



PRODUCT SPECIFICATION

SABRE .125(3.18) X .020 (0.51) FLAT BLADE SYSTEM WITH TPA

1.0 SCOPE

This Product Specification covers the 7.50 mm (.295 inch) centerline connector series with 18 to 14 AWG wire using crimp technology with tin and tin-lead plating.

2.0 PRODUCT DESCRIPTION

2.1 PRODUCT NAME AND SERIES NUMBER(S)

| PRODUCT NAME | PART NUMBER |
|---------------------------------------|---------------------|
| Plug Housing, 2 circuit | 43680-2002 |
| Plug Housing, 3 circuit | 43680-2003 |
| Plug Housing, 4 circuit | 43680-2004 |
| Plug Housing, 5 circuit | 43680-2005 |
| Plug Housing, 6 circuit | 43680-2006 |
| Right Angle Header, 2 circuit | (see SDA-43160-***) |
| Right Angle Header, 3 circuit | (see SDA-43160-***) |
| Right Angle Header, 4 circuit | (see SDA-43160-***) |
| Right Angle Header, 5 circuit | (see SDA-43160-***) |
| Right Angle Header, 6 circuit | (see SDA-43160-***) |
| Vertical Header, 2 circuit | (see SDA-43160-***) |
| Vertical Header, 3 circuit | (see SDA-43160-***) |
| Vertical Header, 4 circuit | (see SDA-43160-***) |
| Vertical Header, 5 circuit | (see SDA-43160-***) |
| Vertical Header, 6 circuit | (see SDA-43160-***) |
| Receptacle Housing, 2 circuit | 44441-2002 |
| Receptacle Housing, 2 circuit | 44441-2002 |
| Receptacle Housing, 2 circuit | 44441-2002 |
| Receptacle Housing, 2 circuit | 44441-2002 |
| Receptacle Housing, 2 circuit | 44441-2002 |
| Male Tab Crimp Terminal, Small | 43178-1002 |
| Male Tab Crimp Terminal, Large | 43178-2002 |
| Male Tab Crimp Terminal, Side by Side | 43178-3002 |
| Receptacle Terminal, Small | 43375-0001 |
| Receptacle Terminal, Large | 43375-1001 |

2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

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| DOCUMENT NUMBER: PSX-44441-9999 | CREATED / REVISED BY: AELHAG | CHECKED BY: JBELL | APPROVED BY: FSMITH |



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2.3 SAFETY AGENCY APPROVALS

UL File #E29179

CSA File #LR19980

3.0 APPLICABLE DOCUMENTS AND SPECIFICATIONS

See the appropriate sales drawings for necessary referenced documents and specifications.

4.0 RATINGS

4.1 VOLTAGE

600 Volts AC (RMS)

4.2 CURRENT AND APPLICABLE WIRES

| AWG | Amps | Outside Insulation Diameter |
|-----|------|-----------------------------|
| 14 | 18 | 4.57 mm (.180 inch) |
| 16 | TBD | 4.57 mm (.180 inch) |
| 18 | 12 | 4.57 mm (.180 inch) |

NOTE: The current capacity is based on each circuit position being loaded with the given wire size, and the rated current applied. The capacity for other applications may be higher.

4.3 TEMPERATURE

Operating: - 40°C to + 75°C

Nonoperating: - 40°C to + 100°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 100 mA. (Measurement locations in Section 7.0) | 30 milliohms MAXIMUM [initial] |
| 2 | Insulation Resistance | Unmate & unmount connectors: apply a voltage of 500 VDC between adjacent terminals and between terminals to ground. | 1000 Megohms MINIMUM |
| 3 | Dielectric Withstanding Voltage | Mate connectors: apply a voltage of 5000 VAC for 1 minute between adjacent terminals and between terminals to ground. | No breakdown; current leakage < 5 mA |
| 4 | Temperature Rise (via Current Cycling) | Mate connectors: measure the temperature rise at the rated current after 96 hours, Followed by 500 hours of current cycling (45 minutes ON and 15 minutes OFF perhour). | Temperature rise: +30°C MAXIMUM |

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5.2 MECHANICAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|--|---|---|
| 5 | 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. (Gage dimensions in Section 7.0) | 13.3 N (3 lbf) MAXIMUM insertion force & 2.2 N (.5 lbf) MINIMUM withdrawal force |
| 6 | Terminal Retention Force from Housing (Receptacle Terminal) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute. | 67 N (15 lbf) MINIMUM retention force w/ TPA not activated; 125 N (25 lbf) MINIMUM retention force w/ TPA activated |
| 7 | Terminal Retention Force from Housing (Male Tab Terminal) | Axial pullout force on the terminal in the housing at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch) per minute. | 100 N (22.5 lbf) MINIMUM retention force w/ TPA not activated; 100 N (22.5 lbf) MINIMUM retention force w/ TPA activated |
| 8 | Durability | Mate connectors up to 25 cycles at a maximum rate of 10 cycles per minute prior to Environmental Tests. | 3 milliohms MAXIMUM (change from initial) |
| 9 | Vibration (Random) | Subject mated connectors to vibration with an amplitude of 1.52 mm (.060 inch) peak to peak; a sweep of 10-55-10 hertz in 1.0 min.; and a duration of 2.0 hours in the $\pm X, \pm Y, \pm Z$ axes. | 5 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond |
| 10 | Shock (Mechanical) | Mate connectors and shock at 50 g's with $\frac{1}{2}$ sine wave (11 milliseconds) shocks in the $\pm X, \pm Y, \pm Z$ axes (18 shocks total). | 5 milliohms MAXIMUM (change from initial) & Discontinuity < 1 microsecond |
| 11 | 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). | 14 AWG: 222 N (50 lbf) 16 AWG: 200 N (45 lbf) 18 AWG: 133 N (30 lbf) MINIMUM pullout force |
| 12 | Wire Pullout Force (Right Angle) | Apply a right angle pullout force on the wire at a rate of 25 ± 6 mm ($1 \pm \frac{1}{4}$ inch). | *** N (***) lbf) MINIMUM pullout force {Recommended minimum value: 75% of tensile strength of the wire} |
| 13 | 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). | 4.4 N (1.0 lbf) MAXIMUM insertion force |

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5.3 ENVIRONMENTAL REQUIREMENTS

| ITEM | DESCRIPTION | TEST CONDITION | REQUIREMENT |
|------|----------------------------|--|--|
| 14 | Shock (Thermal) | Mate connectors; expose to 10 cycles of: Temperature °C Duration (Minutes) -40 +0/-3 30 +105 +3/-0 30 | 3 milliohms MAXIMUM (change from initial); Visual: No Damage |
| 15 | Thermal Aging | Mate connectors; expose to: 240 hours at 105 ± 2°C | 5 milliohms MAXIMUM (change from initial)]; Visual: No Damage |
| 16 | Humidity (Steady State) | Mate connectors: expose to a temperature of 40 ± 2°C with a relative humidity of 90-95% for 96 hours. | 5 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage |
| 17 | Humidity (Cyclic) | Mate connectors: cycle per EIA-364-31: 24 cycles at temperature between 25 ± 3°C and 65 ± 3°C at 95 ± 5% relative humidity and 25 ± 3°C and -10 ± 3°C with humidity not controlled. Dwell time of 1.0 hour; ramp time of 0.5 hours. | 5 milliohms MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at 500 VAC & Insulation Resistance: 1000 Megohms MINIMUM & Visual: No Damage |
| 18 | Solderability | Solder time 3±0.5 seconds @ 230±5°C (A- 43160-**** only) | Solder coverage: 95% MINIMUM (per SMES-152) |
| 19 | Salt Spray | Mate connectors: Duration: 48 hours exposure; Atmosphere: salt spray from a 5% solution; Temperature: 35 +1/-2°C | 10 milliohms MAXIMUM (change from initial) & Visual: No Damage |
| 20 | IR Process Soldering | Molex IR Profile | Dimensional: Conformance to Sales Drawing requirements; Visual: No Damage |

6.0 PACKAGING

See the appropriate sales drawings for information related to packaging requirements.

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