

## SUPER-SABRE .125(3.18) X .020 (0.51) CONNECTOR SYSTEM WITH TPA

### 1.0 SCOPE

This Product Specification covers the 7.50 mm (.295 inch) centerline Super-Sabre connector system with silver plating and 10 to 12 AWG wire using crimp technology.

### 2.0 PRODUCT DESCRIPTION

#### 2.1 PRODUCT NAME AND SERIES NUMBER(S)

PRODUCT NAME	PART NUMBER
Female Crimp Terminal	171825-0100
Male Crimp Terminal	171826-0100
Vertical Header, 2 circuit	(see SDA-172042-001)
Vertical Header, 3 circuit	(see SDA-172042-001)
Vertical Header, 4 circuit	(see SDA-172042-001)
Vertical Header, 5 circuit	(see SDA-172042-001)
Vertical Header, 6 circuit	(see SDA-172042-001)
Vertical Header, 8 circuit	(see SDA-172042-001)
Right Angle Header, 2 circuit	(see SDA-172043-001)
Right Angle Header, 3 circuit	(see SDA-172043-001)
Right Angle Header, 4 circuit	(see SDA-172043-001)
Right Angle Header, 5 circuit	(see SDA-172043-001)
Right Angle Header, 6 circuit	(see SDA-172043-001)
Right Angle Header, 8 circuit	(see SDA-172043-001)
Receptacle Housing, 2 circuit	172672-*002
Receptacle Housing, 3 circuit	172672-*003
Receptacle Housing, 4 circuit	172672-*004
Receptacle Housing, 5 circuit	172672-*005
Receptacle Housing, 6 circuit	172672-*006
Receptacle Housing, 8 circuit	172672-*008
Plug Housing, 2 circuit	172673-*002
Plug Housing, 3 circuit	172673-*003
Plug Housing, 4 circuit	172673-*004
Plug Housing, 5 circuit	172673-*005
Plug Housing, 6 circuit	172673-*006

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## 2.2 DIMENSIONS, MATERIALS, PLATINGS AND MARKINGS

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

## 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)

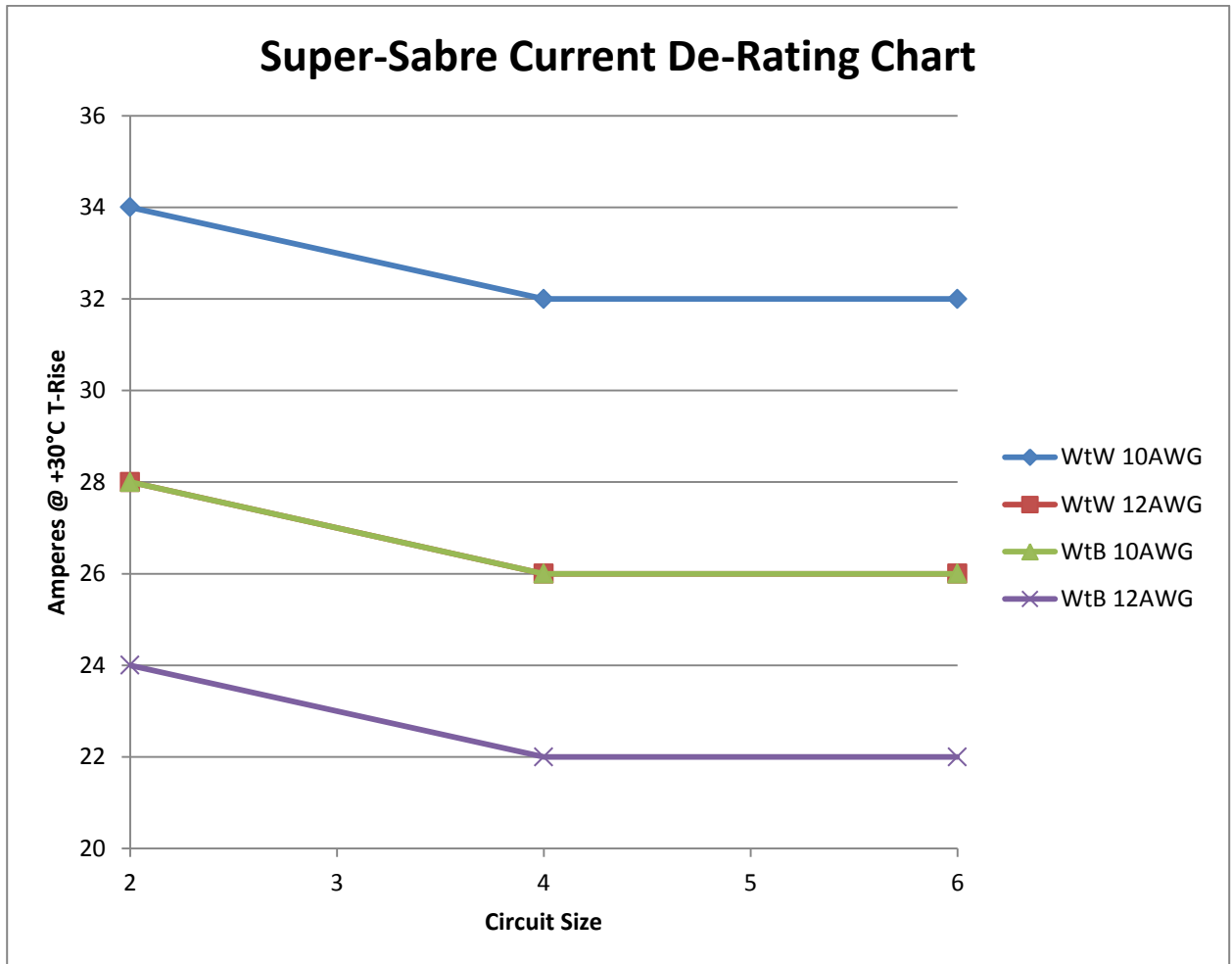
### 4.2 CURRENT AND APPLICABLE WIRE SIZE

Circuit Size	Wire Gauge	Configuration	Current Rating (Amps)	
2	10	Wire To Wire	34	
	12		28	
4	10		32	
	12		26	
6	10		32	
	12		26	
2	10		Wire To Board	28
	12			24
4	10	26		
	12	22		
6	10	26		
	12	22		

*NOTE: Current rating is application dependent and may be affected by the wire rating such as listed in UL-60950-1. Each application should be evaluated by the end user for compliance to specific safety agency requirements. The ratings listed in the chart above represents the MAXIMUM current carrying capacity of a fully loaded connector with all circuits powered per Molex test method based on a 30°C temperature rise over ambient temperature in still air, using tinned, stranded copper wire, and are provided as a guideline. Appropriate de-rating is required based on circuit size, ambient temperature, copper trace size on the PCB, gross heating from adjacent modules/components and other factors that influence connector performance. Wire size & stranding, tin coated or bare copper, wire length & crimp quality are other factors that influence current rating.*

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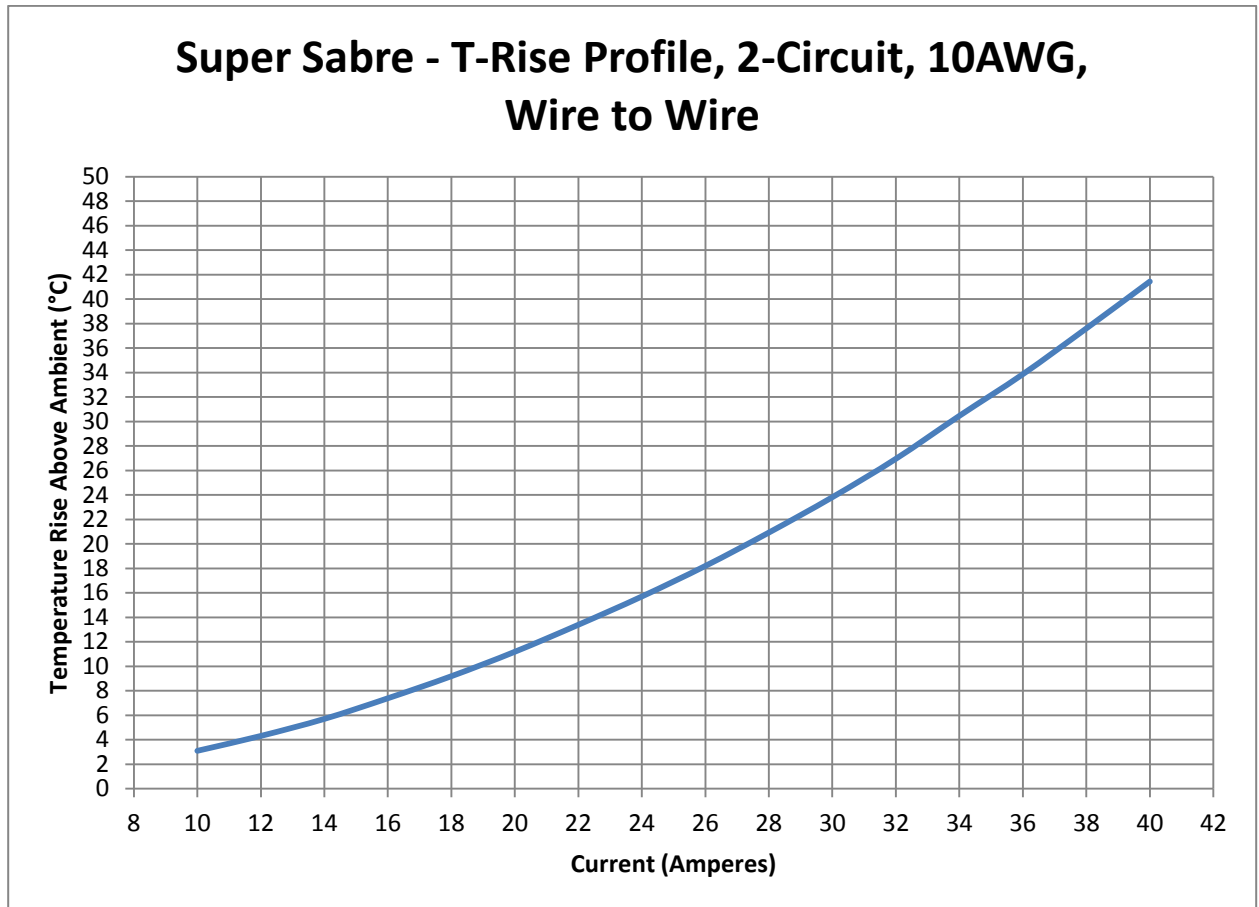
## 4.3 CURRENT DERATING CHART



WtW = Wire to Wire  
WtB = Wire to Board

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## 4.4 TEMPERATURE-RISE PROFILE



## 4.5 SAFETY AGENCY RATINGS

Configuration	AWG	Agency Voltage Rating (AC RMS or DC)		Agency Current Rating (Two Circuit) (Amperes)	
		UL	CSA	UL	CSA
WtW	10	600	600	32	34
	12	600	600	not rated	28
WtB	10	600	600	28	34
	12	600	600	not rated	28

WtW = Wire to Wire  
WtB = Wire to Board

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## 4.6 TEMPERATURE

Operating\*: - 40°C to + 105°C

Nonoperating: - 40°C to + 105°C

*\*Including 30°C maximum temperature rise above ambient at rated current.*

Per EIA-364-1000

Operating\*: - 40°C to + 125°C

Nonoperating: - 40°C to + 125°C

*\*Including 30°C maximum temperature rise above ambient at rated current.*

Per USCAR-2, Temperature Class 3, High-Temperature Exposure

(sec. 5.6.3, 1,008 hours @ 125°C)

Refer to section 5.1, item 4 & section 5.3, item 14.

## 5.0 PERFORMANCE

### 5.1 ELECTRICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
1	<b>Contact Resistance (Low Level)</b>	Mate connectors: apply a maximum voltage of <b>20 mV</b> and a current of <b>100 mA</b> .	<b>2.5 milliohms</b> MAXIMUM [initial]
2	<b>Insulation Resistance</b>	Unmate & unmount connectors: apply a voltage of <b>500 VDC</b> between adjacent terminals and between terminals to ground.	<b>5,000 Megohms</b> MINIMUM
3	<b>Dielectric Withstanding Voltage</b>	Mate connectors: apply a voltage of <b>2,200 VAC</b> for <b>1</b> minute between adjacent terminals and between terminals to ground.	No breakdown; current leakage < <b>5 mA</b>
4	<b>Temperature Rise (via Current Cycling)</b>	Mate connectors: measure the temperature rise at the rated current after <b>96</b> hours steady-state, followed by <b>240</b> hours of current cycling ( <b>45</b> minutes ON and <b>15</b> minutes OFF per hour), followed by another <b>96</b> hours steady-state.	Temperature rise: <b>+30°C</b> MAXIMUM

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## 5.2 MECHANICAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
5	<b>Connector Mate and Unmate Forces</b>	Mate and unmate connector (male to female) at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	<b>17.8 N (4 lbf)</b> per ckt MAXIMUM mate force & <b>4.4 N (1 lbf)</b> per ckt MINIMUM unmate force
6	<b>Terminal Retention Force from Housing (Female Terminal)</b>	Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	<b>67 N (15 lbf)</b> MINIMUM retention force w/ TPA not activated; <b>125 N (25 lbf)</b> MINIMUM retention force w/ TPA activated
7	<b>Terminal Retention Force from Housing (Male Terminal)</b>	Axial pullout force on the terminal in the housing at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	<b>67 N (15 lbf)</b> MINIMUM retention force w/ TPA not activated; <b>125 N (25 lbf)</b> MINIMUM retention force w/ TPA activated
8	<b>Terminal Insertion Force into Housing (Male &amp; Female)</b>	Apply an axial insertion force on the terminal at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	<b>11 N (2.5 lbf)</b> MAXIMUM insertion force
9	<b>Durability</b>	Mate connectors up to <b>25</b> cycles at a maximum rate of <b>10</b> cycles per minute prior to Environmental Tests.	<b>1 milliohm</b> MAXIMUM (change from initial)
10	<b>Vibration (Random)</b>	Subject mated connectors to vibration for <b>15</b> minutes in each of the $\pm X$ , $\pm Y$ , & $\pm Z$ axes. (per <b>EIA-364-28</b> test condition VII, D)	<b>1 milliohm</b> MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
11	<b>Shock (Mechanical)</b>	Mate connectors and shock at <b>50</b> g's with $\frac{1}{2}$ sine wave ( <b>11</b> milliseconds) shocks in the $\pm X$ , $\pm Y$ , & $\pm Z$ axes ( <b>18</b> shocks total). (per <b>EIA-364-27</b> test condition A)	<b>1 milliohm</b> MAXIMUM (change from initial) & Discontinuity < <b>1</b> microsecond
12	<b>Wire Pullout Force from Terminal (Axial)</b>	Apply an axial pullout force on the wire at a rate of $25 \pm 6$ mm ( $1 \pm \frac{1}{4}$ inch) per minute.	10 AWG: <b>356 N (80 lbf)</b> 12 AWG: <b>311 N (70 lbf)</b> MINIMUM pullout force

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### 5.3 ENVIRONMENTAL REQUIREMENTS

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
13	Shock (Thermal)	Per <b>EIA-364-32</b> , method <b>A</b> , test condition <b>3</b> , test duration <b>A-4</b> ; mate connectors and expose for <b>10</b> cycles between <b>-65°C</b> and <b>+125°C</b> ; dwell <b>30</b> minutes at each temperature.	<b>1</b> milliohm MAXIMUM (change from initial); Visual: No Damage
14	Thermal Aging	Mate connectors; expose to: <b>240</b> hours at <b>105 ± 2°C</b> Per <b>EIA-364-1000</b>	<b>1</b> milliohm MAXIMUM (change from initial); Visual: No Damage
		Mate connectors; expose to: <b>1,008</b> hours at <b>125 ± 2°C</b> Per <b>USCAR-2</b> , Temperature Class <b>3</b>	<b>1</b> milliohm MAXIMUM (change from initial); Visual: No Damage
15	Humidity (Steady State)	Mate connectors: expose to a temperature of <b>40 ± 2°C</b> with a relative humidity of <b>90-95%</b> for <b>96</b> hours.	<b>1</b> milliohm MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at <b>500 VAC</b> & Insulation Resistance: <b>1000</b> Megohms MINIMUM & Visual: No Damage
16	Humidity (Cyclic)	Mate connectors: cycle per <b>EIA-364-31</b> : <b>24</b> cycles between <b>25 ± 3 °C</b> at <b>80% ± 3% RH</b> and <b>65 ± 3 °C</b> at <b>50% ± 3% RH</b> . Ramp times of <b>0.5</b> hour and dwell times of <b>1.0</b> hour.	<b>1</b> milliohm MAXIMUM (change from initial) & Dielectric Withstanding Voltage: No Breakdown at <b>500 VAC</b> & Insulation Resistance: <b>1000</b> Megohms MINIMUM & Visual: No Damage
17	Mixed Flowing Gas	Per <b>EIA-364-65</b> with Class <b>IIA</b> gas concentrations.	<b>1</b> milliohm MAXIMUM (change from initial); Visual: No Damage

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### 5.3 ENVIRONMENTAL REQUIREMENTS (CONT.)

ITEM	DESCRIPTION	TEST CONDITION	REQUIREMENT
18	<b>Solderability</b> (applicable to headers only (172042 & 172043 series))	Per <b>SMES-152</b>	Solder coverage: <b>95% MINIMUM</b> (per <b>SMES-152</b> )
20	<b>Solder Process Heat Resistance</b> (applicable to headers only (172042 & 172043 series))	Wave solder process: Dip header terminal tails in solder Solder Duration: <b>5 ± 0.5</b> seconds; Solder Temperature: <b>260 ± 5°C</b> Per <b>ES-40000-5013</b>	Visual: No Damage
		Reflow solder process: <b>260°C</b> max Per <b>ES-40000-5013</b>	

### 6.0 PACKAGING

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

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