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Jameco Part Number 800729

FEATURES AND SPECIFICATIONS

Features and Benefits

- Carries 3 more amperes per circuit than 42385 series receptacle header
- Fully polarized housing prevents mismatching
- Board mounted receptacle for board-to-board applications
- Mates with Mini-Fit, BMI™ housings and headers only

Reference Information

Product Specification: PSX-44476-0002

Packaging: Tray or bag

UL File No.: E29179

CSA File No.: LR19980

TUV License No.: R75142

Mates With: [42404](#), [44474](#), [43810](#) and [44068](#) headers

Use with: 44478 HCS terminals

Designed In: Millimeters

Electrical

Voltage: 600V

Current: (Used with 16 AWG)

Circuits	2-3	4-6	7-10	12-24
Amperes-Jr.	9	8	7	6
Amperes-HCS	12	11	10	9

Contact Resistance: 10mΩ max.

Dielectric Withstanding Voltage: 1500V

Insulation Resistance: 1000 MΩ min.

Mechanical

Insertion Force to PCB: 5.0kg max.

Mating Force: 0.7kg (1.54 lb) max.

Unmating Force: 0.35kg (0.7 lb) min.

Normal Force: 200g min.

Durability: 30 cycles

Physical

Housing: 6/6 nylon, UL 94V-2 or UL 94V-0

Contact: High Copper Alloy

Plating: Tin

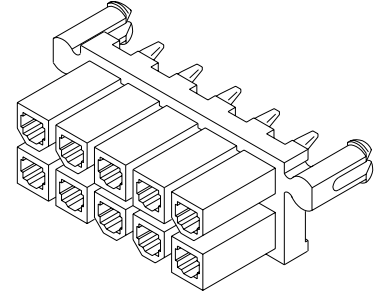
Operating Temperature: -40 to +105°C



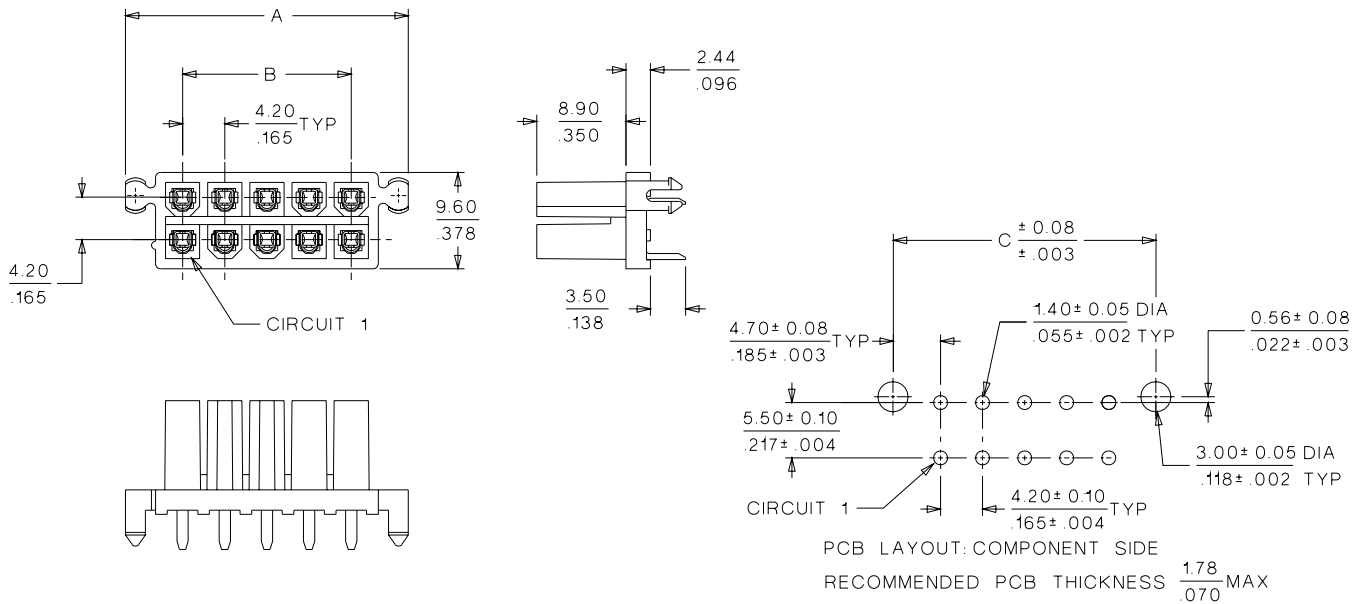
4.20mm (.165") Pitch Mini-Fit, HCS™ Receptacle Header

44475

Right Angle Dual Row



CATALOG DRAWING (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.		Dimension		
	94V-2	94V-0	A	B	C
4	44475-0411	44475-0421	15.62 (.615)	4.20 (.165)	13.60 (.535)
6	44475-0611	44475-0621	19.82 (.780)	8.40 (.331)	17.80 (.701)
10	44475-1011	44475-1021	28.22 (1.111)	16.80 (.661)	26.20 (1.031)
14	44475-1411	44475-1421	36.62 (1.442)	25.20 (.992)	34.60 (1.362)
18	44475-1811	44475-1821	45.02 (1.772)	33.60 (1.323)	43.00 (1.693)
24	44475-2411	44475-2421	57.62 (2.269)	46.20 (1.819)	55.60 (2.189)



PRODUCT SPECIFICATION

MINI-FIT HCS (High Current System)

1.0 SCOPE

This Product Specification covers performance requirements for the MINI-FIT HCS 4.20 mm (.165 inch) centerline (pitch) printed circuit board (PCB) connector series with Tin or Gold plating, and The MINI-FIT HCS connector series terminated with 16 to 28 AWG wire using Crimp technology with Tin or Gold plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

<u>PRODUCT NAME</u>	<u>PART NUMBER</u>
Female Crimp Terminal (Mini-Fit HCS)	44476-****
Male Crimp Terminal (Mini-Fit HCS)	44478-****
Receptacle Housing (Mini-Fit Jr.)	5557-****
Receptacle Housing (Mini-Fit PTA)	30067-****
Receptacle Housing (Mini-Fit BMI)	42474-****
Receptacle Header Assembly (Mini-Fit BMI)	44475-****
Plug Housing (Mini-Fit Jr.)	5559-****
Plug Housing (Mini-Fit TPA)	30068-****
Plug Housing (Mini-Fit BMI)	42475-****
Vertical Header Assembly (Mini-Fit HCS)	44472-****
Vertical Header Assembly (Mini-Fit TPA)	44473-****
Vertical Header Assembly (Mini-Fit (BMI)	44474-****
Vertical Header Assembly (Mini-Fit SMC)	44068-****
Right Angle Header Assembly (Mini-Fit Jr.)	5569-****
Right Angle Header Assembly (Mini-Fit TPA)	30070-****
Right Angle Header Assembly (Mini-Fit BMI)	42404-****
Right Angle Header Assembly (Mini-Fit SMC)	43810-****

Mating the Mini-Fit receptacles to Mini-Fit plugs or Mini-Fit headers using 44476 or 44478 terminals allow it to qualify as a Mini-Fit HCS system.

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

2.3 SAFETY AGENCY APPROVALS

UL File #E29179
CSA Certificate #LR 19980
TUV Certificate #R75142-8

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and the other sections of this specification for the necessary referenced documents and specifications

<u>REVISION:</u> D	<u>ECR/ECN INFORMATION:</u> <u>EC No:</u> UCP2003-2604 <u>DATE:</u> 2003 / 06 / 12	<u>TITLE:</u> PRODUCT SPECIFICATION FOR MINI-FIT HCS CONNECTOR SYSTEM	<u>SHEET No.</u> 1 of 5
<u>DOCUMENT NUMBER:</u> PS-44476-001	<u>CREATED / REVISED BY:</u> C.STEWART	<u>CHECKED BY:</u> Y. MARGULIS	<u>APPROVED BY:</u> Y. MARGULIS



PRODUCT SPECIFICATION

NGS

4.1 VOLTAGE

600 Volts AC (RMS) (or 600 Volts DC)

4.2 CURRENT AND APPLICABLE WIRES

Maximum Insulation Diameter and Applicable Wire Gauges	16 AWG: 3.10/. 122 MAXIMUM			
	18-24 AWG: 3.10/. 122 MAXIMUM			
MAXIMUM CURRENT RATING (Amperes)				
Ckt. Size Wire	2 & 3	4 - 6	7 - 10	12 - 24
AWG #16	12	11	10	9
AWG #18	12	11	10	9
AWG #20	9	9	8	8

4.3 TEMPERATURE

Operating: * - 40°C to + 105°C

Nonoperating: - 40°C to + 105°C

**Including 30°C terminal temperature at rated current*

4.0 PERFORMANCE

5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Contact Resistance (Low Level)	Mate connectors: apply a maximum voltage of 20 mV and a current of 100 mA. Wire resistance shall be removed from the measured value.	10 milliohms MAXIMUM [initial]
2	Contact Resistance @ Rated Current	Mate connectors: apply a maximum voltage of 20 mV at rated current.	10 milliohms MAXIMUM [initial]
3	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]

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PS-44476-001	C.STEWART	Y. MARGULIS	Y. MARGULIS



PRODUCT SPECIFICATION

4	Insulation Resistance	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM
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5.1 ELECTRICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	Dielectric Withstanding Voltage	Mate connectors: apply a voltage of 1500 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown. Current leakage < 5 mA
6	Temperature Rise (via Current Cycling)	Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state.	Temperature rise: +30°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Terminal Mate and Unmate Forces	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	14.7 N (3.30 lbf) MAXIMUM insertion force & 1.0 N (0.02 lbf) MINIMUM withdrawal force
2	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.	30 N (6.74 lbf) MINIMUM retention force
3	Durability	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	20 milliohms MAXIMUM
4	Vibration (Random)	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
5	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).	20 milliohms MAXIMUM & Discontinuity < 1 microsecond

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PRODUCT SPECIFICATION

6	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).	16 Awg = 88.0 N (19.8 lbf) Min. 18 Awg = 88.0 N (19.8 lbf) Min. 20 Awg = 59.0 N (13.3 lbf) Min. 22 Awg = 39.0 N (8.78 lbf) Min. 24 Awg = 29.0 N (6.52 lbf) Min. 26 Awg = 19.0 N (4.27 lbf) Min. 28 Awg = 9.80 N (2.20 lbf) Min.
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5.2 MECHANICAL REQUIREMENTS (continued)

7	Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	15.0 N (3.37 lbf) MAXIMUM insertion force
8	Normal Force	Apply a perpendicular force.	0.49 N (50 grams) MINIMUM [Gold (noble) plating] OR 1.47 N (150 grams) MINIMUM [Tin (non-noble) plating]
9	PCB Engagement and Separation Forces	Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
10	Panel Insertion and Withdrawal Forces	Insert and withdraw a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	225 N (50.7 lbf) MAXIMUM insertion force & 157 N (35.3 lbf) MINIMUM withdrawal force

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	Thermal Shock	Mate connectors: expose for 5 cycles between temperatures -55 and 105°C; dwell 0.5 hours at each temperature.	20 milliohms MAXIMUM Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4
2	Thermal Aging	Mate connectors; expose to: 96 hours at 105 ± 2°C	20 milliohms MAXIMUM & Visual: No Damage
3	Humidity (Steady State)	Mate connectors: expose to a temperature of 60 ± 2°C with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage

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PS-44476-001	C.STEWART	Y. MARGULIS	Y. MARGULIS



PRODUCT SPECIFICATION

4	Solderability	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)
5	Solder Resistance	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 235 ± 5°C	Visual: No Damage to insulator material

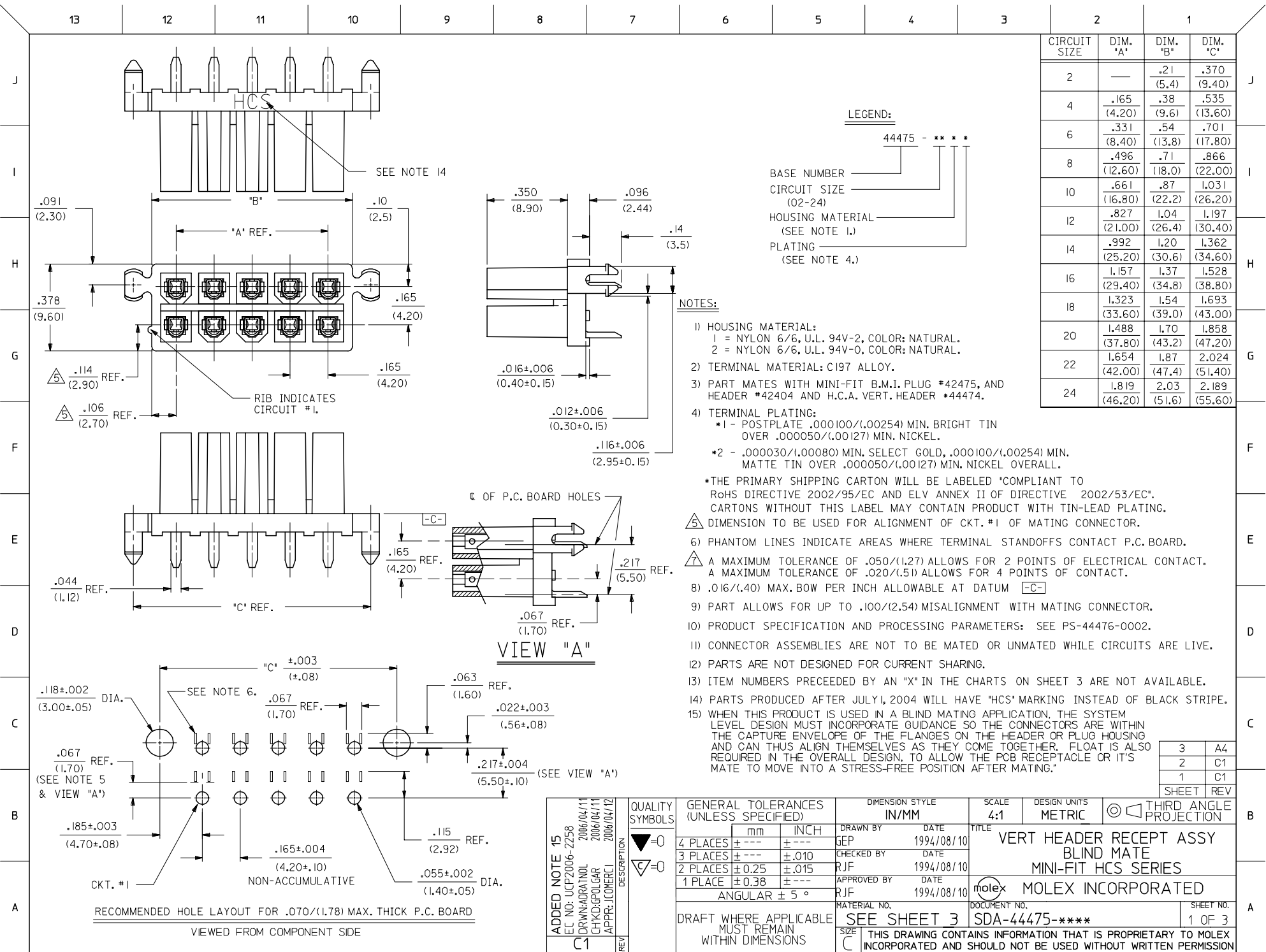
5.3 ENVIRONMENTAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
6	Cold Resistance	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3°C	20 milliohms MAXIMUM Visual: No Damage
7	Corrosive Atmosphere: Sulfur Dioxide Gas (SO₂)	Mate connectors: Duration: 24 hours exposure. Atmosphere: 50 parts per million (ppm) SO ₂ Gas. Temperature: 40 ± 3°C	20 milliohms MAXIMUM Visual: No damage

5.0 PACKAGING

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

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DOCUMENT NUMBER: PS-44476-001	CREATED / REVISED BY: C.STEWART	CHECKED BY: Y. MARGULIS	APPROVED BY: Y. MARGULIS

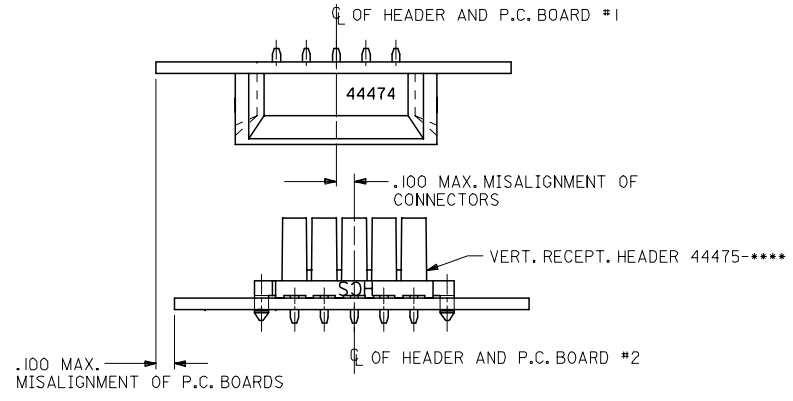


CIRCUIT SIZE	DIM. 'A'	DIM. 'B'	DIM. 'C'
2	—	.21 (5.4)	.370 (9.40)
4	.165 (4.20)	.38 (9.6)	.535 (13.60)
6	.331 (8.40)	.54 (13.8)	.701 (17.80)
8	.496 (12.60)	.71 (18.0)	.866 (22.00)
10	.661 (16.80)	.87 (22.2)	1.031 (26.20)
12	.827 (21.00)	1.04 (26.4)	1.197 (30.40)
14	.992 (25.20)	1.20 (30.6)	1.362 (34.60)
16	1.157 (29.40)	1.37 (34.8)	1.528 (38.80)
18	1.323 (33.60)	1.54 (39.0)	1.693 (43.00)
20	1.488 (37.80)	1.70 (43.2)	1.858 (47.20)
22	1.654 (42.00)	1.87 (47.4)	2.024 (51.40)
24	1.819 (46.20)	2.03 (51.6)	2.189 (55.60)

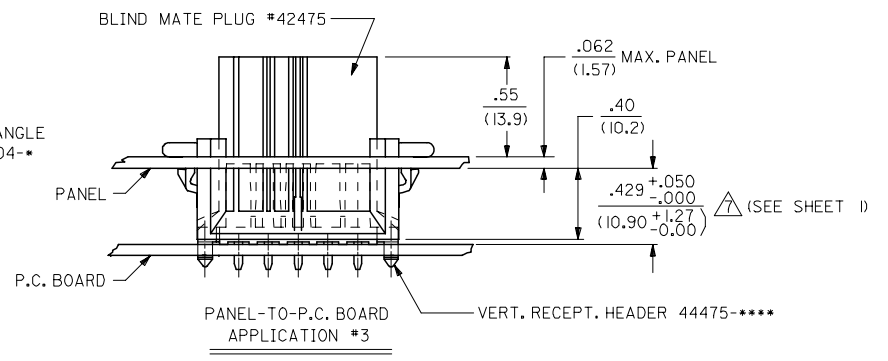
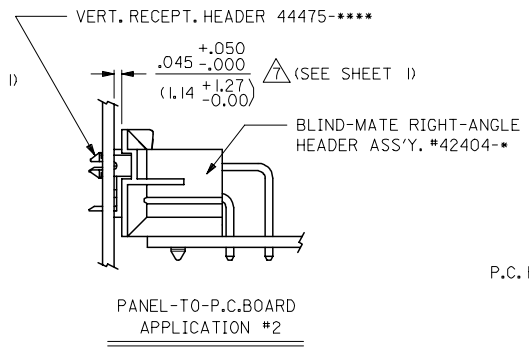
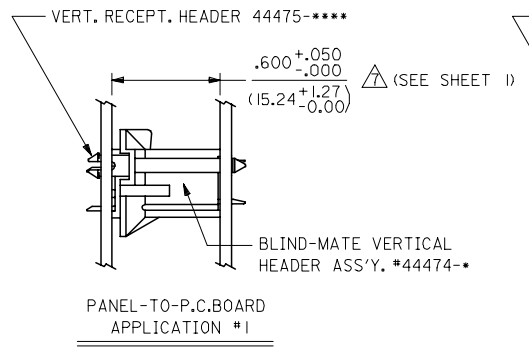
- LEGEND:**
 44475 - ***
- BASE NUMBER
 CIRCUIT SIZE (02-24)
 HOUSING MATERIAL (SEE NOTE 1.)
 PLATING (SEE NOTE 4.)
- NOTES:**
- HOUSING MATERIAL:
 1 = NYLON 6/6, U.L. 94V-2, COLOR: NATURAL.
 2 = NYLON 6/6, U.L. 94V-0, COLOR: NATURAL.
 - TERMINAL MATERIAL: C197 ALLOY.
 - PART MATES WITH MINI-FIT B.M.I. PLUG #42475, AND HEADER #42404 AND H.C.A. VERT. HEADER #44474.
 - TERMINAL PLATING:
 *1 - POSTPLATE .000100/(.00254) MIN. BRIGHT TIN OVER .000050/(.00127) MIN. NICKEL.
 *2 - .000030/(.00080) MIN. SELECT GOLD, .000100/(.00254) MIN. MATTE TIN OVER .000050/(.00127) MIN. NICKEL OVERALL.
 *THE PRIMARY SHIPPING CARTON WILL BE LABELED 'COMPLIANT TO RoHS DIRECTIVE 2002/95/EC AND ELV ANNEX II OF DIRECTIVE 2002/53/EC'. CARTONS WITHOUT THIS LABEL MAY CONTAIN PRODUCT WITH TIN-LEAD PLATING. DIMENSION TO BE USED FOR ALIGNMENT OF CKT. #1 OF MATING CONNECTOR.
 - PHANTOM LINES INDICATE AREAS WHERE TERMINAL STANDOFFS CONTACT P.C. BOARD.
 - A MAXIMUM TOLERANCE OF .050/(1.27) ALLOWS FOR 2 POINTS OF ELECTRICAL CONTACT. A MAXIMUM TOLERANCE OF .020/(.51) ALLOWS FOR 4 POINTS OF CONTACT.
 - .016/(.40) MAX. BOW PER INCH ALLOWABLE AT DATUM \square -C
 - PART ALLOWS FOR UP TO .100/(2.54) MISALIGNMENT WITH MATING CONNECTOR.
 - PRODUCT SPECIFICATION AND PROCESSING PARAMETERS: SEE PS-44476-0002.
 - CONNECTOR ASSEMBLIES ARE NOT TO BE MATED OR UNMATED WHILE CIRCUITS ARE LIVE.
 - PARTS ARE NOT DESIGNED FOR CURRENT SHARING.
 - ITEM NUMBERS PRECEDED BY AN "X" IN THE CHARTS ON SHEET 3 ARE NOT AVAILABLE.
 - PARTS PRODUCED AFTER JULY 1, 2004 WILL HAVE 'HCS' MARKING INSTEAD OF BLACK STRIPE.
 - WHEN THIS PRODUCT IS USED IN A BLIND MATING APPLICATION, THE SYSTEM LEVEL DESIGN MUST INCORPORATE GUIDANCE SO THE CONNECTORS ARE WITHIN THE CAPTURE ENVELOPE OF THE FLANGES ON THE HEADER OR PUG HOUSING AND CAN THUS ALIGN THEMSELVES AS THEY COME TOGETHER. FLOAT IS ALSO REQUIRED IN THE OVERALL DESIGN, TO ALLOW THE PCB RECEPTACLE OR IT'S MATE TO MOVE INTO A STRESS-FREE POSITION AFTER MATING.

3	A4
2	C1
1	C1
SHEET REV	

ADDED NOTE 15 EC NO: UCP2006-2258 DRAWN: ADRIAN L. 2006/04/11 CHKD: G. POLGAR 2006/04/11 APPR: J. COMERCIAL 2006/04/12	QUALITY SYMBOLS $\nabla=0$ $\nabla=0$	GENERAL TOLERANCES (UNLESS SPECIFIED) mm INCH	DIMENSION STYLE IN/MM	SCALE 4:1	DESIGN UNITS METRIC	THIRD ANGLE PROJECTION
		4 PLACES ± --- ± --- 3 PLACES ± --- ± .010 2 PLACES ± 0.25 ± .015 1 PLACE ± 0.38 ± --- ANGULAR ± 5 °	DRAWN BY DATE GEP 1994/08/10 CHECKED BY DATE RJF 1994/08/10 APPROVED BY DATE RJF 1994/08/10	TITLE VERT HEADER RECEIPT ASSY BLIND MATE MINI-FIT HCS SERIES	MATERIAL NO. SEE SHEET 3	DOCUMENT NO. SDA-44475-****
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				



ALIGNMENT TOLERANCES FOR .100 MAX. BOARD-TO-BOARD MISALIGNMENT
(NO CONNECTOR FLOAT)



SEE NOTE 15

SEE SHEET 1 FC NO: UCP2006-2258 DRW:ADRAINOL 2006/04/11 CHKD:GOLGAR 2006/04/11 APPR:ICOMERCJ 2006/04/12 REV: C1	QUALITY SYMBOLS ▽=0 ▽=0	GENERAL TOLERANCES (UNLESS SPECIFIED) mm INCH 4 PLACES ± --- ± --- 3 PLACES ± --- ± .015 2 PLACES ± 0.38 ± --- 1 PLACE ± --- ± --- ANGULAR ±1/2°	DIMENSION STYLE IN/MM DRAWN BY DATE GEP 1994/08/10 CHECKED BY DATE RJF 1994/08/10 APPROVED BY DATE RJF 1994/08/10 MATERIAL NO. DOCUMENT NO.	SCALE 4:1 DESIGN UNITS METRIC THIRD ANGLE PROJECTION	TITLE VERT HEADER RECEPT ASSY BLIND MATE MINI-FIT HCS SERIES MOLEX INCORPORATED	SHEET NO. 2 OF 3
	DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	SEE SHEET 3	SDA-44475-****	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION		

44475

ITEM NUMBER	CKT. SIZE	HOUSING MATERIAL	PLATING (SEE NOTE 2)
44475-0211	2	94V-2	1
44475-0222	2	94V-0	2
44475-0222	4	94V-0	2
-0411	4		
-0611	6		
-0811	8		
-1011	10		
-1211	12		
-1411	14		
-1611	16		
-1811	18		
-2011	20		
-2211	22		
44475-2411	24	94V-2	1
44475-2422	24	94V-0	2

ITEM NUMBER	CKT. SIZE	HOUSING MATERIAL	PLATING (SEE NOTE 2)
44475-0221	2	94V-0	1
-0421	4		
-0621	6		
-0821	8		
-1021	10		
-1221	12		
-1421	14		
-1621	16		
-1821	18		
-2021	20		
-2221	22		
44475-2421	24	94V-0	1

ITEM NO.	CKT. SIZE	HSG. MAT'L.	TERMINAL PLATING REQUIRED AT EACH CIRCUIT LOCATION:																							
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
44475-3000	24	94V-0	A	A	-	A	-	A	-	A	A	A	A	A	-	A	-	A	-	A	-	A	A	A	A	

DIMENSIONS SHOWN IN METRIC INCH

UNLESS OTHERWISE SPECIFIED TOLERANCES ARE AS FOLLOWS:

1 PLACE ± .005	2 PLACE ± .003	3 PLACE ± .002	4 PLACE ± .001
1 PLACE ± .005	2 PLACE ± .003	3 PLACE ± .002	4 PLACE ± .001

OPER. WHERE APPROPRIATE MUST REMAIN WITHIN DIMENSIONS

DATE: 8/10/94

DRG. NO. SDA-44475-0003

REV. NO. 3

DATE: 8/10/94

FILE NAME: SEE CHART

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ITEMS PRECEDED BY "X" ARE NOT AVAILABLE.