



FEATURES

- 850W output power
- Climate Savers Computing InitiativesSM and 80 PLUS^R Gold efficiency
- 12V main output
- 3.3V or 5V standby output of 20W
- 1U sized; dimensions 3.20"x11.00"x1.57"
- 15.4 Watts per cubic inch density
- N+1 redundancy capable, including hot plugging (up to 4 in parallel)
- Active current sharing on 12V main output; ORing FET
- Overvoltage, overcurrent, overtemperature protection
- Internal cooling fan (variable speed)
- PMbus / I²C interface
- RoHS compliant

PRODUCT OVERVIEW

The D1U3CS-W-850-12-HxxC series are 80 PLUS Gold efficiency 850 watt, power factor corrected front end supplies with a 12V main output and a 5V or 3.3V (20W) standby. They have active current sharing and up to 4 supplies may be operated in parallel. The supplies may be hot plugged, they recover from overtemperature faults, and have logic and PMBus status signals. Their low profile 1U package and >15W/cubic inch power density make them ideal for delivering reliable, efficient power to servers, workstations, storage systems and other 12V distributed power systems.

ORDERING GUIDE

| Part Number | Power Output | Main Output | Standby Output | Airflow |
|------------------------|--------------|-------------|----------------|---------------|
| D1U3CS-W-850-12-HC4C | 850W | 12V | 3.3V | Back to front |
| * D1U3CS-W-850-12-HA4C | 850W | 12V | 5V | Back to front |
| * D1U3CS-W-850-12-HC3C | 850W | 12V | 3.3V | Front to back |
| * D1U3CS-W-850-12-HA3C | 850W | 12V | 5V | Front to back |

INPUT CHARACTERISTICS

| Parameter | Conditions | Min. | Nom. | Max. | Units |
|--|---------------------------------|------|---------|------|-------|
| Voltage Operating Range | | 90 | 115/230 | 264 | Vac |
| Frequency | | 47 | 50/60 | 63 | Hz |
| Turn-on Voltage | Ramp up | | | 90 | Vac |
| Turn-off Voltage | Ramp down | | 73 | | |
| Maximum Current | 850W, 100Vac | | | 10 | Arms |
| Inrush Current | Cold start between 0 to 200msec | | | 25 | Apk |
| Power Factor | At 230Vac, full load | | 0.98 | | |
| Efficiency (230Vac) excluding fan load | 20% load | 88 | 89 | | % |
| | 50% load | 92 | 93.5 | | |
| | 100% load | 88 | 93 | | |

OUTPUT VOLTAGE CHARACTERISTICS

| Output Voltage | Parameter | Conditions | Min. | Typ. | Max. | Units |
|----------------|-------------------------------------|-----------------|-------|------|-------|--------|
| 12V | Voltage Set Point Accuracy | 50% load | 11.97 | 12.0 | 12.02 | Vdc |
| | Line and Load Regulation | | 11.4 | | 12.6 | |
| | Ripple Voltage & Noise ¹ | 20MHz Bandwidth | | | 120 | mV p-p |
| | Output Current | | 0 | | 69.2 | A |
| | Load Capacitance | | | | 10000 | µF |
| 3.3VSB | Voltage Set Point Accuracy | 50% load | 3.28 | 3.3 | 3.32 | Vdc |
| | Line and Load Regulation | | 3.13 | | 3.46 | |
| | Ripple Voltage & Noise ¹ | 20MHz Bandwidth | | | 50 | mV p-p |
| | Output Current | | 0 | | 6 | A |
| | Load Capacitance | | | | 350 | µF |
| 5VSB | Voltage Set Point Accuracy | | | 5.0 | | Vdc |
| | Line and Load Regulation | | 4.85 | | 5.15 | |
| | Ripple Voltage & Noise ¹ | 20MHz Bandwidth | | | 50 | mV p-p |
| | Output Current | | 0 | | 4 | A |
| | Load Capacitance | | | | TBD | µF |

¹ Ripple and noise are measured with 0.1 µF of ceramic capacitance and 10 µF of tantalum capacitance on each of the power supply outputs. A short coaxial cable with 50ohm scope termination is used.

* Contact Murata Sales for availability.



| OUTPUT CHARACTERISTICS | | | | | |
|--|--|------|------|------|-------|
| Parameter | Conditions | Min. | Typ. | Max. | Units |
| Output Rise Monotonicity | No voltage excursion | | | | |
| Start-up Time | AC ramp up | | 1.5 | 3 | s |
| Transient Response | 12V, 50-100% load step, 0.1A/μs di/dt | | 150 | | mV |
| | 5VSB, 50-100% load step, 0.1A/μs di/dt | | TBD | | |
| | 3.3VSB, 50-100% load step, 0.1A/μs di/dt | | 165 | | |
| Current sharing accuracy (up to 4 in parallel) | At 100% load | | 2.5 | ±7 | % |
| Hot Swap Transients | All outputs within regulation | | | | |
| Hold-up Time | 100V, 50Hz | 20 | 25 | | ms |

| ENVIRONMENTAL CHARACTERISTICS | | | | | |
|-------------------------------------|--|------|------|------|---------|
| Parameter | Conditions | Min. | Typ. | Max. | Units |
| Storage Temperature Range | | -40 | | 85 | °C |
| Operating Temperature Range | | -10 | | 55 | |
| Operating Humidity | Noncondensing | 5 | | 90 | % |
| Storage Humidity | | 5 | | 95 | |
| Altitude (without derating at 45°C) | | 3000 | | | m |
| Shock | 30G non operating | | | | |
| Sinusoidal Vibration | 0.5G, 5 – 500 Hz | | | | |
| MTBF | Calculated per Telcordia SR322M1C1 @40°C | 500K | | | hrs |
| Acoustic | ISO 7779-1999 | | | 55 | dB LpAm |
| Safety Approvals | CSA/UL 60950-1-07-2nd Ed. IEC 60950-1:2005 (2nd Edition) EN 60950-1:2006 +A11 CE Marking per LVD DIRECTIVE 2006/95/EC | | | | |
| Input Fuse | Power Supply has internal 15A/250V fast blow fuse on the AC line input | | | | |
| Material Flammability | UL 94V-0 | | | | |
| Switching Frequency | 90KHz for Boost PFC Converter 130KHz for Main Output Converter | | | | |
| Weight | 3.15lbs (1.43kg) | | | | |

| PROTECTION CHARACTERISTICS | | | | | | |
|----------------------------|--------------------------|--------------|------|------|------|-------|
| Output Voltage | Parameter | Conditions | Min. | Typ. | Max. | Units |
| 12V | Overtemperature (intake) | Autorestart | | 65 | | °C |
| | Overvoltage | Latching | 13.2 | | 14.4 | V |
| | Overcurrent | Latching | | 81 | | A |
| 3.3VSB | Overvoltage | Latching | 3.6 | | 4.0 | V |
| | Overcurrent | Autorecovery | | 7.4 | | A |
| 5VSB | Overvoltage | Latching | 5.6 | | 6.0 | V |
| | Overcurrent | Autorecovery | 4.4 | | 6.0 | A |

| ISOLATION CHARACTERISTICS | | | | | |
|---|------------------------------|------|------|------|-------|
| Parameter | Conditions | Min. | Typ. | Max. | Units |
| Insulation Safety Rating / Test Voltage | Input to Output - Reinforced | 3000 | | | Vrms |
| | Input to Chassis - Basic | 1500 | | | Vrms |
| Isolation | Output to Chassis | 500 | | | Vrms |
| Material Flammability | UL 94V-0 | | | | |

| EMISSIONS AND IMMUNITY | | |
|----------------------------------|-------------------------------------|--|
| Characteristic | Description | Criteria |
| Harmonics | IEC/EN 61000-3-2 | |
| Voltage Fluctuation and Flicker | IEC/EN 61000-3-3 | |
| Emission Conducted | FCC 47 CFR Part 15/CISPR 22/EN55022 | Class A, 6dB margin |
| ESD | IEC/EN 61000-4-2 | Level 3 criteria B |
| Electromagnetic Field | IEC/EN 61000-4-3 | Level 3 criteria B |
| Electrical Fast Transients/Burst | IEC/EN 61000-4-4 | Level 3 criteria B |
| Surge | IEC/EN 61000-4-5 | Level 4 criteria B |
| RF Conducted | IEC/EN 61000-4-6 | Level 3 criteria A |
| Magnetic Field | IEC/EN 61000-4-8 | 3 A/m criteria B |
| Voltage dips, interruptions | IEC/EN 61000-4-11 | 230Vin, 100% load, Phase 0°, Dip 100% Duration 10ms (A) 230Vin, 50% load, Phase 0°, Dip 100% Duration 20ms (VSB:A, V1:A) 230Vin, 100% load, Phase 0°, Dip 100% Duration > 20ms (VSB, V1:B) |

All specifications are at 25°C ambient, unless otherwise stated.

OUTPUT CONNECTOR AND SIGNAL SPECIFICATION

DC and Signal Connector: FCI 51721-10002406AA

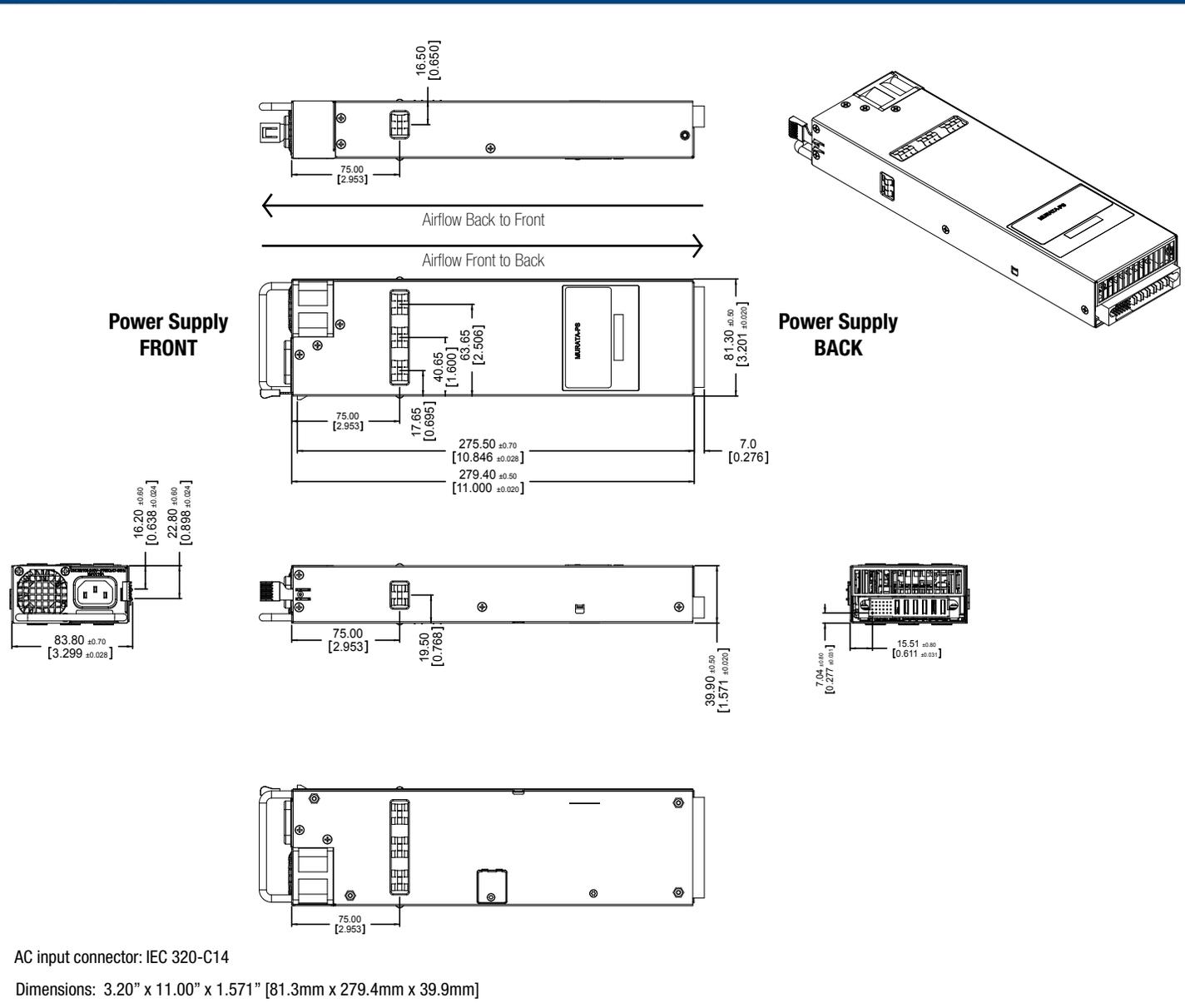
| | | | | | | | | | | | |
|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| D1 | D2 | D3 | D4 | D5 | D6 | PB1 | PB2 | PB3 | PB4 | PB5 | PB6 |
| C1 | C2 | C3 | C4 | C5 | C6 | | | | | | |
| B1 | B2 | B3 | B4 | B5 | B6 | | | | | | |
| A1 | A2 | A3 | A4 | A5 | A6 | | | | | | |

| Pin Assignment | Signal Name | Description | Amps per pin |
|----------------|--------------------|---|--------------|
| PB1, PB2, PB3 | +12V_GND | Main output voltage, return | 30 |
| PB4, PB5, PB6 | +12V_OUT | Main output voltage | 30 |
| A1 | PS_ON | Power supply "ON" | N/A |
| A2 | +12VRS_RETURN | Main output remote sense, return | N/A |
| A3 | TEMP_OK | Temperature "OK" signal output | N/A |
| A4 | PS_SEATED | Power supply is plugged into the system | N/A |
| A5, B5, C5, D5 | +VSB | Standby output voltage | 2.0 |
| A6, B6, C6, D6 | +VSB_GND | Standby output voltage, return | 2.0 |
| B1 | AC_OK | Input AC voltage "OK" signal output | N/A |
| B2 | +12VRS | Main output remote sense | N/A |
| B3 | +12V_ISHARE | Main output active load sharing bus | N/A |
| B4 | PS_INHIBIT/PS_KILL | Floating pin will turn off the power supply (shorter pin, last-make and first-break contact for hot plugging) . This signal overrides PS_ON in disabling the main output. | N/A |
| C1 | SDA | Data line | N/A |
| C2 | SCL | Clock line | N/A |
| C3 | PWR_GD | Power good | N/A |
| C4 | FAN_FAIL | Fan failure | N/A |
| D1 | A0 | | N/A |
| D2 | A1 | | N/A |
| D3 | S_INT | | N/A |
| D4 | NO CONNECTION | | N/A |

D1U MATING CONNECTORS

| D1U Mating Connector | Press Fit | |
|------------------------|-----------|------------------|
| | Straight | Right Angle |
| Murata Power Solutions | TBD | |
| FCI | TBD | 51761-10002406AA |

MECHANICAL DIMENSIONS



OPTIONAL ACCESSORIES

| Description | Part Number |
|----------------------------------|----------------|
| 12V D1U3CS Output Connector Card | D1U3CS-12-CONC |

APPLICATION NOTES

| Document Number | Description |
|-----------------|----------------------------------|
| TBD | Output Connector Card for D1U3CS |
| TBD | D1U3CS Communication Protocol |

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