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ELECTRONICS

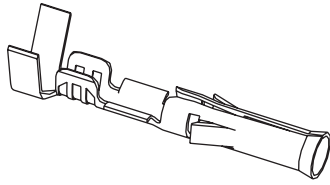
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Jameco Part Number 2026239

## 2.36mm (.093") Pin Diameter .093" Pin and Socket Female Terminals

Standard .093" and 3191



### Features and Benefits

- Available in Tin or Gold platings
- Available in Brass or Phosphor Bronze base materials
- Accommodates 14 to 30 gauge wire
- Available in crimp or PC tail versions

### Reference Information

Packaging: Bag or reel  
UL File No.: E29179  
CSA File No.: LR19980  
Designed In: Inches

### Electrical

Current: Standard Terminal—14.0A max.\*  
High Current Terminal—17.0A max.\*  
Contact Resistance: 10 milliohms max.

### Mechanical

Contact Insertion Force: 22.29N max.  
Contact Retention Force: 88.96N min.  
Mating force: 15.57N max.  
Unmating Force: 4.45N max.  
Durability: Tin plating—25 cycles max.  
Gold plating—50 cycles max.

### Physical

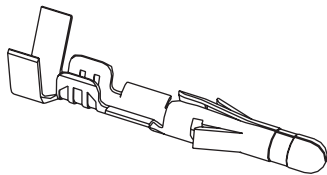
Contact: Brass or Phosphor Bronze  
Plating: Tin or Gold  
Operating Temperature: -40 to +105°C  
Strip Length: See tooling section

\* Depending on circuit size and wire gauge. Please refer to product specifications

Type	Plating	Crimp Wire Size	Insulation Diameter	Series	Order No.		Lead-free
					Chain Form	Loose Form	
Standard Brass .010"	Tin	14-20	1.65/4.06 (.065/.160)	1189	<a href="#">02-09-1102</a>	<a href="#">02-09-1104</a>	Yes
		18-22	1.52/3.05 (.060/.120)	1381	<a href="#">02-09-1117</a>	<a href="#">02-09-1119</a>	
		22-24	1.27/1.78 (.050/.070)	2871	<a href="#">02-09-1138</a>	<a href="#">02-09-1139</a>	
		24-30	0.76/1.52 (.030/.060)	1433	<a href="#">02-09-1142</a>	<a href="#">02-09-1144</a>	
	15µ" Gold	14-20	1.65/4.06 (.065/.160)	1189	<a href="#">02-09-5100</a>	<a href="#">02-09-5106</a>	
		18-22	1.52/3.05 (.060/.120)	1381	<a href="#">02-09-5143</a>	<a href="#">02-09-5142</a>	
		24-30	0.76/1.52 (.030/.060)	1433	<a href="#">02-09-5146</a>	<a href="#">02-09-5147</a>	
	50µ" Gold	14-20	1.65/4.06 (.065/.160)	1189	<a href="#">02-09-5102</a>	<a href="#">02-09-5111</a>	
		18-22	1.52/3.05 (.060/.120)	1381	<a href="#">02-09-5130</a>	<a href="#">02-09-5133</a>	
.013" High Current/Low Force	Tin	14-18	3.56 (.140) max.	42477	<a href="#">02-09-1615</a>	<a href="#">02-09-1616</a>	
PC Tail for Standard .093" Housing	Tin			1377		<a href="#">02-09-1134</a>	
	30µ" Gold				<a href="#">02-09-5132</a>		
Phos-Bronze .010"	Tin	14-20	1.65/4.06 (.065/.160)	4550	<a href="#">02-09-1205</a>	<a href="#">02-09-1206</a>	
		18-22	1.52/3.05 (.060/.120)	2151	<a href="#">02-09-1203</a>	<a href="#">02-09-1204</a>	
	30µ" Gold	14-20	1.65/4.06 (.065/.160)	4550	<a href="#">02-09-5169</a>	<a href="#">02-09-5170</a>	

## 2.36mm (.093") Pin Diameter .093" Pin and Socket Male Terminals

Standard .093" and 3191



### Features and Benefits

- Available in Tin or Gold platings
- Available in Brass or Phosphor Bronze base materials
- Accommodates 14 to 30 gauge wire
- Available in crimp or PC tail versions

### Reference Information

Packaging: Bag or reel  
UL File No.: E29179  
CSA File No.: LR19980  
Designed In: Inches

### Electrical

Current: Standard terminal—14.0A max.\*  
High Current Terminal—17.0A max.\*  
Contact Resistance: 10 milliohms max

### Mechanical

Contact Insertion Force: 22.24N max.  
Contact Retention Force: 88.96N min.  
Mating Force: 15.57N max.  
Unmating Force: 4.45N max.  
Durability: Tin plating—25 cycles max.  
Gold plating—50 cycles max.

### Physical

Contact: Brass or Phosphor Bronze  
Plating: Tin or Gold  
Operating Temperature: -40 to +105°C

\* Depending on circuit size and wire gauge; please refer to product specifications

Type	Plating	Crimp Wire Size	Insulation Diameter	Series	Order No.		Lead-free
					Chain Form	Loose Form	
Standard Brass .010"	Tin	14-20	1.65/4.06 (.065/.160)	1190	<a href="#">02-09-2101</a>	<a href="#">02-09-2103</a>	Yes
		18-22	1.52/3.05 (.060/.120)	1380	<a href="#">02-09-2116</a>	<a href="#">02-09-2118</a>	
		22-24	1.27/1.78 (.050/.070)	2870	<a href="#">02-09-2136</a>	<a href="#">02-09-2137</a>	
		24-30	0.76/1.52 (.030/.060)	1434	<a href="#">02-09-2141</a>	<a href="#">02-09-2143</a>	
	15µ" Gold	14-20	1.65/4.06 (.065/.160)	1190	<a href="#">02-09-6100</a>	<a href="#">02-09-6106</a>	
		18-22	1.52/3.05 (.060/.120)	1380	<a href="#">02-09-6122</a>	<a href="#">02-09-6123</a>	
		24-30	0.76/1.52 (.030/.060)	1434	<a href="#">02-09-6144</a>	<a href="#">02-09-6145</a>	
	50µ" Gold	14-20	1.65/4.06 (.065/.160)	1190	<a href="#">02-09-6101</a>	<a href="#">02-09-6110</a>	
		18-22	1.52/3.05 (.060/.120)	1380	<a href="#">02-09-6125</a>	<a href="#">02-09-6126</a>	
Grounding Pin	Tin	14-18	1.65/3.56 (.065/.140)	1973-2	<a href="#">02-09-8108</a>	<a href="#">02-09-8109</a>	
		18-22	1.52/3.05 (.060/.120)	1973	<a href="#">02-09-8103</a>	<a href="#">02-09-8104</a>	
.013" High Current/Low Force	Tin	14-18	3.56 (.140) max.	42478	<a href="#">02-09-2611</a>	<a href="#">02-09-2612</a>	
PC Tail for Standard .093" Housing	Tin			1376		<a href="#">02-09-2134</a>	
	30µ" Gold			1376		<a href="#">02-09-6132</a>	



# 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>



# PRODUCT SPECIFICATION

## 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

REVISION: <b>B</b>	ECR/ECN INFORMATION: EC No: UCR#2003-0230 DATE: 2002 / 08 / 07	TITLE: <b>PRODUCT SPECIFICATION STANDARD .093 SERIES PLUGS &amp; RECEPTACLES</b>	SHEET No. <b>2 of 3</b>
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>



# PRODUCT SPECIFICATION

## 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

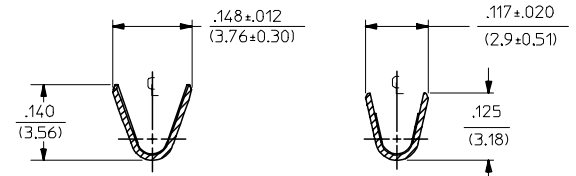
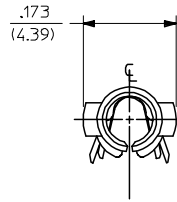
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	Thermal Cycling	Mate connectors; expose to temperature cycling between $-25^{\circ}\text{C}$ and $70^{\circ}\text{C}$ for 500 cycles with a dwell time of 30 minutes at each extreme. Measurements to be taken initially and after every 100 cycles.	10 milliohms 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.

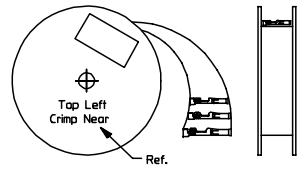
REVISION: <b>B</b>	ECR/ECN INFORMATION: EC No: UCR#2003-0230 DATE: 2002 / 08 / 07	TITLE: <b>PRODUCT SPECIFICATION STANDARD .093 SERIES PLUGS &amp; RECEPTACLES</b>	SHEET No. <b>3 of 3</b>
DOCUMENT NUMBER: <b>PS-43660-9999</b>	CREATED / REVISED BY: <b>BWIRKUS 10/4/01</b>	CHECKED BY: <b>BWIRKUS 10/4/01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

PART NO.	ENG. NO.
02-09-1119	1381-A(P901)L
02-09-1117	1381-A(P901)
02-09-1115	1381-A(P901)1
02-09-5133	1381-A(P591)L
02-09-5130	1381-A(P591)
02-09-5142	1381-A(P550)L
02-09-5143	1381-A(550)



SECT. "A-A"

SECT. "B-B"

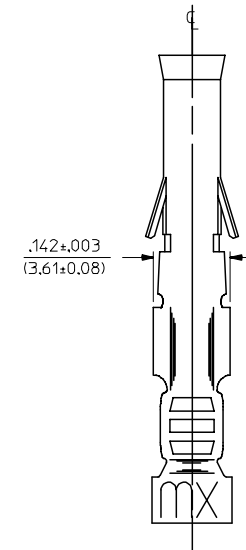
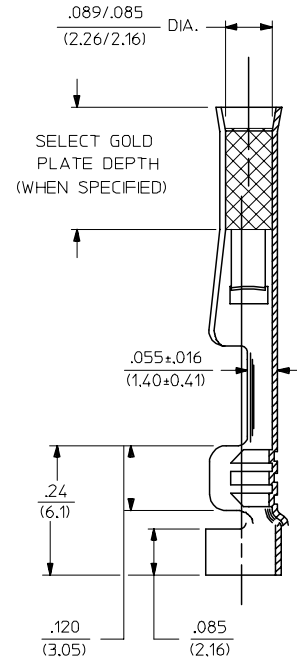
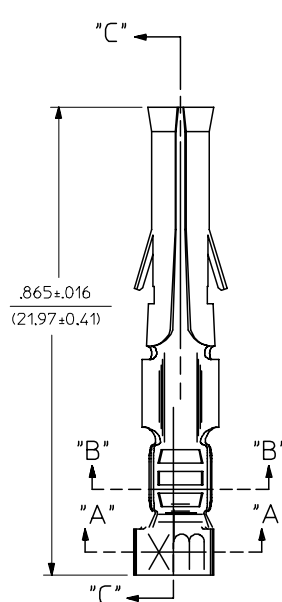


STANDARD CHAIN

LEGEND

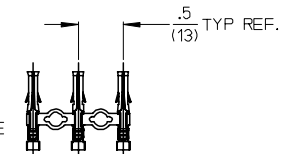
1381-A(\*\*\*\*)\*

- FORM BLANK = STD. CHAIN
- 1 = STD. CHAIN WITH INTERLEAF PAPER
- L = LOOSE
- FINISH CODE
- P = PREPLATE
- BLANK = POSTPLATE



SECT. "C-C"

CHAIN FORM FULL SCALE



NOTES:

- MATERIAL: BRASS
- FINISH:
  - 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-43660-9999.
- PACKAGING INFORMATION: NOT AVAILABLE
- TERMINAL FOR USE WITH .093/(2.36) SERIES HOUSINGS AND WILL ACCEPT 18-22 AWG WIRE
- INSERTION FORCE: 3.5 LBS. MAX. WHEN TERMINAL IS INSERTED INTO AN .093 SERIES HOUSING.
- TERMINAL RETENTION: 20 LBS. MIN. FROM HOUSING.

REMOVE DIMPLE P/NS EC NO: UCP2006-2900 DRAWN/PRI/DOR 2006/06/29 CHKD: AEL/HAG 2006/07/05 APPR: FSM/TH 2006/07/05	QUALITY SYMBOLS =0 =0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE		SCALE	DESIGN UNITS	THIRD ANGLE PROJECTION		
		mm	INCH	IN/MM		6:1	INCH			
		4 PLACES ± --- ± ---		DRAWN BY	DATE	TITLE				
		3 PLACES ± --- ± .005		GEP	1987/11/06	CRIMP TERMINAL, FEMALE .093/(2.36) DIA. 18-22 AWG				
		2 PLACES ± 0.13 ± .010		CHECKED BY	DATE	MOLEX INCORPORATED				
		1 PLACE ± 0.25 ± ---		RW	1987/11/06					
		ANGULAR ±1/2°		APPROVED BY	DATE	SD-1381-*				
				RAS	1987/11/06					
		DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO.		DOCUMENT NO.		SHEET NO.		
				SEE CHART		SD-1381-*		1 OF 1		
				THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION						