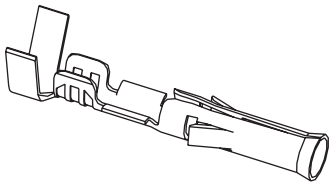
Jameco Part Number 1959791

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.

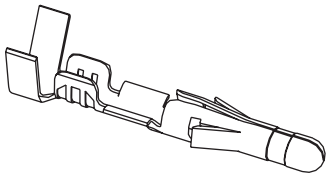
Physical
Contact: Brass or Phosphor Bronze
Plating: Tin or Gold
Operating Temperature: -40 to +105˚C
Strip Length: See tooling section

* 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

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	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 02-09

1.0 SCOPE

1.1 This specification covers the .093 diameter pin and socket terminal product line with their associated connector housings designed for use on copper wire.

2.0 PRODUCT DESCRIPTION

2.1 The product line described in general terms is found in catalog M200. The standard connector is made in 1, 2, 3, 4, 5, 6, 9, 12, and 15 circuit sizes. Connector plugs and receptacles are nylon and provided with optional mounting ears for snap-in panel mounting. The housing accepts wire ranges 30 thru 14 AWG wires and insulation diameter range of .030 thru .160 inches.

2.2 Besides the standard connector housing, a special housing is available that has .250" center to center spacing between terminals and is approved for use in the European market (VDE). The connector is made in 3,6,9 and 15 circuit sizes. Terminals are identical to standard housing terminals.

3.0 RECOGNIZED AGENCY APPROVALS

3.1 Underwriters' Laboratories: E29179

3.2 Canadian Standards Association: 19980

3.3 European Standards Association: VDE approval (Connector mentioned in 2.2 only)

REVISIONS

UNLESS OTHERWISE SPECIFIED TOLERANCES:
3-PLACE DEC. DIMS ±.005
2-PLACE DEC. DIMS ±.010
FRACTIONAL DIMS ±1/64
ANGULAR ±1/2°

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS, UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING

.093 STANDARD PIN TERMINALS

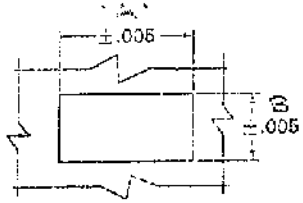
MOLEX PRODUCTS CO.

DOWNERS GROVE, ILL. 60515, U.S.A.

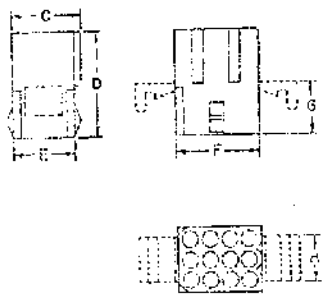
DATE 4/27/71

PS -02-09

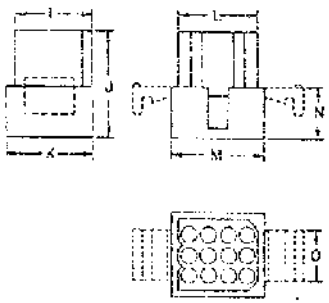
MOUNTING HOLE DETAIL



RECEPTACLE



PLUG



4.0 MECHANICAL SPECIFICATIONS

4.1 Materials, dimensions

4.1.1 Standard .198" Center to center spacing on Nylon connector housing

ENG NO.	1619		1545		1396		1490		1653		1261		1292		1360		1375	
NO. OF CIRCUIT	1		2		3		4		5		6		9		12		15	
	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P	R	P
A	N/A	N/A	.725	.800	.840	.933	1.038	1.131	N/A	N/A	.718	.750	.828	.937	1.050	1.155	1.240	1.343
B	N/A	N/A	.312	.375	.312	.375	.312	.375	N/A	N/A	.600	.695	.725	.725	.655	.760	.655	.760
C	.234 Dia.		.250		.234		.236		.234		.632		.625		.633		.632	
D	.990		1.000		1.031		1.000		1.000		1.031		1.031		1.031		1.031	
E	N/A		.250		.234		.236		.234		.632		.625		.633		.632	
F	N/A		.536		.671		.868		1.066		.434		.666		.870		1.067	
G	N/A		.442		.442		.437		.437		.442		.442		.442		.442	
H	N/A		.250		.234		.236		N/A		.562		.562		.562		.562	
I	.241 Dia.		.257		.240		.338		.250		.734		.634		.634		.629	
J	.968		.968		.968		.968		.968		.968		.968		.968		.968	
K	.358 Dia.		.352		.338		.338		.343		.733		.730		.737		.734	
L	N/A		.531		.666		.864		1.066		.536		.775		.975		1.169	
M	N/A		.640		.773		.971		1.171		.536		.775		.975		1.169	
N	N/A		.421		.421		.421		.421		.421		N/A		.421		.421	
O	N/A		.250		.244		.245		N/A		.562		.562		.562		.562	

Dimensions subject to nominal variation N/A—Not Applicable.
Dimensions C to O are included for reference only.

REVISIONS			
E	SEE SHT. 1		
D	22-JAN-74	FILMED MICROFILMED	
C	10-8-73		
B	10-28-71		

UNLESS OTHERWISE SPECIFIED TOLERANCES:
3-PLACE DEC. DIMS ± .005
2-PLACE DEC. DIMS ± .010
FRACTIONAL DIMS ± 1/64
ANGULAR ± 1/2°
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS. UNLESS OTHERWISE SPECIFIED.
DO NOT SCALE DRAWING

SCALE N
CHK'D BY 4/n
DRW'N BY

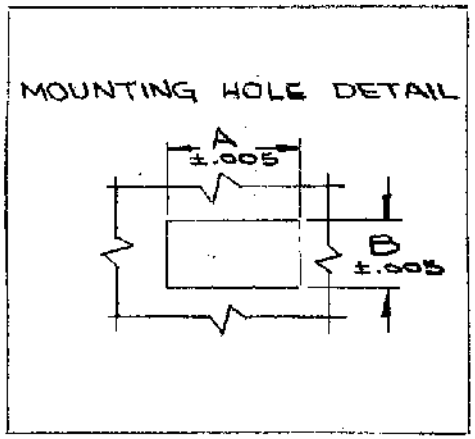
.093 STANDARD PIN TERMINALS

MOLEX PRODUCTS CO.
DOWNERS GROVE, ILL. 60515, U.S.A.

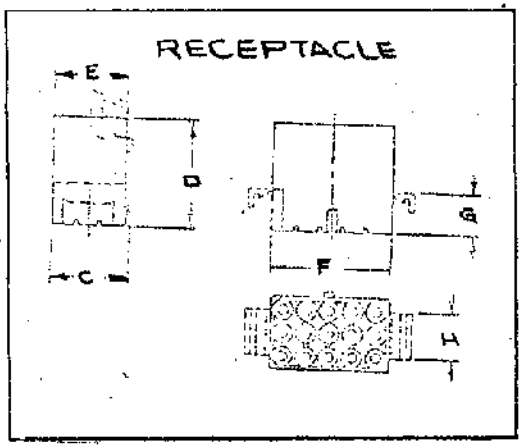
DATE 4/27/71

PS -02-09

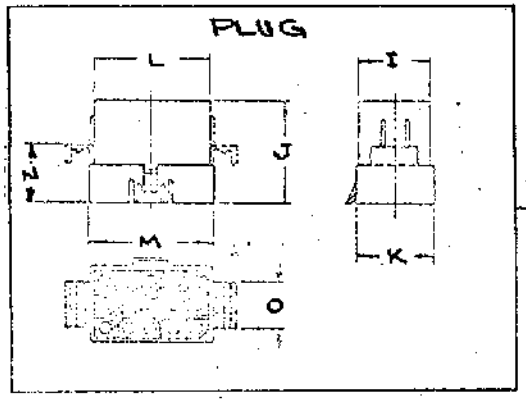
4.1.2 Special .250 inch center to center spacing molded Nylon connectors



	1991-3		1991-6		1991-9		1991-15	
	R	P	R	P	R	P	R	P-2
A	.920	1.022	.946	1.048	.946	1.048	1.442	1.552
B	.310	.365	.608	.658	.850	.910	.850	.910
C	.300		.59		.83		.83	
D	1.14		1.14		1.14		1.14	
E	.250		.54		.79		.79	
F	.76		.79		.79		1.28	
G	.45		.44		.44		.44	
H	.25		.37		.50		.50	
I	.254		.54		.79		.79	
J	1.10		1.10		1.10		1.10	
K	.35		.64		.89		.89	
L	.760		.79		.79		1.28	
M	.862		.89		.89		1.39	
N	.422		.42		.42		.63	
O	.25		.37		.50		.50	



Dimensions C thru O are subject to nominal variation and are given for reference only.



REVISIONS			
A	10-28-71		
B	10-8-73		
C			
D	22-Mar-74	MICROFILMED	
E	SEE SHT. 4		

UNLESS OTHERWISE SPECIFIED TOLERANCES:
3-PLACE DEC. DIMS ±.005
2-PLACE DEC. DIMS ±.010
FRACTIONAL DIMS ± 1/64
ANGULAR ± 1/2°

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS. UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING

SCALE | CHK'D BY | DRWG BY

.093 STANDARD PIN TERMINALS

MOLEX PRODUCTS CO.

DOWNERS GROVE, ILL. 60515, U.S.A.

DATE 5-14-71

PS -02-09

.093 STANDARD PIN TERMINALS

4.1.3 Terminals: Refer to sales drawing 02-09-* (SD-1190 Series)

4.2 Ambient temperature range: -40°C to 105°C.

4.3 Humidity:

4.3.1 Test method - exposure period shall be 96 hours with a 95% to 100% relative humidity and a temperature of 100° ± 5%F. A one ampere current shall be placed through a male/female assembly within one hour after removing from the Humidity Chamber. (18 AWG stranded wire).

4.3.2 Requirement - the maximum MV drop across both terminals shall be 15 MV. The probe should be placed on the wire approximately 1" from the crimp barrel.

4.4 Engage/Disengage Forces for standard terminal (.010 stock 70/30 brass):

4.4.1 Initial typical plug and receptacle - Engage/Disengage forces:

Single Circuit		ENGAGE	DISENGAGE	ENGAGE (lbs.)	DISENGAGE (lbs.)	
	Avg.	3.5 lbs.	2.75 lbs.	2. Min.	.9 Min.	Single Circuit
2 circuit	Avg.	7.0	5.5	6.4 Max.	5.6 Max.	
3 circuit	Avg.	10.5	8.25			
4 circuit	Avg.	14.0	11.0			
5 circuit	Avg.	17.5	13.75			
6 circuit	Avg.	21.0	16.5			
9 circuit	Avg.	31.5	24.75			
12 circuit	Avg.	42.0	33.0			
15 circuit	Avg.	52.5	41.25			
		NO DIMPLE		WITH DIMPLE		

4.4.2 Terminal Insertion and Retention in Connector Housing.

	Ⓔ	INSERTION	RETENTION
Male & Female	3 Lbs.	8 Ozs. Max.	20 Lbs. Min.

4.5 Terminal crimp strength - a minimum pull out force in pounds is given in the following table for various wire sizes (AWG).

WIRE GAGE	14	16	18	20	22	24	26	28	30
PULL OUT FORCE (LBS.)	35	30	25	15	10	8	5	3	2

5.0 ELECTRICAL SPECIFICATIONS

5.1 Rated Voltages, Currents

5.1.1 Standard Housings

Catalog Number	Configuration	No. of Circuits	Plug		Receptacle				*Per Circuit	
			WITH EARS	WITHOUT EARS	WITH MTG. EARS ONLY	WITH HOLDING TABS ONLY	WITH EARS AND TABS	WITHOUT EARS OR TABS	Max. Amp.	Max. Volts
1619	Plug	1		P					12	250
1619	Receptacle	1				R			12	250
1545	Plug	2	P	P-1					12	250
1545	Receptacle	2				R-1	R		12	250
1396	Plug	3	P	P-1					12	250
1396	Receptacle	3				R-1	R		12	250
1490	Plug	4	P	P-1					9	250
1490	Receptacle	4				R-1	R		9	250
1653	Plug	5		P-1					9	250
1653	Receptacle	5				R-1			9	250
1261	Plug	6	P	P-1					9	250
1261	Receptacle	6			R-1		R	R-2	9	250
1292	Plug	9	P	P-1					9	250
1292	Receptacle	9			R-1	R-3	R	R-2	9	250
1360	Plug	12	P-1	P					7.5	250
1360	Receptacle	12			R			R-1	7.5	250
1375*	Plug	15	P-2						7.5	250
1375	Receptacle	15			R				7.5	250

*Also available with pull tabs and without mounting ears (P)

*For 30° C. Rise

F	SEE SHT. 1					
E	FILMED MICROFILMED					
D	22-JAN 74					
C	10-8-73					
B	10-20-71					
REVISIONS						

UNLESS OTHERWISE SPECIFIED TOLERANCES:
3-PLACE DEC. DIMS ±.005
2-PLACE DEC. DIMS ±.010
FRACTIONAL DIMS ±1/64
ANGULAR ±1/2°

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS, UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING

SCALE 2 | CHK'D BY YHM | DRWG BY

.093 STANDARD PIN TERMINALS

MOLEX PRODUCTS CO.

DOWNERS GROVE, ILL. 60515, U.S.A.

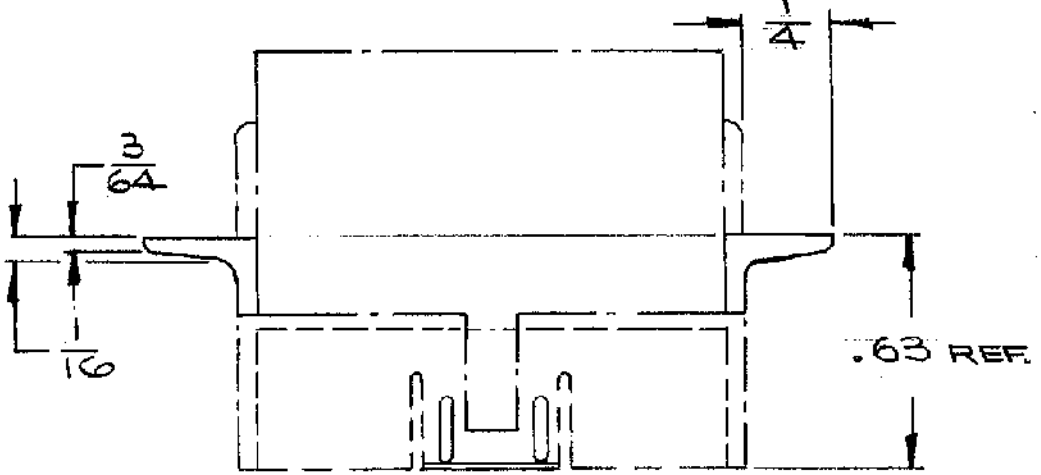
DATE 4/27/71

PS-02-09

5.1.2 Special .250 spacing housings

CATALOG NUMBER	CONFIGURATION	NO. OF CIRCUITS	PLUG			RECEPTACLE		* PER CIRCUIT	
			WITH MOUNTING EARS	WITH PULL TABS	NEITHER	MOUNTING EARS WITH	MOUNTING EARS WITHOUT	MAX. AMP	MAX. VOLT
1991-3	Plug	3	P		P-1			11	600
1991-3	Rec.	3				R	R-1	11	600
1991-6	PLUG	6	P		P-1			*9	600
1991-6	REC	6				R	R-1	*9	600
1991-9	Plug	9	P		P-1			8	600
1991-9	Rec.	9				R	R-1	8	600
1991-15	Plug	15	P-2	P				6	600
1991-15	Rec.	15				R	R-1	6	600

* For 30°C. Rise



PULL TAB DETAIL

F	See Sht. 2							
E	MICROFILMED							
D	22-JAN-74							
C	10-8-73							
B	10-26-71							
REVISIONS								

UNLESS OTHERWISE SPECIFIED TOLERANCES:
2-PLACE DEC. DIMS ± .010
FRACTIONAL DIMS ± 1/64
ANGULAR ± 1/2°
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS, UNLESS OTHERWISE SPECIFIED.
DO NOT SCALE DRAWING

SCALE
CHK'D BY
DRWG BY ER

.093 STANDARD PIN TERMINALS

MOLEX PRODUCTS CO.
DOWNERS GROVE, ILL. 60515, U.S.A.

DATE 5-14-73
PS.-02-09

5.2 Terminal Resistance (Voltage Drop) MV Drop/Amp.

1) 1st Terminal Engagement 3.0 MV ± 10%

2) 10th Terminal Engagement 3.1 MV ± 10%

The voltage drop includes the mated terminals plus both crimps. The probe should be placed on the wire approximately 1" from the crimp barrel. (18 AWG stranded wire).

5.3 High Voltage Test

Terminals mounted in a connector must withstand 1500 volts RMS applied between adjacent terminals for 60 seconds without breakdown.

Reference: QC Spec M-50-001

F	SEE SHT. 1	FILMED MICROFILMED	D	22-JAN-74	C	10-8-73	B	10-26-71	REVISIONS

UNLESS OTHERWISE SPECIFIED TOLERANCES:
3-PLACE DEC. DIMS ± .005
2-PLACE DEC. DIMS ± .010
FRACTIONAL DIMS ± 1/64
ANGULAR ± 1/2°

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS. UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING

SCALE 2 | CHK'D BY HM | DRWG BY

.093 STANDARD PIN TERMINALS

MOLEX PRODUCTS CO.

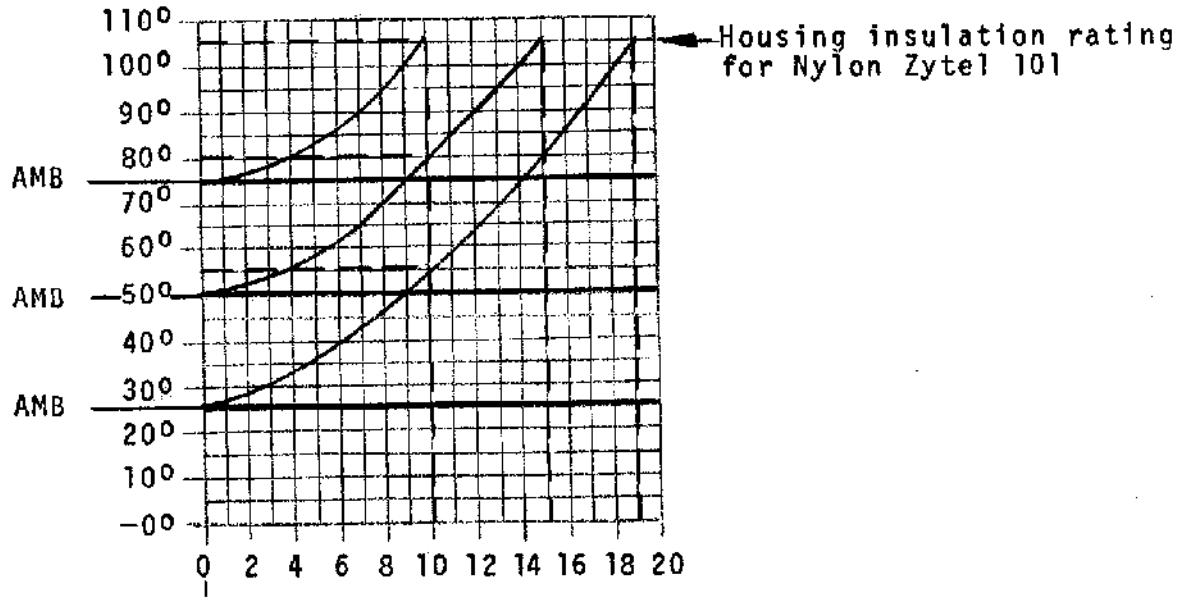
DOWNERS GROVE, ILL. 60515, U.S.A.

DATE 4/27/71

PS -02-09

ENG. No.
PS -02-09

5.4 Heat Rise vs. Current to 105°C/221°F. (Typical temperatures for 1360 Connector, same current all circuits, 14 AWG wire) Applications requiring current levels over the recommended values in 5.1 are possible. However, those applications must be reviewed by Molex before any recommendations can be made.



		F	SEE SHT 1	FILMED MICROFILMED	D	22 JAN 74	C	ADDED THIS PAGE 1.8 OF 8 X REL 2290X 10-8-73 JHL	LTR

REVISIONS

UNLESS OTHERWISE SPECIFIED TOLERANCE:
3 PLACE DEC. DIMS ± .005
2 PLACE DEC. DIMS ± .010
1 PLACE DEC. DIMS ± .015
ANGULAR 1/2°
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS UNLESS OTHERWISE SPECIFIED. DO NOT SCALE DRAWING.

DRWG. BY J.H.L. | CHK'D BY
APP'D BY | SCALE

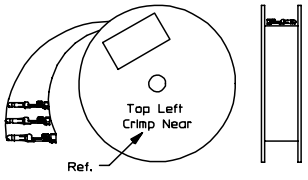
TITLE
.093 STANDARD PIN TERMINALS

MOLEX INCORPORATED
LISLE, ILL. 60532 U.S.A.

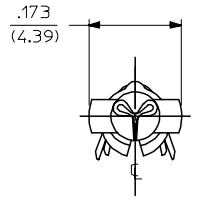
DATE 10/8/73

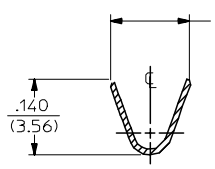
PART NO. | ENG. NO. PS -02-09 | REV.

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)

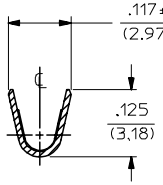


REWOUND CHAIN

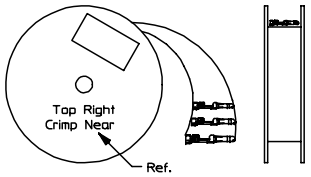




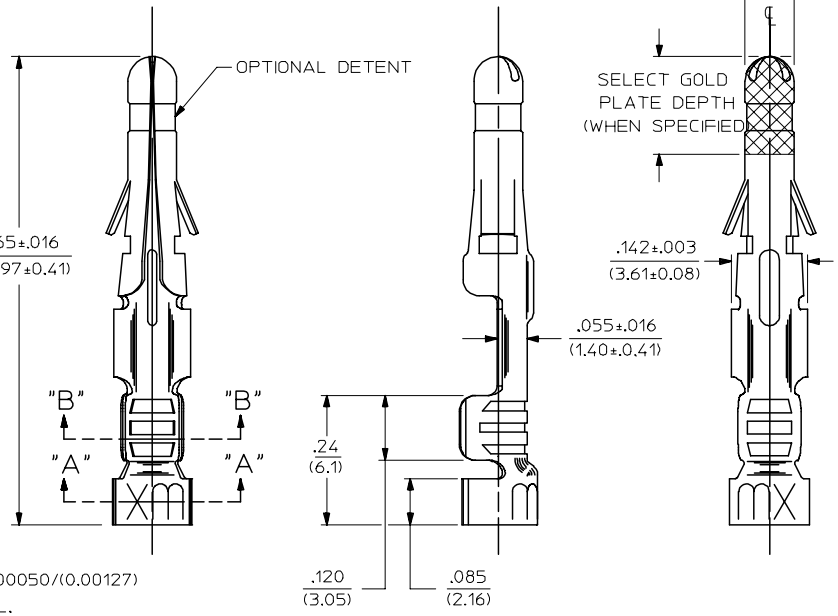
SECT. "A-A"



SECT. "B-B"



STANDARD CHAIN



LEGEND

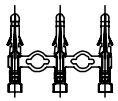
1380-*(****)*

- OPTIONAL DETENT
  - BLANK = WITH DETENT
  - A = WITHOUT DETENT
- P = PREPLATE
  - BLANK = POSTPLATE
- FINISH CODE (SEE NOTE 2)
- FORM
  - BLANK = STD. CHAIN
  - A = REWOUND CHAIN
  - L = LOOSE
  - 1 = STD. CHAIN WITH INTERLEAF PAPER

NOTES:

1. MATERIAL: BRASS
2. 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.
3. PRODUCT SPECIFICATION: PS-02-09.
4. PACKAGING INFORMATION: NOT AVAILABLE
5. TERMINAL FOR USE WITH .093/(2.36) SERIES HOUSINGS AND WILL ACCEPT 18 THRU 22 AWG
6. INSERTION FORCE: 3.5 LBS. MAX. WHEN TERMINAL IS INSERTED INTO AN .093 SERIES HOUSING.
7. TERMINAL RETENTION: 20 LBS. MIN. FROM HOUSING.

CHAIN FORM
FULL SCALE



REVISED/REDRAWN
EC NO: UCP2004-2354 2005/07/20
DRWN:RHOLTS 2005/07/20
CHKD:FSMITH 2005/07/20
APPR:FSMITH 2005/07/20
DESCRIPTION
REV
BV

QUALITY SYMBOLS
▼ - 0
▽(C) - 0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± .010
2 PLACES	± 0.25	± .14
1 PLACE	± 0.35	± ---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

SCALE 6:1 | DESIGN UNITS INCH | THIRD ANGLE PROJECTION | REVISE ON CAD ONLY

DIMENSION STYLE IN/MM

DRAWN BY GEP DATE 1987/11/06

CHECKED BY RW DATE 1987/11/06

APPROVED BY RAS DATE 1987/11/06

TITLE
CRIMP TERMINAL
.093 DIA., MALE
FOR 18 THRU 22 AWG. WIRE

MOLEX INCORPORATED

MATERIAL NO. SEE CHART | DOCUMENT NO. SD-1380-* | SHEET NO. 1 OF 1

C