THE DATASHEET OF

0430450600

PRODUCT SPECIFICATION

MICRO-FIT

1.0 SCOPE

This Product Specification covers the performance requirements and test methods of Micro-Fit 3.00 mm (.118 inch) centerline (pitch) wire to board and wire to wire connector systems terminated with 18 to 30 AWG stranded wire using crimp technology with tin or gold plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS

Receptacle:	43025	Female Crimp Terminal: 43030
TPA Receptacle:	172952	TPA (for 172952): 172953
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:	Phosphor Bronze
Pins:	Brass, Modified Tin/Brass

2.3 SAFETY AGENCY APPROVALS

File Numbers:

UL:	E29179
CSA:	LR19980

IEC 61984 Certification: Tested to and found in compliance with IEC 61984. NRTL type *examination certificate available from Molex upon request*. Contact Molex Safety Agency team for questions regarding certification on specific part numbers.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Test Summary:	TS-43045-001
Application Spec:	AS-45499-001 (moisturizing nylon parts)

4.0 RATINGS

4.1 SAFETY AGENCY RATINGS

	Agency Voltage Rating (AC RMS or DC)			Agency Current Rating (Single Circuit) (Amps)		
Series	**UL**	**CSA**	**IEC**	**UL**	**CSA**	**IEC**
43020	350	600	250	5	7	5
43025	600	600	250	8	8	5
172952	600	600	pending	5	7	pending
43045	600	600	250	8	8	5
44914	600	600	250	8	8	5

Current ratings are maximum and may vary depending on wire size, circuit count, and end-use application. Further testing may be required in the end-use application.

4.2 CURRENT DERATING 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.

Stranded Copper Wire Size	Max. Outside Insulation Diameter
18 AWG	1.85 mm (.073 inch)
0.75 mm^2	1.85 mm (.073 inch)
20 AWG	1.85 mm (.073 inch)
22 AWG	1.85 mm (.073 inch)
24 AWG	1.85 mm (.073 inch)
26 AWG	1.27 mm (.050 inch)
28 AWG	1.27 mm (.050 inch)
30 AWG	1.27 mm (.050 inch)

CURRENT DERATING REFERENCE INFORMATION

AWG and Metric Wire Size	2-circuit		6-circuit		12-circuit		24-circuit	
	W-W	W-B	W-W	W-B	W-W	W-B	W-W	W-B
	Amps	Amps	Amps	Amps	Amps	Amps	Amps	Amps
18 AWG	7	8.5	6	6.5	5.5	5.5	5	5
20 AWG or 0.75mm^2	6.5	7	5	* 5.5	4.5	* 5	* 4	4.5
22 AWG	5.5	* 6	* 4	* 4.5	* 3.5	* 4	* 3	* 3.5
24 AWG	5	5.5	4	* 4.5	3	* 3.5	* 2	* 3
26 AWG	4	4.5	3	* 4	2.5	* 3.5	* 1.5	2.5
28 AWG	3	* 4	* 2	* 3	* 2	* 3	* 1	* 2
30 AWG	3	3.5	2	* 3	2	* 2.5	* 1	1

1) Values are for REFERENCE ONLY.
2) Current deratings are based on not exceeding 30°C Temperature Rise.
3) Testing conducted using tinned stranded copper wire and tin plated terminals.
4) PCB trace design can greatly affect temperature rise results in Wire-to-Board applications.
5) Data is for all circuits powered.
6) * indicates interpolated information.
7) **W-W:** Wire-to-Wire **W-B:** Wire-to-Board

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 Terminal Temperature Rise)
Non-operating: - 40°C to + 105°C

5.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. (Does not include wire resistance)	10 milliohms MAXIMUM [initial]
Contact Resistance of Wire Termination (Low Level)	Terminate the applicable wire to the terminal and measure wire using a voltage of 20 mV and a current of 100 mA.	5 milliohms MAXIMUM [initial]
Insulation Resistance	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
Dielectric Withstanding Voltage	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; 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

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. (Per circuit)	8.0 N (1.8 lbf) per circuit MAXIMUM mate force & 2.4 N (0.5 lbf) per circuit MINIMUM unmate force
Crimp Terminal Retention Force (in 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

5.2 MECHANICAL REQUIREMENTS, cont.

Crimp 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	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute.	20 milliohms MAXIMUM (change from initial)
Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII, Letter D. Test Duration: 15 minutes each axis.	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
Shock (Mechanical)	Mate connectors and shock at 50 g's with ½ sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (18 shocks total). (Per EIA-364-27, Test Condition H)	20 milliohms MAXIMUM (change from initial) & 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 18 awg: 89.0 N (20.0 lbf) 0.75 mm2: 89.0 N (20.0 lbf) 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) Values may vary depending on crimp tooling. Refer to Molex Applicator Tooling Specification.
Normal Force	Apply a perpendicular force.	2.7 N (0.6 lbf) MINIMUM
Pin to Header Retention	Apply axial push force to pin at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	13.7 N (3.1 lbf) MINIMUM pushout force
Thumb Latch to Ramp Yield Strength	Full mate and then Unmate the connectors at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	58.0 N (13.0 lbf) MINIMUM Yield Strength
Panel Mount Retention	Insert connector in panel. Apply an axial force on the connector in the opposite direction of insertion at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	155.7 N (35 lbf) MINIMUM pushout force

5.2 MECHANICAL REQUIREMENTS, cont.

Compliant Pin Insertion Force into PCB Hole (44914 Series)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	106.7 N (24 lbf) Maximum Insertion force (Per Terminal) (1)
Compliant Pin Retention Force in PCB Hole (44914 Series)	Apply an axial extraction force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	35.6 N (8 lbf) Minimum Retention force (Per Terminal) (1)

(1) Based on results using Printed Circuit Board (PCB) with Tin PTH finish. Pin left undisturbed in PCB a minimum of 24 hours after insertion prior to testing Retention Force. PCB with different design or finish may vary from these results

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Thermal Aging	Mate connectors; expose to: 240 hours at 105 ± 2°C OR 500 hours at 85 ± 2°C	20 milliohms MAXIMUM (change from initial])
Humidity (Steady State)	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.	20 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM
Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
Solder Resistance	**A) Wave Solder Process** Dip connector terminal tails in solder; Solder Duration: 10 seconds MAX Solder Temperature: 260°C MAX Per AS-40000-5013 **B) Convection Reflow Solder Process** 260°C MAX Per AS-40000-5013	Visual: No Damage to insulator material

5.3 ENVIRONMENTAL REQUIREMENTS, cont.

Salt Spray	Mate connectors Orientation: Horizontal with latch on top surface Duration: 48 hours exposure Atmosphere: Salt spray from a 5% solution Temperature: 35 ± 2°C	20 milliohms MAXIMUM (change from initial)
Cold Resistance	Mate connectors Duration: 96 hours Temperature: -40 ± 3°C	20 milliohms MAXIMUM (change from initial)

6.0 PACKAGING

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

Receptacle, TPA Receptacle, TPA, and Plug: Bulk Packaged
Headers: PK-70873-0313, PK-70873-0314, PK-70873-05**.

7.0 GAGES AND FIXTURES

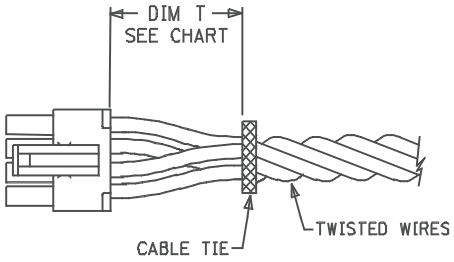
It is recommended that test plugs (Series 44242) be used for continuity testing of receptacles. Standard mating parts should not be used for harness testing.

NOTE: The use of unauthorized testing devices and/or probes with a Molex product may cause damage to and affect functionality of the Molex product, and such use may void any and all warranties, expressed or implied.

8.0 OTHER INFORMATION

8.1 CABLE TIE AND OR WIRE TWIST LOCATION

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



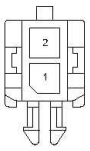
The “T” dimension defines a “free” length of wire, or a length of wire that is not subject to significant bias by external factors such as a wire tie, wire twisting, or other means of bending or deforming of the wires that repositions them from their natural relaxed state or location where they enter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

8.2 CONTACT ENGAGEMENT (WIPE) FOR FULLY MATED NOMINAL COMPONENTS (For Reference Only)

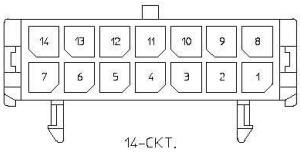
Receptacle	Mated to Plug/ Header	Application	Contact Wipe
43025 Receptacle (1)	43020 Plug	Wire-to-Wire	0.083 in/(2.11 mm)
	43045 Header 44914 CPI Header	Wire-to-Board	0.069 in/(1.75 mm)
172952 TPA Receptacle (1)	43020 Plug	Wire-to-Wire	0.072 in/(1.84 mm)
	43045 Header 44914 CPI Header	Wire-to-Board	0.063 in/(1.60 mm)

Note (1): Contact Wipe is based on 43030 female crimp terminal. If using 46235 female crimp terminal, reduce Contact Wipe by .005 in/(0.13 mm).

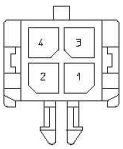
8.3 STANDARD POLARIZATION FOR HEADERS AND PLUGS (HEADERS ARE SHOWN)



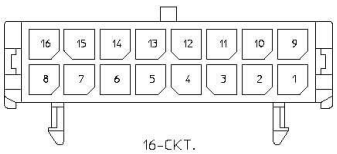
2-CKT.



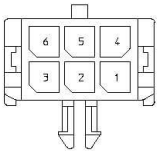
14-CKT.



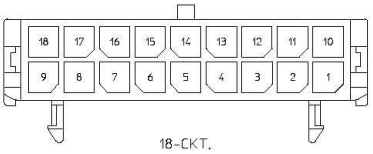
4-CKT.



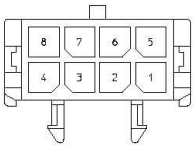
16-CKT.



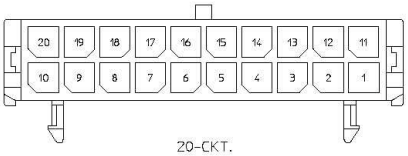
6-CKT.



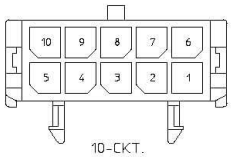
18-CKT.



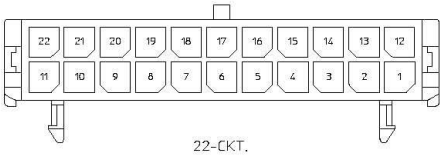
8-CKT.



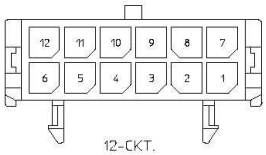
20-CKT.



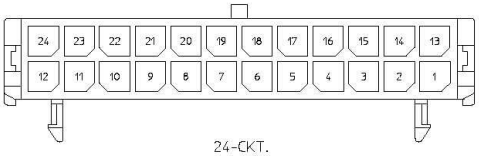
10-CKT.



22-CKT.

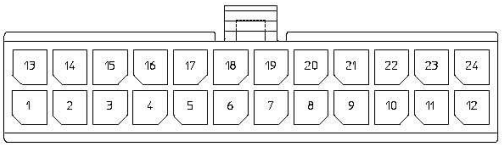


12-CKT.

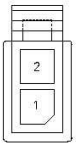


24-CKT.

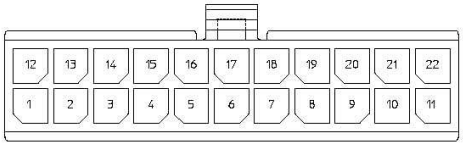
8.4 STANDARD POLARIZATION FOR RECEPTACLES



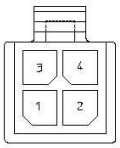
24-CKT.



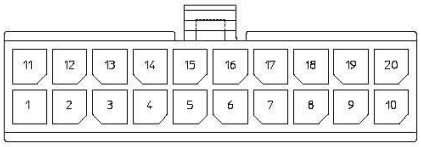
2-CKT.



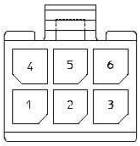
22-CKT.



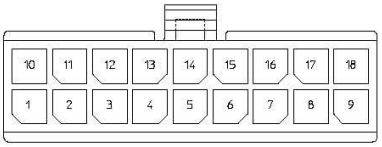
4-CKT.



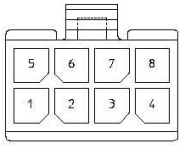
20-CKT.



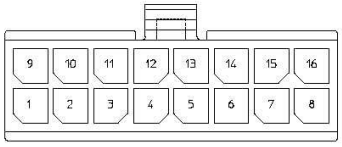
6-CKT.



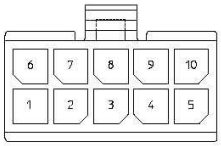
18-CKT.



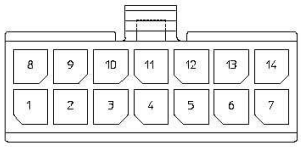
8-CKT.



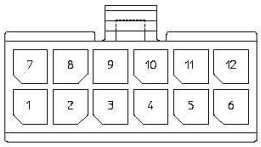
16-CKT.



10-CKT.



14-CKT.



12-CKT.

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- View 0430450600 on WIN SOURCE
- Molex, LLC Information

Optimize Your Supply Chain with WIN SOURCE Solutions

- Global Sourcing Solution
- Obsolete Management
- Cost Control Management
- Shortage Management
- Alternative Solution
- Excess Inventory Management