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Jameco Part Number 884117

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

Features and Benefits

- "Offset Terminal Retention" for optimum retention to PC board during wave soldering
- Fully polarized to mating receptacle
- Peg feature provides polarization to PCB
- 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.

Mechanical

Insertion Force to PCB: 7.5kgf max. (16.5 lb)

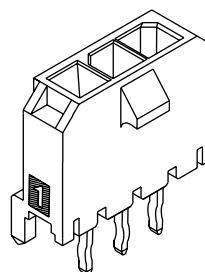
Physical

Housing: High temperature LCP, UL 94V-0

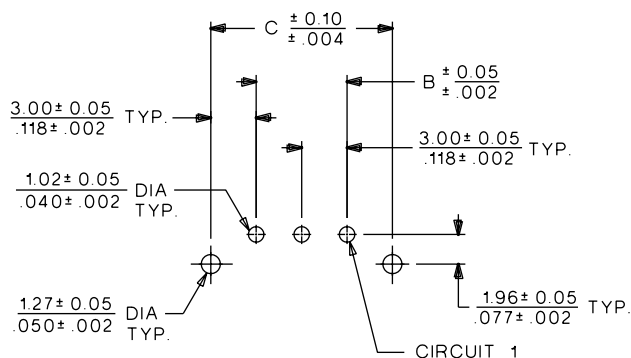
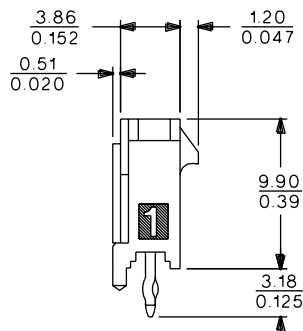
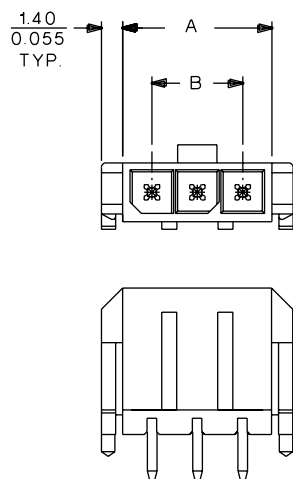
Contact: Brass

Plating: Tin or Gold

43650
Single Row
Vertical



CATALOG DRAWING (FOR REFERENCE ONLY)



PCB LAYOUT: COMPONENT SIDE

RECOMMENDED PCB THICKNESS= $\frac{1.57}{.062}$

ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.						Dimension		
	Standard "OTR" Version			Straight Tail Version					
	Tin	15μ" Gold	30μ" Gold	Tin	15μ" Gold	30μ" Gold	A	B	C
2	43650-0215	43650-0216	43650-0217	43650-0227	43650-0228	43650-0229	6.85 (.270)	3.00 (.118)	9.00 (.354)
3	43650-0315	43650-0316	43650-0317	43650-0327	43650-0328	43650-0329	9.85 (.388)	6.00 (.236)	12.00 (.472)
4	43650-0415	43650-0416	43650-0417	43650-0427	43650-0428	43650-0429	12.85 (.506)	9.00 (.354)	15.00 (.591)
5	43650-0515	43650-0516	43650-0517	43650-0527	43650-0528	43650-0529	15.85 (.624)	12.00 (.472)	18.00 (.708)
6	43650-0615	43650-0616	43650-0617	43650-0627	43650-0628	43650-0629	18.85 (.742)	15.00 (.591)	21.00 (.827)
7	43650-0715	43650-0716	43650-0717	43650-0727	43650-0728	43650-0729	21.85 (.860)	18.00 (.709)	24.00 (.945)
8	43650-0815	43650-0816	43650-0817	43650-0827	43650-0828	43650-0829	24.85 (.978)	21.00 (.827)	27.00 (1.063)
9	43650-0915	43650-0916	43650-0917	43650-0927	43650-0928	43650-0929	27.85 (1.096)	24.00 (.945)	30.00 (1.181)
10	43650-1015	43650-1016	43650-1017	43650-1027	43650-1028	43650-1029	30.85 (1.215)	27.00 (1.063)	33.00 (1.299)
11	43650-1115	43650-1116	43650-1117	43650-1127	43650-1128	43650-1129	33.85 (1.333)	30.00 (1.181)	36.00 (1.417)
12	43650-1215	43650-1216	43650-1217	43650-1227	43650-1228	43650-1229	36.85 (1.451)	33.00 (1.299)	39.00 (1.535)



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

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



PRODUCT SPECIFICATION

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 @ Rated Current	Mate connectors: apply a maximum voltage of 20 mV at rated current.	30 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

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



PRODUCT SPECIFICATION

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 ($1 \pm \frac{1}{4}$ inch) per minute. (per circuit)	8.0 N (1.8 lbf) MAXIMUM insertion force & 3.7 N (0.8 lbf) MINIMUM withdrawal force
Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ 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 ($1 \pm \frac{1}{4}$ inch).	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 prior to Environmental Tests.	20 milliohms MAXIMUM (change from initial)
Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
Shock (Mechanical)	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
Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 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)
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 ($1 \pm \frac{1}{4}$ 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 ($1 \pm \frac{1}{4}$ inch) per minute.	68.4 N (15.4 lbf) MINIMUM Yield Strength

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



PRODUCT SPECIFICATION

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Thermal Aging	Mate connectors; expose to: 240 hours at $105 \pm 2^{\circ}\text{C}$ OR 500 hours at $85 \pm 2^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial)
Humidity (Steady State)	Mate connectors: expose to a temperature of $40 \pm 2^{\circ}\text{C}$ 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: 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
Cold Resistance	Mate connectors: Duration: 96 hours; Temperature: $-40 \pm 3^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial)
Corrosive Atmosphere: Sulfur Dioxide Gas (SO₂)	Mate connectors: Duration: 24 hours exposure; Atmosphere: 50 parts per million (ppm) SO ₂ gas; Temperature: $40 \pm 3^{\circ}\text{C}$	20 milliohms MAXIMUM (change from initial)
Corrosive Atmosphere: Ammonia Gas (NH₃)	Mate connectors: Duration: 40 minutes exposure; Atmosphere: NH ₃ gas evaporating from a 28% Ammonia solution	20 milliohms MAXIMUM (change from initial)

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



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**

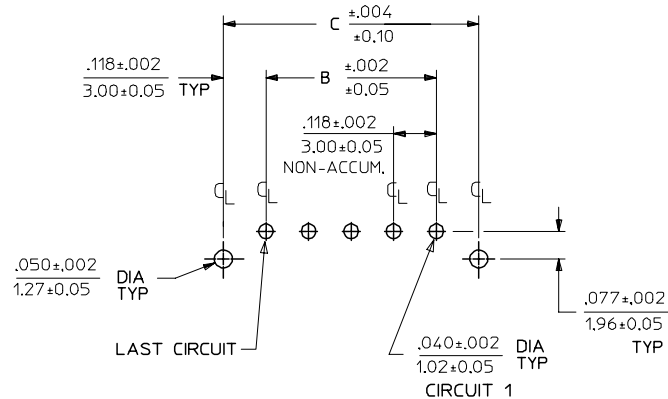
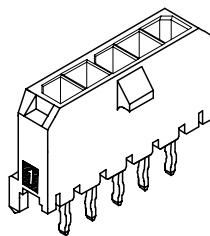
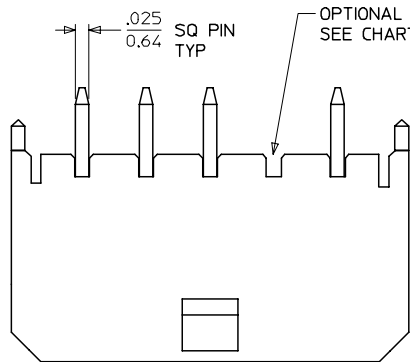
7.0 GAGES AND FIXTURES

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.

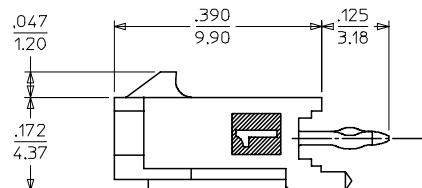
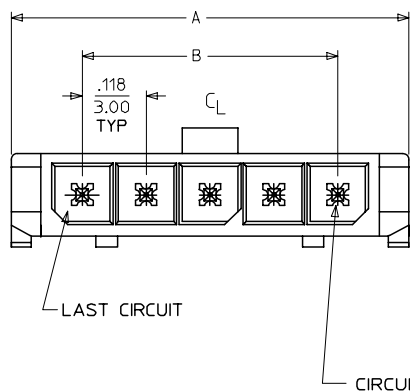
8.0 OTHER INFORMATION

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

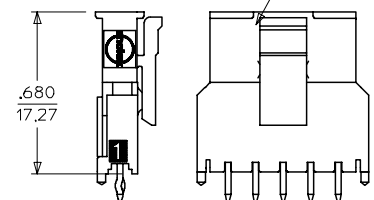
13 12 11 10 9 8 7 6 5 4 3 2 43650



PCB LAYOUT: COMPONENT SIDE
RECOMMENDED PCB THICKNESS: .062/157



RECEPTACLE #43645



MATED MICRO FIT CONNECTORS

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-70873-0811

FINISH A			
CKTS	MATERIAL NO:	VOID CKT	
02	43650-0215		
03	43650-0315		
04	43650-0415		
05	43650-0515		
06	43650-0615		
07	43650-0715		
08	43650-0815		
09	43650-0915		
10	43650-1015		
11	43650-1115		
12	43650-1215		
03	43650-0330	02	
05	43650-9915	03	
06	43650-0630	02,04,05	

FINISH B			
CKTS	MATERIAL NO:	VOID CKT	
02	43650-0216		
03	43650-0316		
04	43650-0416		
05	43650-0516		
06	43650-0616		
07	43650-0716		
08	43650-0816		
09	43650-0916		
10	43650-1016		
11	43650-1116		
12	43650-1216		
04	43650-0431	02,03	

FINISH C			
CKTS	MATERIAL NO:	VOID CKT	
02	43650-0217		
03	43650-0317		
04	43650-0417		
05	43650-0517		
06	43650-0617		
07	43650-0717		
08	43650-0817		
09	43650-0917		
10	43650-1017		
11	43650-1117		
12	43650-1217		
04	43650-0430	02,03	

LEAD FREE	EC NO: UCP2004.-1276 EC DRAWN:JCERYN 2004/03/31 CHKD: 2004/03/31 APPR:FSMITH 2004/04/05	DESCRIPTION	QUALITY SYMBOLS	GENERAL TOLERANCES (UNLESS SPECIFIED)		SCALE ---	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION		REVISE ON CAD ONLY		
					mm	INCH	DIMENSION STYLE		TITLE			
				▽ = 0	4 PLACES	± ---	± ---	IN/MM		MICRO-FIT (3.0) SINGLE ROW / VERTICAL THRU HOLE / PEGS / TRAY		
					3 PLACES	± ---	± .010	DRAWN BY	DATE			
					2 PLACES	± 0.25	± .014	SAMIEC	2000/07/07			
					1 PLACE	± 0.36	± ---	CHECKED BY	DATE			
				▽ = 0	ANGULAR		±1/2°	MUELLER	2000/07/07	MOLEX INCORPORATED		
					DRAFT WHERE APPLICABLE							
					MUST REMAIN WITHIN DIMENSIONS							
				REV		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION						
		C										

LEAD FREE
EC NO: UCP2004-1276
DRAWN: JCERNY 2004/03/12
CHKD: 2004/03/31
APPR: FSMITH 2004/04/05

DESCRIPTION
REV