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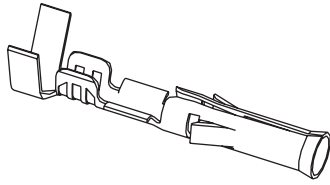
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Jameco Part Number 224215

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

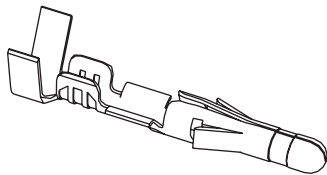
Contact: Brass or Phosphor Bronze
Plating: Tin or Gold
Operating Temperature: -40 to +105°C
Strip Length: See tooling section

* 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	02-09-1102	02-09-1104	Yes
		18-22	1.52/3.05 (.060/.120)	1381	02-09-1117	02-09-1119	
		22-24	1.27/1.78 (.050/.070)	2871	02-09-1138	02-09-1139	
		24-30	0.76/1.52 (.030/.060)	1433	02-09-1142	02-09-1144	
	15µ" Gold	14-20	1.65/4.06 (.065/.160)	1189	02-09-5100	02-09-5106	
		18-22	1.52/3.05 (.060/.120)	1381	02-09-5143	02-09-5142	
		24-30	0.76/1.52 (.030/.060)	1433	02-09-5146	02-09-5147	
	50µ" Gold	14-20	1.65/4.06 (.065/.160)	1189	02-09-5102	02-09-5111	
		18-22	1.52/3.05 (.060/.120)	1381	02-09-5130	02-09-5133	
.013" High Current/Low Force	Tin	14-18	3.56 (.140) max.	42477	02-09-1615	02-09-1616	
PC Tail for Standard .093" Housing	Tin			1377		02-09-1134	
	30µ" Gold				02-09-5132		
Phos-Bronze .010"	Tin	14-20	1.65/4.06 (.065/.160)	4550	02-09-1205	02-09-1206	
		18-22	1.52/3.05 (.060/.120)	2151	02-09-1203	02-09-1204	
	30µ" Gold	14-20	1.65/4.06 (.065/.160)	4550	02-09-5169	02-09-5170	

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

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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	02-09-2101	02-09-2103	Yes
		18-22	1.52/3.05 (.060/.120)	1380	02-09-2116	02-09-2118	
		22-24	1.27/1.78 (.050/.070)	2870	02-09-2136	02-09-2137	
		24-30	0.76/1.52 (.030/.060)	1434	02-09-2141	02-09-2143	
	15µ" Gold	14-20	1.65/4.06 (.065/.160)	1190	02-09-6100	02-09-6106	
		18-22	1.52/3.05 (.060/.120)	1380	02-09-6122	02-09-6123	
		24-30	0.76/1.52 (.030/.060)	1434	02-09-6144	02-09-6145	
	50µ" Gold	14-20	1.65/4.06 (.065/.160)	1190	02-09-6101	02-09-6110	
		18-22	1.52/3.05 (.060/.120)	1380	02-09-6125	02-09-6126	
Grounding Pin	Tin	14-18	1.65/3.56 (.065/.140)	1973-2	02-09-8108	02-09-8109	
		18-22	1.52/3.05 (.060/.120)	1973	02-09-8103	02-09-8104	
.013" High Current/Low Force	Tin	14-18	3.56 (.140) max.	42478	02-09-2611	02-09-2612	
PC Tail for Standard .093" Housing	Tin			1376		02-09-2134	
	30µ" Gold			1376		02-09-6132	



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



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	ECR/ECN INFORMATION: EC No: UCR#2003-0230 DATE: 2002 / 08 / 07	TITLE: PRODUCT SPECIFICATION STANDARD .093 SERIES PLUGS & RECEPTACLES	SHEET No. 2 of 3
DOCUMENT NUMBER: PS-43660-9999	CREATED / REVISED BY: BWIRKUS 10/4/01	CHECKED BY: BWIRKUS 10/4/01	APPROVED BY: SFRY 10/5/01



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 ± 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 ± 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 ± 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 ± 6 mm ($1 \pm \frac{1}{4}$ inch).	22N (5 lbf) MAXIMUM insertion force

5.3 ENVIRONMENTAL REQUIREMENTS

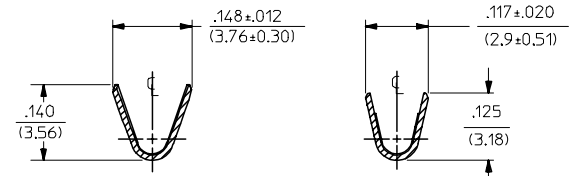
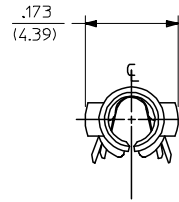
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
8	Thermal Cycling	Mate connectors; expose to temperature cycling between -25°C and 70°C for 500 cycles with a dwell time of 30 minutes at each extreme. Measurements to be taken initially and after every 100 cycles.	10 milliohms MAXIMUM (change from initial) & 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.

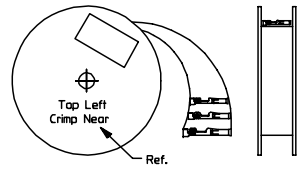
REVISION: B	ECR/ECN INFORMATION: EC No: UCR#2003-0230 DATE: 2002 / 08 / 07	TITLE: PRODUCT SPECIFICATION STANDARD .093 SERIES PLUGS & RECEPTACLES	SHEET No. 3 of 3
DOCUMENT NUMBER: PS-43660-9999	CREATED / REVISED BY: BWIRKUS 10/4/01	CHECKED BY: BWIRKUS 10/4/01	APPROVED BY: SFRY 10/5/01

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"

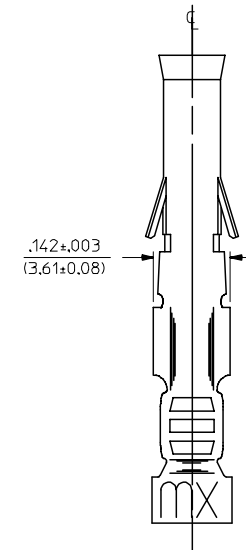
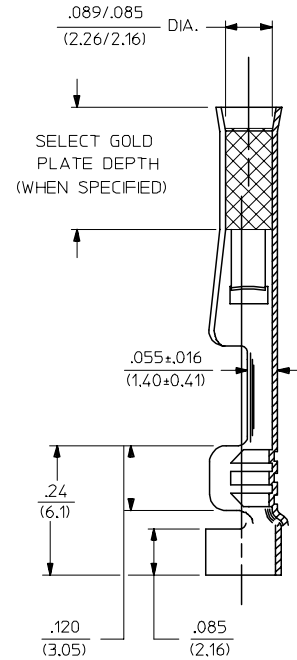
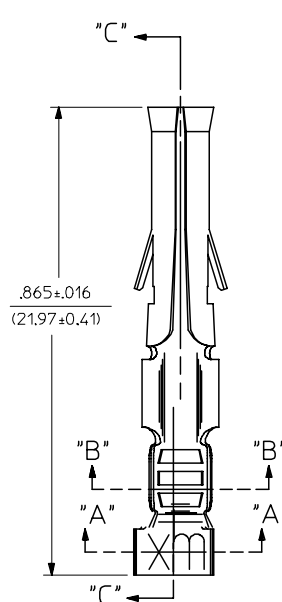


STANDARD CHAIN

LEGEND

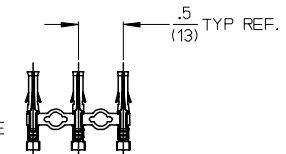
1381-A(****)*

- 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	MATERIAL NO.						
1 PLACE ± 0.25 ± ---		RW	1987/11/06	DOCUMENT NO.						
ANGULAR ±1/2°		APPROVED BY	DATE	MATERIAL NO.		DOCUMENT NO.		SHEET NO.		
		RAS	1987/11/06	SEE CHART		SD-1381-*		1 OF 1		
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS		MATERIAL NO.		SIZE		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION				
BW		C								