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ELECTRONICS

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Jameco Part Number 879043

FEATURES AND SPECIFICATIONS

Features and Benefits

- Sizes 2 to 28 circuits
- Friction lock provides passive lock to connector with ramp
- 7478 with voids is 7832 Series
- Various pin lengths available
- End-to-end stackable
- Edge mount only

Reference Information

Product Specification: PS-10-07
 Packaging: Bag
 UL File No.: E29179
 CSA File No.: LR19980
 Mates With: 2695, 4455, 6471, 7720 and 7880
 Designed In: Inches

Electrical

Voltage: 250V
 Current: 4.0A
 Contact Resistance: 20mΩ max.
 Dielectric Withstanding Voltage: 1500V
 Insulation Resistance: 50K MΩ min.

Mechanical

Durability:
 Tin—25 cycles max.
 Gold—100 cycles max.

Physical

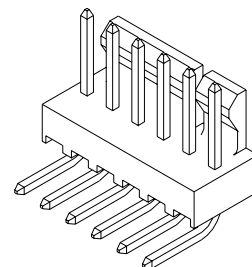
Housing: White nylon, UL 94V-0
 Contact: Brass, 0.64mm (.025") square
 Plating: See Table
 Operating Temperature: 0 to +75°C



2.54mm (.100") Pitch
KK®
Solid Header

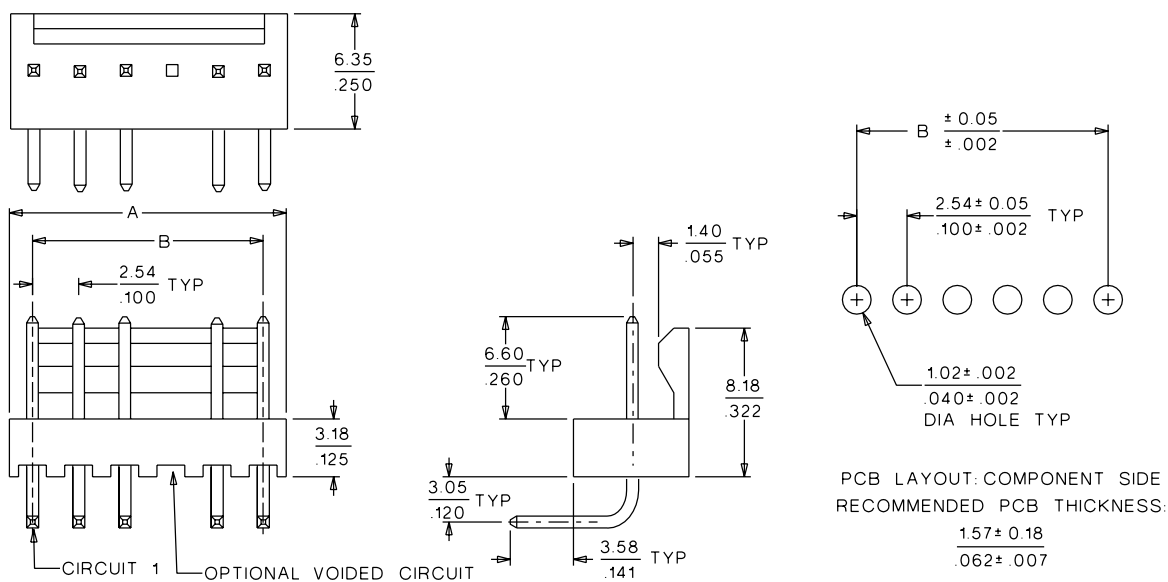
7478

Right Angle
Friction Lock



2.54mm (.100") Pitch

CATALOG DRAWING (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.		Dimension	
	Tin	Gold	A	B
2	• 22-05-3021	• 22-12-2024	5.08 (.200)	2.54 (.100)
3	• 22-05-3031	• 22-12-2034	7.62 (.300)	5.08 (.200)
4	• 22-05-3041	• 22-12-2044	10.16 (.400)	7.62 (.300)
5	• 22-05-3051	• 22-12-2054	12.70 (.500)	10.16 (.400)
6	• 22-05-3061	• 22-12-2064	15.24 (.600)	12.70 (.500)
7	• 22-05-3071	• 22-12-2074	17.78 (.700)	15.24 (.600)
8	• 22-05-3081	• 22-12-2084	20.32 (.800)	17.78 (.700)
9	• 22-05-3091	• 22-12-2094	22.86 (.900)	20.32 (.800)
10	• 22-05-3101	• 22-12-2104	25.40 (1.000)	22.86 (.900)
11	• 22-05-3111	• 22-12-2114	27.94 (1.100)	25.40 (1.000)
12	• 22-05-3121	• 22-12-2124	30.48 (1.200)	27.94 (1.100)
13	• 22-05-3131	• 22-12-2134	33.02 (1.300)	30.48 (1.200)
14	• 22-05-3141	• 22-12-2144	35.56 (1.400)	33.02 (1.300)
15	• 22-05-3151	• 22-12-2154	38.10 (1.500)	35.56 (1.400)

Circuits	Order No.		Dimension	
	Tin	Gold	A	B
16	• 22-05-3161	• 22-12-2164	40.64 (1.600)	38.10 (1.500)
17	• 22-05-3171	• 22-12-2174	43.18 (1.700)	40.64 (1.600)
18	• 22-05-3181	• 22-12-2184	45.72 (1.800)	43.18 (1.700)
19	• 22-05-3191	• 22-12-2194	48.26 (1.900)	45.72 (1.800)
20	• 22-05-3201	• 22-12-2204	50.80 (2.000)	48.26 (1.900)
21	• 22-05-3211	• 22-12-2214	53.34 (2.100)	50.80 (2.000)
22	• 22-05-3221	• 22-12-2224	55.88 (2.200)	53.34 (2.100)
23	• 22-05-3231	• 22-12-2234	58.42 (2.300)	55.88 (2.200)
24	• 22-05-3241	• 22-12-2244	60.96 (2.400)	58.42 (2.300)
25	• 22-05-3251	• 22-12-2254	63.50 (2.500)	60.96 (2.400)
26	• 22-05-3261	• 22-12-2264	66.04 (2.600)	63.50 (2.500)
27	• 22-05-3271	• 22-12-2274	68.58 (2.700)	66.04 (2.600)
28	• 22-05-3281	• 22-12-2284	71.12 (2.800)	68.58 (2.700)

• US Standard Product, available through Molex franchised distributors

Note: Circuit 1 designation is used to orient the header to locate the voided circuit. Review mating connector to assure correct mating orientation.



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	ECR/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

REVISION: P	ECR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 2 of 5
DOCUMENT NUMBER: PS-10-07	CREATED / REVISED BY: SAMIEC	CHECKED BY: MUELLER	APPROVED BY: MARGULIS



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 ($1 \pm \frac{1}{4}$ 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 ($1 \pm \frac{1}{4}$ 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 ($1 \pm \frac{1}{4}$ 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 $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X, \pm Y, \pm Z$ 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 ($1 \pm \frac{1}{4}$ 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	ECR/ECN INFORMATION: EC No: UCR2002-0299 DATE: 2001 / 09 / 18	TITLE: PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	SHEET No. 3 of 5
DOCUMENT NUMBER: PS-10-07	CREATED / REVISED BY: SAMIEC	CHECKED BY: MUELLER	APPROVED BY: MARGULIS



PRODUCT SPECIFICATION

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT										
Shock (Thermal)	Mate connectors; expose to 5 cycles of: <table><tr><th>Temperature °C</th><th>Duration (Minutes)</th></tr><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></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:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
P	EC No: UCR2002-0299 DATE: 2001 / 09 / 18	PRODUCT SPECIFICATION .100 CENTER KK CONNECTORS	4 of 5
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
PS-10-07	SAMIEC	MUELLER	MARGULIS



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

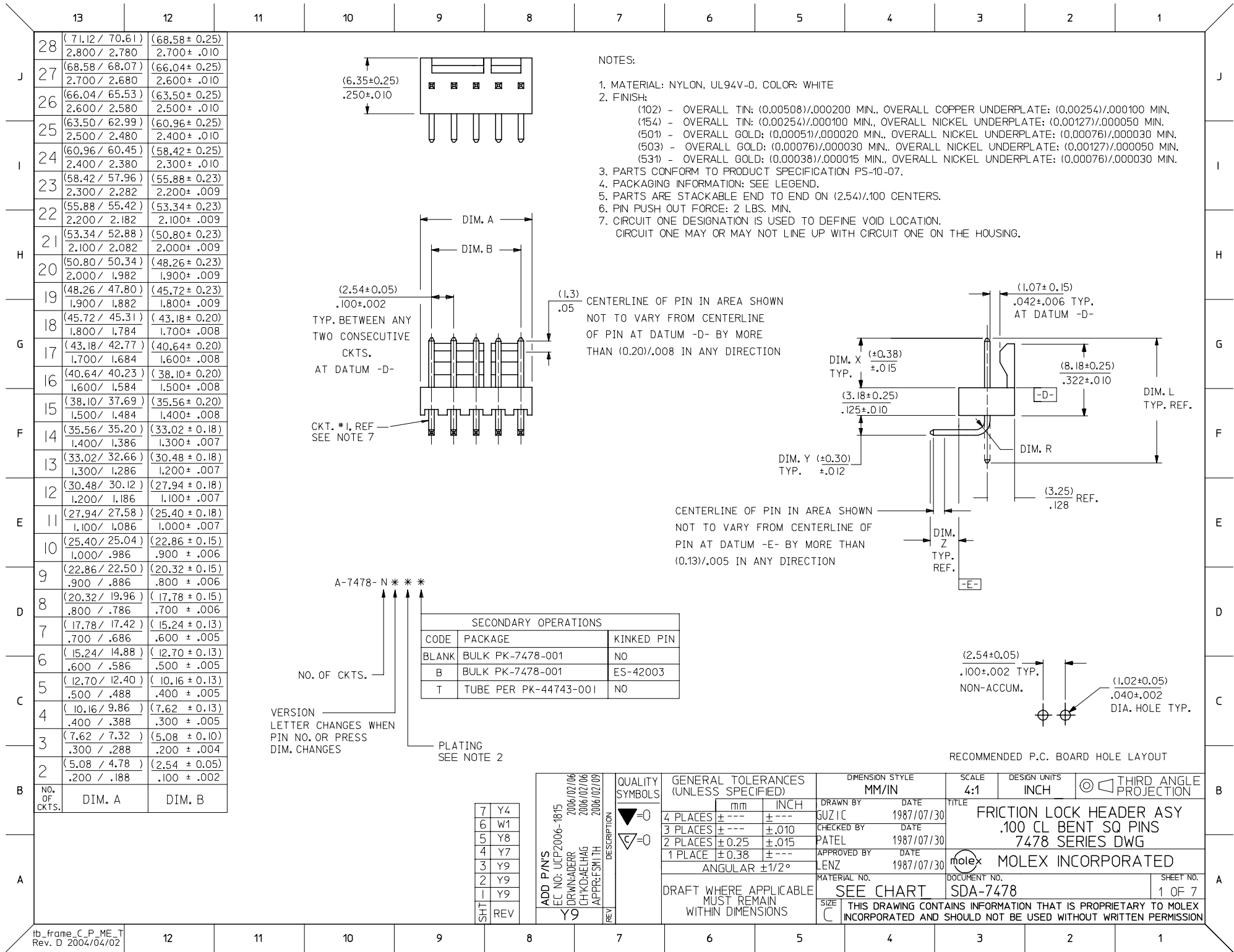
6.0 PACKAGING

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

7.0 GAGES AND FIXTURES

8.0 OTHER

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



	13	12	11	10	9	8	7	6	5	4	3	2	1																																																						
	A-7478-NA102		A-7478-NA501		A-7478-NA501T		A-7478-NA102T																																																												
J	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	PART NO.	ENG. NO.	J																																																						
	22-05-3021	A-7478-2A102	22-12-2024	A-7478-2A501	50-29-1710	A-7478-2A501T	50-34-8500	A-7478-2A102T																																																											
	22-05-3031	A-7478-3A102	22-12-2034	A-7478-3A501	50-29-1711	A-7478-3A501T	50-34-8501	A-7478-3A102T																																																											
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I	22-05-3051	A-7478-5A102	22-12-2054	A-7478-5A501	50-29-1712	A-7478-5A501T							I																																																						
	22-05-3061	A-7478-6A102	22-12-2064	A-7478-6A501	50-29-1713	A-7478-6A501T																																																													
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F	22-05-3211	A-7478-21A102	22-12-2214	A-7478-21A501	50-29-1728	A-7478-21A501T							F																																																						
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	22-05-3231	A-7478-23A102	22-12-2234	A-7478-23A501	50-29-1730	A-7478-23A501T																																																													
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	22-05-3251	A-7478-25A102	22-12-2254	A-7478-25A501	50-29-1732	A-7478-25A501T																																																													
	22-05-3261	A-7478-26A102	22-12-2264	A-7478-26A501	50-29-1733	A-7478-26A501T																																																													
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	22-05-3281	A-7478-28A102	22-12-2284	A-7478-28A501	50-29-1735	A-7478-28A501T																																																													
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<table><tr><td rowspan="6">ADD P/N'S EC NO: UCP2006-1815 2006/02/06 DRAWN:ADERR CHKD:AEHAG 2006/02/06 APPR:FSM TH 2006/02/09 REV Y9</td><td rowspan="6">DESCRIPTION</td><td>QUALITY SYMBOLS ▽=0 ▽=0</td><td colspan="2">GENERAL TOLERANCES (UNLESS SPECIFIED)</td><td colspan="2">DIMENSION STYLE IN/MM</td><td>SCALE ---</td><td>DESIGN UNITS INCH</td><td colspan="2" rowspan="4">THIRD ANGLE PROJECTION</td><td colspan="3" rowspan="4">TITLE FRICTION LOCK HEADER ASY .100 CL BENT SQ PINS 7478 SERIES DWG. molex MOLEX INCORPORATED</td></tr><tr><td>mm</td><td>INCH</td><td>DRAWN BY GUZIK</td><td>DATE 1987/07/10</td></tr><tr><td>4 PLACES ± ---</td><td>± ---</td><td>CHECKED BY PATEL</td><td>DATE 1987/07/10</td></tr><tr><td>3 PLACES ± ---</td><td>± ---</td><td>APPROVED BY LENZ</td><td>DATE 1987/07/10</td></tr><tr><td colspan="3"></td><td colspan="2">ANGULAR ± ---°</td><td colspan="2">MATERIAL NO. SEE CHART</td><td colspan="2">DOCUMENT NO. SDA-7478</td><td colspan="2" rowspan="2">SHEET NO. 3 OF 7</td><td colspan="3" rowspan="2"></td></tr><tr><td colspan="3"></td><td colspan="2">DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS</td><td colspan="2">SIZE C</td><td colspan="7">THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION</td></tr></table>														ADD P/N'S EC NO: UCP2006-1815 2006/02/06 DRAWN:ADERR CHKD:AEHAG 2006/02/06 APPR:FSM TH 2006/02/09 REV Y9	DESCRIPTION	QUALITY SYMBOLS ▽=0 ▽=0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE IN/MM		SCALE ---	DESIGN UNITS INCH	THIRD ANGLE PROJECTION		TITLE FRICTION LOCK HEADER ASY .100 CL BENT SQ PINS 7478 SERIES DWG. molex MOLEX INCORPORATED			mm	INCH	DRAWN BY GUZIK	DATE 1987/07/10	4 PLACES ± ---	± ---	CHECKED BY PATEL	DATE 1987/07/10	3 PLACES ± ---	± ---	APPROVED BY LENZ	DATE 1987/07/10				ANGULAR ± ---°		MATERIAL NO. SEE CHART		DOCUMENT NO. SDA-7478		SHEET NO. 3 OF 7								DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		SIZE C		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION						
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