



PRODUCT SPECIFICATION

CKM 2504 SERIES

2.50mm PITCH CONNECTOR

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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 INFORMATION	2014.10.06	Guobao Li
D	UPDATE THE MAXIMUM OPERATING TEMPERATURE	2015.10.28	Zisen Wei

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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 22 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.

1.3 Product Name and Part No.

Product Name	Part No.
Housing	2504H-XP-X-XX(-HF)
Terminal	2504T0X-XX
Wafer Assembly ST.	2504WV-XP-XX-XX(-HF)
Wafer Assembly RA.	2504WR-XP-XX-XX(-HF)

X or (-HF):Refer to the drawing

2.0. APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, the latest edition of the document applies. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. APPLICABLE DOCUMENTS AND SPECIFICATIONS

- EIA-364
- UL-94 Flammability
- JIS C5402

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

- Voltage: 250 volts AC.
- 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 (65°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.

3.4 PERFORMANCE

- Temperature: -25 to 65°C

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

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CKM ELECTRONICS CO., LTD.

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	
Final examination of product	Meets visual requirements.	EIA-364-18. Visual inspection	
ELECTRICAL			
Low Level Contact Resistance (LLCR)	10 milliohms maximum initial 20 milliohms maximum final	EIA-364-23 Subject specimens to 100 milliamperes maximum and 20 millivolts maximum open circuit voltage See Figure 3	
Insulation resistance	1000 megohms minimum initial 500 megohms 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 milliamperes maximum leakage current.	EIA-364-20, Condition I 800 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			
Solderability dip test	Solderable area shall have a minimum of 95% solder coverage	Immerse fluxed soldered section of contact pin into a solder bath for 3 ± 0.5 seconds, temperature at $245 \pm 5^\circ\text{C}$	
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	
Durability	See Note	EIA-364-9 Manually mate and un mate specimens with companion headers for 15 cycles at a maximum rate of 500 cycles per hour	
Mating force	5.0 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	0.8 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	1.0 kg minimum	EIA-364-8 Determine crimp tensile at a rate of 25.4 mm per minute.	
Contact retention	1.0 kg minimum	EIA-364-29 Apply axial load at a rate of 4.4 N per second and hold for 6 seconds	
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ENVIRONMENTAL

Thermal shock	See Note	EIA-364-32, Test Condition VII Subject mated specimens to 10 cycles between -55 and 105°C with 30 minutes dwells at temperature extremes and 1 minute transition between temperatures
Humidity/temperate cycling	See Note	EIA-364-31, Method III Subject specimens to 10 cycles (10days) between 25 and 65°C at 80 to100% RH.
Temperature life	See Note	EIA-364-17, Method A, Test Condition IV Test Time Condition C Subject mated specimens to 105°C for 500 hours

Figure 1(End)

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)				
	1	2	3	4	5
Initial examination of product	1	1	1	1	1
LLCR	3.7	2.6			
Insulation resistance			2.5		
Withstanding voltage			3.6		
Temperature rise vs current		3			
Solder ability dip test				2	
Random vibration	5				
Mechanical shock	6				
Durability	4				
Mating force	2				
Un mating force	8				
Crimp tensile					2
Contact retention			7		
Thermal shock			4		
Humidity/temperature cycling		4(C)			
Temperature life		5			
Final examination of product	9	7	8	3	3

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.

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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 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

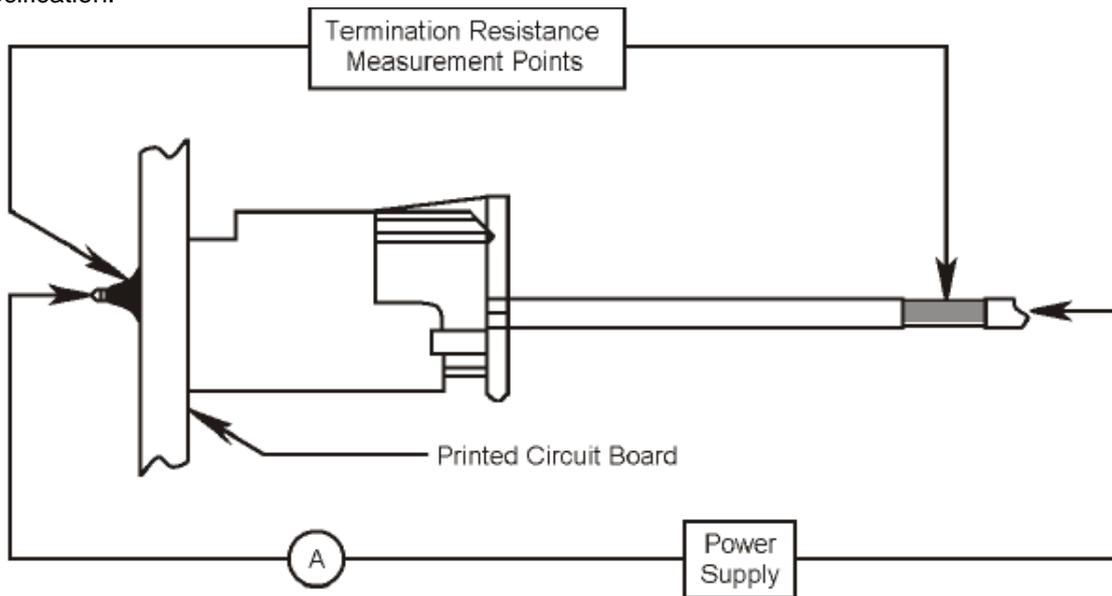
If changes significantly affecting form, fit or function are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

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 resubmittal.

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**

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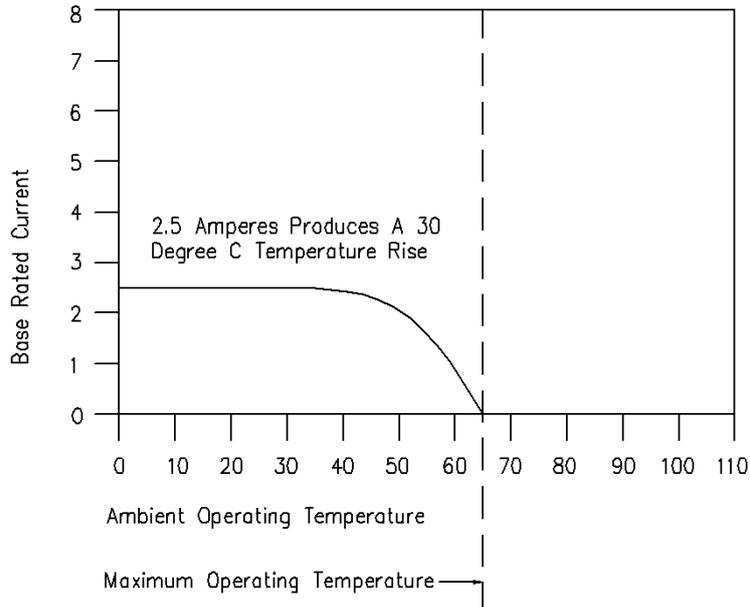


Figure 4
Current Rating

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.

5.0. Crimping Specification:

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

2504T0X-XX					
Wire Size(AWG)		#22	#24	#26	#28
1. CONDUCTOR (mm)	CRIMP WIDTH	1.30±0.05			
	CRIMP HEIGHT	0.86~0.95	0.76~0.85	0.71~0.75	0.66~0.70
2. INSULATION (mm)	CRIMP WIDTH	1.50±0.05			
	CRIMP HEIGHT	1.90	1.75	1.60	1.45
CRIMP STRENGTH		4.6Kgf (MIN)	3.0Kgf (MIN)	1.8Kgf (MIN)	1.1Kgf (MIN)

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