



PRODUCT SPECIFICATION

CKM 2514 Series

2.50 mm PITCH CONNECTOR

REVISION HISTORY:

REV	REVISION DESCRIPTION	DATE	CREATED/REVISED
A	NEW RELEASE	2006.04.03	
B	UPGRADE THE FORM	2013.10.20	Qinggang yang
C	UPGRADE THE FORM	2014.09.09	Guobao Lee
D	UPGRADE THE FORM	2015.11.24	Zisen Wei

<u>REVISION:</u> D	<u>ECR/ECN INFORMATION:</u> EC No.: DATE: 2015/11/24	<u>TITLE:</u> 2.50mm PITCH CONNECTOR	<u>SHEET No.</u> 1 of 7	
<u>DOCUMENT NUMBER:</u> PS-2514-001		<u>CREATED/REVISED</u> Zisen Wei	<u>CHECKED BY</u> Sun Lee	<u>APPROVED BY</u> Angus Chen



1.0. SCOPE

1.1 This specification covers performance, tests and quality requirements for the CKM Connectivity **2.5 Connector System**. The CKM 2.5 product is a wire-to-board connection consisting of crimp-snap contacts seated in a housing that mates to 0.6 mm diameter post headers on 2.5 mm centerline and is designed to be terminated to 20 to 28 AWG wire.

1.2: Qualification

When tests are performed on the subject product line, procedures specified in Figure 1 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2.0. APPLICABLE DOCUMENTS

At the time of this specifications release, the latest revisions of the following Documents were used. These documents shall form a part of this specification as describe with in this document.

Industry Specifications / Standards

UL-94 Flammability

ASTM B-103 Phosphor Bronze or Brass Plate, Rod, Sheet, Strip and Rolled Bar

EIA Specifications

EIA-364-D Electrical Connector/Socket Test Procedures Including Environmental Classifications

3.0. REQUIREMENTS

3.1 Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing

3.2 MATERIAL

Materials used in the construction of this product shall be as specified on the applicable product drawing

3.3 Ratings

1. Voltage: 250 volts AC.

2. Current: See Figure 4 for applicable current carrying capability. Maximum rated current that can be carried by this product is limited by maximum operating temperature of the housings (85°C) and temperature rise of the housings (30°C). Variables to be considered for each application are: wire size, connector size, contact material, ambient temperature, and printed circuit board design.

3. Temperature: -25°C~ 85°C

4. Rated Current: 3A AC/DC

3.4 Performance and Test Description.

Product is designed to meet the electrical, mechanical and environmental performance requirements specified in Figure 1. Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

3.5 Test Requirements and Procedures Summary

Test Description	Requirement	Procedure
Initial examination of product.	Meets requirements of product drawing and Application	EIA-364-18.Visual and dimensional (C of C) inspection per product drawing

REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 2 of 7
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee
		APPROVED BY Angus Chen	



Final examination of product.	Meets visual requirements.	EIA-364-18. Visual inspection.		
ELECTRICAL				
Low Level Contact Resistance (LLCR).	10 milli ohms maximum initial. 20 milli ohms maximum final.	EIA-364-23. Subject specimens to 100 milli amperes maximum and 20 milli volts maximum open circuit voltage. See Figure 3.		
Insulation resistance.	1000 mega ohms minimum initial. 500 mega ohms minimum final.	EIA-364-21. 500 volts DC, 2 minute hold. Test between adjacent contacts.		
Withstanding voltage.	One minute hold with no breakdown or flashover. 1.3 milli amperes maximum leakage current.	EIA-364-20, Condition I. 1000 volts AC at sea level. Test between adjacent contacts.		
Temperature rise vs current.	30°C maximum temperature rise at specified current.	EIA-364-70, Method 1. Stabilize at a single current level until 3 readings at 5 minute intervals are within 1°C. See Figure 4.		
MECHANICAL				
Solder-ability dip test.	Solder able area shall have a Minimum of 95% solder coverage.	Soldering time: 3±0.5 second Soldering pot: 245±5°C		
Random vibration.	No discontinuities of 1 microsecond or longer duration. See Note	EIA-364-28, Test Condition VII, Condition Letter D. Subject mated specimens to 3.10 G's rms between 20 to 500 Hz.		
Mechanical shock.	No discontinuities of 1 microsecond or longer duration. See Note.	EIA-364-27, Method H. Subject mated specimens to 30 G's half-sine shock pulses of 11 milliseconds duration. Three shocks in each direction applied along 3 mutually perpendicular planes, 18 total shocks.		
REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 3 of 7	
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee	APPROVED BY Angus Chen



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Durability.	See Note.	EIA-364-9. Manually mate and un mate specimens with companion headers for 30 cycles at a maximum rate of 500 cycles per hour.
Mating force.	8.9 N maximum per contact.	EIA-364-13. Measure force necessary to mate specimens with companion headers a distance of 5.08 mm from point of initial contact at a maximum rate of 12.7 mm per minute.
Un mating force.	0.9 N minimum per contact.	EIA-364-13. Measure force necessary to un mate specimens from companion headers at a maximum rate of 12.7mm per minute
Crimp tensile force.	1.85kg minimum	EIA-364-8. Determine crimp tensile at a rate of 25.4 mm per minute.
Contact retention force.	1.0kg minimum	EIA-364-29. Apply axial load at a rate of 4.4 N per second and hold for 6 seconds.
Contact retention force of the Wafer.	1.0kg minimum	EIA-364-8. Determine contact retention of the wafer at a rate of 25.4 mm per minute.

ENVIRONMENTAL

Thermal shock.	See Note.	EIA-364-32, Test Condition I. Subject mated specimens to 10cycles between -55 and 85°C with 30 minute dwells at temperature extremes and 1 minute transition between temperatures
Humidity	See Note.	EIA-364-31, Method II. Test Time Condition A. 40±2°C, 90~95% RH, 96 hours
Temperature life.	See Note.	EIA-364-17, Method A, Test Condition 3, Test Time Condition A. Subject mated specimens to 85°C for 96 hours

Figure 1(End)

REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 4 of 7
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee
		APPROVED BY Angus Chen	



NOTE

Shall meet visual requirements, show no physical damage, and meet requirements of additional tests as specified in the Product Qualification and Requalification Test Sequence shown in Figure2.

Test or Examination	Test Group						
	A	B	C	D	E	F	G
	Test Sequence (a)						
Examination of Product	1,5	1,7	1	1	1,3	1	1,5
Contact Resistance	2,6	2,8					2,4
Insulation Resistance		3,9					
Dielectric withstanding Voltage		4,10					
Terminal crimp Tensile strength			2				
Terminal/Housing Insertion Force (For Plug)				2			
Mating & Un-mating force	3						
Durability	4						
Temperature Rise						2	
Vibration					2		
Temperature life.							3
Humidity		6					
Thermal shock		5					
Sample Size	5	5	5	5	5	5	5

Figure 2

NOTE:

- (a) See paragraph 4.1.A.
- (b) Numbers indicate sequence in which tests are performed.
- (c) Precondition specimens with 10 durability cycles.

4. QUALITY ASSURANCE PROVISIONS

4.1 Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at

REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 5 of 7
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee
		APPROVED BY Angus Chen	



random from current production. Test groups 1, 2, 3 and 5 shall each consist of a minimum of 5 specimens with a minimum of 30 data points. Test group 4 shall consist of a minimum of 5 specimens with a minimum of 30 header posts

B. Test Sequence

Qualification inspection shall be verified by testing specimens as specified in Figure 2.

4.2 Requalification Testing

If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3 Acceptance

Acceptance is based on verification that the product meets the requirements of Figure 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before resubmittl.

4.4 Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification.

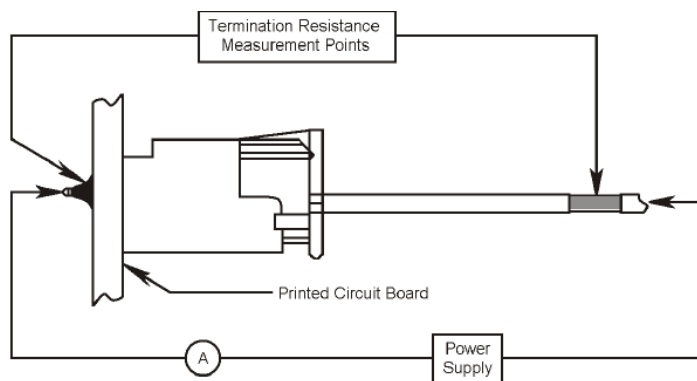


Figure 3
LLCR Measurement Points

REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 6 of 7
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee
		APPROVED BY Angus Chen	

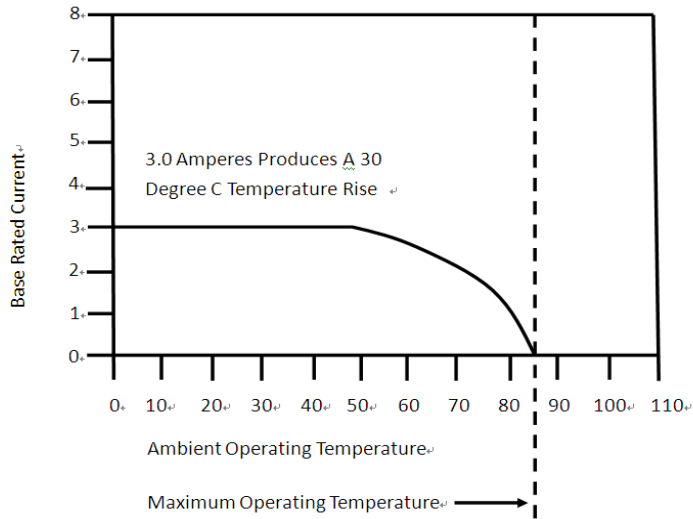


Figure 4
Current Rating

NOTE:

To determine acceptable current carrying capacity for percentage connector loading and wire gage indicated, use the Multiplication Factor (F) from the above chart and multiply it times the Base rated Current for a single circuit at the maximum ambient operating temperature shown in Figure 4.

5. Crimping Specification:

Fix the crimped terminal, apply axial pull out force on the wire at a constant speed of 25±3mm/min (Based upon JIS C5402 6.22)

2514T0X-X					
Wire size(AWG)		#22	#24	#26	#28
CONDUCTOR (mm)	CRIMP WIDTH	1.50±0.1			
	CRIMP HEIGHT	0.7~0.73	0.66~0.7	0.62~0.66	0.58~0.62
INSULATION (mm)	CRIMP WIDTH	1.80			
	CRIMP HEIGHT	1.79	1.76	1.73	1.70
CRIMP STRENGTH		4.0Kgf (MIN)	3.0Kgf (MIN)	1.8Kgf (MIN)	1.1Kgf (MIN)

Figure 5
Crimping Specification

REVISION: D	ECR/ECN INFORMATION: EC No.: DATE: 2015/11/24	TITLE: 2.50mm PITCH CONNECTOR	SHEET No. 7 of 7
DOCUMENT NUMBER: PS-2514-001		CREATED/REVISED Zisen Wei	CHECKED BY Sun Lee
		APPROVED BY Angus Chen	