Distributed by:

JAMECO® ELECTRONICS

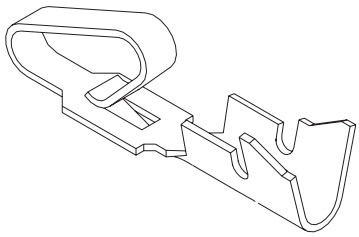
www.Jameco.com ✦ 1-800-831-4242

The content and copyrights of the attached material are the property of its owner.

Jameco Part Number 736587

3.96mm (.156") Pitch KK® Crimp Terminal

2478/2578



Features and Benefits

- Double cantilever design
- Single beam terminal is available for low insertion force 7821 Series (contact Molex)
- For low-level current and voltage use Gold plating
- Phosphor Bronze is recommended for rated current
- Complete line of terminal crimping equipment available (see Application Tooling section of this catalog)

Reference Information

Product Specification: PS-08-50
Packaging: Reel or bag
Tooling Information: See crimp tooling section
UL File No.: E29179
CSA File No.: LR19980
Use With: 2139, 3069 and 41695
Designed In: Inches

Electrical

Voltage: 250V AC max.
Current: Max.

AWG	18	20	22	24	26
Phosphor Bronze	7.00A	6.25A	5.50A	5.00A	4.50A
Brass	5.00A	4.75A	4.50A	4.25A	4.00A

Contact Resistance: 6 milliohms max.
Dielectric Withstanding Voltage: 1500V AC
Insulation Resistance: 50K Megohms min.

Mechanical

Contact Insertion Force: 1.8kg (4 lb) max.
Contact Retention to Housing: 3.6kg (8 lb) min.
Wire Pull-Out Force: 20 lb max./18 AWG
Normal Force: 0.75kg (1.65 lb)
Durability: 25 cycles max.

Physical

Contact: Brass or Phosphor Bronze
Plating: See Table
Operating Temperature: Phosphor Bronze—0 to +75˚C
Brass—0 to +50˚C

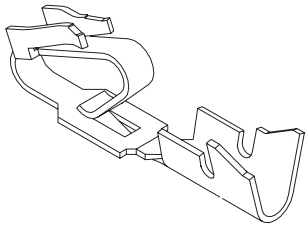
Wire Size AWG	Insulation OD	Series	Material	Order No.						Lead-free
				Tin Plating		Gold Plating No. 1		Gold Plating No. 2		
				Reel	Bag	Reel	Bag	Reel	Bag	
18-20	2.79 (.110)	max. 2478	Phosphor Bronze	08-52-0071	08-52-0072	08-58-0121	08-58-0122	08-65-0114	08-65-0115	Yes
			Brass	08-50-0105	08-50-0106	08-56-0105	08-56-0106	08-55-0103	08-55-0104	
22-26	1.65 (.065)	max. 2578	Phosphor Bronze	08-50-0133	08-50-0134	08-58-0125	08-58-0126	08-65-0116	08-65-0117	
			Brass	08-50-0107	08-50-0108	08-56-0107	08-56-0108	08-55-0105	08-55-0106	

Recommended wire range assumes stranded wire
Plating No. 1: 20µ" min. Gold in contact area with a flash overall
Plating No. 2: 15µ" min. Gold in contact area only

3.96mm (.156") Pitch KK® Crimp Terminal

6838/7258

Trifurcon™



Features and Benefits

- Complete line of terminal crimping equipment available (see Application Tooling section of this catalog)
- Accommodates 18 to 26 AWG
- Trifurcon design provides 3 distinct points of contact
- Ideal choice where high shock or vibration exists
- For low current/voltage, Gold is recommended
- Phosphor Bronze recommended for rated current

Reference Information

Product Specification: PS-40-02
Packaging: Reel or bag
Tooling Information: See crimp tooling section
Use With: 6442 and 41695 crimp terminal housings
Designed In: Inches

Electrical

Voltage: 250V AC max.
Current: Max.

AWG	18	20	22	24	26
Phosphor Bronze	7.00A	6.25A	5.50A	5.00A	4.50A
Brass	5.00A	4.75A	4.50A	4.25A	4.00A

Contact Resistance: 6 milliohms max.
Dielectric Withstanding Voltage: 1500V AC
Insulation Resistance: 50K Megohms min.

Mechanical

Contact Insertion Force: 1.8kg (4 lb) max.
Contact Retention to Housing: 3.6kg (8 lb) min.
Wire Pull-Out Force: 20 lb max./18 AWG
Normal Force: 0.75kg (1.65 lb)
Durability: 25 cycles max.

Physical

Contact: Brass or Phosphor Bronze
Plating: See Table
Operating Temperature: Phosphor Bronze—0 to +75˚C
Brass—0 to +50˚C

Wire Size AWG	Insulation OD	Series	Material	Order No.						Lead-free
				Tin Plating		Gold Plating		Select Gold Plating		
				Reel	Bag	Reel	Bag	Reel	Bag	
18-20	2.79 (.110) max.	6838	Phosphor Bronze	08-52-0112	08-52-0113	08-58-0187	08-58-0189	08-58-0110	08-58-0111	Yes
			Brass	08-50-0187	08-50-0189					
22-26	1.65 (.065) max.	7258	Phosphor Bronze	08-52-0124	08-52-0125	08-56-0123	08-56-0124	08-65-0121	08-65-0122	
			Brass	08-50-0183	08-50-0185					

PRODUCT SPECIFICATION

1.0 SCOPE

This Product Specification covers the 3.96 mm (.156 inch) centerline (pitch) 1.14mm (.045) square pin headers when mated with either printed circuit board (PCB) connectors or connectors terminated with 18 to 26 AWG wire using crimp technology.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBERS

Crimp Terminals: 2478,2578,2878,2477,
Crimp Housings: 2139, 41695
PCB Connectors: 2145, 41815
Headers: 41771, 41772, 41791, 41792, 42471, 42472, 42491, 42492, 41661, 41662, 41671, 61672, 41681, 41682
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
CSA ……..LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

None

4.0 RATINGS

4.1 VOLTAGE

250 Volts

4.2 CURRENT

(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.)

a. For Crimp Terminals- and Applicable Wires

Wire Awg	Amps (Max) With Brass	Amps (Max) With Phos Bronze	Wire Insulation Dia
18	5.00	7.00	See terminal drawings
20	4.75	6.25	See terminal drawings
22	4.50	5.50	See terminal drawings
24	4.25	5.00	See terminal drawings
26	4.00	4.50	See terminal drawings

4.2 CURRENT (cont)

b. For Printed Circuit Board Connectors

Connector Style	Amps (Max) With Brass	Amps (Max) With Phos Bronze
Top Entry	4.50	5.00
Right Angle	4.50	5.00
Bottom Entry	4.00	4.50

4.3 TEMPERATURE (ambient + 30^{0}C temp rise)

	Brass	Phos Bronze
Operating Temperature	0^{0}C to +50^{0}C	0^{0}C to +75^{0}C
Non Operating Temperature	-40^{0}C to +105^{0}C	-40^{0}C to +105^{0}C

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.	1.2 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

5.2 MECHANICAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Connector Mate and Unmate Forces	Per circuit when mated to an .045 Sq. pin. Mate and unmate connector (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	10.0 N (2.25 lbf) MAXIMUM insertion force & 3.7 N (0.84 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.)	17.8 N (4.0 lbf) MAXIMUM insertion 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.)	35.6 N (8.0 lbf) MINIMUM withdrawal 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)	18 awg = 89 N (20 lbf) 20 awg = 66 N (15 lbf) 22 awg = 53 N (12 lbf) 24 awg = 35 N (8 lbf) 26 awg = 22 N (5 lbf)
Normal Force	Apply a perpendicular force.	7.34 N (748 grams) average

5.3 ENVIRONMENTAL REQUIREMENTS

DESCRIPTION	TEST CONDITION	REQUIREMENT
Shock (Thermal)	Mate connectors; expose to 5 cycles of: 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
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)

5.3 ENVIRONMENTAL REQUIREMENTS

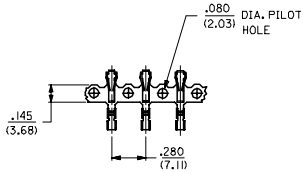
DESCRIPTION	TEST CONDITION	REQUIREMENT
Solder Resistance	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 230 ± 5°C	Visual: No Damage to insulator material
Salt Spray	Mate connectors: Duration: 48 hours exposure; Atmosphere: salt spray from a 5% solution; 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

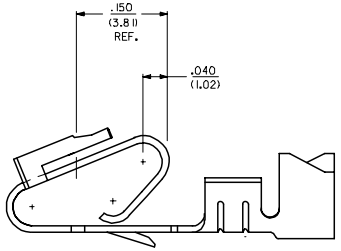
Parts shall be packaged to protect against damage during handling, transit and storage.

7.0 GAGES AND FIXTURES

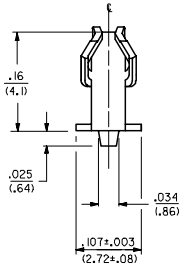
8.0 OTHER



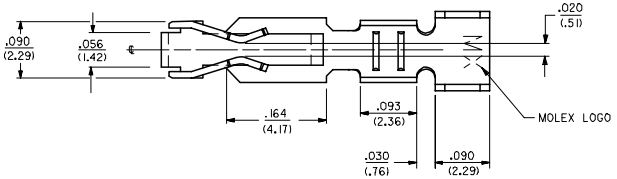
CARRIER STRIP DETAIL

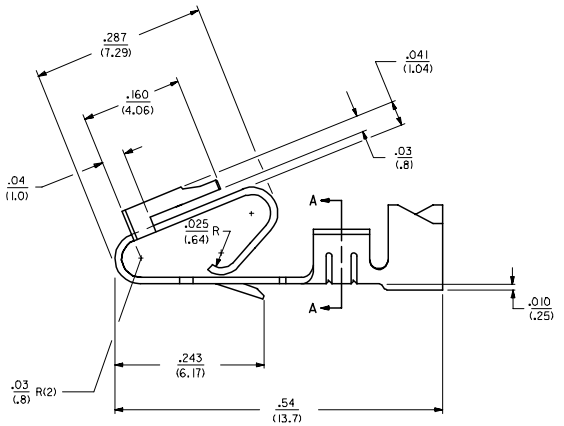


SELECTIVE PLATING LOCATION

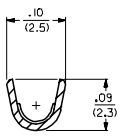


CUT OFF DIM.

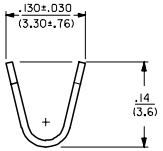




NOTES:
1. MATERIAL: SEE LEGEND
2. FINISH:
   *909 - OVERALL HOT TIN DIP: .000100/(0.00254) MIN.
   102 - OVERALL TIN: .000200/(0.00508) MIN.
   OVERALL COPPER: .000100/(0.00254) MIN.
   132 - OVERALL TIN: .000200/(0.00508) MIN.
   OVERALL COPPER: .000200/(0.00508) MIN.
   503 - OVERALL HARD GOLD: .000030/(0.00076) MIN.
   OVERALL NICKEL: .000050/(0.00127) MIN.
   550 - SELECT HARD GOLD: .000015/(0.00038) MIN.
   OVERALL NICKEL: .000030/(0.00076) MIN.
   OVERALL HARD GOLD FLASH: .000002/(0.00005) MIN.
   555 - SELECT HARD GOLD: .000015/(0.00038) MIN.
   OVERALL NICKEL: .000030/(0.00076) MIN.
   558 - SELECT HARD GOLD: .000030/(0.00076) MIN.
   OVERALL NICKEL: .000050/(0.00127) MIN.
   OVERALL HARD GOLD FLASH: .000002/(0.00005) MIN.
   561 - SELECT HARD GOLD: .000030/(0.00076) MIN.
   OVERALL NICKEL: .000050/(0.00127) MIN.
   * THE PRIMARY SHIPPING CARTON WILL BE LABELED "COMPLIANT TO ROHS DIRECTIVE 2002/95/EC AND ELV ANNEX II OF DIRECTIVE 2000/53/EC." CARTONS WITHOUT THIS LABEL MAY CONTAIN PRODUCT WITH TIN-LEAD PLATING.
3. PRODUCT SPECIFICATION: PS-40-02
4. PACKAGING SPECIFICATION: CHAIN FORM SEE PK-6838-001
5. TERMINAL FOR USE IN HOUSING NO'S. 6442 AND 41695
6. THIS PART WITH CRIMP FOR 22-26 AWG. WIRE, SEE DWG. NO. 7258
7. CRIMP FOR 18 TO 20 GA. WIRE WITH MAX. INSULATION DIA. OF .100/(2.79). STRIP LENGTH OF .125/.100 / (3.18/2.54)
8. DIMENSIONS GIVEN ACROSS CENTERLINES ARE SYMMETRICAL ABOUT THOSE CENTERLINES WITHIN HALF THE TOTAL TOLERANCE.
9. THIS PART CONFORMS TO CLASS B REQUIREMENTS OF COSMETIC SPECIFICATION PS-45499-002.



SECTION A-A



LEGEND: 6838-* (*) * *

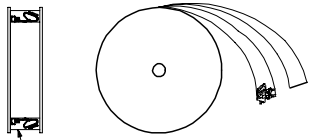
MATERIAL:
(.127)/.0106 THK
BLANK=BRASS
A=PHOS BRONZE

WINDING
A= PER DETAIL A
BLANK= PER DETAIL B

FORM
BLANK= CHAIN
L= LOOSE

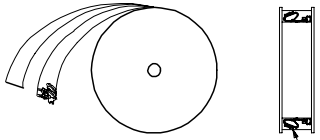
PLATING
SEE NOTE 2

WINDING DETAIL "A"



PAPER INTERLEAF

WINDING DETAIL "B"



PAPER INTERLEAF

REV	DESCRIPTION	DRWN	CHKD	APPR	DATE
AP2	ADD NOTE 9 ECC NO: UCP2008-0005	ADERR	JBELL	FSMITH	2007/07/09 2007/07/09 2007/07/09

QUALITY SYMBOLS
▼=0
Ⓒ=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	±---
3 PLACES	± ---	±.010
2 PLACES	± 0.25	±.015
1 PLACE	± 0.36	±---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE	IN/MM
SCALE	---
DESIGN UNITS	INCH
	THIRD ANGLE PROJECTION
DRAWN BY / DATE	GUZIK 11/15/89
CHECKED BY / DATE	PATEL 11/15/89
APPROVED BY / DATE	LENZ 11/15/89
TITLE	TRIFURCON TERMINAL CRIMP TYPE, .156 CENTERS 18 TO 20 AWG WIRE
	MOLEX INCORPORATED
MATERIAL NO.	SEE CHART
DOCUMENT NO.	SD-6838
SHEET NO.	1 OF 2
SIZE	D

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

SHT	REV
2	AP2
1	AP2

6838-(*)*-*	
PART NO.	ENG. NO.
08-50-0187	6838-(P909)
08-50-0189	6838-(P909)L
08-50-0275	6838-(P909)-A
08-50-0026	6838-(P102)
	6838-(P102)L
08-50-0028	6838-(102)
08-50-0029	6838-(102)L

6838-A(*)*-*		
PART NO.		ENG. NO.
08-58-0187	*	6838-A(P558)
08-58-0189	*	6838-A(P558)L
08-60-0001		6838-A(132)
08-60-0002		6838-A(132)L
08-58-0102		6838-A(558)
		6838-A(558)L
08-58-0108		6838-A(503)
08-58-0109		6838-A(503)L
08-52-0112	*	6838-A(P909)
08-52-0113	*	6838-A(P909)L
08-50-0024		6838-A(102)
08-50-0251		6838-A(102)L
08-58-0105		6838-A(P555)
08-58-0106		6838-A(P555)L
08-58-0110	*	6838-A(P561)
08-58-0111	*	6838-A(P561)L
08-58-0118		6838-A(561)
08-58-0119		6838-A(561)L
08-58-0131		6838-A(550)
08-58-0132		6838-A(550)L

PART NO.	ENG. NO.

PART NO.	ENG. NO.

PART NO.	ENG. NO.

PART NO.	ENG. NO.

UPDATE TITLE BLOCK
ECC NO: UCP2008-0005 2007/07/03
DRWN:ADERR 2007/07/09
CHKD:JBELL
APPR:FSMITH 2007/07/09
AP2
REV DESCRIPTION

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± ---	± ---
1 PLACE	± ---	± ---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: IN/MM
SCALE: ---
DESIGN UNITS: INCH
THIRD ANGLE PROJECTION

DRAWN BY	GUZIK	DATE 11/15/89
CHECKED BY	PATEL	DATE 11/15/89
APPROVED BY	LENZ	DATE 11/15/89

TITLE: TRIFURCON TERMINAL CRIMP TYPE, .156 CENTERS 18 TO 20 AWG WIRE

molex MOLEX INCORPORATED

MATERIAL NO.: SEE CHART
DOCUMENT NO.: SD-6838
SHEET NO.: 2 OF 2
SIZE: D

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION