Embedded Power for Business-Critical Continuity

**DS450DC-3**
**DS550DC-3**

450 - 550 Watts
Distributed Power System

Distributed Power Bulk Front-End
**Total Output Power:** 450 - 550 Watts
+12 Vdc main Output
+3.3 Vdc Stand-by Output
DC Input 36 - 75 Vdc

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**Special Features**

- 1U X 2U Form Factor
- 10.3 W / in³ (DS550)
- 8.4 W / in³ (DS450)
- +12 Vdc Output
- +3.3 Vdc Stand-By
- No Minimum Load Required
- Hot Plug Operation
- N + 1 Redundant
- Internal OR’ing Fets
- Active Current Sharing
- Built-in Cooling Fans (40 mm x 28 mm)
- I²C Communication Interface Bus
- EEPROM for FRU Data
- Amber LED Status, Fan_Fail
- Green LED Status, Power Good / DC_OK Status (VIN_GOOD)
- Internal Fan Speed Control
- Fan Fail Tach Output Signal
- One Year Warranty

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**Electrical Specifications**

**Input**

- **Input range:** 36 - 75 Vdc
- **Frequency:** DC input
- **Inrush current:** 21 A maximum
- **Efficiency:** EVT: 87% @ 72 Vdc; 87.4% @ 75 Vdc
- **Conducted EMI:** FCC Subpart J EN55022 Class A
- **Radiated EMI:** FCC Subpart J EN55022 Class A
- **Power factor:** N/A
- **Leakage current:** N/A No touch current required.
- **Hold up time:** 1 ms minimum

**Output**

- **Main DC voltage:** +12 V
- **Stand-By:** +3.3 Vsb
- **Adjustment range:** Factory Set, no pot adjustments
- **Regulation:** +12 Vdc; +5%/-5%
- **Over current:** See Table 1 next page
- **Over voltage:** +12 Vdc; 13.5 - 15 Vdc
- **Under voltage:** +12 Vdc; 10.5 V - 11.0 V
- **Turn-on delay:** < 3 seconds, EVT: 2 seconds
- **+12 V Output Rise Time:** 3 - 300 mS

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**Safety**

- UL/cUL 60950 (UL Recognized)
- NEMKO+ CB Report EN60950
- EN60950
- CE Mark
- China CCC

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**Connector input shown**

**DC Input**
### Logic Control

**PS_ON/L:** (Power supply enable)
- **HIGH = Output V1 OFF**
- **LOW = Output V1 ON**

**VINGOOD/H** (Input OK):
- Active High signal asserted when the input voltage rises above the min input voltage specified.
- This signal is internally pulled up through 4.7 K ohms to the 3.3 V housekeeping voltage.

**POK/H** (Output OK):
- Active High signal asserted when the output is within regulation. This signal is internally pulled up through 1.0 K ohms to the 3.3 V housekeeping voltage.

**TACH_1:**
- This open collector signal generates two pulses per each fan revolution. This signal is eternally pulled up to the housekeeping voltage.

**PS_KILL:**
- This signal will cause the output to shut down when drive high (> 24 V) or left floating. The PS_KILL will cause the output to latch off and requires recycle of PS_ON or DC input to reset.

### Digital Control:
- PMBus - I²C compliant

### Environmental Specifications

- **Operating temperature:** -10 °C to 50 °C
- **Storage temperature:** -40 °C to +70 °C
- **Altitude, operating:** 10,000 ft.
- **Electromagnetic susceptibility / Input transients:**
  - EN61000-3-2, -3-3
  - EN61000-4-2, 4.3, 4-4, -4-5, 4-11 Level
  - EN55024:1998
- **RoHS & lead-free compliant (no tantalum caps.)**
- **Humidity:** 20 to 90% RH, non-condensing
- **Shock and vibration specifications:** complies with Astec Std. Specifications, Q3205
- **MTBF (observed):** 500K Hrs at 80%, 40 °C

### Ordering Information

<table>
<thead>
<tr>
<th>Output</th>
<th>Nominal Output Voltage</th>
<th>Set Point Tolerance</th>
<th>Total Regulation</th>
<th>Minimum Current</th>
<th>Maximum Current</th>
<th>Output Ripple P/P</th>
<th>Over Current Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS450DC-3</td>
<td>12.0 Vdc 3.3 Vsb</td>
<td>± 0.2% ± 1%</td>
<td>+5 / -3% +5 / -4%</td>
<td>0 A 0 A</td>
<td>37.0 A 3.0 A</td>
<td>120 mV 60 mV</td>
<td>39.5 - 44.4% 4.9 A Avg, 7 A max</td>
</tr>
<tr>
<td>DS450DC-3-002</td>
<td>12.0 Vdc 3.3 Vsb</td>
<td>± 0.2% ± 1%</td>
<td>+5 / -3% +5 / -4%</td>
<td>0 A 0 A</td>
<td>37.0 A 3.0 A</td>
<td>120 mV 60 mV</td>
<td>39.5 - 44.4% 4.9 A Avg, 7 A max</td>
</tr>
<tr>
<td>DS550DC-3</td>
<td>12.0 Vdc 3.3 Vsb</td>
<td>± 0.2% ± 1%</td>
<td>+5 / -3% +5 / -4%</td>
<td>0 A 0 A</td>
<td>45.0 A 3.0 A</td>
<td>120 mV 60 mV</td>
<td>48.0A - 54.0A 4.9 A Avg, 7 A max</td>
</tr>
<tr>
<td>DS550DC-3-003</td>
<td>12.0 Vdc 3.3 Vsb</td>
<td>± 0.2% ± 1%</td>
<td>+5 / -3% +5 / -4%</td>
<td>0 A 0 A</td>
<td>45.0 A 3.0 A</td>
<td>120 mV 60 mV</td>
<td>48.0A - 54.0A 4.9 A Avg, 7 A max</td>
</tr>
</tbody>
</table>

*Over current latches off if overcurrent lasts over 1 second, otherwise it is auto recovery.

*For 5 Vsb, consult marketing.*
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### DC Output Connector Pinout Assignment

Male connector as viewed from the rear of the supply:

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB1</td>
<td>+12 V Return</td>
</tr>
<tr>
<td>PB2</td>
<td>+12 V Return</td>
</tr>
<tr>
<td>PB3</td>
<td>+12 V Return</td>
</tr>
<tr>
<td>PB4</td>
<td>+12 V</td>
</tr>
<tr>
<td>PB5</td>
<td>+12 V</td>
</tr>
<tr>
<td>PB6</td>
<td>+12 V</td>
</tr>
<tr>
<td>A1</td>
<td>PS_KILL</td>
</tr>
<tr>
<td>A2</td>
<td>+12 V_Current Share</td>
</tr>
<tr>
<td>A3</td>
<td>Return</td>
</tr>
<tr>
<td>A4</td>
<td>Write Protect</td>
</tr>
<tr>
<td>A5</td>
<td>PS A0</td>
</tr>
<tr>
<td>A6</td>
<td>+3.3 V SB</td>
</tr>
<tr>
<td>B1</td>
<td>Return</td>
</tr>
<tr>
<td>B2</td>
<td>12 V RTN Sense</td>
</tr>
<tr>
<td>B3</td>
<td>Return</td>
</tr>
<tr>
<td>B4</td>
<td>+3.3 V SB</td>
</tr>
<tr>
<td>B5</td>
<td>SDA</td>
</tr>
<tr>
<td>B6</td>
<td>-PS_ON/L</td>
</tr>
<tr>
<td>C1</td>
<td>Return</td>
</tr>
<tr>
<td>C2</td>
<td>Tach_1</td>
</tr>
<tr>
<td>C3</td>
<td>Return</td>
</tr>
<tr>
<td>C4</td>
<td>+3.3 V SB</td>
</tr>
<tr>
<td>C5</td>
<td>SCL*</td>
</tr>
<tr>
<td>C6</td>
<td>VIN_GOOD/H</td>
</tr>
<tr>
<td>D1</td>
<td>-Present/L</td>
</tr>
<tr>
<td>D2</td>
<td>+12 V Sense</td>
</tr>
<tr>
<td>D3</td>
<td>Return</td>
</tr>
<tr>
<td>D4</td>
<td>+3.3 V SB</td>
</tr>
<tr>
<td>D5</td>
<td>Alert/L (S_INT)</td>
</tr>
<tr>
<td>D6</td>
<td>POK/H (PWROK/H)</td>
</tr>
</tbody>
</table>

*Supports I²C standard mode (100 kHz) only

### P1 - Power Supply Side

1. FCI Power Blade 51721 series 51721-10002406AA

2. Molex Power Connector SD-87667 series 87667-7002

Mating Connector (System Side)

1. FCI Power Blade 51741-10002406CC Straight Pins

2. FCI Power Blade 51761-10002406AA Right Angle

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