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ELECTRONICS

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Jameco Part Number 879617

FEATURES AND SPECIFICATIONS

Features and Benefits

- Sizes 2 to 28 circuits
- Friction lock provides passive lock to connector with ramp
- Good in high vibration applications
- Higher backwall than the 6373 Series
- Various pin lengths available

Reference Information

Product Specification: PS-10-07

Packaging: Bag

UL File No.: E29179

CSA File No.: LR19980

Mates With: 2695 with locking ramp, 6471 and 7880

Designed In: Inches

Electrical

Voltage: 250V

Current: 4.0A

Contact Resistance: 20mΩ max.

Dielectric Withstanding Voltage: 1500V

Insulation Resistance: 50K MΩ min.

Physical

Housing: Nylon, UL 94V-0

Contact: Brass, 0.64mm (.025") square

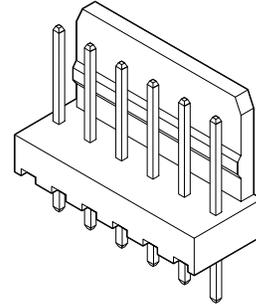
Plating: See Table

Operating Temperature: 0 to +75°C

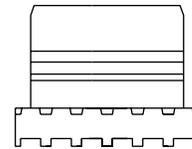
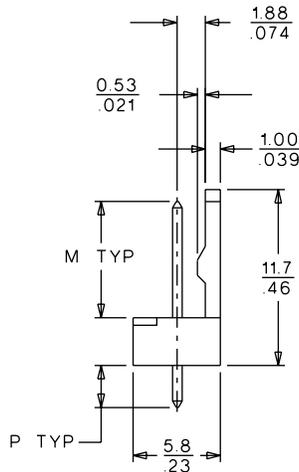
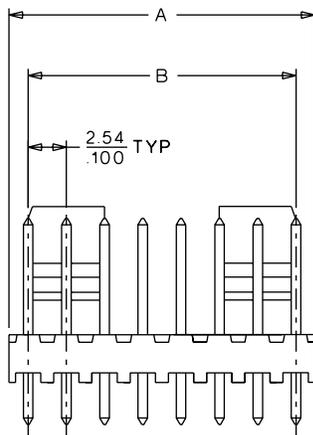
molex® 2.54mm (.100") Pitch KK® Header

6410

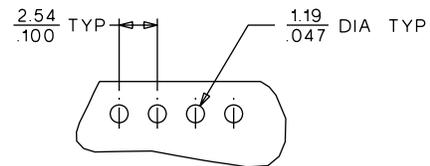
Vertical Friction Lock



CATALOG DRAWING (FOR REFERENCE ONLY)



SINGLE RAMP ON 2-6 CIRCUITS
TWO RAMPS ON 7-28 CCTS, AS SHOWN.



RECOMMENDED PCB LAYOUT

ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.		Dimension			
	Tin	Gold	A	B	M	P
2	• 22-27-2021	• 22-29-2021	5.08 (.200)	2.54 (.100)	7.50 (.295)	3.56 (.140)
3	• 22-27-2031	• 22-29-2031	7.62 (.300)	5.08 (.200)	7.50 (.295)	3.56 (.140)
4	• 22-27-2041	• 22-29-2041	10.16 (.400)	7.62 (.300)	7.50 (.295)	3.56 (.140)
5	• 22-27-2051	• 22-29-2051	12.70 (.500)	10.16 (.400)	7.50 (.295)	3.56 (.140)
6	• 22-27-2061	• 22-29-2061	15.24 (.600)	12.70 (.500)	7.50 (.295)	3.56 (.140)
7	• 22-27-2071	• 22-29-2071	17.78 (.700)	15.24 (.600)	7.50 (.295)	3.56 (.140)
8	• 22-27-2081	• 22-29-2081	20.32 (.800)	17.78 (.700)	7.50 (.295)	3.56 (.140)
9	• 22-27-2091	• 22-29-2091	22.86 (.900)	20.32 (.800)	7.50 (.295)	3.56 (.140)
10	• 22-27-2101	• 22-29-2101	25.40 (1.000)	22.86 (.900)	7.50 (.295)	3.56 (.140)
11	• 22-27-2111	• 22-29-2111	27.94 (1.100)	25.40 (1.000)	7.50 (.295)	3.56 (.140)
12	• 22-27-2121	• 22-29-2121	30.48 (1.200)	27.94 (1.100)	7.50 (.295)	3.56 (.140)
13	• 22-27-2131	• 22-29-2131	33.02 (1.300)	30.48 (1.200)	7.50 (.295)	3.56 (.140)
14	• 22-27-2141	• 22-29-2141	35.56 (1.400)	33.02 (1.300)	7.50 (.295)	3.56 (.140)
15	• 22-27-2151	• 22-29-2151	38.10 (1.500)	35.56 (1.400)	7.50 (.295)	3.56 (.140)

Circuits	Order No.		Dimension			
	Tin	Gold	A	B	M	P
16	• 22-27-2161	• 22-29-2161	40.64 (1.600)	38.10 (1.500)	7.50 (.295)	3.56 (.140)
17	• 22-27-2171	• 22-29-2171	43.18 (1.700)	40.64 (1.600)	7.50 (.295)	3.56 (.140)
18	• 22-27-2181	• 22-29-2181	45.72 (1.800)	43.18 (1.700)	7.50 (.295)	3.56 (.140)
19	• 22-27-2191	• 22-29-2191	48.26 (1.900)	45.72 (1.800)	7.50 (.295)	3.56 (.140)
20	• 22-27-2201	• 22-29-2201	50.80 (2.000)	48.26 (1.900)	7.50 (.295)	3.56 (.140)
21	• 22-27-2211	• 22-29-2211	53.34 (2.100)	50.80 (2.000)	7.50 (.295)	3.56 (.140)
22	• 22-27-2221	• 22-29-2221	55.88 (2.200)	53.34 (2.100)	7.50 (.295)	3.56 (.140)
23	• 22-27-2231	• 22-29-2231	58.42 (2.300)	55.88 (2.200)	7.50 (.295)	3.56 (.140)
24	• 22-27-2241	• 22-29-2241	60.96 (2.400)	58.42 (2.300)	7.50 (.295)	3.56 (.140)
25	• 22-27-2251	• 22-29-2251	63.50 (2.500)	60.96 (2.400)	7.50 (.295)	3.56 (.140)
26	• 22-27-2261	• 22-29-2261	66.04 (2.600)	63.50 (2.500)	7.50 (.295)	3.56 (.140)
27	• 22-27-2271	• 22-29-2271	68.58 (2.700)	66.04 (2.600)	7.50 (.295)	3.56 (.140)
28	• 22-27-2281	• 22-29-2281	71.12 (2.800)	68.58 (2.700)	7.50 (.295)	3.56 (.140)

• US Standard Product, available through Molex franchised distributors



PRODUCT SPECIFICATION

1.0 SCOPE

This Product Specification covers the 2.54 mm (.100 inch) centerline (pitch) 0.64 mm (.025) square pin headers when mated with either printed circuit board (PCB) connectors or connectors terminated with 22 to 28 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS

Crimp Terminals: 2759, 41572, 6459
Crimp Housings: 2695
PCB Connectors: 4455, 42625
Headers: 4030, 4094, 6373, 7478, 42225, 42226, 42227, 42228, 42152, 42153, 42375, 42376, 42377, 42624.
Other products conforming to this specification are noted on the individual drawings.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Terminal Material: Brass or Phos. Bronze (for Max performance use phos bronze material.)
Housing: Nylon or Polyester
Pins: Brass or Phos. Bronze
For more information on dimensions, materials, and plating see the individual drawings.

2.3 SAFETY AGENCY APPROVALS

UL File Number E29179
CSALR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

None

4.0 RATINGS

4.1 VOLTAGE

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
22	4.00	See Drawings
24	3.75	See Drawings
26	3.50	See Drawings
28	3.00	See Drawings

4.3 TEMPERATURE (ambient + 30° temp rise)

Operating: 0°C to +75°C
Nonoperating: - 40°C to +105°C

REVISION: P	EGR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 1 of 5
DOCUMENT NUMBER: PS-10-07	CREATED / REVISED BY: SAMIEC	CHECKED BY: MUELLER	APPROVED BY: MARGULIS



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.	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.	2 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
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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PRODUCT SPECIFICATION

5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Connector Mate and Unmate Forces	Per circuit when mated to an .025 Sq. pin. Mate and unmate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	1.95 N (0.438 lbf) MAXIMUM insertion force & 0.56 N (0.125 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 ± ¼ inch) per minute. (Forces will change with platings and materials.)	17.8 N (4.0 lbf) MINIMUM withdrawal force
Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch). (Forces will change with platings and materials.)	6.67 N (1.5 lbf) MAXIMUM insertion force
Durability	Mate connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	10 milliohms MAXIMUM (change from initial)
Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 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).	10 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 ± ¼ inch). (For maximum performance use Molex application tooling with stranded tinned copper wire)	22 awg = 44 N (10 lbf) 24 awg = 35 N (8 lbf) 26 awg = 26 N (6 lbf) 28 awg = 17 N (4 lbf) 30 awg = 13 N (3 lbf)
Normal Force	Apply a perpendicular force.	2.94 N (300 grams) average

REVISION: P	EGR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 3 of 5
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PRODUCT SPECIFICATION

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT										
Shock (Thermal)	Mate connectors; expose to 5 cycles of: <table border="1"> <thead> <tr> <th>Temperature °C</th> <th>Duration (Minutes)</th> </tr> </thead> <tbody> <tr> <td>-40 +0/-3</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> <tr> <td>+105 +3/-0</td> <td>30</td> </tr> <tr> <td>+25 ±10</td> <td>5 MAXIMUM</td> </tr> </tbody> </table>	Temperature °C	Duration (Minutes)	-40 +0/-3	30	+25 ±10	5 MAXIMUM	+105 +3/-0	30	+25 ±10	5 MAXIMUM	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Temperature °C	Duration (Minutes)											
-40 +0/-3	30											
+25 ±10	5 MAXIMUM											
+105 +3/-0	30											
+25 ±10	5 MAXIMUM											
Thermal Aging	Mate connectors; expose to: 96 hours at 105 ± 2°C	10 milliohms MAXIMUM (change from initial)] & Visual: No Damage										
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.	10 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage										
Humidity (Cyclic)	Mate connectors: cycle per EIA-364-31: 24 cycles at temperature 25 ± 3°C at 80 ± 5% relative humidity and 65 ± 3°C at 50 ± 5% relative humidity; dwell time of 1.0 hour; ramp time of 0.5 hours. {Note: Remove surface moisture and air dry for 1 hour prior to measurements.}	10 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage										
Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)										

REVISION: P	EGR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 4 of 5
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PRODUCT SPECIFICATION

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Solder Resistance	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 230 ± 5°C	Visual: No Damage to insulator material
Salt Spray	Mate connectors: Duration: 48 hours exposure; Atmosphere: salt spray from a 5% solution; Temperature: 35 +1/-2°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Cold Resistance	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3°C	10 milliohms MAXIMUM (change from initial) & Visual: No Damage
Corrosive Atmosphere: Flowing Mixed Gas (FMG)	Mate connectors: Test per EIA-364-65, method 2A	10 milliohms MAXIMUM (change from initial) & Visual: No Damage

6.0 PACKAGING

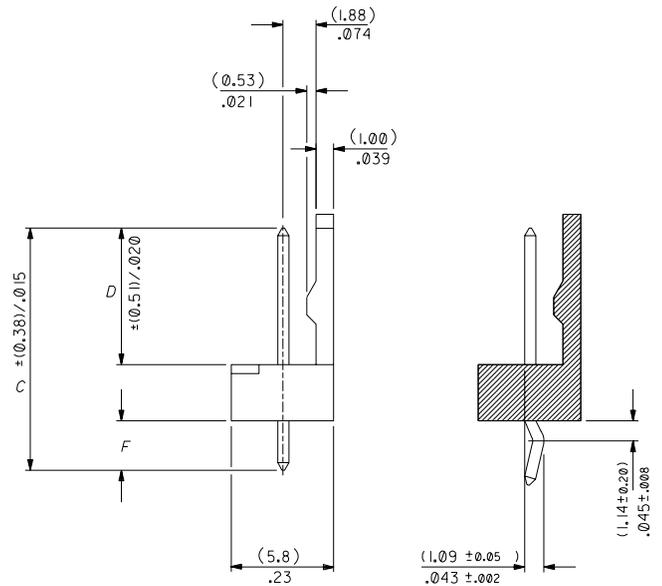
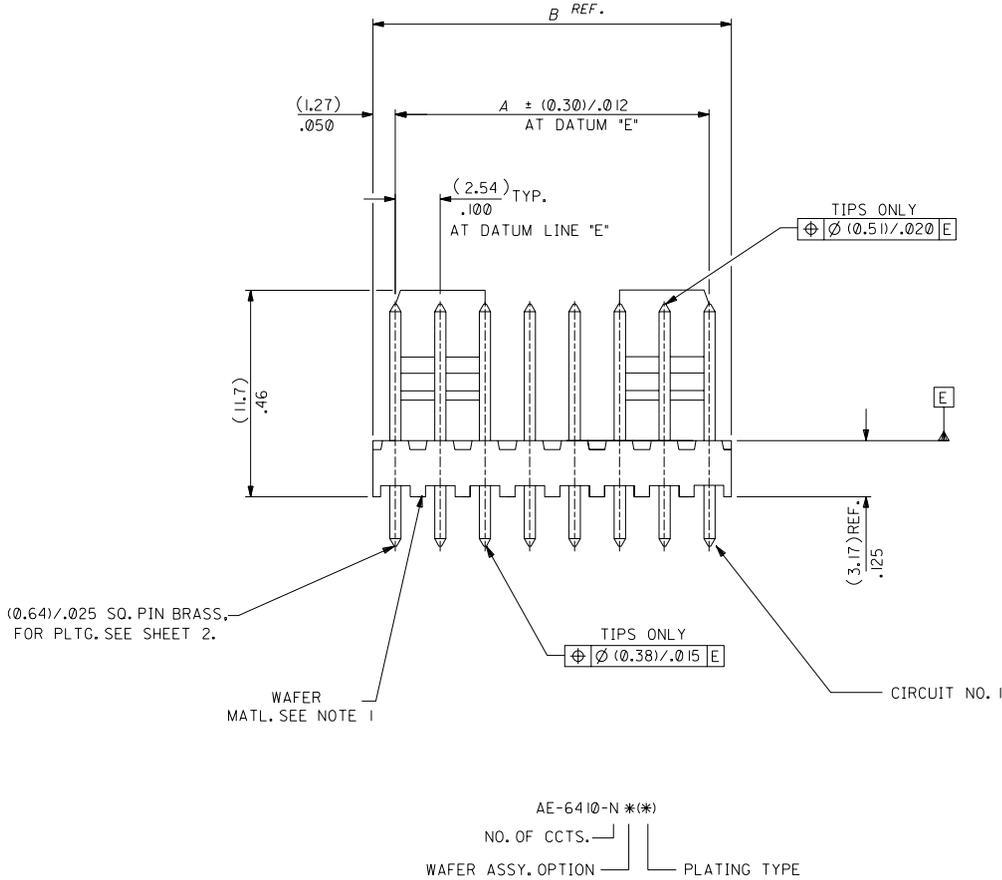
Parts shall be packaged to protect against damage during handling, transit and storage.

7.0 GAGES AND FIXTURES

8.0 OTHER

REVISION: P	EGR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 5 of 5
DOCUMENT NUMBER: PS-10-07	CREATED / REVISED BY: SAMIEC	CHECKED BY: MUELLER	APPROVED BY: MARGULIS

NO. OF CCTS	DIMN. "A"	DIMN. "B"
2	(2.54) .100	(5.08) .200
3	(5.08) .200	(7.62) .300
4	(7.62) .300	(10.16) .400
5	(10.16) .400	(12.70) .500
6	(12.70) .500	(15.24) .600
7	(15.24) .600	(17.78) .700
8	(17.78) .700	(20.32) .800
9	(20.32) .800	(22.86) .900
10	(22.86) .900	(25.40) 1.000
11	(25.40) 1.000	(27.94) 1.100
12	(27.94) 1.100	(30.48) 1.200
13	(30.48) 1.200	(33.02) 1.300
14	(33.02) 1.300	(35.56) 1.400
15	(35.56) 1.400	(38.10) 1.500
16	(38.10) 1.500	(40.64) 1.600
17	(40.64) 1.600	(43.18) 1.700
18	(43.18) 1.700	(45.72) 1.800
19	(45.72) 1.800	(48.26) 1.900
20	(48.26) 1.900	(50.80) 2.000
21	(50.80) 2.000	(53.34) 2.100
22	(53.34) 2.100	(55.88) 2.200
23	(55.88) 2.200	(58.42) 2.300
24	(58.42) 2.300	(60.86) 2.400
25	(60.86) 2.400	(63.50) 2.500
26	(63.50) 2.500	(66.04) 2.600
27	(66.04) 2.600	(68.58) 2.700
28	(68.58) 2.700	(71.12) 2.800

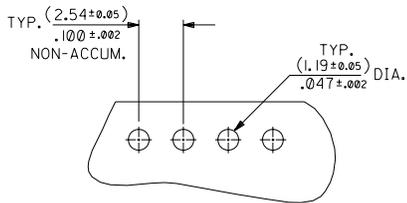


KINK OPTIONS:
 SEE SHEET 4 FOR KINK
 PIN POSITIONS
 (SECTION SHOWING STANDARD KINKED
 PIN ONLY)

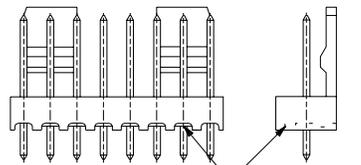
NOTES:-

1. WAFER MATERIAL: NYLON, 94V-0
2. PIN PUSH OUT FORCE (0.907 KG)/2LBS. MIN.
3. WAFERS STACKABLE END TO END WITH (2.54)/.100 BETWEEN END PINS.
4. THIS PART CONFORMS TO MOLEX PROD. SPEC. 10-07.
5. PIN SOLDERABILITY PER MOLEX SPEC. NO. 152.
6. FOR KINKED OPTIONS, KINKED ON 1st AND LAST CCT.

5	AL
4	AN
3	AM
2	Z
1	AN
SH.	REV.



RECOMMENDED P.C.B. HOLE DIMENSIONS
(STANDARD SERIES)



AE-6410-N *(*)
 NO. OF CCTS. | PLATING TYPE
 WAFER ASSY. OPTION

FOR PREVIOUS
 DRAWING ISSUES
 SEE MRI.

ADDED OPTIONS ECL E80438 98.04.01 GM	REVISIONS	DIMENSIONS SHOWN (METRIC) INCH UNLESS OTHERWISE SPECIFIED TOLERANCES ANGULAR ± °	DRWG BY MCC
AN	1	INCH (METRIC)	CHK'D BY
LTR	2	3 PLACE # ± .010	APP'D BY
	3	2 PLACE # ± .014 ± .025	SCALE
	4	1 PLACE # ± .035	5:1
		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	DESIGN DIMENSION <input type="checkbox"/> (MM)
			<input type="checkbox"/> IN.
		EQUIVALENT DIMENSION (SECONDARY)	<input type="checkbox"/> (MM)
			<input type="checkbox"/> IN.

REVISE ONLY ON CAD SYSTEM		CAD/CAM FILE NAME S464.RW1		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. & SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION	
TITLE WAFER , FRICTION LOCK , KK (2.54)/.100 FOR (0.64)/.025 SQ. PINS.				SHEET NO. DATE 1 OF 5 26/6 /86	
PART NO. SEE CHART		DWG NO. SDAE-6410-N		SIZE C	

