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ELECTRONICS

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Jameco Part Number 800438

## FEATURES AND SPECIFICATIONS

### Features and Benefits

- Snap-in peg locks header to PCB for optimum retention
- Fully polarized to mating receptacle
- Surface Mount Compatible

### Reference Information

Product Specification: PS-43650  
 Packaging: Tray  
 UL File No.: E29179  
 CSA File No.: LR19980  
 TUV License No.: R95107  
 Mates With: [43645](#)  
 Designed In: Millimeters

### Electrical

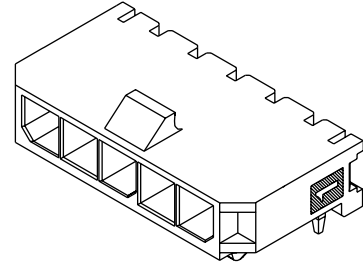
Voltage: 250V  
 Current: 5.0A max.  
 Contact Resistance: 10mΩ max.  
 Dielectric Withstanding Voltage: 1500V AC  
 Insulation Resistance: 1000 MΩ min.

### Physical

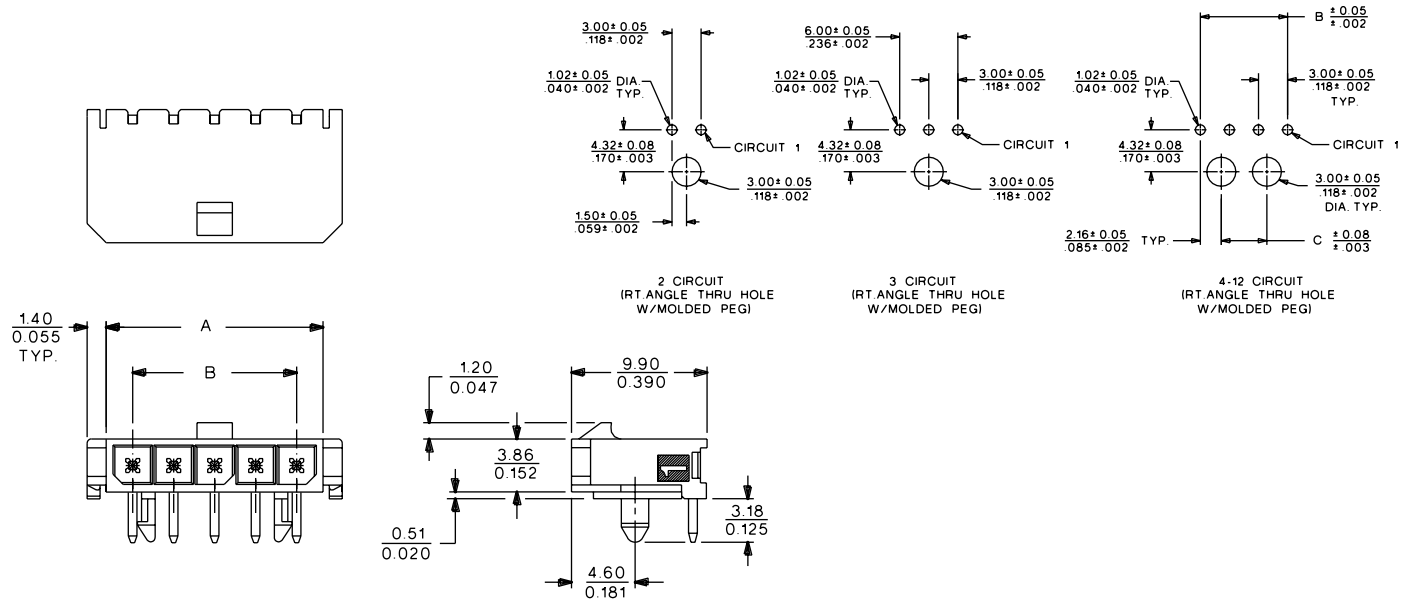
Housing: High temperature LCP, UL 94V-0  
 Contact: Brass  
 Plating: Tin or Gold

# molex® 3.00mm (.118") Pitch Micro-Fit 3.0™ Wire-to-Board Header

## 43650 Single Row Right Angle



## CATALOG DRAWING (FOR REFERENCE ONLY)



## ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.			Dimension		
	Tin	15µ" Gold	30µ" Gold	A	B	C
2	43650-0200	43650-0201	43650-0202	6.85 (.270)	3.00 (.118)	
3	43650-0300	43650-0301	43650-0302	9.85 (.388)	6.00 (.236)	
4	43650-0400	43650-0401	43650-0402	12.85 (.506)	9.00 (.354)	4.70 (.185)
5	43650-0500	43650-0501	43650-0502	15.85 (.624)	12.00 (.472)	7.70 (.303)
6	43650-0600	43650-0601	43650-0602	18.85 (.742)	15.00 (.591)	10.70 (.421)
7	43650-0700	43650-0701	43650-0702	21.85 (.860)	18.00 (.709)	13.70 (.539)
8	43650-0800	43650-0801	43650-0802	24.85 (.978)	21.00 (.827)	16.70 (.657)
9	43650-0900	43650-0901	43650-0902	27.85 (1.096)	24.00 (.945)	19.70 (.775)
10	43650-1000	43650-1001	43650-1002	30.85 (1.215)	27.00 (1.063)	22.70 (.893)
11	43650-1100	43650-1101	43650-1102	33.85 (1.333)	30.00 (1.181)	25.70 (1.011)
12	43650-1200	43650-1201	43650-1202	36.85 (1.451)	33.00 (1.299)	28.70 (1.129)



# PRODUCT SPECIFICATION

## MICRO-FIT SINGLE ROW CONNECTOR SYSTEM

### 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: 43645      Female Crimp Terminal: 43030  
Plug: 43640            Male Crimp Terminal: 43031  
Headers: 43650

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; Headers - LCP

Crimp Terminals: Phosphor Bronze

Pins: Brass

#### 2.3 SAFETY AGENCY APPROVALS

UL File Number: E29179

CSA: LR19980

TUV: 72040445

### 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

Test Summary: TS-43045-001

### 4.0 RATINGS

#### 4.1 VOLTAGE

UL: 250 Volts AC (MAX) {or 176 Volts 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	Outside Insulation Diameter
20	5	1.85 mm (.073 inch)
22	5	1.85 mm (.073 inch)
24	4	1.85 mm (.073 inch)
26	3	1.27 mm (.050 inch)
28	2	1.27 mm (.050 inch)
30	1	1.27 mm (.050 inch)

#### 4.2.1 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.)

#### 4.3 TEMPERATURE

Operating: - 40°C to + 105°C (Including Terminal Temperature Rise)

Nonoperating: - 40°C to + 105°C

<b>REVISION:</b> <b>J</b>	<b>EGR/ECN INFORMATION:</b> EC No: <b>UCP2007-0365</b> DATE: <b>2006/08/08</b>	<b>TITLE:</b> <b>PRODUCT SPECIFICATION MICRO-FIT SINGLE ROW CONNECTORS</b>	<b>SHEET No.</b> <b>1 of 5</b>
<b>DOCUMENT NUMBER:</b> <b>PS-43650</b>	<b>CREATED / REVISED BY:</b> <b>M.KIPPER</b>	<b>CHECKED BY:</b> <b>S.SOUSEK</b>	<b>APPROVED BY:</b> <b>F.SMITH</b>



# PRODUCT SPECIFICATION

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>Contact Resistance (Low Level)</b>	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. (Does not include wire resistance)	10 milliohms MAXIMUM [initial]
<b>Contact Resistance @ Rated Current</b>	Mate connectors: apply a maximum voltage of 20 mV at rated current.	30 milliohms MAXIMUM [initial]
<b>Contact Resistance of Wire Termination (Low Level)</b>	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]
<b>Insulation Resistance</b>	Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
<b>Dielectric Withstanding Voltage</b>	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
<b>Capacitance</b>	Measure between adjacent terminals at 1 MHz.	2 picofarads MAXIMUM
<b>Temperature Rise (via Current Cycling)</b>	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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# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>Connector Mate and Unmate Forces</b>	Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute. (per circuit)	8.0 N (1.8 lbf) MAXIMUM insertion force & 3.7 N (0.8 lbf) MINIMUM withdrawal force
<b>Terminal Retention Force (in Housing)</b>	Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	24.5 N (5.5 lbf) MINIMUM retention force
<b>Terminal Insertion Force (into Housing)</b>	Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	14.7 N (3.3 lbf) MAXIMUM insertion force
<b>Durability</b>	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	20 milliohms MAXIMUM (change from initial)
<b>Vibration (Random)</b>	Mate connectors and vibrate per EIA 364-28, test condition VII.	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
<b>Shock (Mechanical)</b>	Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X, \pm Y, \pm Z$ axes (18 shocks total).	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
<b>Wire Pullout Force (Axial)</b>	Apply an axial pullout force on the wire at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	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)
<b>Normal Force</b>	Apply a perpendicular force.	2.7 N (0.6 lbf) MINIMUM
<b>Pin to Header Retention</b>	Apply axial push force to pin at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	13.7 N (3.1 lbf) MINIMUM pushout force
<b>Thumb Latch to Ramp Yield Strength</b>	Full mate and then Unmate the connectors at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	68.4 N (15.4 lbf) MINIMUM Yield Strength

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DOCUMENT NUMBER: <b>PS-43650</b>	CREATED / REVISED BY: <b>M.KIPPER</b>	CHECKED BY: <b>S.SOUSEK</b>	APPROVED BY: <b>F.SMITH</b>



# PRODUCT SPECIFICATION

## 5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
<b>Thermal Aging</b>	Mate connectors; expose to: 240 hours at 105 ± 2°C OR 500 hours at 85 ± 2°C	20 milliohms MAXIMUM (change from initial)
<b>Humidity (Steady State)</b>	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
<b>Solderability</b>	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
<b>Solder Resistance</b>	A) Wave Solder Process Dip connector terminal tails in solder; Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 260°C MAX  B) Convection Reflow Solder Process 235°C MAX Per SMES-152	Visual: No Damage to insulator material
<b>Cold Resistance</b>	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3°C	20 milliohms MAXIMUM (change from initial)
<b>Corrosive Atmosphere: Sulfur Dioxide Gas (SO<sub>2</sub>)</b>	Mate connectors: Duration: 24 hours exposure; Atmosphere: 50 parts per million (ppm) SO <sub>2</sub> gas; Temperature: 40 ± 3°C	20 milliohms MAXIMUM (change from initial)
<b>Corrosive Atmosphere: Ammonia Gas (NH<sub>3</sub>)</b>	Mate connectors: Duration: 40 minutes exposure; Atmosphere: NH <sub>3</sub> gas evaporating from a 28% Ammonia solution	20 milliohms MAXIMUM (change from initial)

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<b>DOCUMENT NUMBER:</b> <b>PS-43650</b>	<b>CREATED / REVISED BY:</b> <b>M.KIPPER</b>	<b>CHECKED BY:</b> <b>S.SOUSEK</b>	<b>APPROVED BY:</b> <b>F.SMITH</b>



# PRODUCT SPECIFICATION

## 6.0 PACKAGING

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

Receptacle: PK-43645-001

Plug: PK-43640-001

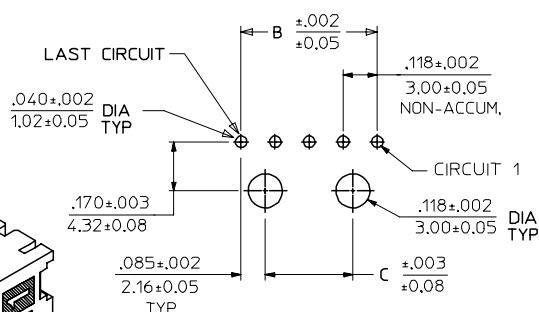
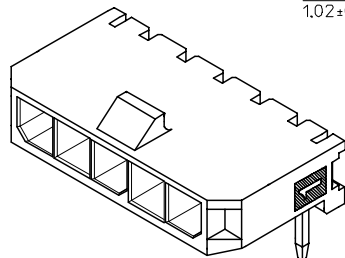
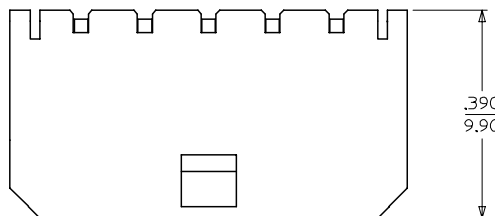
Headers: PK-70873-0321, PK-70873-0811, PK-70873-07\*\*

## 7.0 GAGES AND FIXTURES

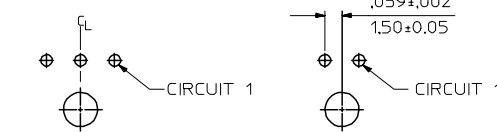
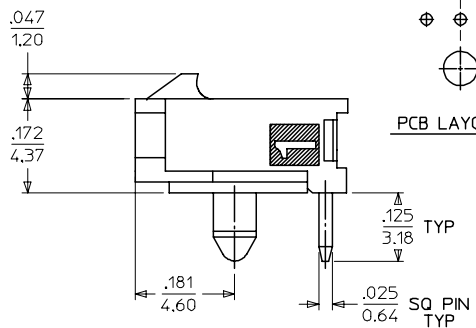
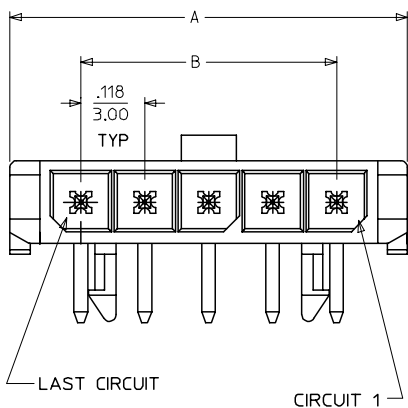
It is recommended that test plugs (Series 44242) be used for continuity testing of receptacles. Standard mating parts should not be used for harness testing.

## 8.0 OTHER INFORMATION

<u>REVISION:</u> <b>J</b>	<u>EGR/ECN INFORMATION:</u> EC No: <b>UCP2007-0365</b> DATE: <b>2006/08/08</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION MICRO-FIT SINGLE ROW CONNECTORS</b>	<u>SHEET No.</u> <b>5 of 5</b>
<u>DOCUMENT NUMBER:</u> <b>PS-43650</b>	<u>CREATED / REVISED BY:</u> <b>M.KIPPER</b>	<u>CHECKED BY:</u> <b>S.SOUSEK</b>	<u>APPROVED BY:</u> <b>F.SMITH</b>



PCB LAYOUT: COMPONENT SIDE  
RECOMMENDED PCB THICKNESS: .062/1.57  
4-12 CIRCUIT HEADERS

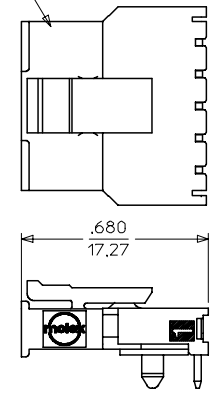


PCB LAYOUT: 3 CKT

PCB LAYOUT: 2 CKT

CKTS	43650		
	A	B	C
2	.380 9.65	.118 3.00	NA
3	.498 12.65	.236 6.00	NA
4	.616 15.65	.354 9.00	.185 4.70
5	.734 18.64	.472 12.00	.303 7.70
6	.852 21.64	.591 15.00	.421 10.70
7	.970 24.64	.709 18.00	.539 13.70
8	1.088 27.64	.827 21.00	.657 16.70
9	1.206 30.63	.945 24.00	.776 19.70
10	1.325 33.66	1.063 27.00	.894 22.70
11	1.443 36.65	1.181 30.00	1.012 25.70
12	1.561 39.65	1.299 33.00	1.130 28.70

RECEPTACLE #43645



MATED MICRO FIT CONNECTOR

	FINISH A	FINISH B	FINISH C
CKTS	MATERIAL NO:	MATERIAL NO:	MATERIAL NO:
02	43650-0200	43650-0201	43650-0202
03	43650-0300	43650-0301	43650-0302
04	43650-0400	43650-0401	43650-0402
05	43650-0500	43650-0501	43650-0502
06	43650-0600	43650-0601	43650-0602
07	43650-0700	43650-0701	43650-0702
08	43650-0800	43650-0801	43650-0802
09	43650-0900	43650-0901	43650-0902
10	43650-1000	43650-1001	43650-1002
11	43650-1100	43650-1101	43650-1102
12	43650-1200	43650-1201	43650-1202

NOTES:

- HOUSING MATERIAL: LIQUID CRYSTAL POLYMER, GLASS FILLED, UL94V-0, COLOR - BLACK  
TERMINAL MATERIAL: BRASS ALLOY
- FINISH:  
A = .000100/(0.00254) MIN. TIN OVER  
.000050/(0.00127) MIN. NICKEL  
B = .000015/(0.00038) MIN. SELECT GOLD IN CONTACT AREA  
.000100/(0.00254) MIN. SELECT TIN ON SOLDER TAILS  
BOTH OVER .000050/(0.00127) NICKEL OVERALL  
C = .000030/(0.00076) MIN. SELECT GOLD IN CONTACT AREA  
.000100/(0.00254) MIN. SELECT TIN ON SOLDER TAILS  
BOTH OVER .000050/(0.00127) NICKEL OVERALL  
\* THE PRIMARY SHIPPING CARTON WILL BE LABELED \*COMPLIANT TO  
RoHS DIRECTIVE 2002/95/EC AND ELV ANNEX II OF DIRECTIVE 2000/53/EC.\*  
CARTONS WITHOUT THIS LABEL MAY CONTAIN PRODUCT WITH TIN/LEAD  
IN THE PC TAIL AREA.
- PRODUCT SPECIFICATION: PS-43650
- MATES WITH MICRO FIT (3.0) RECEPTACLE SERIES 43645
- TRAY PACKAGED : SEE MOLEX DRAWING PK-70873-0321

LEAD FREE EC NO: UCP2004-1276 DRWN: JERNY 2004/03/12 CHKD: 2004/03/31 APPR: FSMITH 2004/04/05	QUALITY SYMBOLS ▽ = 0 ▽ = 0	GENERAL TOLERANCES (UNLESS SPECIFIED) mm INCH 4 PLACES ± --- ± --- 3 PLACES ± --- ± .010 2 PLACES ± 0.25 ± .014 1 PLACE ± 0.35 ± --- ANGULAR ±1/2°	SCALE --- DESIGN UNITS METRIC DIMENSION STYLE IN/MM DRAWN BY SAMIEC DATE 2000/07/07 CHECKED BY MUELLER DATE 2000/07/07 APPROVED BY EDGLEY DATE 2000/07/07	THIRD ANGLE PROJECTION REVISE ON CAD ONLY TITLE MICRO-FIT (3.0) SINGLE ROW / RIGHT ANGLE THRU HOLE / PEGS / TRAY MOLEX MOLEX INCORPORATED MATERIAL NO. SEE CHART DOCUMENT NO. SD-43650-001 SHEET NO. 1 OF 1
	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION	