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ELECTRONICS

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Jameco Part Number 794197

FEATURES AND SPECIFICATIONS

Features and Benefits

- Receptacle housing for wire-to-wire and wire-to-board applications
- 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
- Connector Position Assurance (CPA) assures housing cannot be inadvertently disengaged
- Contrasting color (white) TPA/CPA for high visibility
- TPA and CPA keys are sold individually to meet customer-specific needs

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: [30068](#) housing, [30069](#) and [30070](#) headers
 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

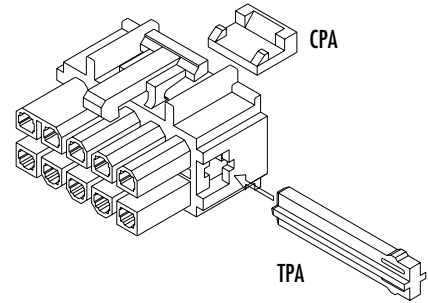
Housing: Black polyester, UL 94V-0
 Contact: Brass or Phosphor Bronze
 Plating: Tin, select Gold and overall Gold
 Operating Temperature: -40 to +105°C



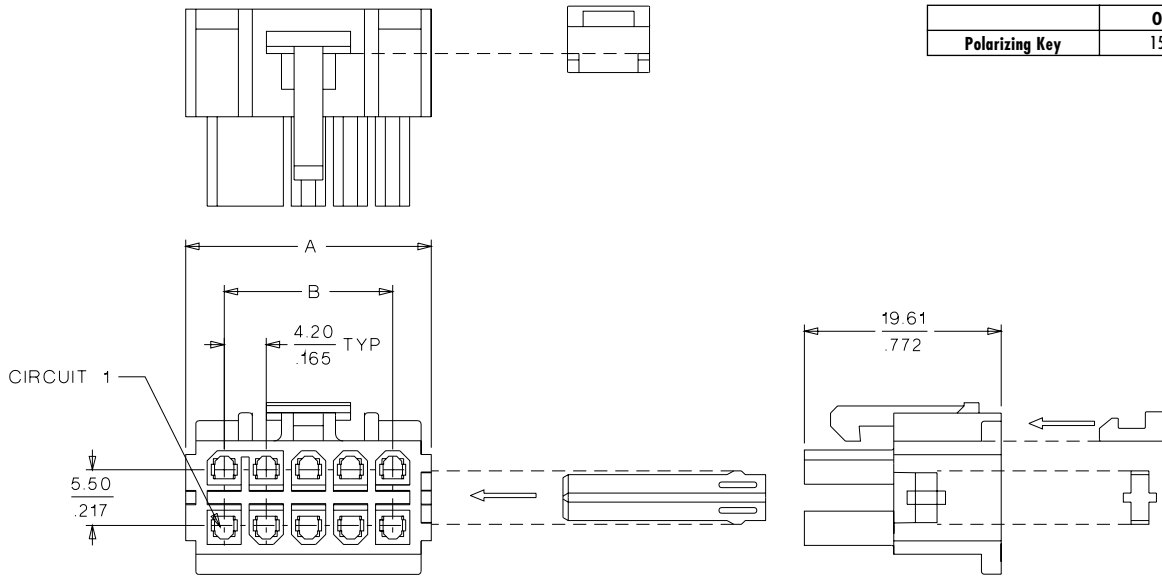
**4.20mm (.165") Pitch
 Mini-Fit, TPA™
 Receptacle**

30067

**Dual Row
 With Secondary Terminal
 Retention**



CATALOG DRAWING (FOR REFERENCE ONLY)



| | |
|-----------------------|------------------|
| Polarizing Key | Order No. |
| | 15-04-0211 |

ORDERING INFORMATION AND DIMENSIONS

| Circuits | Receptacle Order No. | Receptacle Dimension | | Terminal Position Assurance | Connector Position Assurance |
|----------|----------------------|----------------------|---------------|-----------------------------|------------------------------|
| | | A | B | 30072 | 30071 (Fits All Receptacles) |
| 2 | • 15-97-5021* | 11.86 (.467) | | • 15-97-9041† | • 15-97-0071 |
| 4 | • 15-97-5041* | 11.86 (.467) | 4.20 (.165) | • 15-97-9041† | |
| 6 | • 15-97-5061* | 16.08 (.633) | 8.40 (.331) | • 15-97-9061 | |
| 8 | • 15-97-5081 | 20.27 (.798) | 12.60 (.496) | • 15-97-9081 | |
| 10 | • 15-97-5101 | 24.46 (.963) | 16.80 (.661) | • 15-97-9101 | |
| 12 | • 15-97-5121 | 28.68 (1.129) | 21.00 (.827) | • 15-97-9121 | |
| 16 | • 15-97-5161 | 37.06 (1.459) | 29.40 (1.157) | • 15-97-9161 | |

• 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 receptacles



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)

| <u>PRODUCT NAME</u> | <u>PART NUMBER</u> |
|--|--------------------|
| 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 |

| | | | |
|--|---|--|------------------------------------|
| REVISION: C | ECR/ECN INFORMATION: EC No: UCP2004-0947 DATE: 2003 / 11 / 14 | TITLE: PRODUCT SPECIFICATION FOR MINI-FIT TPA CONNECTOR SYSTEM | SHEET No. 1 of 5 |
| DOCUMENT NUMBER: PS-5556-003 | CREATED / REVISED BY: M. BANDURA | CHECKED BY: M. BANDURA | APPROVED BY: Y. MARGULIS |



PRODUCT SPECIFICATION

4.2 CURRENT AND APPLICABLE WIRES (continued)

| MAXIMUM CURRENT RATING (Amperes) | | | | | | | | | |
|----------------------------------|-------|-------|--------|---------|------------------|-------|-------|--------|---------|
| Brass | | | | | Phosphor Bronze | | | | |
| Wire \ Ckt. Size | 2 & 3 | 4 - 6 | 7 - 10 | 12 - 24 | Wire \ Ckt. Size | 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 |

| | | | |
|--------------------|---|--|--------------------|
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| DOCUMENT NUMBER: | CREATED / REVISED BY: | CHECKED BY: | APPROVED BY: |
| PS-5556-003 | M. BANDURA | M. BANDURA | Y. MARGULIS |



PRODUCT SPECIFICATION

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 |

| | | | |
|--|---|---|------------------------------------|
| REVISION: C | ECR/ECN INFORMATION: EC No: UCP2004-0947 DATE: 2003 / 11 / 14 | TITLE: PRODUCT SPECIFICATION FOR MINI-FIT TPA CONNECTOR SYSTEM | SHEET No. 3 of 5 |
| DOCUMENT NUMBER: PS-5556-003 | CREATED / REVISED BY: M. BANDURA | CHECKED BY: M. BANDURA | APPROVED BY: Y. MARGULIS |



PRODUCT SPECIFICATION

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 |

| | | | |
|--|---|---|------------------------------------|
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PRODUCT SPECIFICATION

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

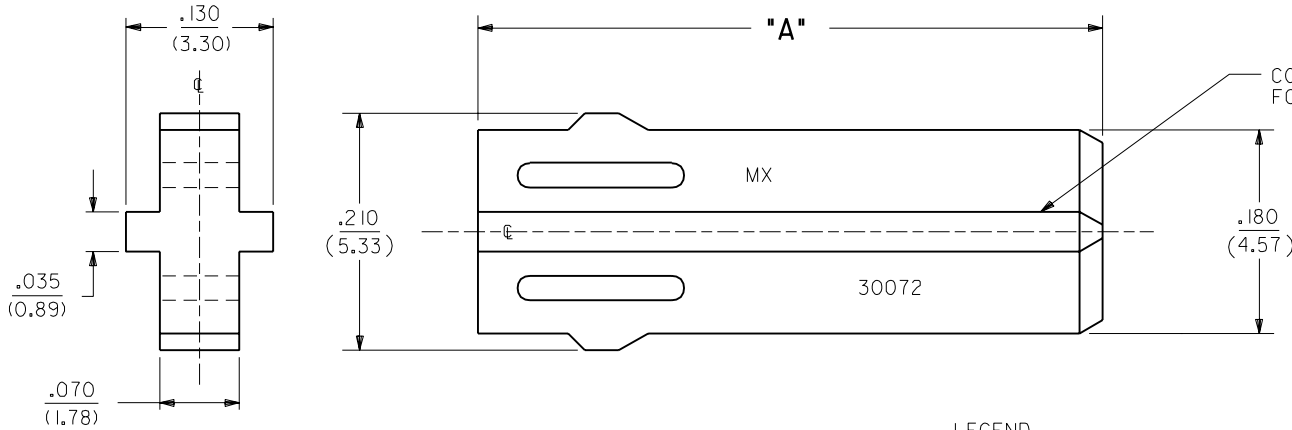
5.3 ENVIRONMENTAL REQUIREMENTS (continued)

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|---|--|---|
| 5 | Solder Resistance | Dip connector terminal tails in solder: Solder Duration: 5 ± 0.5 seconds; Solder Temperature: $235 \pm 5^\circ\text{C}$ | Visual: No Damage to insulator material |
| 6 | Cold Resistance | Mate connectors: Duration: 96 hours; Temperature: $-40 \pm 3^\circ\text{C}$ | 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: $40 \pm 3^\circ\text{C}$ | 20 milliohms MAXIMUM Visual: No damage |

6.0 PACKAGING

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

| | | | |
|--|---|--|------------------------------------|
| REVISION: C | ECR/ECN INFORMATION: EC No: UCP2004-0947 DATE: 2003 / 11 / 14 | TITLE: PRODUCT SPECIFICATION FOR MINI-FIT TPA CONNECTOR SYSTEM | SHEET No. 5 of 5 |
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CONTINUOUS RIB CAN BE DISRUPTED FOR EJECTOR PINS.

LEGEND
30072 - * *

CKT. SIZE
COLOR:
"BLANK" = NATURAL
"R" = DYED RED

| HOUSING CKT. SIZE | DIM. "A" | NATURAL | | DYED RED | |
|-------------------|-------------------------|----------|------------|-----------|------------|
| | | ENG. NO. | EDP. NO. | ENG. NO. | EDP. NO. |
| 2,4 | $\frac{.387}{(9.83)}$ | 30072-04 | 15-97-9041 | 30072-04R | 15-97-9042 |
| 6 | $\frac{.553}{(14.05)}$ | 30072-6 | 15-97-9061 | 30072-06R | 15-97-9062 |
| 8 | $\frac{.718}{(18.24)}$ | 30072-8 | 15-97-9081 | 30072-08R | 15-97-9082 |
| 10 | $\frac{.883}{(22.43)}$ | 30072-10 | 15-97-9101 | 30072-10R | 15-97-9102 |
| 12 | $\frac{1.049}{(26.65)}$ | 30072-12 | 15-97-9121 | 30072-12R | 15-97-9122 |
| 14 | $\frac{1.214}{(30.84)}$ | 30072-14 | NOT TOOLED | 30072-14R | NOT TOOLED |
| 16 | $\frac{1.379}{(35.03)}$ | 30072-16 | 15-97-9161 | 30072-16R | 15-97-9162 |
| 18 | $\frac{1.742}{(44.25)}$ | 30072-18 | NOT TOOLED | 30072-18R | NOT TOOLED |
| 20 | $\frac{1.907}{(48.44)}$ | 30072-20 | NOT TOOLED | 30072-20R | NOT TOOLED |
| 22 | $\frac{2.072}{(52.63)}$ | 30072-22 | NOT TOOLED | 30072-22R | NOT TOOLED |
| 24 | $\frac{2.238}{(56.85)}$ | 30072-24 | NOT TOOLED | 30072-24R | NOT TOOLED |

NOTES:

1. MATERIAL: NYLON 6/6, U.L. 94V-2, COLOR: NATURAL.
2. PART IS FOR USE WITH HOUSINGS #30067 AND #30068.
3. SEE PRODUCT SPECIFICATION # PS-5556-0003.

MFG. SH. REV. LTR. REVISIONS

| | |
|----|--|
| I | ADD EDP NO'S ECN U30694 93/05/06 A.GUZIK |
| HI | ADDED DYED RED ECN U30639 GEP 4-26-93 |
| H | CHGD. COLOR PER ECR U21575 10-27-92 RJF |
| G | -04 WAS -2,4 PER ECN U21078 GEP 7-24-92 RJF |
| F | ADDED 18-24 CKTS. PER ECN U11918 9-26-91 RJF |
| E | REV. PROD. SPEC. ECN U11690 GEP 8-15-91 RJF |
| D | REDRAWN & REVISED ON CAD ECR#U90361 TGP/DMF 10-23-89 |

| DIMENSIONS SHOWN (METRIC) INCH | | ▽ = 0 ▼ = 0 | | REVISE ONLY ON CAD SYSTEM | | | | | | | | | | | | | |
|--|--------|--|------|--|---------|--------|-----|---------|--------|--------|---------|-----|--------|--|--|-----------------------------------|--|
| UNLESS OTHERWISE SPECIFIED TOLERANCES: ANGULAR 1/2° | | TITLE | | | | | | | | | | | | | | | |
| | | TERMINAL POSITION ASSURANCE (TPA) FOR HOUSINGS #30067-* & #30068-* | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th></th> <th>INCH</th> <th>METRIC</th> </tr> </thead> <tbody> <tr> <td>3 PLACE</td> <td>± .010</td> <td>---</td> </tr> <tr> <td>2 PLACE</td> <td>± .014</td> <td>± 0.25</td> </tr> <tr> <td>1 PLACE</td> <td>---</td> <td>± 0.36</td> </tr> </tbody> </table> | | | INCH | METRIC | 3 PLACE | ± .010 | --- | 2 PLACE | ± .014 | ± 0.25 | 1 PLACE | --- | ± 0.36 | MOLEX INCORPORATED LISLE, ILL. 60532 U.S.A. | | SHEET NO. DATE 1 OF 1 10/23/89 | |
| | INCH | METRIC | | | | | | | | | | | | | | | |
| 3 PLACE | ± .010 | --- | | | | | | | | | | | | | | | |
| 2 PLACE | ± .014 | ± 0.25 | | | | | | | | | | | | | | | |
| 1 PLACE | --- | ± 0.36 | | | | | | | | | | | | | | | |
| DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS | | | | | | | | | | | | | | | | | |
| DRWG. BY DMF APP'D. BY SC | | CHK'D. BY TGP SCALE 10:1 | | PART NO. SEE CHART DRWG. NO. SD-30072-* | | | | | | | | | | | | | |
| FILE NAME S30072.DWG | | THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INC. AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION. | | DIV. CP SIZE B | | | | | | | | | | | | | |