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Jameco Part Number 224207



# PRODUCT SPECIFICATION

## .093 SERIES PLUG AND RECEPTACLE POWER CONNECTORS

### 1.0 SCOPE

This Product Specification covers the 5.03 mm (.198 inch) centerline connector series using pin and socket terminals terminated with 14 to 24 AWG wire using crimp technology with tin plating.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

<u>PRODUCT NAME</u>	<u>SERIES NUMBER</u>
Plug Housing, 1-circuit	1619-1P
Receptacle Housing, 1-circuit	1619-1R
Plug Housing, 2-circuit	1545-P*
Receptacle Housing, 2-circuit	1545-R*
Plug Housing, 3-circuit	1396-P*
Receptacle Housing, 3-circuit	1396-R*
Plug Housing, 4-circuit (in-line)	1490-P*
Receptacle Housing, 4-circuit (in-line)	1490-R*
Plug Housing, 4-circuit (2 x 2)	2163-P*
Receptacle Housing, 4-circuit (2 x 2)	2163-R*
Plug Housing, 5-circuit	1653-P*
Receptacle Housing, 5-circuit	1653-R*
Plug Housing, 6-circuit	1261-P*
Receptacle Housing, 6-circuit	1261-R*
Plug Housing, 9-circuit	1292-P*
Receptacle Housing, 9-circuit	1292-R*
Plug Housing, 12-circuit	1360-P*
Receptacle Housing, 12-circuit	1360-R*
Socket Terminal, 14-18 AWG	1189
Pin Terminal, 14-18 AWG	1190
Socket Terminal, 18-22 AWG	1380
Pin Terminal, 18-22 AWG	1381
Socket Terminal, 22-24 AWG	2870
Pin Terminal, 22-24 AWG	2871
Socket Terminal, 14-18 AWG, (P-B)	4550
Socket Terminal, 18-22 AWG, (P-B)	2151

#### 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

Housings are molded of UL 94V-2 rated PA66.

Terminals are tin-plated brass or phosphor-bronze.

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

<u>REVISION:</u> <b>B</b>	<u>ECR/ECN INFORMATION:</u> EC No: <b>UCR#2003-0230</b> DATE: <b>2002 / 08 / 07</b>	<u>TITLE:</u> <b>PRODUCT SPECIFICATION STANDARD .093 SERIES PLUGS &amp; RECEPTACLES</b>	<u>SHEET No.</u> <b>1 of 3</b>
<u>DOCUMENT NUMBER:</u> <b>PS-43660-9999</b>	<u>CREATED / REVISED BY:</u> <b>BWIRKUS 10/4/01</b>	<u>CHECKED BY:</u> <b>BWIRKUS 10/4/01</b>	<u>APPROVED BY:</u> <b>SFRY 10/5/01</b>



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## 2.3 SAFETY AGENCY APPROVALS

UL File #E29179  
CSA File #E29179

## 3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See the appropriate sales drawings for necessary referenced documents and specifications.

## 4.0 RATINGS

### 4.1 VOLTAGE

250 Volts AC (RMS)

### 4.2 CURRENT AND APPLICABLE WIRES

AWG	Circuit Size	Amps
14	3	14
14	9	11
18	3	10
18	9	7
22	3	7
22	9	5

### 4.3 TEMPERATURE

Operating: -55°C to +105°C

## 5.0 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 20 mA. (Measurement locations in Section 7.0)	10 milliohms MAXIMUM [initial]
2	Dielectric Withstanding Voltage	Mate connectors: apply a voltage of 2000 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < 500 mA
3	Temperature Rise (via Current Cycling)	Mate connectors, measuring the temperature rise at 60 minute intervals during 96 hours of steady state at rated current; followed by 240 hours of current cycling (45 minutes ON and 15 minutes OFF per hour) with measurements made during last 5 minute period of each ON cycle; followed by 96 hours of steady state at rated current with measurements taken at 60 minute intervals.	Temperature rise: +30°C MAXIMUM

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## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
4	Connector Mate and Unmate Forces	Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute for a total of 25 cycles. Initial mate forces to be measured. Unmate forces to be measured after 25 cycles.	15.6 N (3.5 lbf) MAXIMUM insertion force 4.4 N (1 lbf) MINIMUM withdrawal force
5	Terminal Retention Force (in Housing)	Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	89 N (20 lbf) MINIMUM retention force
6	Wire Pullout Force (Axial)	Apply an axial pullout force on the wire at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	MINIMUM pullout forces: 14 AWG 178 N (40 lbf) 16 AWG 156 N (35 lbf) 18 AWG 133 N (30 lbf) 20 AWG 89 N (20 lbf) 22 AWG 62 N (14 lbf) 24 AWG 36 N (8 lbf)
7	Terminal Insertion Force (into Housing)	Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch).	22N (5 lbf) MAXIMUM insertion force

## 5.3 ENVIRONMENTAL REQUIREMENTS

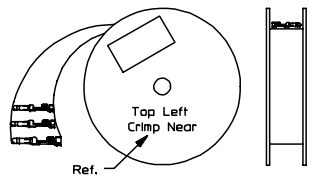
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	Thermal Cycling	Mate connectors; expose to temperature cycling between $-25^{\circ}\text{C}$ and $70^{\circ}\text{C}$ for 500 cycles with a dwell time of 30 minutes at each extreme. Measurements to be taken initially and after every 100 cycles.	10 milliohms MAXIMUM (change from initial) & Visual: No Damage

## 6.0 PACKAGING

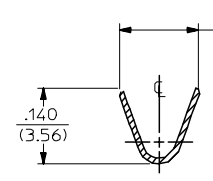
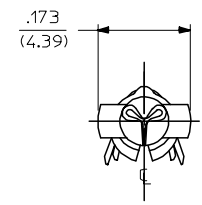
Parts shall be packaged to protect against damage during handling, transit and storage. See the appropriate sales drawings for additional information on packaging requirements.

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DOCUMENT NUMBER: <b>PS-43660-9999</b>	CREATED / REVISED BY: <b>BWIRKUS 10/4/01</b>	CHECKED BY: <b>BWIRKUS 10/4/01</b>	APPROVED BY: <b>SFRY 10/5/01</b>

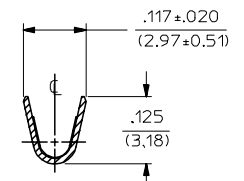
PART NO.	ENG. NO.
02-09-2118	1380-(P901)L
02-09-2116	1380-(P901)
02-09-2127	1380-(P901)1
02-09-6126	1380-(591)L
02-09-6125	1380-(591)
02-09-6123	1380-(550)L
02-09-6122	1380-(550)
02-09-2119	1380-A(P901)L
02-09-2117	1380-A(P901)



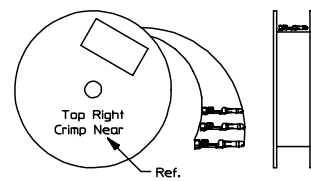
REWOUND CHAIN



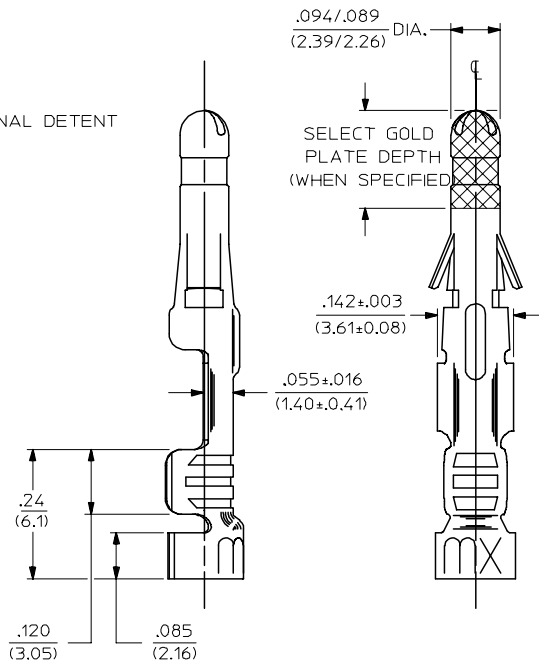
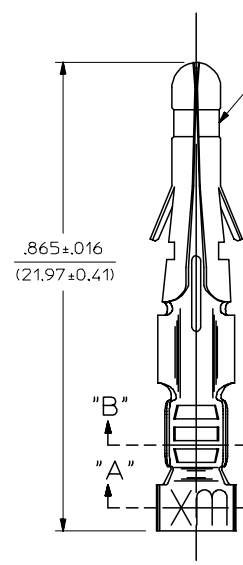
SECT. "A-A"



SECT. "B-B"



STANDARD CHAIN



LEGEND

1380-\*(\*\*\*)\*  
 OPTIONAL DETENT  
 BLANK = WITH DETENT  
 A = WITHOUT DETENT

FORM  
 BLANK = STD. CHAIN  
 A = REWOUND CHAIN  
 L = LOOSE  
 1 = STD. CHAIN WITH INTERLEAF PAPER

P = PREPLATE  
 BLANK = POSTPLATE

FINISH CODE (SEE NOTE 2)

NOTES:

- MATERIAL: BRASS
- FINISH:
  - 999 UNPLATED
  - 901 HOT TIN DIP .000020/(0.00051) MIN.
  - 591 SELECT GOLD PLATE .000050/(0.00127) MIN. IN CONTACT AREA, OVER .000050/(0.00127) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
  - 550 SELECT GOLD PLATE .000015/(0.00038) MIN. IN CONTACT AREA, OVER .000030/(0.00076) MIN. NICKEL OVERALL WITH .000010/(0.00025) MAX. GOLD FLASH OVERALL.
- PRODUCT SPECIFICATION: PS-02-09.
- PACKAGING INFORMATION: NOT AVAILABLE
- TERMINAL FOR USE WITH .093/(2.36) SERIES HOUSINGS AND WILL ACCEPT 18 THRU 22 AWG
- INSERTION FORCE: 3.5 LBS. MAX. WHEN TERMINAL IS INSERTED INTO AN .093 SERIES HOUSING.
- TERMINAL RETENTION: 20 LBS. MIN. FROM HOUSING.

REVISED/REDRAWN FC NO: UCP2004-2354 DRAWN:RHOLTS 2005/07/20 CHKD:FSMITH 2005/07/20 APPR:FSMITH 2005/07/20 BV	QUALITY SYMBOLS	GENERAL TOLERANCES (UNLESS SPECIFIED)	SCALE 6:1	DESIGN UNITS INCH	THIRD ANGLE PROJECTION	REVISE ON CAD ONLY
	DESCRIPTION	mm	DIMENSION STYLE IN/MM		TITLE CRIMP TERMINAL .093 DIA., MALE FOR 18 THRU 22 AWG. WIRE	
		INCH	DRAWN BY GEP	DATE 1987/11/06		
		4 PLACES ±.010 ±.010 3 PLACES ±.010 ±.010 2 PLACES ±0.25 ±.14 1 PLACE ±0.35 ±.010	CHECKED BY RW	DATE 1987/11/06		
ANGULAR ±1/2°	APPROVED BY RAS	DATE 1987/11/06	MATERIAL NO. SEE CHART	DOCUMENT NO. SD-1380-*	SHEET NO. 1 OF 1	
	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			