



PRODUCT SPECIFICATION

LOW FORCE MICRO-FIT SERIES (46235)

1.0 SCOPE

This Product Specification covers the 3.00 mm (.118 inch) centerline (pitch) square pin headers when mated with either printed circuit board (PCB) connector or connectors terminated with 20 to 30 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS

Receptacle: 43025 Female Crimp Terminal: 46235
Plug: 43020 Male Crimp Terminal: 43031
Headers: 43045, 44914
Test Plug: 44242 (recommended for continuity testing only)
Other products conforming to this specification are noted on the individual drawings.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housings: Receptacle and Plug - Polyester, Nylon; Headers - LCP
Terminal: Copper Alloy
Pins: Brass, Modified Tin/Brass

2.3 SAFETY AGENCY APPROVALS

UL: E29179 CSA: LR19980 TUV: 72081037

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

3.1 MOLEX DOCUMENTS

Sales Drawing: SD-46235-001
Test Summary: TS-46235-001
Packaging: PK-46235-001

3.2 INDUSTRY DOCUMENTS

EIA TS-1000

4.0 RATINGS

4.1 VOLTAGE

UL: 43025, 43045, and 44914 series: 600 Volts AC RMS or DC.
43020 series: 350 Volts AC RMS or DC.
TUV: 250 Volts

4.2 CURRENT AND APPLICABLE WIRES

(Current is dependent on connector size, contact material, plating, ambient temperature, printed circuit board characteristics and related factors. Actual current rating is application dependent and should be evaluated for each application.)

AWG	Amps	Max. Outside Insulation Diameter
20	5	1.85 mm (.073")
22	5	1.85 mm (.073")
24	4	1.85 mm (.073")
26	3	1.27 mm (.050")
28	2	1.27 mm (.050")
30	1	1.27 mm (.050")

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4.3 CURRENT FOR TEST PLUG 44242

2.5 Amps Maximum (Pogo pin current capacity)
(Test plugs are for testing purposes only and not intended for continuous use.)

4.4 TEMPERATURE

Operating: - 40°C to + 105°C (Including 30°C terminal average temperature rise at rated current)
Non-operating: - 40°C to + 105°

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Low Level Contact Resistance (LLCR)	Per EIA-364-23 (termination of connector to board carrier or cable shall be included in measurements)	LLCR: 20 mΩ MAXIMUM [initial]
Insulation Resistance	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 MΩ MINIMUM
Dielectric Withstanding Voltage	Per EIA-364-20 Unmate connectors: apply a voltage of two times the rated voltage plus 1000 volts VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown or flashover; current leakage < 5 mA
Capacitance	Measure between adjacent terminals at 1 MHz.	2 picofarads MAXIMUM
Temperature Rise (via Current Cycling)	Mate connectors: measure the temperature rise at the rated current after: 1) 96 hours (steady state) 2) 240 hours (45 minutes ON and 15 minutes OFF per hour) 3) 96 hours (steady state)	Temperature rise: +30°C MAXIMUM

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5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Connector Mate and Unmate Forces	Mate and unmate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	4.0 N (0.9 lbf) per circuit MAXIMUM mate force & 2.0 N (0.5 lbf) per circuit MAXIMUM unmate force
Terminal Retention Force (from Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	24.5 N (5.5 lbf) MINIMUM retention force
Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	14.7 N (3.3 lbf) MAXIMUM insertion force
Durability (non-lubed)	Per EIA-364-09 Mate connectors up to 40 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	LLCR: Δ 20 mΩ MAXIMUM
Durability (lubricated)	Per EIA-364-09 Mate connectors up to 250 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	LLCR: Δ 20 mΩ MAXIMUM
Vibration (Random)	Per EIA 364-28, test condition VII	LLCR: Δ 20 mΩ MAXIMUM & Discontinuity < 1 microsecond
Shock (Mechanical)	Per EIA-364-27 Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (18 shocks total).	LLCR: Δ 20 mΩ MAXIMUM & Discontinuity < 1 microsecond
Wire Pullout Force (Axial) (Wire from Terminal)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	MINIMUM pullout force 20 awg: 57.8 N (13.0 lbf) 22 awg: 35.6 N (8.0 lbf) 24 awg: 22.2 N (5.0 lbf) 26 awg: 13.3 N (3.0 lbf) 28 awg: 8.9 N (2.0 lbf) 30 awg: 6.6 N (1.5 lbf)
Normal Force (per contact beam)	Apply a perpendicular force.	50 g (0.5 N) MINIMUM

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5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Temperature Life (Thermal Aging) Group 1 Only	Per EIA-364-17, method A Mate connectors and expose to: 240 hours at 105 ± 2°C	LLCR: Δ 20 mΩ MAXIMUM
Temperature Life (Thermal Aging) Groups 3, 4 & 5	Per EIA-364-17, method A Mate connectors and expose to: 120 hours at 105 ± 2°C	LLCR: Δ 20 mΩ MAXIMUM
Cyclic Temp and Humidity (Steady State)	Per EIA-364-31 Mate connectors: expose to a temperature of 40 ± 2°C with a relative humidity of 90-95% for 96 hours. Note: Remove surface moisture and air dry for 1 hour prior to measurements.	LLCR: Δ 20 mΩ MAXIMUM
Mixed Flowing Gas (MFG) (30μ" Gold)	Per EIA-364-65, Option 2, Class IIA Total 10 day exposure (7 days unmated / 3 days mated)	LLCR: Δ 20 mΩ MAXIMUM
Mixed Flowing Gas (MFG) (15μ" Gold)	Per EIA-364-65, Option 2, Class IIA Total 10 day exposure (7 days unmated / 3 days mated)	LLCR: Δ 40 mΩ MAXIMUM

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6.0 TEST SEQUENCES

GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 7
Visual Exam	Visual Exam	Visual Exam	Visual Exam	Visual Exam	Visual Exam
LLCR	LLCR	LLCR	LLCR	LLCR	LLCR
Preconditioning Durability (25 cycles)	Preconditioning Durability (25 cycles)	Preconditioning Durability (25 cycles)	Preconditioning Durability (25 cycles)	Preconditioning Durability (25 cycles)	Durability (see section 5.2)
LLCR	LLCR	Temp Life (120 hrs @ 105°)	LLCR	LLCR	LLCR
Temp Life (240 hrs @ 105°)	Thermal Shock	LLCR	Temp Life (120 hrs @ 105°)	Temp Life (120 hrs @ 105°)	DWV
LLCR	LLCR	Vibration	LLCR	LLCR	Visual Exam
Reseating	Cyclic Temp and Humidity	LLCR	MFG (7 days Unmated)	Thermal Cycling	
LLCR	LLCR	Mechanical Shock	LLCR	LLCR	
	Reseating	LLCR	MFG (3 days Mated)	Reseating	
	LLCR		LLCR	LLCR	
			Thermal Disturbance		
			LLCR		
			Reseating		
			LLCR		

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7.0 PACKAGING

Parts shall be packaged to protect against damage during handling, transit and storage per the packaging specifications listed below:

Receptacle: Bulk

Plug: Bulk

Headers: PK-70873-0313, PK-70873-0314, PK-70873-05**

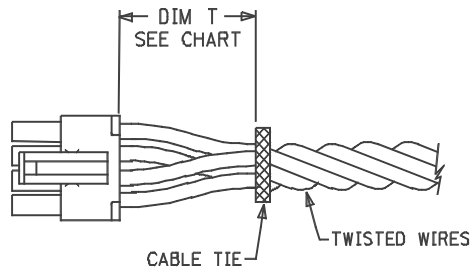
8.0 GAGES AND FIXTURES

It is recommended that test plugs (Series 44242) be used for continuity testing of receptacles. Standard mating parts should not be used for harness testing.

9.0 OTHER INFORMATION

9.1 CABLE TIE AND/OR WIRE TWIST LOCATION

CKT Sizes	Dim T Min.
2-8	12.70 mm (.500")
10-16	19.10 mm (.750")
18-24	25.40 mm (1.000")



The "T" dimension defines a "free" length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter the housing. Wires are to be dressed in such a manner to allow the terminals to float freely in the pocket.

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