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ELECTRONICS

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Jameco Part Number 882808

## FEATURES AND SPECIFICATIONS

### Features and Benefits

- Fully isolated contacts
- Fully polarized to mating receptacle
- Integral pull tabs for ease in unmating
- Optional panel mount ears

### Reference Information

Product Specification: PS-43045

Packaging: Bag

UL File No.: E29179

CSA File No.: LR19980

TUV License No.: R95107

Mates With: [43025](#)

Use With: [43031](#)

Designed In: Millimeters

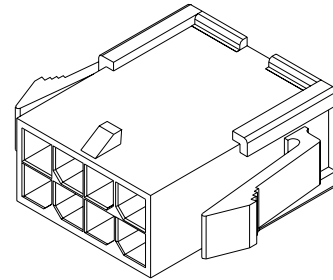
### Physical

Housing: Polyester, UL 94V-0

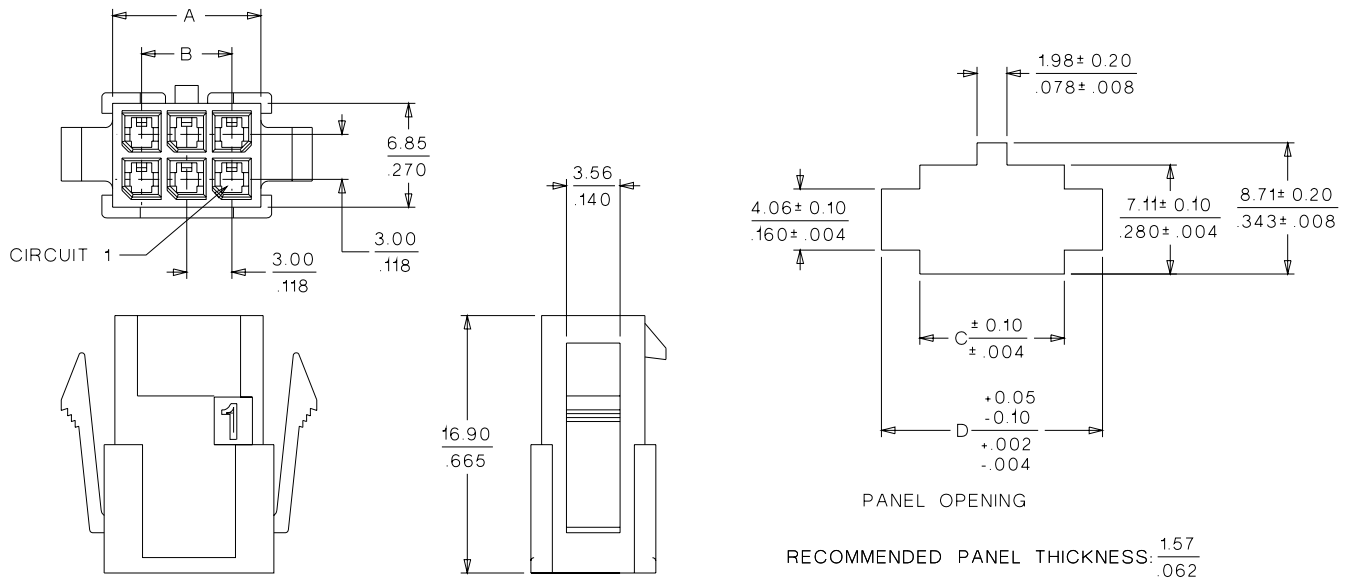
# molex® 3.00mm (.118") Pitch Micro-Fit 3.0™ Wire-to-Wire Plug

## 43020

## Dual Row, with or without Panel Mount Ears



## CATALOG DRAWING (FOR REFERENCE ONLY)



## ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.		Dimension			
	Panel Mount	Free Hanging	A	B	C	D
2	• 43020-0200	• 43020-0201	3.86 (.152)		4.21 (.166)	7.90 (.311)
4	• 43020-0400	• 43020-0401	6.85 (.270)	3.00 (.118)	7.21 (.284)	10.90 (.429)
6	• 43020-0600	• 43020-0601	9.85 (.388)	6.00 (.236)	10.21 (.402)	13.89 (.547)
8	• 43020-0800	• 43020-0801	12.85 (.506)	9.00 (.354)	13.21 (.520)	16.89 (.665)
10	• 43020-1000	• 43020-1001	15.85 (.624)	12.00 (.472)	16.21 (.638)	19.89 (.783)
12	• 43020-1200	• 43020-1201	18.85 (.742)	15.00 (.591)	19.21 (.756)	22.89 (.901)
14	• 43020-1400	• 43020-1401	21.85 (.860)	18.00 (.709)	22.20 (.874)	25.88 (1.019)
16	• 43020-1600	• 43020-1601	24.85 (.978)	21.00 (.827)	25.20 (.992)	28.88 (1.137)
18	• 43020-1800	• 43020-1801	27.85 (1.096)	24.00 (.945)	28.20 (1.110)	31.88 (1.255)
20	• 43020-2000	• 43020-2001	30.85 (1.215)	27.00 (1.063)	31.22 (1.229)	34.87 (1.373)
22	• 43020-2200	• 43020-2201	33.85 (1.333)	30.00 (1.181)	34.22 (1.347)	37.87 (1.491)
24	• 43020-2400	• 43020-2401	36.85 (1.451)	33.00 (1.299)	37.22 (1.465)	40.87 (1.609)

• US Standard Product, available through Molex franchised distributors



# PRODUCT SPECIFICATION

## MICRO-FIT

### 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      Terminal: 43030  
Plug: 43020            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: Polyester or LCP  
Terminal: Phosphor Bronze  
Pins: Brass, Modified Tin/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	Max. 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°

<b>REVISION:</b> <b>K</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 DUAL ROW CONNECTORS</b>	<b>SHEET No.</b> <b>1 of 5</b>
<b>DOCUMENT NUMBER:</b> <b>PS-43045</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

### 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 ± 6 mm (1 ± ¼ 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 ± 6 mm (1 ± ¼ 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 ± 6 mm (1 ± ¼ inch).	14.7 N (3.3 lbf) MAXIMUM insertion force

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DOCUMENT NUMBER: <b>PS-43045</b>	CREATED / REVISED BY: <b>M.KIPPER</b>	CHECKED BY: <b>S.SOUSEK</b>	APPROVED BY: <b>F.SMITH</b>



# PRODUCT SPECIFICATION

## 5.2 MECHANICAL REQUIREMENTS

<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 1/2 sine wave (11 milliseconds) shocks in the ±X,±Y,±Z axes (18 shocks total).	20 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
<b>Wire Pullout Force (Axial)</b> (Wire from Terminal)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± 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 (275 grams) MINIMUM
<b>Pin to Header Retention</b>	Apply axial push force to pin at a rate of 25 ± 6 mm (1 ± 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 ± 6 mm (1 ± 1/4 inch) per minute.	68.4 N (15.4 lbf) MINIMUM Yield Strength
<b>Panel Mount Retention</b>	Full mate and then Unmate the connectors at a rate of 25 ± 6 mm (1 ± 1/4 inch) per minute.	155.7 N (35 lbf) MINIMUM pushout force
<b>Compliant Pin Insertion Force into PCB Hole (44914 Series)</b>	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± 1/4 inch).	106.7 N (24 lbf) MAXIMUM Insertion force (Per Terminal)
<b>Compliant Pin Retention Force in PCB Hole (44914 Series)</b>	Apply an axial extraction force on the terminal at a rate of 25 ± 6 mm (1 ± 1/4 inch).	35.6 N (8 lbf) MINIMUM Retention force (Per Terminal)

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<b>DOCUMENT NUMBER:</b> <b>PS-43045</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

## 5.3 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-43045</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-43025-001

Plug: PK-43020-001

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

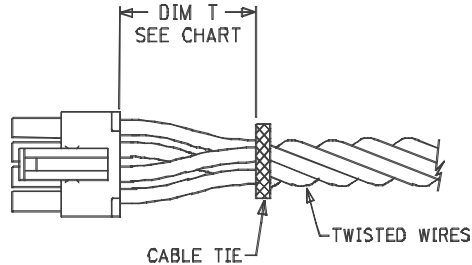
## 7.0 GAGES AND FIXTURES

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.

## 8.0 OTHER INFORMATION

### 8.1 CABLE TIE AND OR WIRE TWIST LOCATION

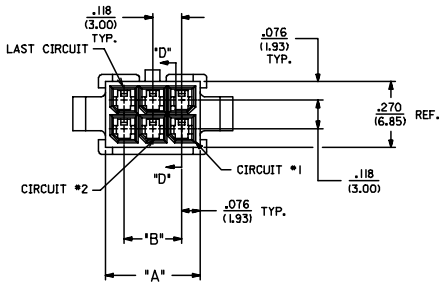
CKT Sizes	Dim T	Min.
2-8	.500	(12.70)
10-16	.750	(19.10)
18-24	1.000	(25.40)



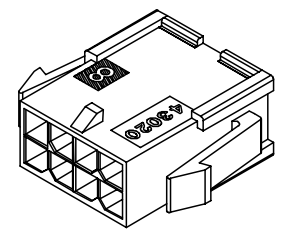
REVISION: <b>K</b>	EGR/ECN INFORMATION: EC No: <b>UCP2007-0365</b> DATE: <b>2006/08/08</b>	TITLE: <b>PRODUCT SPECIFICATION MICRO-FIT DUAL ROW CONNECTORS</b>	SHEET No. <b>5 of 5</b>
DOCUMENT NUMBER: <b>PS-43045</b>	CREATED / REVISED BY: <b>M.KIPPER</b>	CHECKED BY: <b>S.SOUSEK</b>	APPROVED BY: <b>F.SMITH</b>

ASSEMBLY ITEM NUMBER	PART CHARACTERISTICS	
	NUMBER OF POSITION	PANEL MOUNT OPTION
43020-0200	02	YES
43020-0201	02	NO
43020-0400	04	YES
43020-0401	04	NO
43020-0600	06	YES
43020-0601	06	NO
43020-0800	08	YES
43020-0801	08	NO
43020-1000	10	YES
43020-1001	10	NO
43020-1200	12	YES
43020-1201	12	NO
43020-1400	14	YES
43020-1401	14	NO
43020-1600	16	YES
43020-1601	16	NO
43020-1800	18	YES
43020-1801	18	NO
43020-2000	20	YES
43020-2001	20	NO
43020-2200	22	YES
43020-2201	22	NO
43020-2400	24	YES
43020-2401	24	NO

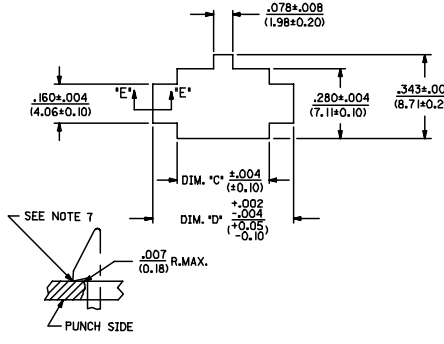
CKT. NO.	DIM. 'A'	DIM. 'B'	DIM. 'C'	DIM. 'D'
2	.152/(3.86)	N/A	.166/(4.21)	.311/(7.90)
4	.270/(6.85)	.118/(3.00)	.284/(7.21)	.429/(10.90)
6	.388/(9.85)	.236/(6.00)	.402/(10.21)	.547/(13.89)
8	.506/(12.85)	.354/(9.00)	.520/(13.21)	.665/(16.89)
10	.624/(15.85)	.472/(12.00)	.638/(16.21)	.783/(19.89)
12	.742/(18.85)	.591/(15.00)	.756/(19.21)	.901/(22.89)
14	.860/(21.85)	.709/(18.00)	.874/(22.20)	1.019/(25.88)
16	.978/(24.85)	.827/(21.00)	.992/(25.20)	1.137/(28.88)
18	1.096/(27.85)	.945/(24.00)	1.110/(28.20)	1.255/(31.88)
20	1.215/(30.85)	1.063/(27.00)	1.229/(31.22)	1.373/(34.87)
22	1.333/(33.85)	1.181/(30.00)	1.347/(34.22)	1.491/(37.87)
24	1.451/(36.85)	1.299/(33.00)	1.465/(37.22)	1.609/(40.87)



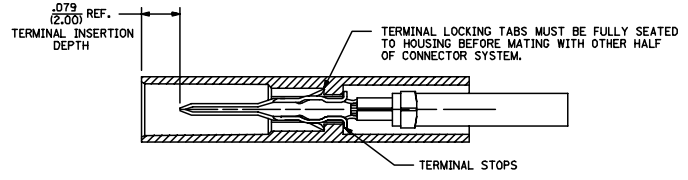
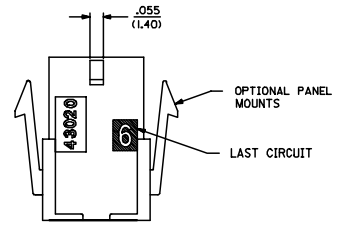
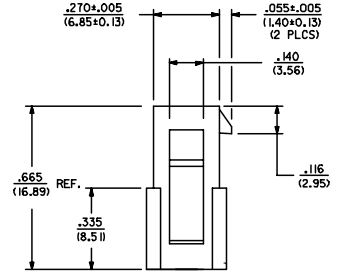
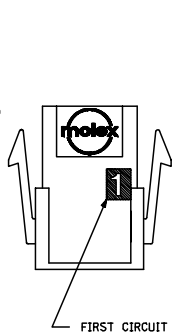
- NOTES:
- 1) HOUSING MATERIAL: UNFILLED POLYESTER (PBT), UL 94V-0  
COLOR - BLACK
  - 2) PRODUCT SPECIFICATION: PS-43045
  - 3) THIS HOUSING MATES WITH MICRO-FIT RECEPTACLE #43025-\*\*\*\*\*
  - 4) THIS HOUSING TO BE USED WITH MOLEX MALE TERMINAL #43031-\*\*\*\*\*
  - 5) DESIGNED FOR .055(1.4) MINIMUM TO A .100(2.54) MAXIMUM THICK PANEL OR PRINTED CIRCUIT BOARD.
  - 6) SEE SECTION "D"-D" FOR TERMINAL ORIENTATION IN HOUSING.
  - 7) PANEL MOUNT FEATURES MUST LOCK ON SIDE OPPOSITE PUNCH SIDE FOR OPTIMUM RETENTION.



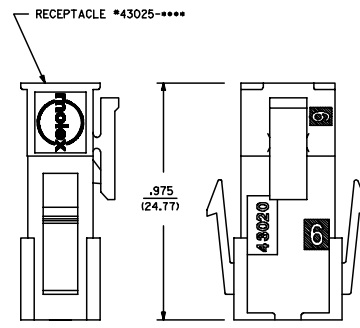
PLUG WITH OPTIONAL PANEL MOUNTS  
ISO VIEW  
(8 CIRCUIT SHOWN)



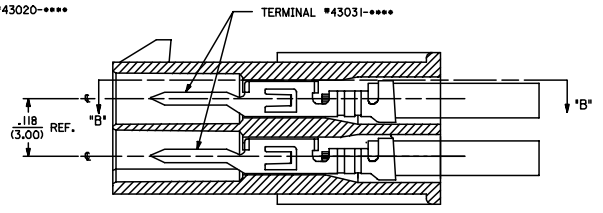
SECTION "E"-E"  
(NO SCALE)  
RECOMMENDED PANEL CUT-OUT



SECTION "B"-B"



MATED MICRO-FIT CONNECTOR



SECTION "D"-D"  
WITH TERMINAL SCALE 8X

QUALITY SYMBOLS ▽=0 ▽=0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE IN/MM		SCALE 4:1	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
		mm	INCH	DRAWN BY AFG	DATE 1993/01/07	TITLE MICRO-FIT(3.0) 2 THRU 24 CIRCUIT PLUG WITH OPTIONAL PANEL MOUNTS	
	4 PLACES ± .010	± .010		CHECKED BY BAP	DATE 1993/01/07	MOLEX INCORPORATED	
	2 PLACES ± 0.25	± .014		APPROVED BY RAS	DATE 1993/01/07	MATERIAL NO. DOCUMENT NO. SDA-43020-***** SHEET NO. 1 OF 1	
	ANGULAR ±1/2°		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SEE CHART		