



**PRODUCT SPECIFICATION**

**CKM 1505 SERIES**

**WIRE TO BOARD 1.50 mm PITCH CONNECTOR**

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**REVISION HISTORY:**

REV	REVISION DESCRIPTION	DATE	CREATED/REVISED
A	NEW ISSUE	2022/3/16	JIAN LIANG Qiu

<b>REVISION:</b> <b>1</b>	<b>ECR/ECN INFORMATION:</b> EC No.: DATE: 2022.3.16	<b>TITLE:</b> WIRE TO BOARD 1505 SERIES	<b>SHEET No.</b> 1 of 7
<b>DOCUMENT NUMBER:</b> <b>PS-1505-001</b>		<b>CREATED/REVISED</b> Jian Liang Qiu	<b>CHECKED BY</b> De Liang Li
		<b>APPROVED BY</b> Ivan Su	



**1. SCOPE**

This specification contains the test requirement of subject connectors when tested under the condition and procedure with terminals crimped on the specified maximum size for wire.

**2. APPLICABLE STANDARDS**

EIA-364-18                    Methods for test of connectors for electronic equipment  
MIL-STD-202  
JIS C5402  
UL 1977

**3. APPLICABLE SERIES NO: 1505 SERIES**

Product Name	Part No.
Housing	1505H-XXP-X-HF
Terminal	1505TOP-XX
Wafer Assembly ST. (SMT)	1505WVS-XXP-XX-HF

X :Refer to the drawing

**4. PRODUCT SHAPE, DIMENSIONS AND MATERIALS**

\*See attached drawings.

**5. ACCOMMODATED P.C. BOARD**

5.1 Thickness: 1.0 mm (.039 " )~1.2mm (.047 " ), 1.6 mm (.063 " )  
5.2 P.C. Board Layout: See attached drawings

**6. RATINGS**

6.1 Current rating:

2A AC,DC(AWG#24) (10~30 Pin)  
1.5A AC, DC (AWG #24) (32~40 Pin)  
1.0A AC, DC (AWG #28)

6.2 Voltage rating: 100V AC, DC

6.3 Temperature range: -40°C to +105°C

6.4 Applicable wire: AWG #24 to #28, Insulation O.D.: 0.76~1.20mm Max.

**7. PERFORMANCE REQUIREMENTS AND TEST DESCRIPTIONS**

The product is designed to meet the electrical, mechanical and environmental performance Requirements as specifics in **8. REQUIREMENTS.**

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**8.0 TEST REQUIREMENTS AND PROCEDURES SUMMARY**

TEST ITEM		REQUIREMENT	PROCEDURE
8.1	Examination of Product	Meets requirements of product drawing. No physical damage.	Per EIA-364-18 Visual inspection
<b>ELECTRICAL REQUIREMENT</b>			
8.2	Contact Resistance	30mΩ Max (Initial) 60mΩ Max (Final)	Mate connectors, measure by dry circuit, 20mV MAX., DC 10mA . Mated Length : 50mm (AWG #24) (Based upon JIS C5402 5.4)
8.3	Insulation Resistance	500MΩ Min	Mate connectors, apply 500V D.C. Between adjacent terminal or ground. (Based upon JIS C5402 5.2 / MIL-STD-202 Method 302 Condition B)
8.4	Dielectric Withstanding Voltage	No change.	Mate connectors, apply 500V A.C. for 1 minute between adjacent terminal or ground. (Based upon JIS C5402 5.1/ MIL-STD-202 Method 301)
<b>MECHANICAL REQUIREMENT</b>			
8.5	Terminal crimp Tensile strength	See Item 9.	Fix the crimped terminal, apply axial pull out force on the wire at speed rate of 25±3 mm/minute. *Crimping specification refer to Figure 2
8.6	Terminal / Housing Retention Force (For Plug)	10N Min.	Retention speed 25±3 mm per minute from housing
8.7	Mating & Un-mating force	See Item 11.	Insert and withdraw connector at speed of 25 ±3 mm per minute

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8.8	Durability	Contact resistance: Less than twice of initial Dielectric Withstanding Voltage: To pass Para 9.4 * See Item 11.	Connector shall be subjected to 30 cycles of insertion and withdrawal (repeatedly by the rate of 10 cycles per minute)
8.9	Pin retention force (For Header)	10N Min.	Push pin from insulator base at speed 25± 3 mm per minute
8.10	Housing Lock Strength ( Positive Lock )	10P~12P: 1.5 Kgf (15N) Min. 14P~40P: 2.5 Kgf (25N) Min.	Mated connectors, and apply axial pull out force at the speed rate of 25±3mm/minute.

## ENVIRONMENTAL REQUIREMENTS

8.11	Temperature rise	30°C max.	Apply rated current load on mated connector in series-connection. Measure change of temperature on contact using thermocouples for 4 hours. (Based upon UL 1977)
8.12	Vibration	Appearance: No damage; Contact resistance: 60mΩ Max; Discontinuity: 1 micro second max.	Amplitude: 1.52mm Sweep Time: 10-55-10 Hz/minute Duration: 2 Hours in each X,Y,Z axials (Based upon MIL-STD-202 Method 201)
8.13	Heat aging	Appearance: No damage; Contact resistance: 60mΩ Max	Mated connector shall be placed in an oven for 250 hours at 105 ± 2°C. (Based upon JIS C5402 7.8)
8.14	Cold Resistance	Appearance: No damage; Contact resistance: 50mΩ Max;	Mated connector shall be placed in a temperature chamber for 96±4 hours at -40±3°C. (Based upon JIS C5402 7.9)

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8.15	Humidity	Appearance: No damage Contact resistance: 60mΩ Max Insulation resistance: To pass Para 9.3	Mated connector shall be placed in a humidity chamber on the following conditions. (Based upon MIL-STD-202 Method 103 Condition A) Temperature : 40±2°C Relative Humidity : 90~95% Duration : 240 Hours
8.16	Temperature cycling	Appearance: No damage Contact resistance: Less than twice of initial	Mated connector shall be set to temperature cycling for 5 cycles of which 1 cycle consists of: a) +25°C ~ 3 minutes b) -40°C ~ 30 minutes c) +25°C ~ 3 minutes d) +105°C ~ 30 minutes (Based upon JIS C5402 7.2)
8.17	Salt spray	Appearance: No damage Contact resistance: 60mΩ Max	Mated connector shall be placed on a salt spray chamber on the following conditions. (Based upon JIS C5402 7.1 / MIL-STD-202 Method 101 Condition B) Salt Solution Density : 5±1% Temperature : 35±2°C Duration : 48 Hours
8.18	Solder ability	Minimum: 90% of immersed area	Lead-Free Process : Soldering time: 3 ± 0.5 second Soldering pot: 245 ± 5°C
8.19	Resistance to Reflow heat	Appearance: No damage	Refer Reflow temperature profile
8.20	Soldering iron method	Appearance: No damage	Apply solder iron in solder tail Temperature: 350±3°C, 3~5 sec.

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### 9. Crimping Specification

1505TOP-XX				
Wire Size(AWG)		#24	#26	#28
1. CONDUCTOR (mm)	CRIMP WIDTH	0.65±0.05		
	CRIMP HEIGHT	0.65~0.60	0.60~0.55	0.55~0.50
2. INSULATION (mm)	CRIMP WIDTH	0.78±0.05		
	CRIMP HEIGHT	1.10	1.05	1.00
CRIMP STRENGTH		30N (MIN)	20N (MIN)	10N (MIN)

Figure 1

### 10. Recommended Reflow Temperature Profile:

Using Lead-Free Solder Paste

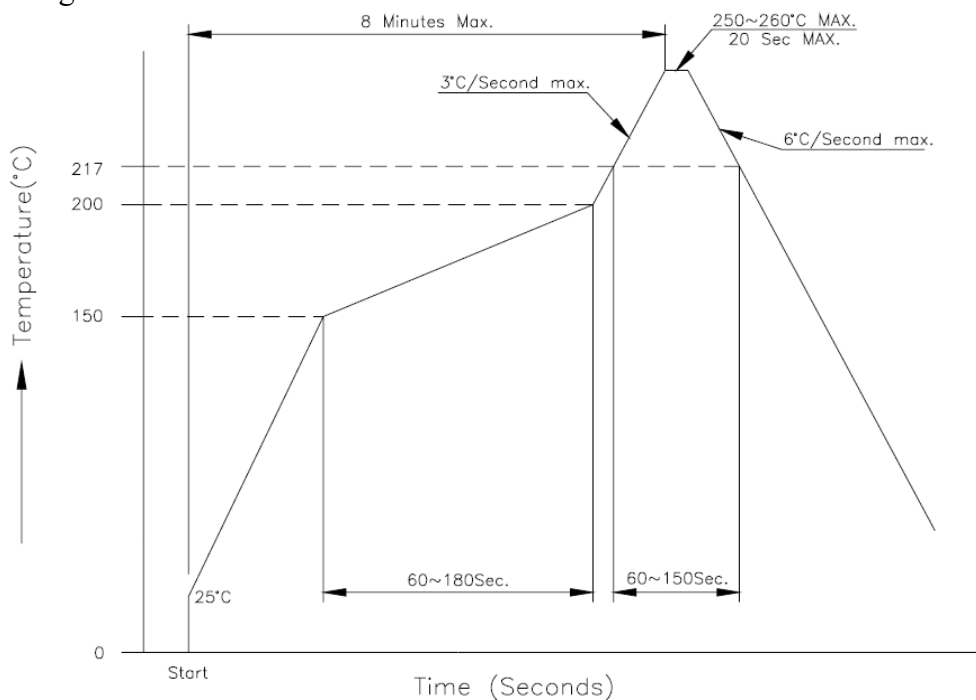


Figure 1

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**11. MATING AND UN-MATING FORCE (REMOVE LATCH)**

UNIT: N

Circuits	Insertion (MAX.)	Withdrawal (MIN.)		
	Initial	Initial	/	30th
12	33	2	/	2
28	57	6	/	6

**12. PRODUCT QUALIFICATION AND REQUALIFICATION TEST SEQUENCE**

Test or Examination	Test Group												
	A	B	C	D	E	F	G	H	I	J	K	L	M
	Test Sequence (a)												
Examination of Product	1,8	1,7	1	1	1	1	1,3	1,5	1,5	1,5	1,5	1,3	1,3
Contact Resistance	2,7	2,6						2,4	2,4	2,4	2,4		
Insulation Resistance		3,5											
Dielectric withstanding Voltage	3,6												
Terminal crimp Tensile strength			2										
Terminal / Housing Insertion Force (For Plug)				2									
Mating & Un-mating force	4												
Durability	5												
Pin retention force (For Header)					2								
Temperature Rise						2							
Vibration							2						
Heat aging								3					
Cold Resistance									3				
Humidity		4											
Temperature cycling										3			
Salt spray											3		
Solder ability												2	
Resistance to IR reflow heat (SMT)													2
Sample Size	5	5	5	5	5	5	5	5	5	5	5	5	5

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