condition A)
ENVIRONMENTAL		
Item	**Requirement**	**Standard**
Resistance to **Reflow** Soldering Heat (Board Side)	See Product Qualification and Test Sequence Group 10 **(Lead Free)**	Pre Heat：150℃~180℃, 60~120sec. Heat：230℃ Min., 40sec Min. Peak Temp.：260℃Max, 10sec Max. Reflow Number : 2 cycle
Thermal Shock	See Product Qualification and Test Sequence Group 4	Mate module and subject to follow condition for 5 cycles. 1 cycles: -55 +0/-3 ℃, 30 minutes +85 +3/-0 ℃, 30 minutes (EIA-364-32, test condition I)
Humidity	See Product Qualification and Test Sequence Group 4	Mated Connector 40℃, 90~95% RH, 96 hours. (EIA-364-31,Condition A, Method II)
Temperature Life	See Product Qualification and Test Sequence Group 5	Subject mated connectors to temperature life at 85℃ for 96 hours. (EIA-364-17, Test condition A)

Salt Spray (Only For Gold Plating)	See Product Qualification and Test Sequence Group 6	Subject mated/unmated connectors to 5% salt-solution concentration, 35℃ (I)Gold flash for 8 hours (II)Gold plating 3 u" for 48 hours. (III) Gold plating 5 u" for 96 hours. (EIA-364-26)
Solder ability (Board Side)	Tin plating: Solder able area shall have minimum of 95% solder coverage. Gold plating: Solder able area shall have minimum of 75% solder coverage	And then into solder bath, Temperature at 245 ±5℃, for 4-5 sec. (EIA-364-52)
Hand Soldering Temperature Resistance (Board Side)	Appearance: No damage	T≧350℃, 3sec at least.

Note. Flowing Mixed Gas shell be conduct by customer request.

6 INFRARED REFLOW CONDITION



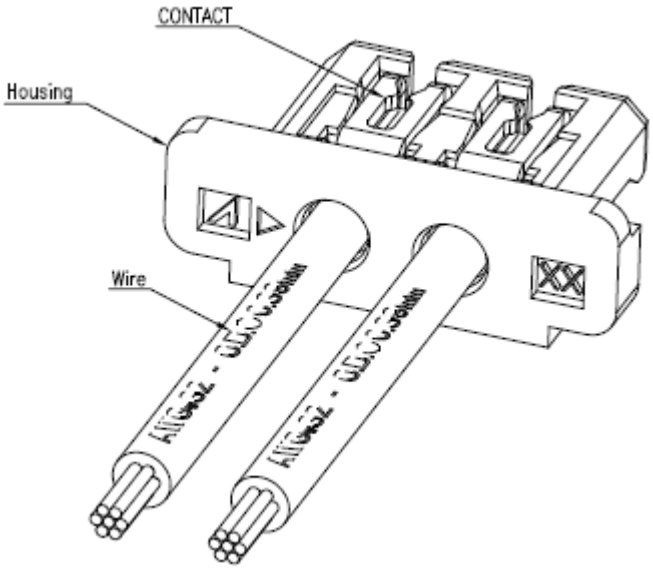
7 PRODUCT QUALIFICATION AND TEST SEQUENCE

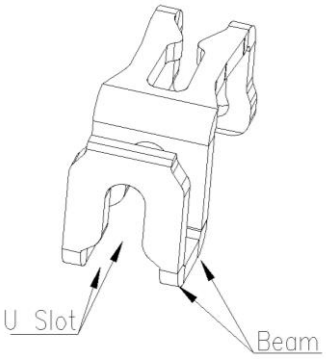
Test or Examination	Test Group											
	1	2	3	4	5	6	7	8	9	10	11	12
	Test Sequence											
Examination of Product				1、7	1、6	1、4				1	1、3	
Low Level Contact Resistance		1、5	1、4	2、10	2、9	2、5				3		
Insulation Resistance				3、9	3、8							
Dielectric Withstanding Voltage				4、8	4、7							
Temperature Rise	1											
Mating / Unmating Force		2、4										
Durability		3										
Contact Retention Force (Board Side)												1
Vibration			2									
Shock (Mechanical)			3									
Thermal Shock				5								
Humidity				6								
Temperature Life					5							
Salt Spray(Only For Gold Plating)						3						
Solder ability							1					
Wire Pull Out Force								1				
Fitting Nail /Housing Retention Force									1			
Resistance to Soldering Heat (Board Side)										2		
Hand Soldering Temperature Resistance (Board Side)											2	
Sample Size	2	4	4	4	4	4	2	4	4	4	4	4

8 MATING / UNMATING FORCE

NO. of CKT.	Initial		After 10th Cycle
	Mating Force (Max.)	Unmating Force	Unmating Force
2	15N	1.5~8.0N	1.5~6.0N
3	20N	1.5~8.0N	1.5~6.5N
4	25N	2.0~8.5N	1.5~7.0N
5	30N	2.0~9.0N	1.5~7.5N
6	40N	3.5N	2.5N
7			
8			
9			
10			

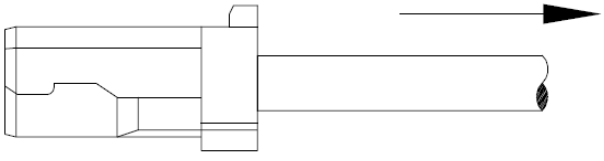
9 APPLICABLE SPECIFICATIONS



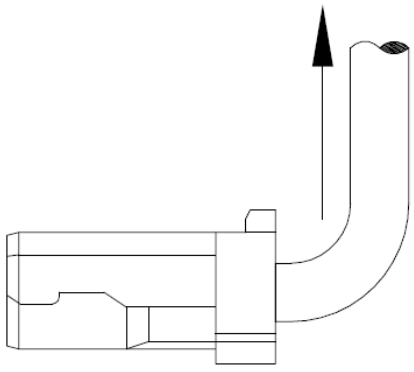


10 CONTACT V.S WIRE RETENTION FORCE

Wire Size	UL style (REF.)	Material of insulation	Insulation OD	Parallel	Perpendicular
AWG#32	UL11682	m-PPE-PE	Φ0.39+0.02-0.01mm	4N Min.	5N Min.



Parallel direction



Perpendicular direction

11 TERMINATION DEPTH

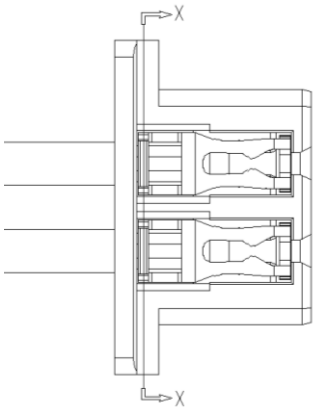


Fig.-1

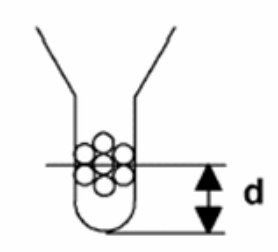


Fig.-2

Exact termination depth is measure “d” between bottom of slot and position of center core wire of wire conductors as shown in Fig.-2；at X-X part in Fig.-1 where is in then middle part of two U slots and a flattened part pressed by termination punch，and check it satisfies specified value in table.

Wire Size	UL style (REF.)	Insulation OD	d
AWG#32	UL11682	Φ0.39+0.02-0.01mm	d=0.22+0.05/-0.02mm

12 TERMINATION APPEARANCE

Inspect the following points after termination.

12.1 Punching flaws on housing caused by termination punch; Housing must be free from flaws. When connector set position deviation, scratches and deformation caused by termination punch may appear at the diagonally shaded areas in Fig.-4.

12.2 Flaws and deformation at beams of contact. Beams must be free from flaws and dimension. When connector set position deviation to wire axis direction, scratches and deformation caused by termination punch may appear at beams of contact as shown in Fig.-5.
In this case, not only contact but also termination die may be damaged.

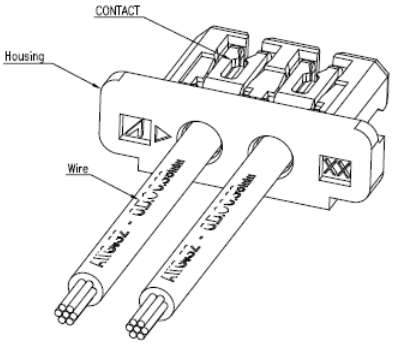


Fig.-4

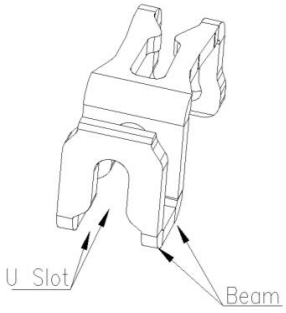


Fig.-5

12.3 Exposure of wire conductors around beams of contact; Wire conductors must not be exposed. When connector set position deviates to wire axis direction, wire conductors may expose in front or back of beams of contact as shown in Fig.-6.

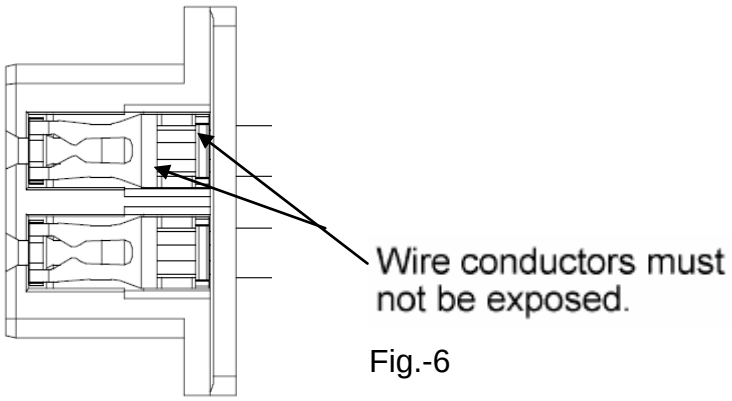


Fig.-6

12.4 Gap between housing wall and wire tip (Wire protruding length) Gap “G” between housing walls and wires tip in Fig.-7 should be 0.1 mm max.

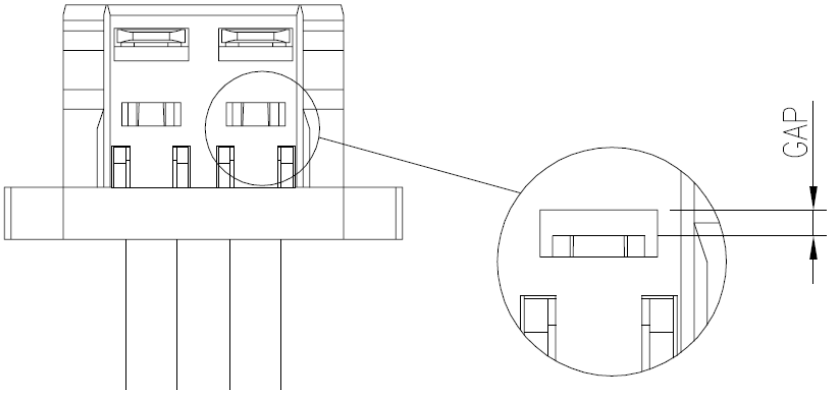


Fig.-7

12.5 Overrun of wire (Wire must not overrun) when wire tension is not adequate, overrun of wire may appear as shown in Fig.-8.

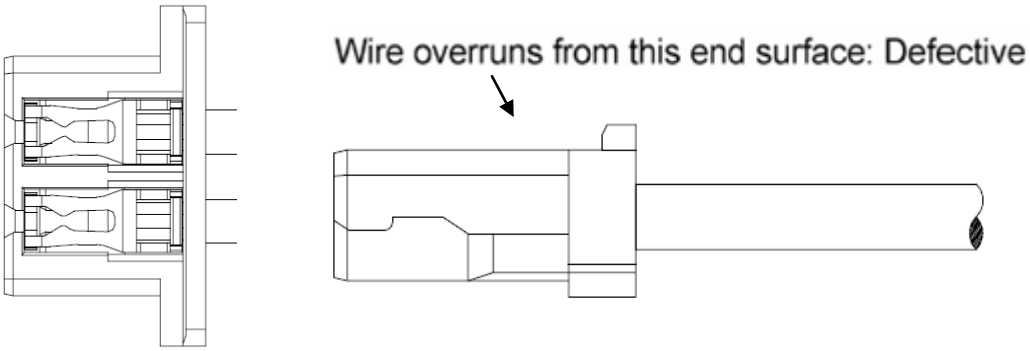


Fig.-8

12.6 Deviation of insulation displacement center (Deviation of insulation displacement center must not happen. When connector set position or wire deviates to pitch direction, termination punch, wire and U slots do not align so that insulation displacement center deviate as shown in Fig.-9 and Fig.-10

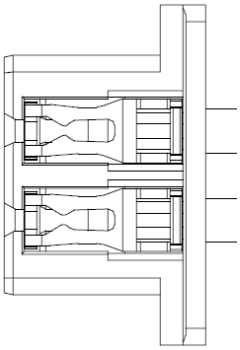


Fig.-9

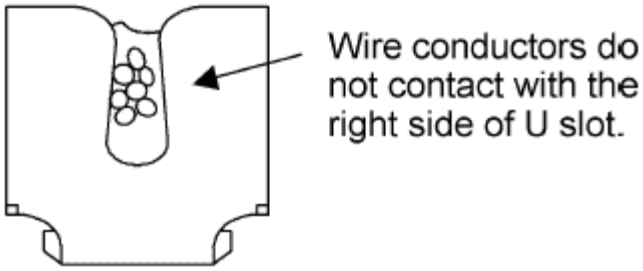


Fig.-10

13 MATING/UNMATING METHOD CONNECTOR

13.1 Mating method of connector

Mated receptacle with header straight on same axis. When the position of mating part of header and receptacle is aligned, align one side of mating part of header with the end of receptacle within 5 degrees to mating axis as shown in Fig.-11.

Do not mate receptacle at the angle of 5 degrees or more, because such handling may cause breakage of connector, etc.

When position of receptacle and header is aligned, hold wires in a bundle in order to prevent applying external force to receptacle. Then, mate receptacle with header up to the back straight against mating axis.

Besides, after mating operation, check that there is no clearance between header and receptacle as shown in Fig.-12, because such clearance may lead discontinuity of connector.

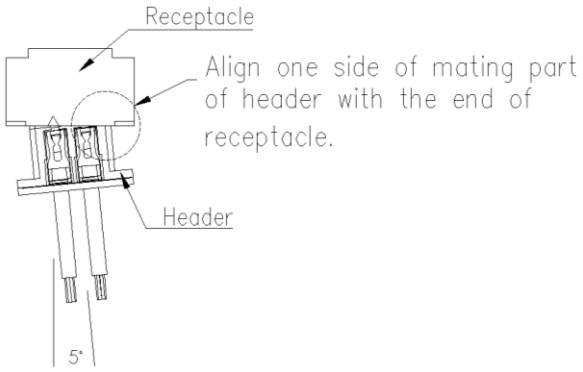


Fig.-11
Align the position (Side entry type)

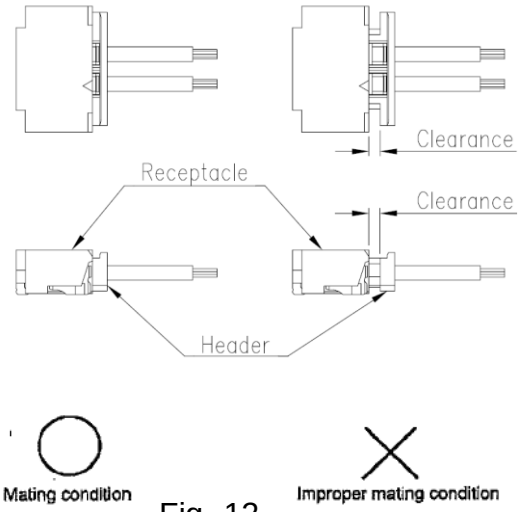


Fig.-12
Mating condition (Side entry type)

13.2 Unmating method of connector

Hold wires in a bundle and unmate receptacle from header on the same axis. At this time, conduct operation within 20 degrees to mating axis.

Do not unmate receptacle forcibly with prying more than 5 degrees, because such handing may cause breakage of connector, etc.

If receptacle is unmated with holding wire of only one end, such handling is the same as prying connector.

Beside, there is a possibility that wire may come off housing when they are unmated without holding in a bundle.

Even when all wires cannot be held in routing of wires, wire more than the number shown in the Table-1 should be held and unmated.

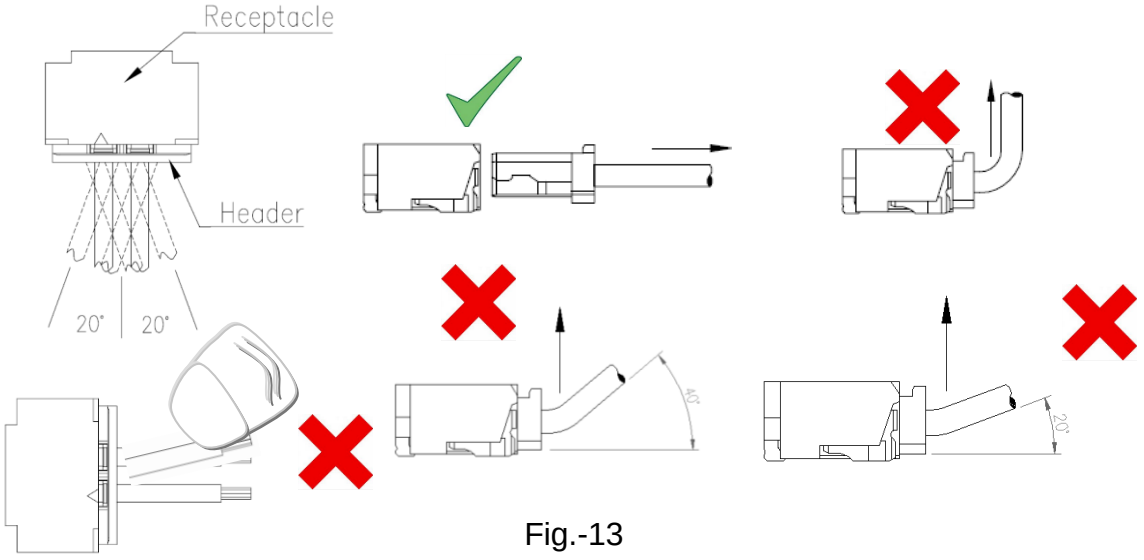


Fig.-13

CKTS	Wires
2	hold 2 wires without fail
3~5	hold more than 3 wires
6~10	hold more than 4 wires
11~15	hold more than 5wires
16~20	hold more than 6 wires

Table -1

13.3 Routing of wire

In routing wire, careful operation is required so that tension more than 1N may not be applied per connector and one wire (one circuit).