

SB® 50 CONNECTOR SPECIFICATIONS

ELECTRICAL

| Current Rating Amperes ¹ | UL 1977 | CSA |
|-------------------------------------|---------|-----|
| Wire-to-Wire UL 1977 (6 AWG) | 120 | 50 |
| Wire-to-PCB UL 1977 (6 AWG) | 50 | |

Voltage Rating AC/DC

| | |
|---------|-----|
| UL 1977 | 600 |
|---------|-----|

PCB Connector Recommended Voltage per IEC 60950-1 Table 2L Pollution Degree ²

| | |
|---------------------|-----|
| Mini Vert. Contact | 522 |
| Mini Horiz. Contact | 504 |
| Standard Contact | 950 |

Dielectric Withstanding Voltage

| | |
|----------|-------|
| Volts AC | 2,200 |
|----------|-------|

Avg. Mated Contact Resistance Milliohms ¹

| | |
|----------------------|-------|
| 1 1/4" of 6 AWG wire | 0.200 |
| PCB Contact to Wire | 0.500 |

UL Hot Plug Current Rating Amperes - 250 Cycles at 120V DC

| | |
|--|-----|
| Wire to Wire | 50A |
| PCB to Wire (Vertical Mini Powerclaw) | 40A |

MATERIALS

Housing

| | |
|--------------------------|---------------------------|
| Standard Plastic Resin | Polycarbonate |
| Chem. Resistant Resin | Polycarbonate / PBT blend |
| Contact Retention Spring | Stainless Steel |

Housing Flammability Rating

| | |
|-----------|-----------------------------|
| UL94 | V-0 |
| Glow Wire | 960°C (GWFI) / 800°C (GWIT) |

Contact

| | |
|--------------|------------------|
| Base | Copper Alloy |
| Wire Plating | Silver |
| PCB Plating | Sn or Ag over Ni |

Contact Termination Methods

| | |
|--------------------|-----------------------|
| Crimp ³ | Wire Contacts |
| Hand Solder | Wire and PCB Contacts |
| Solder Dip | PCB Contacts |
| Wave Solder | PCB Contacts |
| Wrench / Socket | Busbar Contacts |

NOTE 1: See IEC 60664-1 for working voltage.

NOTE 2: Amp ratings are stated per position and based on all positions being fully loaded.

1 - Based on: 105°C rated or better cable of the largest size. Properly calibrated APP® recommended tooling, and a 25°C ambient temperature. UL rating not to exceed the maximum operating temperature. CSA rating below a 30°C temperature rise.

2 - Limited by the thermal properties of the connector plastic housing.

3 - Use APP® recommended tooling only. Alternate tools may adversely affect the performance of our connectors along with UL and CSA recognition.

4 - Tested with contact part number 5900.

* UL Rated for 65°C largest wire or cable size.

MECHANICAL

| Wire Size Range | AWG | mm ² |
|-----------------------------|---------|-----------------|
| Wire Contacts with Bushings | 16 to 6 | 1.3 to 13.3 |

| Max. Wire Insulation Diameter | in. | mm |
|-------------------------------|-------|--------|
| | 0.440 | 11.200 |

| Operating Temperature ² | °F | °C |
|------------------------------------|-------------|--------------|
| Standard | -4° to 221° | -20° to 105° |
| Chemical Resistant* | -40 to 221° | -40° to 105° |

*Chemical resistant material not available for PCB guide housings

| Mating Cycles No Load by Plating | Silver (Ag) | Tin (Sn) |
|----------------------------------|-------------|----------|
| Wire and PCB Contacts | 10,000 | 1,500 |

| Avg. Mating / Unmating Force | Lbf. | N |
|----------------------------------|------|----|
| Wire to Wire Low Force Contacts | 10 | 44 |
| Wire to Wire High Force Contacts | 15 | 67 |
| Standard Powerclaw to Wire | 15 | 66 |
| Mini Powerclaw to Wire | 8 | 36 |

PCB Specifications

| | |
|-----------------------------|--|
| Mounting Style | Plated Through Hole |
| Max PCB Thickness- in. (mm) | Standard: 0.15 (0.381) Mini: 0.25 (0.635) |
| Recommended Traces | 8 AWG Cross Section |

| Min. Contact / Spring Retention Force | Lbf. | N |
|---------------------------------------|------|-----|
| Wire Housing | 50 | 222 |

| Min. Creepage / Clearance Distance | in. | mm |
|------------------------------------|-------|-----|
| Standard Powerclaw | 0.374 | 9.5 |
| Mini Vert. Powerclaw | 0.213 | 5.4 |
| Mini Horiz. Powerclaw | 0.205 | 5.2 |

Mechanical Shock ⁴

| | | |
|-------------|-----------------|-------|
| MIL-STD-202 | 213 Condition A | 50g's |
|-------------|-----------------|-------|

Vibration High Frequency ⁴

| | | |
|-------------|-----------------|-------|
| MIL-STD-202 | 204 Condition A | 10g's |
|-------------|-----------------|-------|

