Jameco Part Number 882681

FEATURES AND SPECIFICATIONS

10.00mm (.393") Pitch Mini-Fit, Sr.™ Receptacle Housing

42816

Single Row

Features and Benefits
- High current
- Fully polarized
- Positive locks
- Low engagement force
- Wire-to-wire, wire-to-board
- Mandatory Terminal Position Assurance (TPA) clip

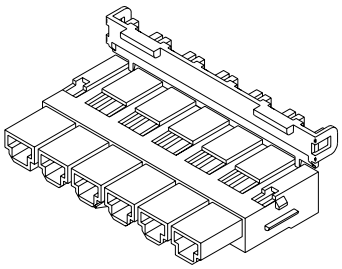
Reference Information
Product Specification: PS-42815-0001
Packaging: Bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R9751144
Mates With: 42818 plug housing, 42819 and 42820 headers
Use With: 42815 female terminal
Designed In: Millimeters

Electrical
Voltage: 600V
Current: 50.0A max.*
Insulation Resistance: 1000 MΩ min.

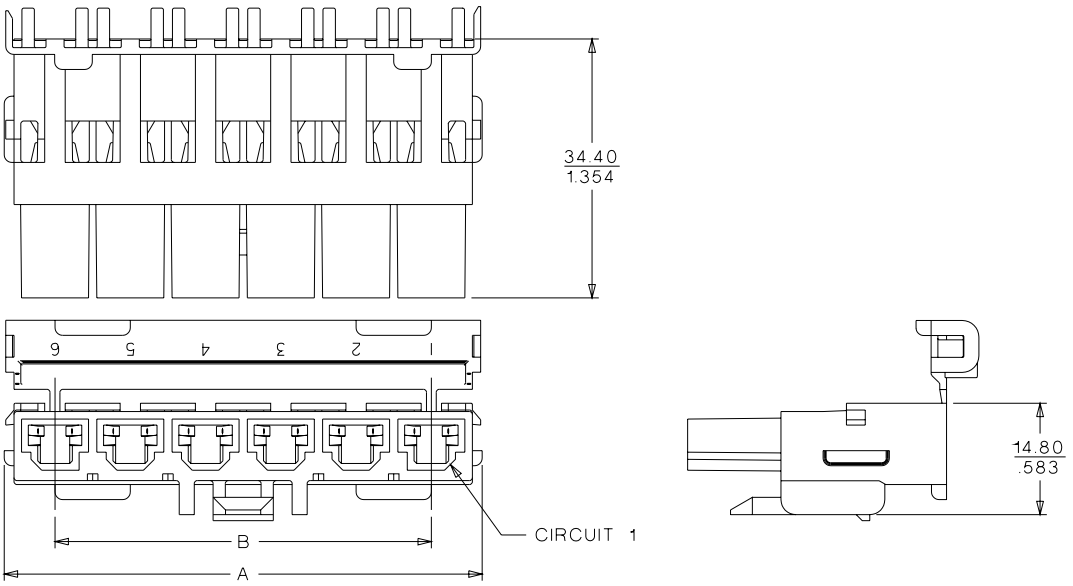
Mechanical
Contact Insertion Force: 29.4N max.
Contact Retention to Housing: 98.1N min.

Physical
Housing: Polyester, UL 94V-0
Operating Temperature: -40 to +105˚C

* Depending on circuit size, wire gauge and PCB. Please refer to product specification.



CATALOG DRAWING (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

Circuits	Order No.	Dimension	
		A	B
2	42816-0212	23.50 (.925)	10.00 (.393)
3	42816-0312	33.50 (1.318)	20.00 (.787)
4	42816-0412	43.50 (1.712)	30.00 (1.181)
5	42816-0512	53.50 (2.106)	40.00 (1.574)
6	42816-0612	63.50 (2.499)	50.00 (1.968)

PRODUCT SPECIFICATION

MINI-FIT SR. SERIES

1.0 SCOPE

This specification covers the 10.00 mm / (.394 in.) centerline tin and gold plated connector series, single and dual row versions in wire to wire and wire to printed circuit board applications. This product performance is optimized for stranded tinned wire termination.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND PART NUMBER

Product Name	Part Number
Female Terminal	42815-****
Male Terminal	42817-****
Receptacle (single row)	42816-****
Plug (single row)	42818-****
Vertical Header (single row)	42819-****
Right Angle Header (single row)	42820-****
Receptacle (dual row)	43914-****
TPA (dual row)	43980-****
Vertical Header (dual row)	43915-****
Panel Mount Plug (dual row)	43938-****

2.2 DIMENSIONS, MATERIALS PLATINGS & MARKINGS.
See the appropriate sales drawings for the information on dimensions, materials, platings and markings.

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

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

3.1 Agency Approvals
UL File #E29179
CSA Certificate #LR 19980-555
TUV Certificate #R 9751144, #R 9950481

4.0 RATINGS

4.1 VOLTAGE RATINGS

IEC 950	250 Volts AC (RMS) / DC
UL / CSA	600 Volts AC (RMS) / DC
TUV	250 Volts AC

4.2 CURRENT RATINGS

Rating is established based on MIL-W-5088 max. current capacity guidelines for copper conductors and test data summary TS-42815-001 section 5.3.7. Test data is based on 30 deg. C temperature rise using tin-plated terminals and UL 1015 tin stranded wire.

Single Row Product (tested to 30degC max. rise)

	2ckt. W to W	2ckt. W to PCB**	6ckt W to W	6ckt. W to PCB**
16 AWG	13A	13A	13A	13A
14 AWG	17A	17A	17A	17A
12 AWG	23A	23A	23A	23A
10 AWG	33A	33A	33A	33A
8 AWG	50A	48A	45A	37A
12AWG Double Crimp	40A (20A per wire)	40A (20A per wire)		

Note: CSA ratings are as follows; 12AWG = 23A max., 10AWG = 30A max.
TUV ratings are as follows; 12AWG = 23A max., 10AWG = 33A max.
**PCB trace design may greatly effect temperature rise results.

Dual Row Product (tested to 30degC max. rise)

	6ckt. W to W	6ckt. W to PCB**	14ckt W to W	14ckt. W to PCB**
16 AWG	13A	13A	13A	12A
14 AWG	17A	17A	17A	16A
12 AWG	23A	23A	23A	22A
10 AWG	32A	31A	29A	28A
8 AWG	43A	37A	38A	36A

**PCB trace design may greatly affect temperature rise results.

4.3 TEMPERATURES

Operating: -40 Degrees C to +105 Degrees C
Nonoperating: -40 Degrees C to +105 Degrees C
(Including 30 degrees C terminal temperature at full current)

5.0 PERFORMANCE

5.1 ELECTRICAL PERFORMANCE

Section	Item	Test Condition	Requirement
5.1.1	Initial Contact Resistance (low level)	Mate connectors, measure by dry circuit, 20mV max., 100mA. Wire resistance shall be removed from the measured value.	1.5 mOhm max. (tin) 1.0 mOhm max. (gold)
5.1.2	Insulation Resistance	Mate connectors, apply 500V DC between adjacent terminal or ground.	1000 M Ohm min.
5.1.3	Dielectric Strength	Mate connectors, apply 2200V AC for 1 minute between adjacent terminal or ground.	No breakdown
5.1.4	Contact Resistance (rated)	Measure contact resistance at rated current.	1.5 mOhm max. (tin) 1.0 mOhm max. (gold)
5.1.5	Contact Resistance on Crimp	Crimp the wire to the terminal, measure crimp resistance by dry circuit, 20mV max., 100mA	1.0 mOhm max.

5.2 MECHANICAL PERFORMANCE

Section	Item	Test Condition	Requirement
5.2.1	Contact Insertion and Withdrawal	Insert and withdraw a contact at a speed rate of 25 +/- 6mm / minute	Max. Insertion = 3Kg Min. Withdrawal = 0.5Kg
5.2.2	Connector Insertion and Withdrawal	Insert and withdraw a connector at a rate of 25 +/- 6mm / minute	Max. Insertion = 3.0Kg/ckt. Min. Withdrawal = 0.5Kg/ckt.
5.2.3	Terminal Insertion Force	Insert the crimped terminal into the housing.	Max. Insertion = 7.0Kg
5.2.4	Crimp Terminal Retention Force	Apply axial pull out force at a speed rate of 25 +/- 6mm / minute on the terminal assembled in the housing and with the TPA cover installed.	Min. Retention = 10Kg
5.2.5	Header Terminal Retention Force	Apply axial pull out force at a speed rate of 25 +/- 6mm / minute on the terminal assembled in the housing.	Min. Retention = 2.0Kg
5.2.6	Wire Pull Out Force	Mount the crimped terminal, apply an axial pull out force on the wire at a speed rate of 25 +/- 6mm / minute.	16AWG = 14Kg 14AWG = 23Kg 12AWG = 31Kg 10AWG = 36Kg 8AWG = 40Kg
5.2.7	Normal Force	Apply a perpendicular force at a speed rate of 25 +/- 6mm / minute.	200 g min.
5.2.8	PCB Insertion and Withdrawal Force	Apply force perpendicular to the housing at a speed rate of 25 +/- 6mm minute as shown.	Insertion = 2Kg max. Withdrawal = 1Kg min.
5.2.9	Panel Insertion & Withdrawal	Insert and withdraw a connector at a speed rate of 25 +/- 6mm / minute	Insertion = 5Kg max. Withdrawal = 10Kg min.

5.2 MEACHANICAL PERFORMANCE (continued)

Section	Item	Test Condition	Requirement
5.2.10	Latch Yield Strength (only 43914 receptacle w/ 43938 plug)	Insert and withdraw connector housings (30 times) and pull apart at a speed rate of 25 +/- 6mm / minute	Yield = 7.0Kg min.
5.2.10A	Latch Yield Strength (all other)	Insert and withdraw connector housings (30 times) and pull apart at a speed rate of 25 +/- 6mm / minute	Yield = 10.0Kg min.
5.2.11	Durability (tin)	Insert and withdraw connectors (30 times) at a maximum rate of 10 cycles per minute prior to environmental tests.	Contact Res. change = 1.0mOhm max.
5.2.11A	Durability (gold)	Insert and withdraw connectors (100 times) at a maximum rate of 10 cycles per minute prior to environmental tests.	Contact Res. change = 1.0mOhm max.
5.2.12	Vibration without lubrication (tin) **Not Recommended**	(30 times) at a maximum rate of 10 cycles per minute prior to environmental tests.	Contact Res change =. 4.0mOhm max Discontinuity not greater than 1 microsecond
5.2.12A	Vibration with lubrication (tin) (Nyogel 760G)	Amplitude: 1.50 mm peak to peak Sweep: 10-50-10 Hz in one minute Duration: 2 hours in each X-Y-Z axis.	Contact Res change =. 1.0mOhm max Discontinuity not greater than 1 microsecond
5.2.12B	Vibration without lubrication (gold)	Amplitude: 1.50 mm peak to peak Sweep: 10-55-10 Hz in one minute Duration: 2 hours in each X-Y-Z axis.	Contact Res change =. 1.0mOhm max Discontinuity not greater than 1 microsecond
5.2.13	Mechanical Shock	Sweep: 10-50-10 Hz in one minute Duration: 2 hours in each X-Y-Z axis.	Contact Res. change = 1.0mOhm max. Discontinuity not greater than 1 microsecond

5.3 ENVIRONMENTAL PERFORMANCE

Section	Item	Test Condition	Requirement
5.3.1	Cold Resistance	-40 +/- 3 degrees C for 96 hrs.	Appearance: No damage Contact Res. change = 1.0mOhm max.
5.3.2	Thermal Shock	Mate connectors, expose to 25 cycles of: -40 +0/-3 deg. C for 30 minutes +25 +/- 10 deg. C for 5 minutes max. +105 +3/-0 deg. C for 30 minutes +25 +/- 10 deg. C for 5 minutes max.	Appearance: No damage Contact Res. change = 1.0mOhm max.
5.3.3	Thermal Aging	Mate connectors, expose to 240 hours at 105 +/- 2 deg. C	Appearance: No damage Contact Res. change = 1.0mOhm max
5.3.4	Humidity (Steady State)	Mate connectors, expose to a temperature of 40 +/- 2 deg. C with a relative humidity of 90% to 95% for 96 hours.	Appearance: No damage Contact Res. change = 1.0mOhm max Dielectric withstanding voltage: No breakdown Insul. res: 1000M Ohm min.
5.3.5	Humidity (cyclic) without lubrication **Not Recommended**	Mate connectors, expose to 25 cycles at 90% to 95% relative humidity with a transition time of 2.5 hrs. between extremes. +25 +/- 10 deg. C for 5 minutes max. +65 +3/-0 deg. C for 30 minutes	Appearance: No damage Contact Res. change = 2.0mOhm max Dielectric withstanding voltage: No breakdown Insul. res: 1000M Ohm min.

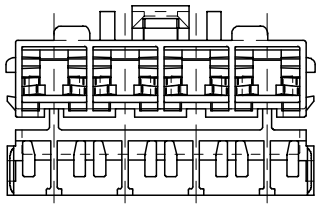
5.3 ENVIRONMENTAL PERFORMANCE (cont.)

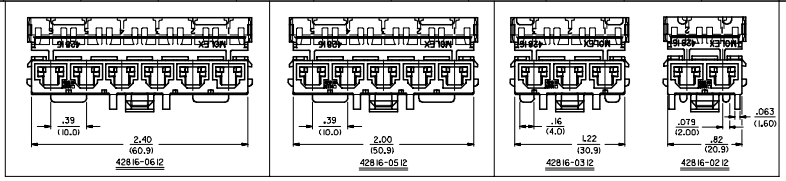
Section	Item	Test Condition	Requirement
5.3.6	Immunity to Fretting Corrosion without lubrication. (tin) **Not Recommended**	Mate connectors, expose to 500 cycles with a max. transition time of 5 minutes between extremes. +25 +/- 10 deg. C for 30 minutes +70 +3/-0 deg. C for 30 minutes	Appearance: No damage Contact Res. change = 4.0mOhm max
5.3.6A	Immunity to Fretting Corrosion with lubrication. (tin) (Nyogel 760G)	Mate connectors, expose to 500 cycles with a max. transition time of 5 minutes between extremes. +25 +/- 10 deg. C for 30 minutes +70 +3/-0 deg. C for 30 minutes	Appearance: No damage Contact Res. change = 1.0mOhm max
5.3.7	Temp. Rise & Current Cycling	Mate the connectors and measure the temperature rise at the rated current for 96 hrs., 45 minutes ON and 15 minutes OFF for 240 hrs., and an additional 96 hrs. of steady-state current.	Max. Temp. Rise = 30deg. C Per EIA 364 and CSA requirement
5.3.8	Solderability**	Solder time: 3 +/- 5 seconds Solder temp.: 260 +/- 5 deg. C	95% of the immersed area must show no voids or pin holes.
5.3.9	IR Process Resistance	245 +/- 3 deg. C for 4 minutes, allow to cool to room temperature, repeat for 3 cycles.	Appearance: No damage Dimensional: Conformance to sales drawing requirements.
5.3.10	Resistance to Solder**	Solder time: 3 +/- 0.5 seconds Solder temp.: 260 +/- deg. C	Appearance: No damage

**NOTE : This product is compatible with lead-free hand soldering temperatures.

5.3 ENVIRONMENTAL PERFORMANCE (cont.)

Section	Item	Test Condition	Requirement
5.3.11	Resistance to Solvents	Solvent: flourinert FC-70 (3M Corp.) Solvent temp: Boiling temp. Immersion time: 120 +/- 5 seconds Solvent: Alpha 1003 (Alpha Metal) Solvent: Isopropyl Alcohol Solvent Temp.: Boiling temp. Immersion time: 240 +/- 5 seconds Repeat in solvent 5 times. Rinse with deionized water between cycles.	Appearance: No damage





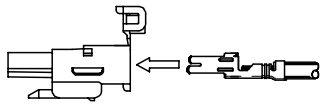
ITEM NUMBER	CIRCUIT SIZE	'A'
42816-0212	2	12.7
42816-0312	3	19.1
42816-0412	4	25.4
42816-0512	5	31.7
42816-0612	6	38.1

LEGEND:

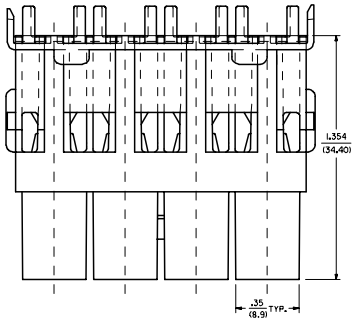
42816 - ** | 2

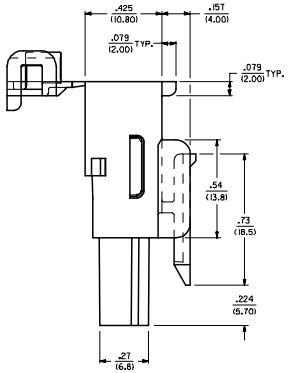
CIRCUIT SIZE (02-06)

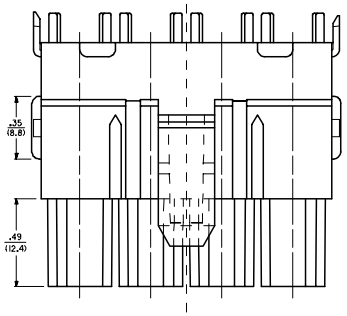
T.P.A. OPTION
2 = WITH T.P.A.

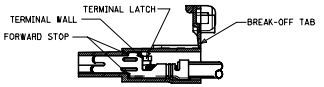


1. TERMINALS ARE TO BE ORIENTATED AND LOADED INTO HOUSING AS SHOWN.

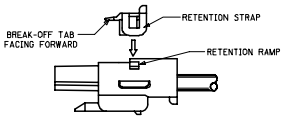




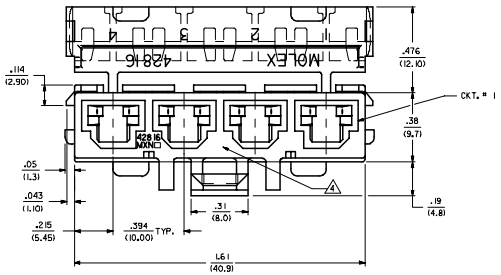


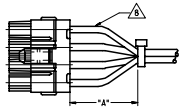


2. TERMINALS ARE LOADED WHEN SEATED AGAINST FORWARD STOP AND TERMINAL LATCHES ARE SNAPPED BEHIND TERMINAL WALLS. RETENTION FORCE AT THIS STAGE = 0.5 Kg.

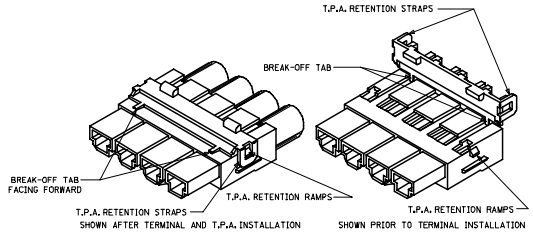


3. AFTER TERMINALS ARE LOADED INTO HOUSING, T.P.A. IS TO BE 'BROKEN OFF', ORIENTATED AND INSTALLED IN THE DIRECTION SHOWN UNTIL THE RETENTION STRAPS SNAP OVER THE RETENTION RAMPS. THIS PRODUCT MUST NEVER BE USED WITHOUT THE INSTALLATION OF THE T.P.A.





RECOMMENDED WIRE DRESSING SCHEME



NOTES:

0 MATERIAL:
1 = POLYESTER, PBT, U.L. 94V-0, COLOR: MOLDED BLACK.

2) PART IS FOR USE WITH FEMALE CRIMP TERMINAL *42815.

3) PART IS DESIGNED IN METRIC.

4 NO CORE-OUTS UNDER LATCH ON 2,4 & 6 CIRCUIT PARTS.

5) PART MATES WITH MINI-FIT SR. PLUG 42818-***2.

6) ITEM NUMBERS THAT ARE PRECEEDED BY AN "X" ARE NOT AVAILABLE.

7) DUE TO THE BREAKAWAY DESIGN OF THE T.P.A. COVER, A FEW MAY HAVE PREMATURELY SEPARATED FROM THEIR HOUSINGS DURING SHIPMENT. IF A HOUSING IS MISSING A T.P.A. COVER, IT CAN BE FOUND IN THE SHIPPING CONTAINER.

8 EACH WIRE MUST BE DRESSED SUCH THAT THE TERMINAL MAINTAINS ITS FREE FLOAT WITHIN THE HOUSING. SEE CHART FOR RECOMMENDED CABLE TIE PLACEMENT.

9) FOR PACKAGING INFORMATION SEE PK-42816-001

* THIS PRODUCT MUST NEVER BE USED WITHOUT THE T.P.A. *

REDRAWN IN ME10 EC NO: UCP2005-2769 DRWN: JLOMERLI CHKD: APPR: JLOMERLI DESCRIPTION REV 2005/04/17 2005/04/17

QUALITY SYMBOLS ▼=0 ▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± .010
2 PLACES	± 0.25	± .016
1 PLACE	± 0.40	± ---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

E1

DIMENSION STYLE: IN/MM | SCALE: 4:1 | DESIGN UNITS: METRIC | THIRD ANGLE PROJECTION

DRAWN BY	DATE
GEP	1/3/96
CHECKED BY	DATE
RJF	1/3/96
APPROVED BY	DATE
RJF	1/3/96

TITLE: RECEPT. HOUSING SINGLE ROW MINIFIT SR.

molex MOLEX INCORPORATED

MATERIAL NO.: SEE CHART | DOCUMENT NO.: SD-42816-***2 | SHEET NO.: 1 OF 1

SIZE: E