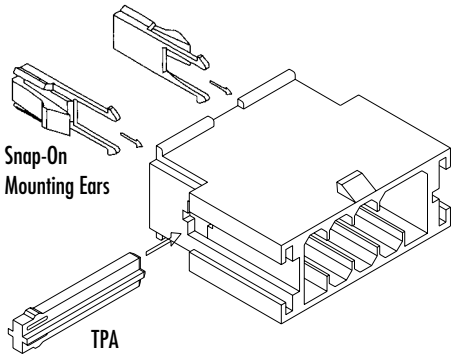
Jameco Part Number 794120

4.20mm (.165") Pitch Mini-Fit, TPA™ Plug

30068

Dual Row with Secondary Terminal Retention



FEATURES AND SPECIFICATIONS

Features and Benefits

- Wire-to-wire plug
- Terminal Position Assurance (TPA) allows the terminal to be fully seated in the housing assuring that it will not back out during high vibration applications
- TPA key is sold individually to meet customer-specific needs
- Optional snap-on ears for panel mounting
- Contrasting color (white) TPA/CPA for high visibility

Reference Information

Product Specification: PS-5556-0003
Packaging: Tray and bag
UL File No.: E29179
CSA File No.: LR19980
TUV License No.: R75142
Use With: Standard Mini-Fit terminals
Mates With: 30067 housing
Designed In: Millimeters

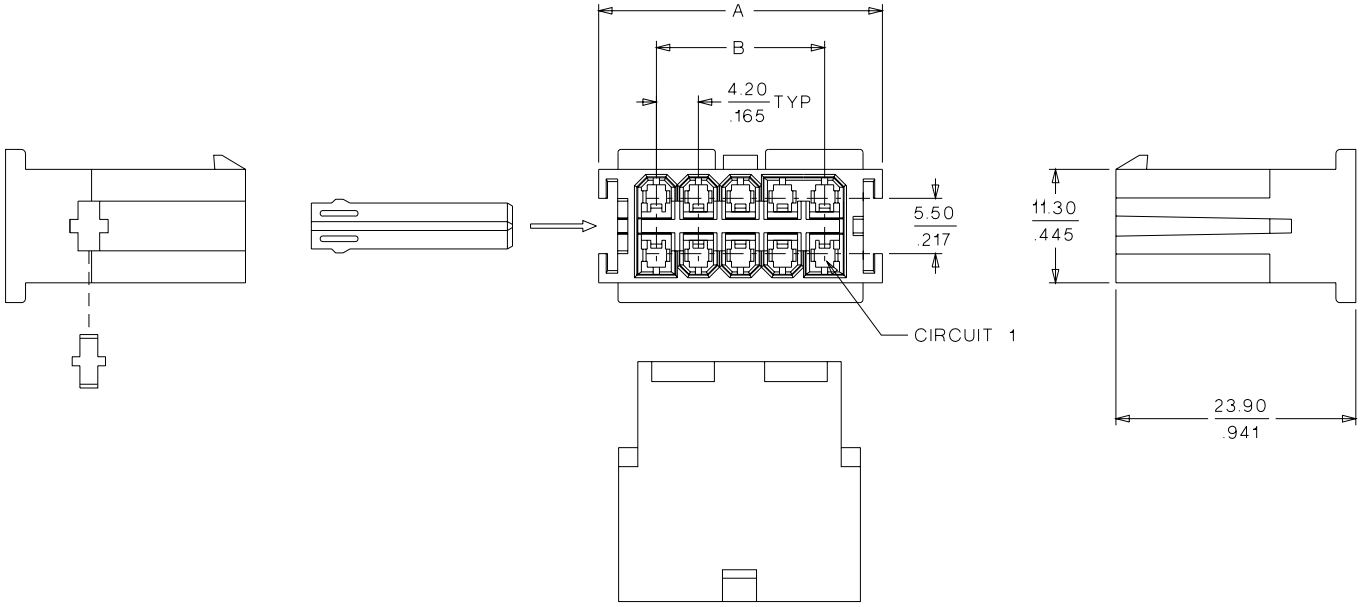
Mechanical

Contact Insertion Force: 1.5kg max.
Contact Retention to Housing: 3.0kg min.
Wire Pull-Out Force: 9.0kg min.
Mating Force: 0.7kg (1.54 lb) max.
Unmating Force: 0.35kg (0.7 lb) min.
Normal Force: 200g min.
Durability: 30 cycles

Physical

Housing: Black polyester, UL 94V-0
Contact: Brass or Phosphor Bronze
Plating: Tin, select Gold and overall Gold
Operating Temperature: -40 to +105˚C

CATALOG DRAWINGS (FOR REFERENCE ONLY)



ORDERING INFORMATION AND DIMENSIONS

Circuits	Plug Order No.	Terminal Position Assurance	Dimension		Snap-on Panel Mounting Ears
			A	B	43130
2	• 15-97-6021*	• 15-97-9041†	11.86 (.467)		43130-0001‡
4	• 15-97-6041	• 15-97-9041	11.86 (.467)	8.01 (.315)	
6	• 15-97-6061	• 15-97-9061	16.08 (.633)	12.21 (.481)	
8	• 15-97-6081	• 15-97-9081	20.27 (.798)	16.41 (.646)	
10	• 15-97-6101	• 15-97-9101	24.26 (.963)	20.61 (.811)	
12	• 15-97-6121	• 15-97-9121	28.68 (1.129)	24.81 (.977)	
16	• 15-97-6161	• 15-97-9161	37.06 (1.459)	33.21 (1.307)	

• US Standard Product, available through Molex franchised distributors
* Receptacles have side pull tabs for use with strain reliefs
† The same TPA is used for both the 2 and 4 circuit plugs
‡ Two required per plug

PRODUCT SPECIFICATION

MINI-FIT TPA

1.0 SCOPE

This Product Specification covers performance requirements for the MINI-FIT TPA 4.20 mm (.165 inch) centerline (pitch) printed circuit board (PCB) connector series with Tin or Gold plating, and The MINI-FIT TPA connector series terminated with 16 to 28 AWG wire using Crimp technology with Tin or Gold plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER (S)

PRODUCT NAME	PART NUMBER
Female Crimp Terminal	5556-****
Male Crimp Terminal	5558-****
Receptacle Housing	30067-****
Plug Housing	30068-****
Vertical Header Assembly	30069-****
Vertical Header Assembly	44482-****
Right Angle Header Assembly	30070-****
Right Angle Header Assembly	44483-****
Terminal Position Assurance Key (TPA)	30072-*
Connector Position Assurance Key (CPA)	30071

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

2.3 SAFETY AGENCY APPROVALS

UL File #E29179
CSA Certificate #LR 19980
TUV Certificate #R75142-8

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See sales drawings and the other sections of this specification for the necessary referenced documents and specifications

4.0 RATINGS

4.1 VOLTAGE

600 Volts AC (RMS) (or 600 Volts DC)

4.2 CURRENT AND APPLICABLE WIRES

Maximum Insulation Diameter and Applicable Wire Gauges	16 AWG: 3.10/. 122 MAXIMUM
	18-24 AWG: 3.10/. 122 MAXIMUM
	22-28 AWG: 1.80/. 071 MAXIMUM

4.2 CURRENT AND APPLICABLE WIRES (continued)

MAXIMUM CURRENT RATING (Amperes)									
Brass					Phosphor Bronze				
Ckt. Size / Wire	2 & 3	4 - 6	7 - 10	12 - 24	Ckt. Size / Wire	2 & 3	4 - 6	7 - 10	12 - 24
AWG #16	9	8	7	6	AWG #16	8	7	6	5
AWG #18	9	8	7	6	AWG #18	8	7	6	5
AWG #20	7	6	5	5	AWG #20	6	5	4	4
AWG #22	5	4	4	4	AWG #22	4	3	3	3
AWG #24	4	3	3	3	AWG #24	3	2	2	2
AWG #26	3	2	2	2	AWG #26	2	1	1	1
AWG #28	2	1	1	1	AWG #28	1	1	1	1

4.3 TEMPERATURE

Operating: * - 40°C to + 105°C
Nonoperating: - 40°C to + 105°C
**Including 30°C terminal temperature at rated current*

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 100 mA. Wire resistance shall be removed from the measured value.	10 milliohms MAXIMUM [initial]
2	**Contact Resistance @ Rated Current**	Mate connectors: apply a maximum voltage of 20 mV at rated current.	10 milliohms MAXIMUM [initial]
3	**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.	5 milliohms MAXIMUM [initial]
4	**Insulation Resistance**	Mate connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground.	1000 Megohms MINIMUM

5.1 ELECTRICAL REQUIREMENTS (continued)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Dielectric Withstanding Voltage**	Mate connectors: apply a voltage of 1500 VAC for 1 minute between adjacent terminals and between terminals to ground.	No breakdown. Current leakage < 5 mA
6	**Temperature Rise (via Current Cycling)**	Mate connectors. Measure the temperature rise at the rated current after 96 hours, during current cycling (45 minutes ON and 15 minutes OFF per hour) for 240 hours, and after final 96-hour steady state.	Temperature rise: +30°C MAXIMUM

5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Terminal Mate and Unmate Forces**	Insert and withdraw terminal (male to female) at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	14.7 N (3.30 lbf) MAXIMUM insertion force & 1.0 N (0.02 lbf) MINIMUM withdrawal force
2	**Crimp 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.	30 N (6.74 lbf) MINIMUM retention force
3	**Crimp Terminal Retention Force (in Housing With TPA Key)**	Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	SECTION 5.2.7
4	**Durability**	Mate connectors up to 30 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests.	20 milliohms MAXIMUM
5	**Vibration (Random)**	Mate connectors and vibrate per EIA 364-28, test condition VII.	10 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond
6	**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).	20 milliohms MAXIMUM & Discontinuity < 1 microsecond

5.2 MECHANICAL REQUIREMENTS (continued)

7	**Wire Pullout Force (Axial)**	Apply an axial pullout force on the wire at a rate of 25 ± 6 mm (1 ± ¼ inch).	16 Awg = 88.0 N (19.8 lbf) Min. 18 Awg = 88.0 N (19.8 lbf) Min. 20 Awg = 59.0 N (13.3 lbf) Min. 22 Awg = 39.0 N (8.78 lbf) Min. 24 Awg = 29.0 N (6.52 lbf) Min. 26 Awg = 19.0 N (4.27 lbf) Min. 28 Awg = 9.80 N (2.20 lbf) Min.
8	**Crimp Terminal Insertion Force (into Housing)**	Apply an axial insertion force on the terminal at a rate of 25 ± 6 mm (1 ± ¼ inch).	15.0 N (3.37 lbf) MAXIMUM insertion force
9	**Normal Force**	Apply a perpendicular force.	0.49 N (50 grams) MINIMUM [Gold (noble) plating] OR 1.47 N (150 grams) MINIMUM [Tin (non-noble) plating]
10	**PCB Engagement and Separation Forces**	Engage and separate a connector at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute. (Applies to parts with PCB retention features only)	49.0 N (11.0 lbf) MAXIMUM insertion force & 10.0 N (2.24 lbf) MINIMUM withdrawal force
12	**Receptacle Thumb Latch Strength (CPA not installed)**	Mate connectors. Pull connectors apart at a rate of 25 ± 6 mm (1 ± ¼ inch) per minute.	68 N (15.3 lbf)

5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	**Thermal Shock**	Mate connectors: expose for 5 cycles between temperatures -55 and 105°C; dwell 0.5 hours at each temperature.	20 milliohms MAXIMUM Visual: No Damage Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4
2	**Thermal Aging**	Mate connectors; expose to: 96 hours at 105 ± 2°C	20 milliohms MAXIMUM & Visual: No Damage
3	**Humidity (Steady State)**	Mate connectors: expose to a temperature of 60 ± 2°C with a relative humidity of 90-95% for 96 hours.	20 milliohms MAXIMUM Dielectric Strength per 5.1.5 Insulation Resistance per 5.1.4 Visual: No Damage

4	**Solderability**	Per SMES-152	Solder coverage: 95% MINIMUM (per SMES-152)

5.3 ENVIRONMENTAL REQUIREMENTS (continued)

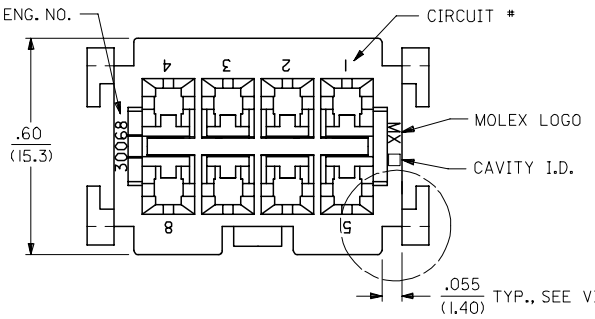
ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	**Solder Resistance**	Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: 235 ± 5°C	Visual: No Damage to insulator material
6	**Cold Resistance**	Mate connectors: Duration: 96 hours; Temperature: -40 ± 3°C	20 milliohms MAXIMUM Visual: No Damage
7	**Corrosive Atmosphere: Sulfur Dioxide Gas (SO_2)**	Mate connectors: Duration: 24 hours exposure. Atmosphere: 50 parts per million (ppm) SO_2 Gas. Temperature: 40 ± 3°C	20 milliohms MAXIMUM Visual: No damage

6.0 PACKAGING

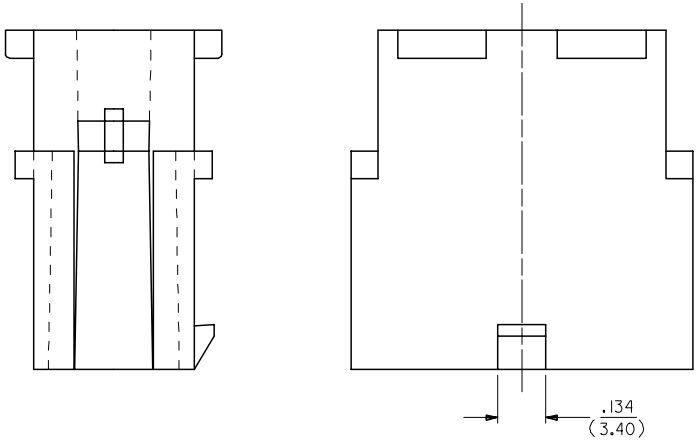
Parts shall be packaged to protect against damage during handling, transit and storage.

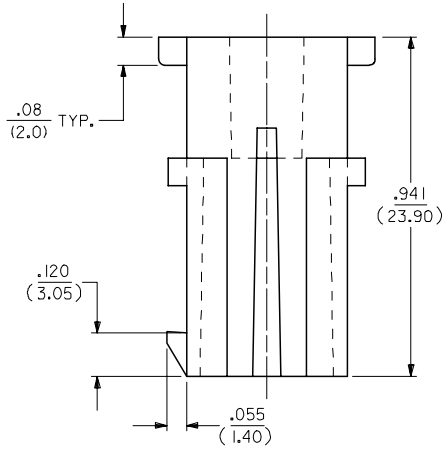
CKT. SIZE	ENG. NO.	EDP. NO.	DIM. "A" REF.	DIM. "B"
2	30068-2	15-97-6021	----	.467 (11.86)
4	30068-4	15-97-6041	.165 (4.20)	.467 (11.86)
6	30068-6	15-97-6061	.331 (8.40)	.633 (16.08)
8	30068-8	15-97-6081	.496 (12.60)	.798 (20.27)
10	30068-10	15-97-6101	.661 (16.80)	.963 (24.46)
14	30068-14	NOT TOOLED	.992 (25.20)	1.294 (32.87)
16	30068-16	15-97-6161	1.157 (29.40)	1.459 (37.06)

SEE SHT. 2 FOR 18 THRU 24 CKT'S.



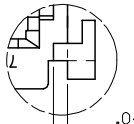
NOTES:
1. MATERIAL: UNFILLED POLYESTER, U.L. 94V-0.
2. COLOR: MOLDED BLACK.
3. HOUSING TO BE USED WITH TERMINAL #5558.
4. HOUSING MATES WITH RECEPTACLE #30067.
5. PRODUCT SPECIFICATION: PS-5556-003.
6. 2 THRU 10 AND 14 THRU 24 CKT. HOUSING TO BE USED WITH T.P.A. NO. 30072-*. 12 CKT. HOUSING TO BE USED WITH T.P.A. NO. 43568-12*. REFER TO DRAWING SDMS-30068-1* FOR ADDITIONAL INFORMATION.



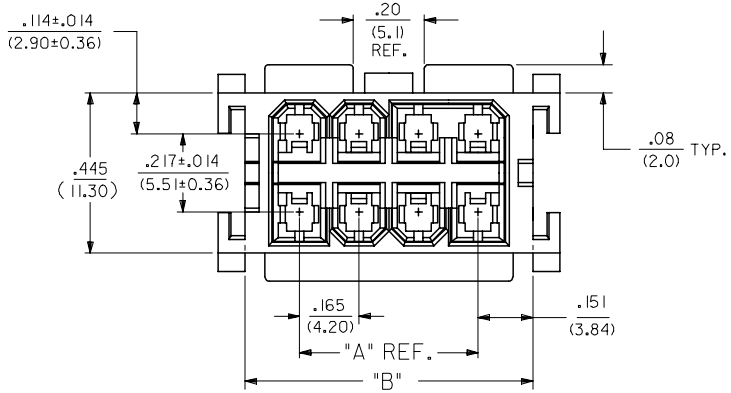


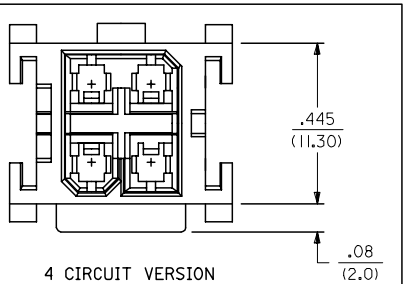
LEGEND:

30068 - *
CIRCUIT SIZE (2-24)



VIEW "A"





4 CIRCUIT VERSION

SEE SHT. #3 FOR PARTS WITH MOUNTING EARS

3	A
2	P1
1	R1
SHEET	REV

REMOVE 12 CKT
EC NO: UCP2006-2146 2006/03/14
DRWN:ADRAINOL 2006/03/15
CHKD:GPOLGAR 2006/03/15
APPR:JCOMERCI 2006/03/15
DESCRIPTION
REV R1

QUALITY SYMBOLS
▼=0
▽=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± .010
2 PLACES	± 0.25	± .014
1 PLACE	± 0.36	± ---
ANGULAR ±1/2°		

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE: IN/MM
SCALE: 4:1
DESIGN UNITS: METRIC
THIRD ANGLE PROJECTION

DRAWN BY	DMF	DATE 1989/10/26
CHECKED BY	TGP	DATE 1989/10/26
APPROVED BY	SC	DATE 1989/10/26

TITLE: MINI FIT TPA PLUG HSG 2 THRU 24 CIRCUITS WITH OR W/O MTG EARS

MOLEX INCORPORATED

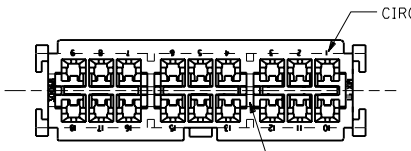
MATERIAL NO.: SEE CHART
DOCUMENT NO.: SD-30068-*
SHEET NO.: 1 OF 3
SIZE: C

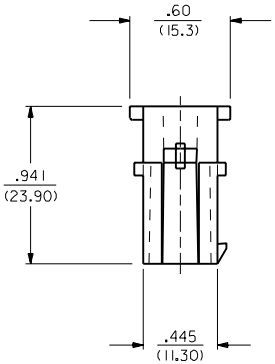
CKT. NO.	ENG. NO.	PART NO.	DIM." A"	DIM." B"	RIBS LOCATED BETWEEN CKT'S.
18	30068-18	NOT TOOLED	1.520 (38.60)	1.822 (46.28)	3,4 & 6,7
20	30068-20	NOT TOOLED	1.685 (42.80)	1.987 (50.46)	3,4 & 7,8
22	30068-22	NOT TOOLED	1.850 (47.00)	2.152 (54.66)	4,5 & 7,8
24	30068-24	NOT TOOLED	2.016 (51.20)	2.318 (58.88)	4,5 & 8,9
SEE SHT. 1 FOR 2 THRU 16 CKT'S.					

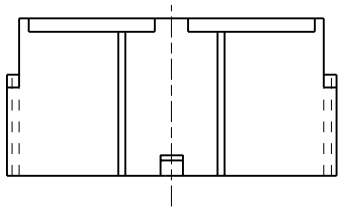
LEGEND:

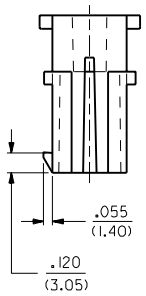
30068 - *

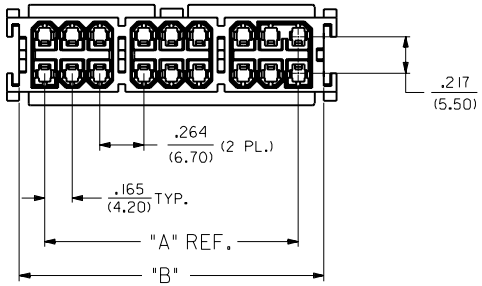
CIRCUIT SIZE (18-24)











30068

LTR.	REVISIONS	LTR.	REVISIONS
		P1	SEE SHEET *1
		0	SEE SHT. 1
		N1	SEE SHT. 1
		N	SEE SHT. 1
		M	SEE SHEET 1
		K	SEE SHEET 1

DIMENSIONS SHOWN (METRIC) INCH

UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2°

	INCH	METRIC
3 PLACE	± .010	---
2 PLACE	± .014	± 0.25
1 PLACE	---	± 0.36

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DRWG. BY GEP | CHK'D. BY RJF | APP'D. BY RAS | SCALE 2:1

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

TITLE: MINI-FIT T.P.A. PLUG HOUSING 2 THRU 24 CIRCUITS, WITH OR WITHOUT MOUNTING EARS.

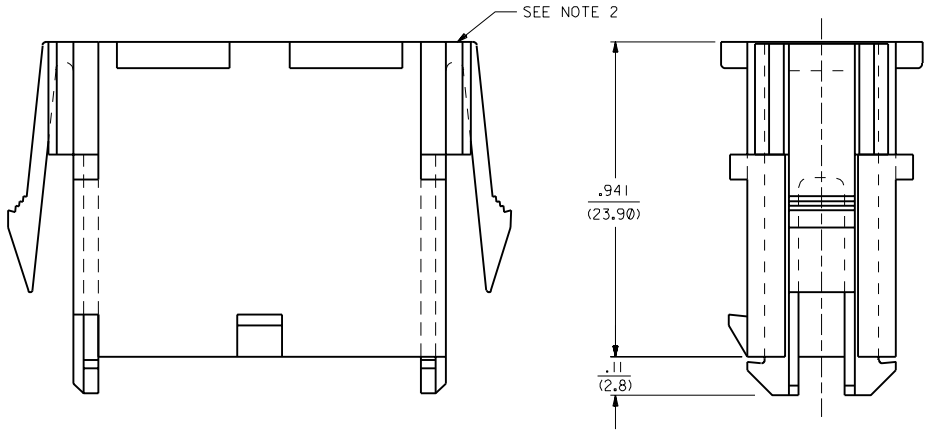
MOLEX INCORPORATED LISLE,ILL. 60532 U.S.A. | SHEET NO. 2 | DATE 1/10/92

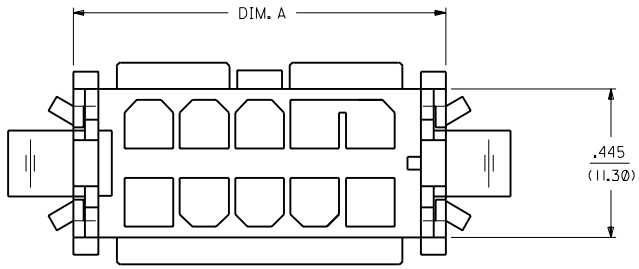
PART NO. SEE CHART | DRWG. NO. SD-30068-*

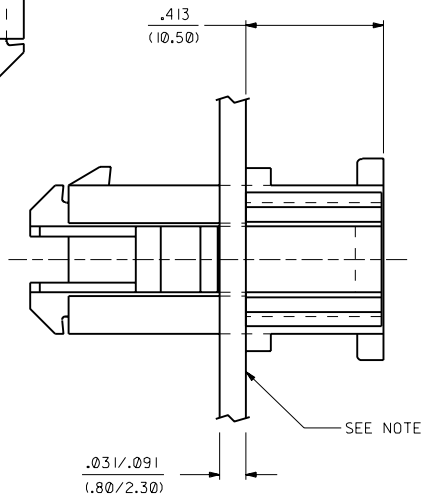
FILE NAME S30068X2.DGN

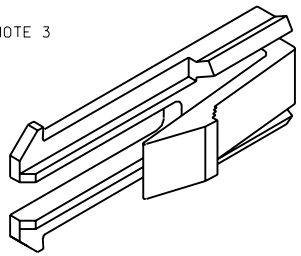
DIV. CP | SIZE C

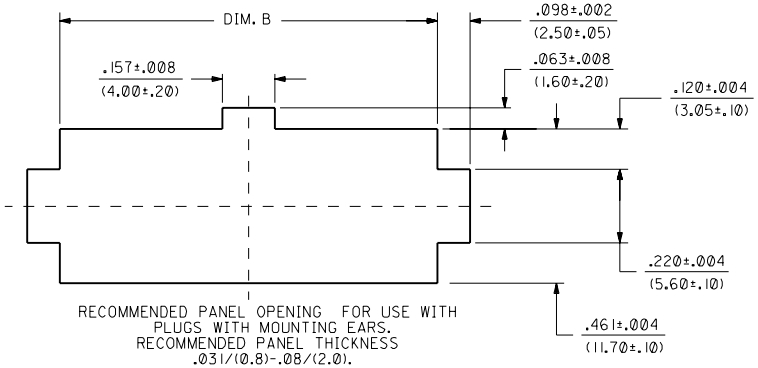
30068











RECOMMENDED PANEL OPENING FOR USE WITH PLUGS WITH MOUNTING EARS.
RECOMMENDED PANEL THICKNESS .031/(0.8)-.08/(2.0).

NUMBER OF CIRCUITS	DIM. A	DIM. B
2	.617 (15.67)	.634 (16.10)
4	.617 (15.67)	.634 (16.10)
6	.783 (19.89)	.799 (20.30)
8	.948 (24.08)	.965 (24.50)
10	1.113 (28.27)	1.130 (28.70)
12	1.279 (32.49)	1.295 (32.90)
14	1.444 (36.68)	1.461 (37.10)
16	1.609 (40.87)	1.626 (41.30)
18	1.972 (50.09)	1.988 (50.50)
20	2.137 (54.28)	2.154 (54.70)
22	2.303 (58.50)	2.319 (58.90)
24	2.468 (62.69)	2.484 (63.10)

NOTES:

1) MOUNTING EAR MATERIAL: UNFILLED POLYESTER, P.B.T., COLOR: BLACK.
2) MOUNTING EARS TO BE INSERTED INTO SIDE SLOTS FROM BACK OF HOUSING.
3) HOUSING ASSEMBLY TO BE INSERTED FROM PUNCH SIDE OF PANEL.
4) REFER TO DRAWING SDMS-30068-2* FOR TPA & MOUNTING EAR KIT INFORMATION

LTR.	REVISIONS	LTR.	REVISIONS
		A	SEE SHEET #1

DIMENSIONS SHOWN (METRIC) INCH
UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR ± 1/2°

	INCH	METRIC
3 PLACE	± .010	---
2 PLACE	± .015	± 0.25
1 PLACE	---	± 0.38

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DRWG. BY LEM | CHK'D. BY MAB | APP'D. BY RRE | SCALE 4:1

▽ = 0 ▼ = 0 REVISE ONLY ON CAD SYSTEM

TITLE: MINI-FIT T.P.A. PLUG HOUSING 2 THRU 24 CIRCUITS, WITH OR WITHOUT MOUNTING EARS.

MOLEX INCORPORATED LISLE,ILL. 60532 U.S.A. | SHEET NO. 3 | DATE 99/04/22

PART NO. SEE CHART | DRWG. NO. SD-30068-*

FILE NAME S30068IX1.DGN

DIV. CP | SIZE C