

 **Saf-D-Grid<sup>®</sup>**

*Connector System for Higher Voltage Power Distribution*



**APP**  
Anderson Power Products<sup>®</sup>

An **IDEAL** Company

# Saf-D-Grid®

## Safe Connections for Higher Voltage Power Distribution Systems

Anderson Power Products® has lead the connector industry in development of DC power connection solutions since the introduction of the SB® electrical connector in 1953. Saf-D-Grid® builds on the proven contact technology used in SB® and Powerpole® connectors by offering features required in 380-400 VDC power distribution systems.

APP® introduced the Saf-D-Grid® connector system in January 2009 as a safe appliance power connector for server, telecommunication, and other devices up to 600 VDC.

The APP® Saf-D-Grid® plug and receptacle provide for the direct connection of DC electronic devices to a DC micro-grid powered by renewable energy or high efficiency DC sources. The connector meets international safety requirements for hazardous, low voltage applications including UL 950 and IEC 60950. The Saf-D-Grid® is size compatible with the IEC 320 C13 and C14 AC connection system. It is the only connector system so sized that is UL rated for disconnect of a 400 VDC, 20 amp load.

Saf-D-Grid® also enables greater power density by allowing up to 40A and 600V DC or AC within the same space of the IEC 320 C13 & C14 system that is limited to 10A and 250 VAC. This allows the use of Saf-D-Grid® in AC systems that require more power by increasing the wattage capability within the existing connector space.

### First Mate, Last Break Ground Contact

- Provides the safety of an earthing path before engagement of the power contacts.



### Integral Latch

- Connectors cannot be accidentally unmated, preventing unwanted power loss to critical equipment.



### Hot Plug Rated

- The connectors are rated for current interruption for both electronic (capacitive) and electrical (resistive) loads.

### Touch Safe / Shock Protection

- Minimizes the risk of personal contact with a hazardous voltage. Passes UL & IEC finger probe (plug & receptacle) and 3mm probe tests (receptacle).

### Arcing Protection

- Housings contain the arc if connectors are mated or unmated while under load minimizing risk to personnel.

## | SPECIFICATIONS |

| Mechanical   |                        |
|--|------------------------|
| Contact Retention (lbf) (N)  | 20<br>89               |
| Plug Latch Retention (lbf) (N)   | 20<br>89               |
| Panel Latch Retention (lbf) (N)  | 60<br>267              |
| Durability   | 5,000 cycles - no load |
| Receptacle Max Wire OD (in) (mm)   | 0.22<br>5.6            |
| <b>Creep &amp; Clearance per UL &amp; IEC 60950</b>                                |                        |
| Between live parts of different polarity, earthing circuit and the mating surface. |                        |
| • Short and Flush Receptacle with Crimp Contacts                                   | 8.0 mm                 |
| • Ultra Short Receptacle, Short and Flush Receptacle with Solder or PCB Contacts   | 7.0 mm                 |
| Maximum PCB Thickness <sup>A</sup> (in) (mm)                                       | 0.093<br>2.4           |
| Mechanical Shock <sup>B</sup> IEC 60512-4-6C                                       | 50g's                  |
| Vibration, High Frequency <sup>B</sup> IEC 60512-4-6d                              | 20g's                  |

| Electrical                               |                            |
|--|----------------------------|
| <b>Voltage (AC/DC)</b>                   |                            |
| • UL 1977 / CSA 22.2                     | 600                        |
| • IEC                                    | 400                        |
| <b>Current Rating (Amperes)</b>          | 40                         |
| <b>Wire Range (AWG) (mm<sup>2</sup>)</b> | #12 to #18<br>2.5 to 0.75  |
| <b>Hot Plug Rated</b>                    |                            |
| • 250 cycles                             | 400V @ 440A in-rush        |
| • 250 cycles (UL)                        | 400V @ 20A load            |
| <b>Dielectric Withstanding Voltage</b>   | 3,300                      |
| <b>Operating Temperature (°C) (°F)</b>   | -20° to 80°<br>-4° to 176° |
| <b>Fault Current Withstand</b> UL 467    | 14 AWG, 300A, 4 Sec.       |

| Protection       |      |
|------------------|------|
| IEC 60529        | IP20 |
|                  |      |
|                  |      |
| File No. E26226  |      |
| File No. E343569 |      |

| Materials (RoHS Compliant)      |  |
|---------------------------------|--|
| <b>Housings</b>                 |  |
| • 2006G1 Series Receptacles     | Hi Temp Nylon + 30% GF, UL94 V-0, Halogen Free |
| • All other Receptacles & Plugs | Polycarbonate UL94 V-0                         |
| <b>Springs</b>                  | Stainless Steel                                |
| <b>Contacts</b>                 | Copper, Silver Plate                           |
| <b>Cable / Strain Relief</b>    | Thermoplastic UL94 V-2                         |

<sup>A</sup> Applicable only to receptacles intended for termination to PCB

<sup>B</sup> Tested with straight plug and flush mount receptacle with #14 AWG wire and 2003G1 contacts.

## | TEMPERATURE CHARTS |



## | UL 1977 & IEC 61984 RATINGS |

| Receptacle Series       | Wire Size                             | Conditions of Use | Agency Rating                          | Rated Current Amp | Rated Voltage AC / DC |
|-------------------------|---------------------------------------|-------------------|--|-------------------|-----------------------|
| Flush 2002 & Short 2005 | 18 AWG plug & receptacle              | Disconnect Only   | CNR<br>UL 1977                         | 12<br>18          | 600<br>600            |
|                         |                                       | Current Interrupt | UL 1977                                | 12                | 400                   |
| Flush 2002 & Short 2005 | 16 AWG plug & receptacle              | Disconnect Only   | CNR<br>UL 1977                         | 14<br>18          | 600<br>600            |
|                         |                                       | Current Interrupt | UL 1977                                | 14                | 400                   |
| Flush 2002 & Short 2005 | 1.5 mm <sup>2</sup> plug & receptacle | Disconnect Only   | IEC 61984 <sup>3</sup>                 | 14                | 400                   |
|                         |                                       | Current Interrupt |  |                   |                       |
| Flush 2002 & Short 2005 | 14 AWG plug & receptacle              | Disconnect Only   | IEC 61984 <sup>3</sup>                 | 25                | 400                   |
|                         |                                       | Current Interrupt | UL 1977, CNR<br>IEC 61984 <sup>3</sup> | 20                | 400                   |
| Flush 2002 & Short 2005 | 12 AWG plug & receptacle              | Disconnect Only   | CNR<br>UL 1977                         | 30<br>40          | 600<br>600            |
|                         |                                       | Current Interrupt | UL 1977                                | 30                | 400                   |
| Ultra Short 2006G       | 18 AWG plug & receptacle              | Disconnect Only   | CNR                                    | 13                | 600                   |
|                         |                                       |                   | IEC 61984                              | 13                | 400                   |
|                         |                                       | Current Interrupt | IEC 61984                              | 13                | 400                   |
|                         |                                       |                   | UL 1977, CNR                           | 12                | 400                   |
| Ultra Short 2006G       | 1.5 mm <sup>2</sup> plug & receptacle | Disconnect Only   | IEC 61984                              | 14                | 400                   |
|                         |                                       | Current Interrupt |  |                   |                       |
| Ultra Short 2006G       | 14 AWG plug & receptacle              | Disconnect Only   | CNR                                    | 25                | 600                   |
|                         |                                       |                   | IEC 61984                              | 25                | 400                   |
|                         |                                       |                   | UL 1977                                | 35                | 600                   |
|                         |                                       | Current Interrupt | UL 1977, CNR                           | 20                | 400                   |
|                         |                                       |                   | IEC 61984                              |                   |                       |

<sup>3</sup> Note: No IEC 61984 approvals for 2002N, 2002V, 2005N & 2005V series receptacles.

- UL1977 ratings are for recognized components under UL1977 file# E26226. Ratings may vary once the final listing category is considered. Do not exceed maximum operating temperature of connector or wire insulation. Ratings are based on an ambient temperature of 25°C.
- CNR - indicates investigation to Canadian National Standards, C22.2 No. 182.3.
- UL817 recognized or listed cord sets under UL file number E 343569.
- IEC 61984 certification by TUV certification number R 7212289.
- “Disconnect Only” indicates the devices are not for interrupting current.
- “Current Interrupt” indicates the devices have been investigated for the interruption of current.
- APP assembly tooling is required for UL, CSA & other safety agency compliance. Use of unapproved tooling will void connector warranty.
- CCC Certification to: GB/T11918-2001: Part 1 (idt IEC 60309-1:1999) & GB/T11919-2001: Part 2 (idt IEC 60309-2:1999)
- CCC Certification is only required for connectors which are built to CCC recognized dimensional & performance standards. Saf-D-Grid was voluntarily submitted to CCC under performance only aspects of relevant standards.

## | UL 817 RATINGS |

| Connector Type / Cable Type | Wire Size | Disconnect Only (600V Max) | Current Interrupt (400V Max) |
|-----------------------------|-----------|----------------------------|------------------------------|
| Straight Plug / SOOW 600V   | 14 AWG    | 18                         | 18                           |
|                             | 18 AWG    | 10                         | 10                           |
| Straight Plug / ST 600V     | 16 AWG    | 13                         | 13                           |
|                             | 14 AWG    | 18                         | 18                           |
|                             | 14 AWG    | 18 <sub>1</sub>            | 18 <sub>1</sub>              |
| Straight Plug / SJT 300V    | 14 AWG    | 18 <sub>1</sub>            | 18 <sub>1</sub>              |
| IEC C20 Plug / SJT 250V     | 14 AWG    | 16 <sub>2</sub>            | N/A                          |
| Right Angle Plug / ST 600V  | 18 AWG    | 10                         | 10                           |
|                             | 16 AWG    | 13                         | 13                           |
|                             | 14 AWG    | 18                         | 18                           |
| T-Latch Plug / ST 600V      | 18 AWG    | 10                         | 10                           |
|                             | 16 AWG    | 13                         | 13                           |
|                             | 14 AWG    | 18                         | 18                           |

<sup>1</sup> Note: Voltage limited by wire insulation rating

<sup>2</sup> Note: Voltage limited by the IEC connector on the cord set

## | CCC RATINGS | - Pending

| Receptacle Series | Wire Size AWG                         | Conditions of Use | Rated Current Amp | Rated Voltage AC / DC |
|-------------------|---------------------------------------|-------------------|-------------------|-----------------------|
| Ultra Short 2006G | 2.5 mm <sup>2</sup> plug & receptacle | Current Interrupt | 20                | 400                   |

# | PANEL MOUNT RECEPTACLES | - For Crimp Termination to Wire

## Receptacle Housings Only

| Housing Style & Panel Thickness | Non-Bulk         |           | Bulk             |           |
|---------------------------------|------------------|-----------|------------------|-----------|
|                                 | - Part Numbers - | Std. Pack | - Part Numbers - | Std. Pack |
| <b>Short Depth</b>              |                  |           |                  |           |
| 0.8mm                           | 2005G1           | 1         | 2005G1-BK        | 100       |
| 1.0mm                           | 2005G3           | 1         | 2005G3-BK        | 100       |
| 1.6mm                           | 2005G4           | 1         | 2005G4-BK        | 100       |
| <b>Flush Mount</b>              |                  |           |                  |           |
| 0.8mm                           | 2002G1           | 1         | 2002G1-BK        | 100       |
| 1.0mm                           | 2002G3           | 1         | 2002G3-BK        | 100       |
| 1.2mm                           | 2002G2           | 1         | 2002G2-BK        | 100       |
| 1.6mm                           | 2002G4           | 1         | 2002G4-BK        | 100       |
| 2.0mm                           | 2002G5           | 1         | 2002G5-BK        | 100       |
| 2.5mm                           | 2002G6           | 1         | 2002G6-BK        | 100       |



### Short Receptacle

Mid-flange snap-in panel mount design shortens space required inside the panel. For use with crimp wire contacts.



### Flush Mount Receptacle

Flush snap-in panel mount design is compatible with crimp wire contacts.

## Contacts - #12 to 18 AWG

| Compatible Receptacles | Loose Piece      |           | Reeled           |           |
|------------------------|------------------|-----------|------------------|-----------|
|                        | - Part Numbers - | Std. Pack | - Part Numbers - | Std. Pack |
| Flush Mount            | 2003G1-LPBK      | 1         | 2003G1           | 2,500     |



Crimp Contact

# | TOOLING |

Tooling Available Directly from Anderson Power Products (All Customers)

| Contact Part Number | Description                     | Hand Tool | Automated Tooling              |            |
|---------------------|---------------------------------|-----------|--------------------------------|------------|
|                     |                                 |           | Press                          | Applicator |
| 2003G1              | Receptacle Contact, Reeled      | -         | 115V = TE0101<br>230V = TE0102 | TD0104     |
| 2003G1-LPBK         | Receptacle Contact, Loose Piece | 1309G9    | -                              | -          |



Press



Hand Tool



Applicator

Additional Tooling Available Directly from ATS (North American Customers Only)

| Contact Part Number | Description                | Automated Tooling |          |            |
|---------------------|----------------------------|-------------------|----------|------------|
|                     |                            | Press             | Air Feed | Applicator |
| 2003G1              | Receptacle Contact, Reeled | 354500-1          | 354578-1 | 1852859-3  |

### • Contact ATS Directly to Purchase or Lease Tooling

P.O. Box 6780, Harrisburg, PA 17112 USA  
 T: 877-671-2955 F: 717-810-2862  
[www.applicationtooling.com](http://www.applicationtooling.com)

*NOTE: Tooling recommended by APP is required for UL, CSA & other safety agency compliance. Use of unapproved tooling will void connector warranty.*

NOTE: Shading Indicates Build to Order

## | PANEL MOUNT RECEPTACLES | - For Solder Termination to Wire

### Receptacle Kits (Housing & Contacts)

| Housing           | Termination Type | Panel Thickness | Non-Bulk - Part Numbers - | Std. Pack | Bulk - Part Numbers - | Std. Pack |
|-------------------|------------------|-----------------|---------------------------|-----------|-----------------------|-----------|
| Flush Mount       | Wire, Crimp*     | 0.8mm           | 2002G1KIT                 | 1         | N/A                   | N/A       |
| Flush Mount       | Wire, Crimp*     | 1.0mm           | 2002G3KIT                 | 1         | N/A                   | N/A       |
| Flush Mount       | Wire, Crimp*     | 1.2mm           | 2002G2KIT                 | 1         | N/A                   | N/A       |
| Flush Mount       | Wire, Crimp*     | 1.6mm           | 2002G4KIT                 | 1         | N/A                   | N/A       |
| Flush Mount       | Wire, Solder     | 0.8mm           | 2002N1                    | 1         | 2002N1-BK             | 100       |
| Flush Mount       | Wire, Solder     | 1.0mm           | 2002N3                    | 1         | 2002N3-BK             | 100       |
| Flush Mount       | Wire, Solder     | 1.2mm           | 2002N2                    | 1         | 2002N2-BK             | 100       |
| Flush Mount       | Wire, Solder     | 1.6mm           | 2002N4                    | 1         | 2002N4-BK             | 100       |
| Short Depth       | Wire, Crimp*     | 0.8mm           | 2005G1KIT                 | 1         | N/A                   | N/A       |
| Short Depth       | Wire, Crimp*     | 1.0mm           | 2005G3KIT                 | 1         | N/A                   | N/A       |
| Short Depth       | Wire, Crimp*     | 1.6mm           | 2005G4KIT                 | 1         | N/A                   | N/A       |
| Short Depth       | Wire, Solder     | 0.8mm           | 2005N1                    | 1         | 2005N1-BK             | 100       |
| Short Depth       | Wire, Solder     | 1.0mm           | 2005N3                    | 1         | 2005N3-BK             | 100       |
| Short Depth       | Wire, Solder     | 1.6mm           | 2005N4                    | 1         | 2005N4-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 0.8mm           | 2006G1                    | 1         | 2006G1-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 1.0mm           | 2006G3                    | 1         | 2006G3-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 1.2mm           | 2006G2                    | 1         | 2006G2-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 1.6mm           | 2006G4                    | 1         | 2006G4-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 2.0mm           | 2006G5                    | 1         | 2006G5-BK             | 100       |
| Ultra Short Depth | Wire, Solder     | 2.5mm           | 2006G6                    | 1         | 2006G6-BK             | 100       |



**Ultra Short Receptacle**  
Mid-flange snap in panel mount design for direct solder wire termination uses minimal space inside the panel. Halogen free.



**Short Receptacle**  
Short receptacle housing fully assembled with contacts for direct solder wire termination.



**Flush Mount Receptacle**  
Standard receptacle housing fully assembled with contacts for direct solder wire termination.

\*Includes Contact Part Number 2003G1 Pre-Terminated to 12 inches of #16 AWG, 600V Wire

### Receptacle Housings Only

| Housing Style & Panel Thickness | Non-Bulk - Part Numbers - | Std. Pack | Bulk - Part Numbers - | Std. Pack |
|---------------------------------|---------------------------|-----------|-----------------------|-----------|
| Ultra Short Depth               |                           |           |                       |           |
| 0.8mm                           | 2006G1-NC                 | 1         | 2006G1-NC-BK          | 100       |
| 1.0mm                           | 2006G3-NC                 | 1         | 2006G3-NC-BK          | 100       |
| 1.2mm                           | 2006G2-NC                 | 1         | 2006G2-NC-BK          | 100       |
| 1.6mm                           | 2006G4-NC                 | 1         | 2006G4-NC-BK          | 100       |
| 2.0mm                           | 2006G5-NC                 | 1         | 2006G5-NC-BK          | 100       |
| 2.5mm                           | 2006G6-NC                 | 1         | 2006G6-NC-BK          | 100       |

### Contacts - #14 to 18 AWG

| Compatible Receptacles | Loose Piece - Part Numbers - | Std. Pack | Reeled - Part Numbers - | Std. Pack |
|------------------------|------------------------------|-----------|-------------------------|-----------|
| Ultra Short            | 2016G1-LPBK                  | 1         | -                       | -         |

#### NOTE:

- Ultra short contacts are to be used with ultra short depth housings only, for soldering to stranded copper wire.



Ultra Short Solder Contact

## | PANEL MOUNT RECEPTACLES | - For Solder Termination to PCB

### Receptacle Kits (Housing & Contacts)

| Housing     | Termination Type | Panel Thickness | Non-Bulk - Part Numbers - | Std. Pack | Bulk - Part Numbers - | Std. Pack |
|-------------|------------------|-----------------|---------------------------|-----------|-----------------------|-----------|
| Flush Mount | PCB, Solder      | 0.8mm           | 2002V1                    | 1         | 2002V1-BK             | 100       |
| Flush Mount | PCB, Solder      | 1.0mm           | 2002V3                    | 1         | 2002V3-BK             | 100       |
| Flush Mount | PCB, Solder      | 1.2mm           | 2002V2                    | 1         | 2002V2-BK             | 100       |
| Flush Mount | PCB, Solder      | 1.6mm           | 2002V4                    | 1         | 2002V4-BK             | 100       |
| Short Depth | PCB, Solder      | 0.8mm           | 2005V1                    | 1         | 2005V1-BK             | 100       |
| Short Depth | PCB, Solder      | 1.0mm           | 2005V3                    | 1         | 2005V3-BK             | 100       |
| Short Depth | PCB, Solder      | 1.6mm           | 2005V4                    | 1         | 2005V4-BK             | 100       |



**Short Receptacle**  
Short receptacle housing fully assembled with PCB contacts for 0.062 (1.57 mm) to 0.093 (2.36 mm) inch boards.



**Flush Mount Receptacle**  
Standard receptacle housing fully assembled with PCB contacts for 0.062 (1.57 mm) to 0.093 (2.36 mm) inch boards.

NOTE: Shading Indicates Build to Order

**| DRAWINGS |** - See Product Drawings on the Website for Additional Information



**Panel Cut Out for All Receptacle Types**



**Ultra Short Contact**



**Ultra Short Depth - For Solder Termination to Wire**



**Flush Mount & Short Contact**



**Short Depth - For Crimp Termination to Wire**



**Flush Mount - For Crimp Termination to Wire**



**Flush Mount - For Solder Termination to Wire**



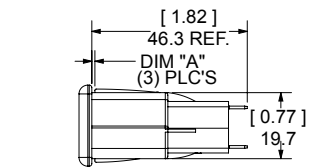
**Flush Mount - For Solder Termination to PCB**



**Short Depth - For Solder Termination to Wire**



**Short Depth - For Solder Termination to PCB**



# | POWER CORDS | - All Plug Types Mate to All Receptacle Types

## Wide "T" Latch Plug

Wide latch release button across the top of the plug body to allow easy latch access around PSU handles or other obstacles.



18 - 14 AWG | 1.0mm<sup>2</sup> - 2.0mm<sup>2</sup>

## Small Latch Plug

Small latch release button in the center top of the plug body.



12 AWG

## Right Angle "T" Latch Plug

Right angle cord over mold to the plug with wide latch button.



## Simplified Power Connection Design



1. The Same Receptacle is Used on Both the Power & Load Sides.
2. The Same Plug is Used on Both Sides of the Power Cord.
3. Both Plug & Receptacle Connectors are Touch Safe.



## | Common Cable Types Used in Saf-D-Grid® Power Cords |

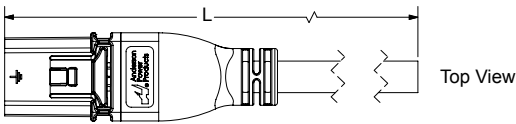
| Cable Type   | Voltage Rating | Approvals | Jacket Material | Conductor Insulation | Conductor Insulation Coloring | Notes   |
|--------------|----------------|-----------|-----------------|----------------------|-------------------------------|---|
| SJT          | 300V           | UL, CSA   | PVC             | PVC                  | Black, White, Green           | North American Junior Hard Service, Suitable for Medium Duties in Office or Home, Not Outdoor Rated |
| ST           | 600V           | UL, CSA   | PVC             | PVC                  | Black, White, Green           | North American Hard Service, Suitable for Medium Duties in Office or Home, Not Outdoor Rated        |
| SOOW         | 600V           | UL, CSA   | Rubber          | Rubber               | Black, White, Green           | North American Extra Hard Service, Outdoor Rated, Oil Resistant                                     |
| HVCT         | 600V           | PSE       | PVC             | PVC                  | Black, White, Green           | Japanese, JIS C 3312, Suitable for Medium Duties in Office or Home, Not Outdoor Rated               |
| H05VVF       | 300/500V       | IEC       | PVC             | PVC                  | Blue, Brown, Green/Yellow     | International Harmonized, Suitable for Medium Duties in Office or Home, Not Outdoor Rated           |
| 60245 IEC 57 | 300/500V       | CCC       | Rubber          | Rubber               | Blue, Brown, Green/Yellow     | Suitable for Low Mechanical Stress Open Air Environment   |

NOTE: Reference the plug cordset drawings for exact information on the cable used. Some of the above cables may be for special order use only. Plug cordsets that are available with short lead times are shown in the part number charts of this catalog without a shaded background. Additional cable types may be available on request. Contact customer service.

## Single-Ended "T" Latch Plug Power Cord

| Length |       | Description   | UL 817 | TUV | CCC * | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|---|--------|-----|-------|------------------|------|------------------|------|
| M      | FT    |   |        |     |       | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 12 AWG ST UL 600V 90C                               |        |     |       | 2034KZ2          | 1    | 2034KZ2-BK       | 20   |
| 3.0    | 9.84  | 12 AWG ST UL 600V 90C                               |        |     |       | 2034KZ3          | 1    | 2034KZ3-BK       | 13   |
| 6.0    | 19.68 | 12 AWG ST UL 600V 90C                               |        |     |       | 2034KZ6          | 1    | 2034KZ6-BK       | 7    |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KZ2          | 1    | 2031KZ2-BK       | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KZ3          | 1    | 2031KZ3-BK       | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KZ6          | 1    | 2031KZ6-BK       | 6    |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KZ2          | 1    | 2036KZ2-BK       | 50   |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KZ3          | 1    | 2036KZ3-BK       | 30   |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KZ6          | 1    | 2036KZ6-BK       | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KZ2          | 1    | 2033KZ2-BK       | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KZ3          | 1    | 2033KZ3-BK       | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KZ6          | 1    | 2033KZ6-BK       | 6    |
| 2.0    | 6.56  | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KZ2          | 1    | 2043KZ2-BK       | 50   |
| 3.0    | 9.84  | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KZ3          | 1    | 2043KZ3-BK       | 30   |
| 6.0    | 19.68 | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KZ6          | 1    | 2043KZ6-BK       | 6    |
| 2.0    | 6.56  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KZ2          | 1    | 2047KZ2-BK       | 50   |
| 3.0    | 9.84  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KZ3          | 1    | 2047KZ3-BK       | 30   |
| 6.0    | 19.68 | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KZ6          | 1    | 2047KZ6-BK       | 6    |
| 2.0    | 6.56  | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KZ2          | 1    | 2045KZ2-BK       | 50   |
| 3.0    | 9.84  | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KZ3          | 1    | 2045KZ3-BK       | 30   |
| 6.0    | 19.68 | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KZ6          | 1    | 2045KZ6-BK       | 6    |
| 2.0    | 6.56  | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KZ2          | 1    | 2023KZ2-BK       | 50   |
| 3.0    | 9.84  | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KZ3          | 1    | 2023KZ3-BK       | 30   |
| 6.0    | 19.68 | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KZ6          | 1    | 2023KZ6-BK       | 6    |
| 2.0    | 6.56  | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KZ2          | 1    | 2025KZ2-BK       | 50   |
| 3.0    | 9.84  | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KZ3          | 1    | 2025KZ3-BK       | 30   |
| 6.0    | 19.68 | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KZ6          | 1    | 2025KZ6-BK       | 6    |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KZ2          | 1    | 2021KZ2-BK       | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KZ3          | 1    | 2021KZ3-BK       | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KZ6          | 1    | 2021KZ6-BK       | 6    |

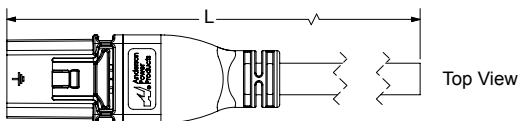
\* CCC Pending



Single Ended Plug Assembly

## Single-Ended Small Latch Plug Power Cord

| Length |       | Description                                | UL 817 | TUV | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|--|--------|-----|------------------|------|------------------|------|
| M      | FT    |  |        |     | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 12 AWG ST UL 600V 90C                      |        |     | 2034G2           | 1    | 2034G2-BK        | 20   |
| 3.0    | 9.84  | 12 AWG ST UL 600V 90C                      |        |     | 2034G3           | 1    | 2034G3-BK        | 13   |
| 6.0    | 19.68 | 12 AWG ST UL 600V 90C                      |        |     | 2034G6           | 1    | 2034G6-BK        | 7    |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                      | •      | •   | 2030G2           | 1    | 2030G2-BK        | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                      | •      | •   | 2030G3           | 1    | 2030G3-BK        | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                      | •      | •   | 2030G6           | 1    | 2030G6-BK        | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                      | •      | •   | 2032G2           | 1    | 2032G2-BK        | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                      | •      | •   | 2032G3           | 1    | 2032G3-BK        | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                      | •      | •   | 2032G6           | 1    | 2032G6-BK        | 6    |
| 2.0    | 6.56  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2040G2           | 1    | 2040G2-BK        | 50   |
| 3.0    | 9.84  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2040G3           | 1    | 2040G3-BK        | 30   |
| 6.0    | 19.68 | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2040G6           | 1    | 2040G6-BK        | 6    |
| 1.5    | 4.92  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2020G1           | 1    | 2020G1-BK        | 50   |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2020G2           | 1    | 2020G2-BK        | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2020G3           | 1    | 2020G3-BK        | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2020G6           | 1    | 2020G6-BK        | 6    |



Single Ended Plug Assembly

NOTE: Shading Indicates Build to Order



### Single-Ended Right Angle “T” Latch Plug Power Cord

| Length |       | Description                           | UL 817 | TUV | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|---------------------------------------|--------|-----|------------------|------|------------------|------|
| M      | FT    |                                       |        |     | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LZ2          | 1    | 2031LZ2-BK       | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LZ3          | 1    | 2031LZ3-BK       | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LZ6          | 1    | 2031LZ6-BK       | 6    |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                 | •      | •   | 2036LZ2          | 1    | 2036LZ2-BK       | 50   |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                 | •      | •   | 2036LZ3          | 1    | 2036LZ3-BK       | 30   |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                 | •      | •   | 2036LZ6          | 1    | 2036LZ6-BK       | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                 | •      | •   | 2033LZ2          | 1    | 2033LZ2-BK       | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                 | •      | •   | 2033LZ3          | 1    | 2033LZ3-BK       | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                 | •      | •   | 2033LZ6          | 1    | 2033LZ6-BK       | 6    |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LZ2          | 1    | 2021LZ2-BK       | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LZ3          | 1    | 2021LZ3-BK       | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LZ6          | 1    | 2021LZ6-BK       | 6    |



### Double-Ended “T” Latch Plug Power Cord

| Length |       | Description   | UL 817 | TUV | CCC * | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|---|--------|-----|-------|------------------|------|------------------|------|
| M      | FT    |   |        |     |       | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 12 AWG ST UL 600V 90C                               |        |     |       | 2035KK2          | 1    | 2035KK2-BK       | 20   |
| 3.0    | 9.84  | 12 AWG ST UL 600V 90C                               |        |     |       | 2035KK3          | 1    | 2035KK3-BK       | 13   |
| 6.0    | 19.68 | 12 AWG ST UL 600V 90C                               |        |     |       | 2035KK6          | 1    | 2035KK6-BK       | 7    |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KK2          | 1    | 2031KK2-BK       | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KK3          | 1    | 2031KK3-BK       | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                               | •      | •   |       | 2031KK6          | 1    | 2031KK6-BK       | 6    |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KK2          | 1    | 2036KK2-BK       | 50   |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KK3          | 1    | 2036KK3-BK       | 30   |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                               | •      | •   |       | 2036KK6          | 1    | 2036KK6-BK       | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KK2          | 1    | 2033KK2-BK       | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KK3          | 1    | 2033KK3-BK       | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                               | •      | •   |       | 2033KK6          | 1    | 2033KK6-BK       | 6    |
| 2.0    | 6.56  | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KK2          | 1    | 2043KK2-BK       | 50   |
| 3.0    | 9.84  | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KK3          | 1    | 2043KK3-BK       | 30   |
| 6.0    | 19.68 | 1.0 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        |     |       | 2043KK6          | 1    | 2043KK6-BK       | 6    |
| 2.0    | 6.56  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KK2          | 1    | 2047KK2-BK       | 50   |
| 3.0    | 9.84  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KK3          | 1    | 2047KK3-BK       | 30   |
| 6.0    | 19.68 | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C          |        | •   |       | 2047KK6          | 1    | 2047KK6-BK       | 6    |
| 2.0    | 6.56  | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KK2          | 1    | 2045KK2-BK       | 50   |
| 3.0    | 9.84  | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KK3          | 1    | 2045KK3-BK       | 30   |
| 6.0    | 19.68 | 2.5 mm <sup>2</sup> 60245 IEC 57 / CCC 500/300V 60C |        |     | •     | 2045KK6          | 1    | 2045KK6-BK       | 6    |
| 2.0    | 6.56  | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KK2          | 1    | 2023KK2-BK       | 50   |
| 3.0    | 9.84  | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KK3          | 1    | 2023KK3-BK       | 30   |
| 6.0    | 19.68 | 1.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2023KK6          | 1    | 2023KK6-BK       | 6    |
| 2.0    | 6.56  | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KK2          | 1    | 2025KK2-BK       | 50   |
| 3.0    | 9.84  | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KK3          | 1    | 2025KK3-BK       | 30   |
| 6.0    | 19.68 | 1.25 mm <sup>2</sup> HVCT PSE 600V 75C              |        |     |       | 2025KK6          | 1    | 2025KK6-BK       | 6    |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KK2          | 1    | 2021KK2-BK       | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KK3          | 1    | 2021KK3-BK       | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C               |        |     |       | 2021KK6          | 1    | 2021KK6-BK       | 6    |

\* CCC Pending



NOTE: Shading Indicates Build to Order

### Double-Ended Small Latch Plug Power Cord

| Length |       | Description                                | UL 817 | TUV | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|--|--------|-----|------------------|------|------------------|------|
| M      | FT    |  |        |     | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 12 AWG ST UL 600V 90C                      |        |     | 2035G2           | 1    | 2035G2-BK        | 20   |
| 3.0    | 9.84  | 12 AWG ST UL 600V 90C                      |        |     | 2035G3           | 1    | 2035G3-BK        | 13   |
| 6.0    | 19.68 | 12 AWG ST UL 600V 90C                      |        |     | 2035G6           | 1    | 2035G6-BK        | 7    |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                      | •      | •   | 2031G2           | 1    | 2031G2-BK        | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                      | •      | •   | 2031G3           | 1    | 2031G3-BK        | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                      | •      | •   | 2031G6           | 1    | 2031G6-BK        | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                      | •      | •   | 2033G2           | 1    | 2033G2-BK        | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                      | •      | •   | 2033G3           | 1    | 2033G3-BK        | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                      | •      | •   | 2033G6           | 1    | 2033G6-BK        | 6    |
| 2.0    | 6.56  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2041G2           | 1    | 2041G2-BK        | 50   |
| 3.0    | 9.84  | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2041G3           | 1    | 2041G3-BK        | 30   |
| 6.0    | 19.68 | 1.5 mm <sup>2</sup> H05VVF CE 500/300V 75C |        | •   | 2041G6           | 1    | 2041G6-BK        | 6    |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2021G2           | 1    | 2021G2-BK        | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2021G3           | 1    | 2021G3-BK        | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C      |        |     | 2021G6           | 1    | 2021G6-BK        | 6    |



### Double-Ended “T” Latch / IEC C20 Power Cord

| Length |       | Description             | UL 817 | TUV* | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|-------------------------|--------|------|------------------|------|------------------|------|
| M      | FT    |                         |        |      | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 14 AWG SJT UL 250V 105C | •      | •    | 2052KH2          | 1    | 2052KH2-BK       | 50   |
| 3.0    | 9.84  | 14 AWG SJT UL 250V 105C | •      | •    | 2052KH3          | 1    | 2052KH3-BK       | 30   |
| 6.0    | 19.68 | 14 AWG SJT UL 250V 105C | •      | •    | 2052KH6          | 1    | 2052KH6-BK       | 6    |

\* TUV applies only to Saf-D-Grid® connector side.



### Double-Ended Right Angle “T” Latch / Straight “T” Latch Plug Power Cord

| Length |       | Description                           | UL 817 | TUV | Non-Bulk         | Std. | Bulk             | Std. |
|--------|-------|---------------------------------------|--------|-----|------------------|------|------------------|------|
| M      | FT    |                                       |        |     | - Part Numbers - | Pack | - Part Numbers - | Pack |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031KL2          | 1    | 2031KL2-BK       | 50   |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031KL3          | 1    | 2031KL3-BK       | 30   |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                 | •      | •   | 2031KL6          | 1    | 2031KL6-BK       | 6    |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                 | •      |     | 2036KL2          | 1    | 2036KL2-BK       | 50   |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                 | •      |     | 2036KL3          | 1    | 2036KL3-BK       | 30   |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                 | •      |     | 2036KL6          | 1    | 2036KL6-BK       | 6    |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                 | •      |     | 2033KL2          | 1    | 2033KL2-BK       | 50   |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                 | •      |     | 2033KL3          | 1    | 2033KL3-BK       | 30   |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                 | •      |     | 2033KL6          | 1    | 2033KL3-BK       | 6    |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021KL2          | 1    | 2021KL2-BK       | 50   |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021KL3          | 1    | 2021KL3-BK       | 30   |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021KL6          | 1    | 2021KL6-BK       | 6    |



NOTE: Shading Indicates Build to Order

### Double-Ended Right Angle "T" Latch / Right Angle "T" Latch Power Cord

| Length |       | Description                           | UL 817 | TUV | Non-Bulk<br>- Part Numbers - | Std.<br>Pack | Bulk<br>- Part Numbers - | Std.<br>Pack |
|--------|-------|---------------------------------------|--------|-----|------------------------------|--------------|--------------------------|--------------|
| M      | FT    |                                       |        |     |                              |              |                          |              |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LL2                      | 1            | 2031LL2-BK               | 50           |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LL3                      | 1            | 2031LL3-BK               | 30           |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LL6                      | 1            | 2031LL6-BK               | 6            |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                 | •      |     | 2036LL2                      | 1            | 2036LL2-BK               | 50           |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                 | •      |     | 2036LL3                      | 1            | 2036LL3-BK               | 30           |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                 | •      |     | 2036LL6                      | 1            | 2036LL6-BK               | 6            |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                 | •      |     | 2033LL2                      | 1            | 2033LL2-BK               | 50           |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                 | •      |     | 2033LL3                      | 1            | 2033LL3-BK               | 30           |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                 | •      |     | 2033LL6                      | 1            | 2033LL6-BK               | 6            |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LL2                      | 1            | 2021LL2-BK               | 50           |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LL3                      | 1            | 2021LL3-BK               | 30           |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LL6                      | 1            | 2021LL6-BK               | 6            |



### Double-Ended Right Angle "T" Latch / Left Angle "T" Latch Power Cord

| Length |       | Description                           | UL 817 | TUV | Non-Bulk<br>- Part Numbers - | Std.<br>Pack | Bulk<br>- Part Numbers - | Std.<br>Pack |
|--------|-------|---------------------------------------|--------|-----|------------------------------|--------------|--------------------------|--------------|
| M      | FT    |                                       |        |     |                              |              |                          |              |
| 2.0    | 6.56  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LM2                      | 1            | 2031LM2-BK               | 50           |
| 3.0    | 9.84  | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LM3                      | 1            | 2031LM3-BK               | 30           |
| 6.0    | 19.68 | 14 AWG ST UL 600V 90C                 | •      | •   | 2031LM6                      | 1            | 2031LM6-BK               | 6            |
| 2.0    | 6.56  | 16 AWG ST UL 600V 90C                 | •      |     | 2036LM2                      | 1            | 2036LM2-BK               | 50           |
| 3.0    | 9.84  | 16 AWG ST UL 600V 90C                 | •      |     | 2036LM3                      | 1            | 2036LM3-BK               | 30           |
| 6.0    | 19.68 | 16 AWG ST UL 600V 90C                 | •      |     | 2036LM6                      | 1            | 2036LM6-BK               | 6            |
| 2.0    | 6.56  | 18 AWG ST UL 600V 90C                 | •      |     | 2033LM2                      | 1            | 2033LM2-BK               | 50           |
| 3.0    | 9.84  | 18 AWG ST UL 600V 90C                 | •      |     | 2033LM3                      | 1            | 2033LM3-BK               | 30           |
| 6.0    | 19.68 | 18 AWG ST UL 600V 90C                 | •      |     | 2033LM6                      | 1            | 2033LM6-BK               | 6            |
| 2.0    | 6.56  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LM2                      | 1            | 2021LM2-BK               | 50           |
| 3.0    | 9.84  | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LM3                      | 1            | 2021LM3-BK               | 30           |
| 6.0    | 19.68 | 2.0 mm <sup>2</sup> HVCT PSE 600V 75C |        |     | 2021LM6                      | 1            | 2021LM6-BK               | 6            |



NOTE: Shading Indicates Build to Order

# DC Electrical Power Distribution Systems

## DC Efficiency

DC electrical distribution systems have a basic advantage over AC systems. By eliminating AC to DC conversions a DC distribution system is simpler than an AC system. With less electrical and electronic devices, a DC system can be designed with lower electrical losses and higher reliability. These advantages are further multiplied for systems having DC energy storage for backup power or peak shaving, or a local DC energy source such as photovoltaic cells, wind turbines or fuel cells.

## Standardization

APP® has been a leader in the development of system and product safety standards for low voltage DC. We are active on key product and safety committees within the EMerge Alliance®, NEMA and the IEC.

Saf-D-Grid® meets or exceeds all relevant industry safety standards. The product has also been successfully tested to new product safety standards under consideration for adoption.

On September 26, 2012 the Emerge Alliance® board of directors ratified the Emerge Standard for DC Power Distribution Systems (DC-PDS) in Data & Telecom Centers (DTC). Within the Standard, the APP® Saf-D-Grid® connector system is designated as the interconnection of choice for power strip, power cord and device inlet power connections.

## DC Arcing

AC system voltage phases cause the voltage to pass through zero at some point during the disconnection sequence. This zero crossing significantly reduces the damage to a contact system from an AC arc. DC arcing is more destructive to contact systems due to the lack of phasing to a zero voltage point. The APP® Saf-D-Grid® connector overcame this technical challenge by using adequate contact mass, arc reducing geometry, and a sacrificial contact tip. Saf-D-Grid® has undamaged electrical contact surfaces after 250 DC arcing cycles.

## DC Safety

There is near global acceptance that 380V is the most practical voltage for low voltage DC distribution systems. By using a center-point ground, a +/- 190 volt DC distribution system can be constructed which has lower risk of electrocution than the 200-250 VAC systems installed throughout the world. The system can additionally be made safe by using connectors such as Saf-D-Grid®, which meet IEC and UL finger probe requirements for touch safety and have a latching system to avoid accidental disconnection. Saf-D-Grid® also has adequate voltage isolation to contain arcing from disconnection within the insulating housings. Video of the disconnection of APP® Saf-D-Grid® connectors under load shows extinguishing of the internal arc well in advance of the connector separation and potential exposure to the user.



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#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

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