



FEATURES

- 850W output power
- 80 PLUS® Gold efficiency
- 12V main output
- 3.3V or 5V standby output of 20W
- 1U height: 3.20" x 11.00" x 1.57"
- 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 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 ¹ | Airflow |
|----------------------|--------------|-------------|-----------------------------|---------------|
| D1U3CS-W-850-12-HC4C | 850W | 12V | 3.3V | Back to front |
| D1U3CS-W-850-12-HC3C | | | | 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 ² | 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 ² | 20MHz Bandwidth | | | 50 | mV p-p |
| | Output Current | | 0 | | 6 | A |
| | Load Capacitance | | | | 350 | µF |

¹ For 5vSB, contact Murata Sales for availability.

² 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 50Ω scope termination is used.



Available now at
www.murata-ps.com/en/3d/acdc.html



| 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 remain in regulation | | | | |
| Hold-up Time | At full load | 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 | Per Telcordia SR-322 M1C1 @40°C | 500K | | | hrs |
| Acoustic | | | | 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 | | | | |
| 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 |

| 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 | | | Vdc |

| EMISSIONS AND IMMUNITY | | |
|---|-------------------------------------|--|
| Characteristic | Standard | Compliance |
| Input Current Harmonics | IEC/EN 61000-3-2 | Complies |
| Voltage Fluctuation and Flicker | IEC/EN 61000-3-3 | Complies |
| Conducted Emissions | FCC 47 CFR Part 15/CISPR 22/EN55022 | Class A, 6dB margin |
| ESD Immunity | IEC/EN 61000-4-2 | Level 3 criteria B |
| Radiated Field Immunity | IEC/EN 61000-4-3 | Level 3 criteria B |
| Electrical Fast Transients/Burst Immunity | IEC/EN 61000-4-4 | Level 3 criteria B |
| Surge Immunity | IEC/EN 61000-4-5 | Level 4 criteria B |
| RF Conducted Immunity | IEC/EN 61000-4-6 | Level 3 criteria A |
| Magnetic Field Immunity | 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

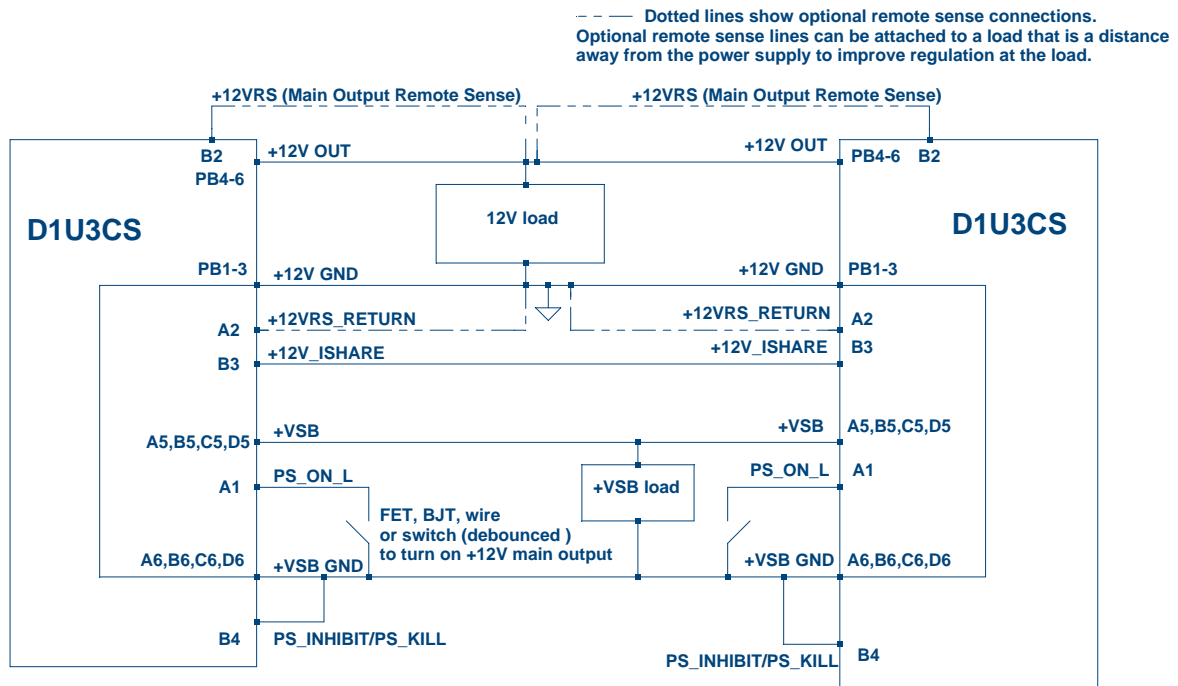
| | | | | | | | | | | | |
|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| D1 | D2 | D3 | D4 | D5 | D6 | PB1 | PB2 | PB3 | PB4 | PB5 | PB6 |
| C1 | C2 | C3 | C4 | C5 | C6 | | | | | | |
| B1 | B2 | B3 | B4 | B5 | B6 | | | | | | |
| A1 | A2 | A3 | A4 | A5 | A6 | | | | | | |

| 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 | I ² C Data line | N/A |
| C2 | SCL | I ² C Clock line | N/A |
| C3 | PWR_GD | Power good | N/A |
| C4 | FAN_FAIL | Fan failure | N/A |
| D1 | A0 | Address line least significant bit | N/A |
| D2 | A1 | Address line most significant bit | N/A |
| D3 | S_INT | System interrupt | N/A |
| D4 | NO CONNECTION | | N/A |

MATING CONNECTORS

| Mating Connector | Press Fit | |
|------------------|-----------|------------------|
| | Straight | Right Angle |
| FCI | TBD | 51761-10002406AA |

WIRING DIAGRAM FOR OUTPUT



CURRENT SHARING NOTES

12V Output: Current sharing is achieved using the active current share method. (See wiring diagram for connection details.)

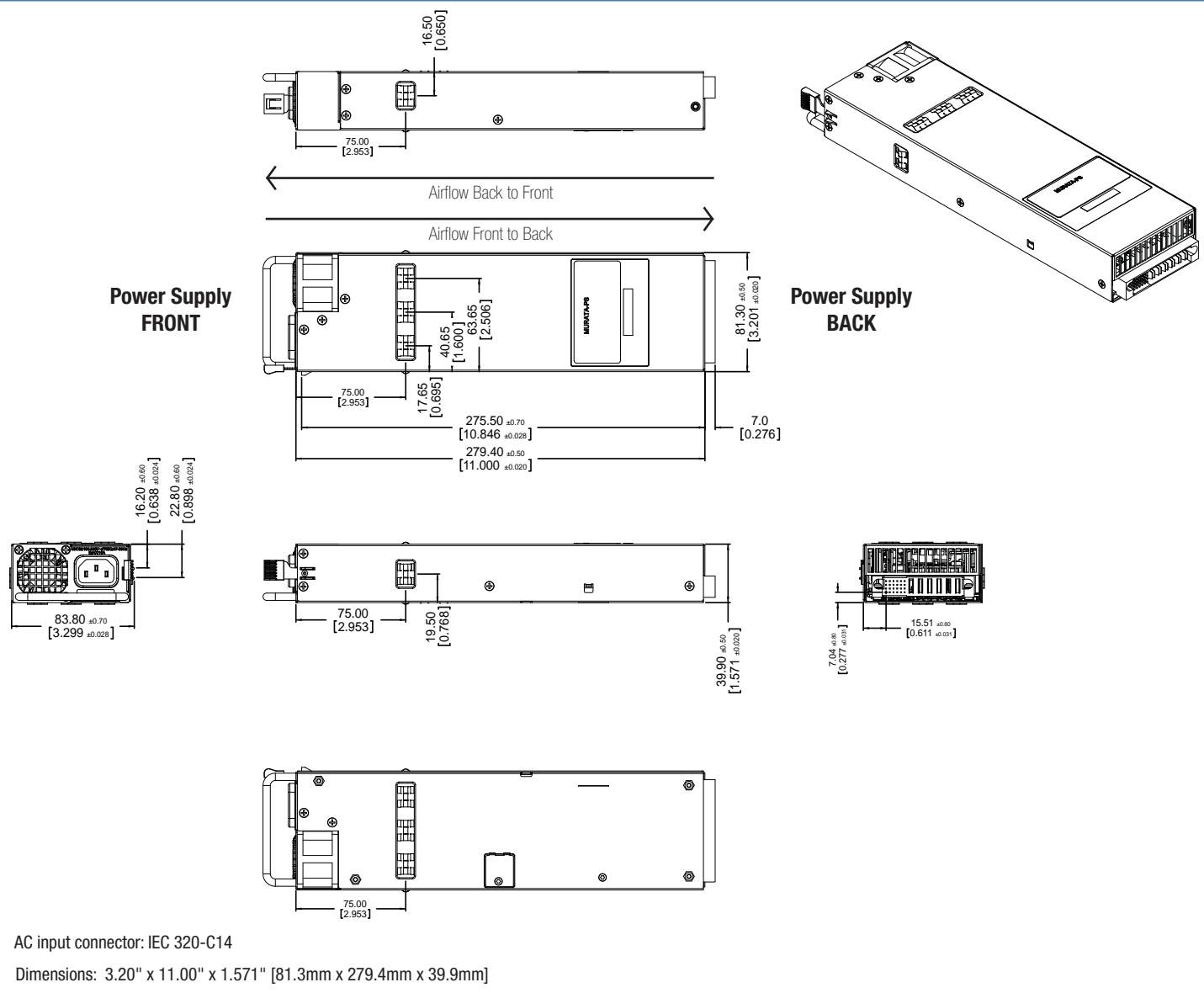
Current sharing can be achieved with or without remote sense connected to the common load.

+VSB outputs can be tied together for redundancy but total combined output power must not exceed 20W. The +VSB output has internal ORing MOSFET for additional redundancy / internal short protection.

The current share pin B3 is a connection between the two units. It is input and/or output as the voltage on the line controls the current share. A power supply will respond to a change in this voltage but a power supply can also change the voltage depending on the load drawn from it. On a single unit this would read 8V at 100% load. For two units sharing load then this should read 4V for perfect current sharing.

Up to 4 units can be paralleled together. Please consult your Murata sales representative if operation with more than 4 units in parallel is needed.

MECHANICAL DIMENSIONS



OPTIONAL ACCESSORIES

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

APPLICATION NOTES

| Document Number | Description | Link |
|-----------------|---------------------------------|--|
| ACAN-41 | D1U3CS Output Connector Card | www.murata-ps.com/data/apnotes/acan-41.pdf |
| ACAN-43 | D1U3CS-x Communication Protocol | www.murata-ps.com/data/apnotes/acan-43.pdf |

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Refer to: <http://www.murata-ps.com/requirements/>

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