



### FEATURES

- 850W output power
- 87% efficient at half power
- 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 8 in parallel)
- Active current sharing on 12V main output; ORing FET
- Overvoltage, overcurrent, overtemperature protection
- Internal cooling fan (variable speed)
- PMBus™ / I<sup>2</sup>C interface with status indicators
- RoHS compliant

### PRODUCT OVERVIEW

The D1U3CS-D-850-12-HxxC series are highly efficient 850 watt, DC input front end supplies with a 12V main output and a 3.3V (20W) standby. They have active current sharing and up to 8 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 for telecom and other 12V distributed power systems that include servers, workstations and storage systems.

### ORDERING GUIDE

Part Number	Power Output	Main Output	Standby Output <sup>1</sup>	Airflow
D1U3CS-D-850-12-HC4C	850W	12V	3.3V	Back to front
D1U3CS-D-850-12-HC3C				Front to back

### INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Nom.	Max.	Units
Input Voltage Operating Range		-40	-48	-72	
Turn-on Input Voltage	Ramp up	-40	-43.5	-44	Vdc
Turn-off Input Voltage	Ramp down	-38.5	-39	-39.5	
Maximum Current at Vin = -40Vdc	850W			25	Adc
DC Line Inrush Peak Current	Cold start between 0 to 200msec	40V		50Apk	
	Cold start between 0 to 200msec	72V		100Apk	
Efficiency (-40Vdc - 72Vdc)	20% load	85			%
	50% load	87			
	100% load	87			

### OUTPUT VOLTAGE CHARACTERISTICS

Output Voltage	Parameter	Conditions	Min.	Typ.	Max.	Units
12V	Voltage Set Point Accuracy			12.0		Vdc
	Line and Load Regulation		11.4		12.6	
	Ripple Voltage & Noise <sup>2</sup>	20MHz Bandwidth			120	mV p-p
	Output Current		0		69.1	A
	Load Capacitance				30000	µF
3.3VSB	Voltage Set Point Accuracy			3.3		Vdc
	Line and Load Regulation		3.2		3.4	
	Ripple Voltage & Noise <sup>2</sup>	20MHz Bandwidth			50	mV p-p
	Output Current		0		6	A
	Load Capacitance				10000	µF

<sup>1</sup> For 5vSB, contact Murata Sales for availability.

<sup>2</sup> 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](http://www.murata-ps.com/en/3d/acdc.html)



OUTPUT CHARACTERISTICS					
Parameter	Conditions	Min.	Typ.	Max.	Units
Output Rise Monotonicity	No voltage excursion				
Transient Response	12V, 50-100% load step, 1A/μs di/dt			300	mV
	5VSB, 50-100% load step, 1A/μs di/dt			250	
	3.3VSB, 50-100% load step, 1A/μs di/dt			165	
Current sharing accuracy (up to 8 in parallel)	At 100% load			±7	%
Hot Swap Transients	All outputs remain in regulation			5	%
Holdup Time	At full load	1			ms

ENVIRONMENTAL CHARACTERISTICS					
Parameter	Conditions	Min.	Typ.	Max.	Units
Storage Temperature Range		-40		70	°C
Operating Temperature Range		-10		50	
Operating Humidity	Noncondensing	5		90	%
Storage Humidity		5		95	
Altitude (without derating at 40°C)		4000			m
Altitude (without derating at 55°C)		1800			
Shock	30G non operating				
Sinusoidal Vibration	0.5G, 5 – 500 Hz				
MTBF	Per Telcordia SR-322 M1C1 @40°C	250K			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 40A/170VDC slow blow fuse on 48V input				
Switching Frequency	90KHz for main output Converter 130KHz for standby output Converter				
Weight	2.85lbs (1.29kg)				

PROTECTION CHARACTERISTICS						
Output Voltage	Parameter	Conditions	Min.	Typ.	Max.	Units
12V	Overtemperature (intake)	Autorestart	57	60	63	°C
	Overvoltage	Latching	13.3		14.5	V
	Overcurrent	Latching	75.9		103.6	A
3.3VSB	Overvoltage	Latching	3.9		4.3	V
	Overcurrent	Autorecovery	6.5		9.0	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 - Basic	1500			Vrms
	Input to Chassis - Basic	1500			Vrms
Isolation	Output to Chassis	500			Vdc

EMISSIONS AND IMMUNITY		
Characteristic	Standard	Compliance
Conducted Emissions	FCC 47 CFR Part 15/CISPR 22/EN55022	Class A, 6dB margin
ESD Immunity	IEC/EN 61000-4-2	Level 3 criteria A
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 A
Surge Immunity	IEC/EN 61000-4-5	Level 3 criteria A
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

**OUTPUT CONNECTOR AND SIGNAL SPECIFICATION**

DC and Signal Connector: FCI 51721-10002406AA

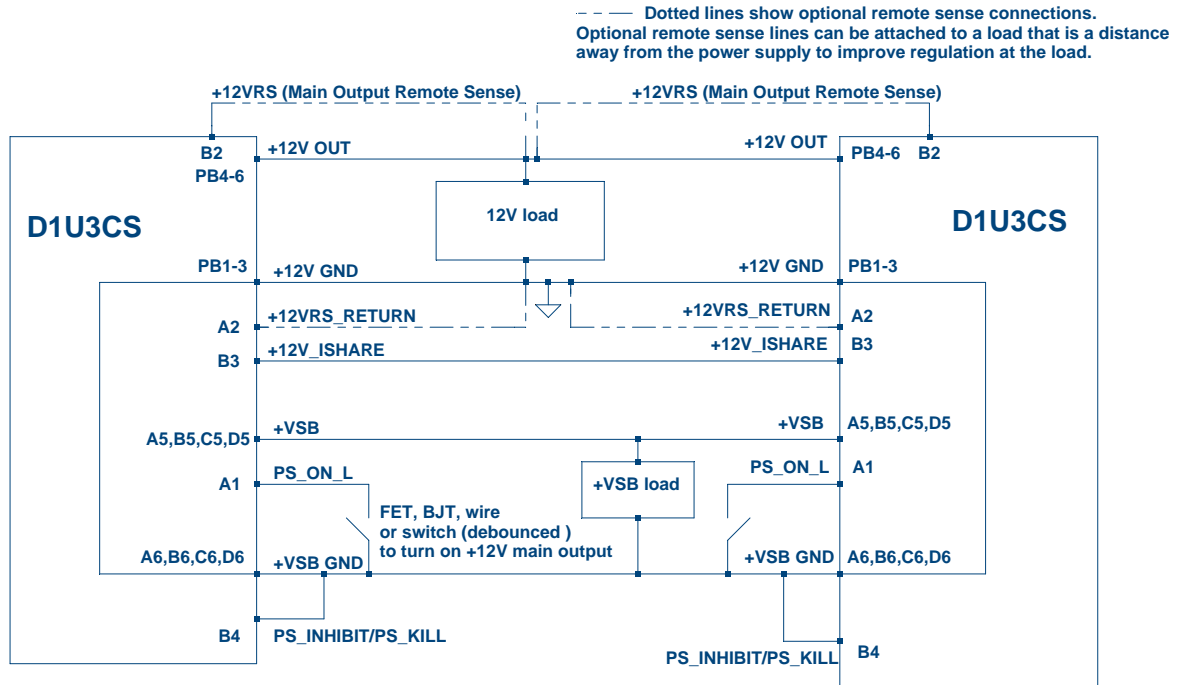
D1	D2	D3	D4	D5	D6	PB1	PB2	PB3	PB4	PB5	PB6
C1	C2	C3	C4	C5	C6						
B1	B2	B3	B4	B5	B6						
A1	A2	A3	A4	A5	A6						

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	DC_OK	Input DC 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 <sup>2</sup> C Data line	N/A
C2	SCL	I <sup>2</sup> 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.)

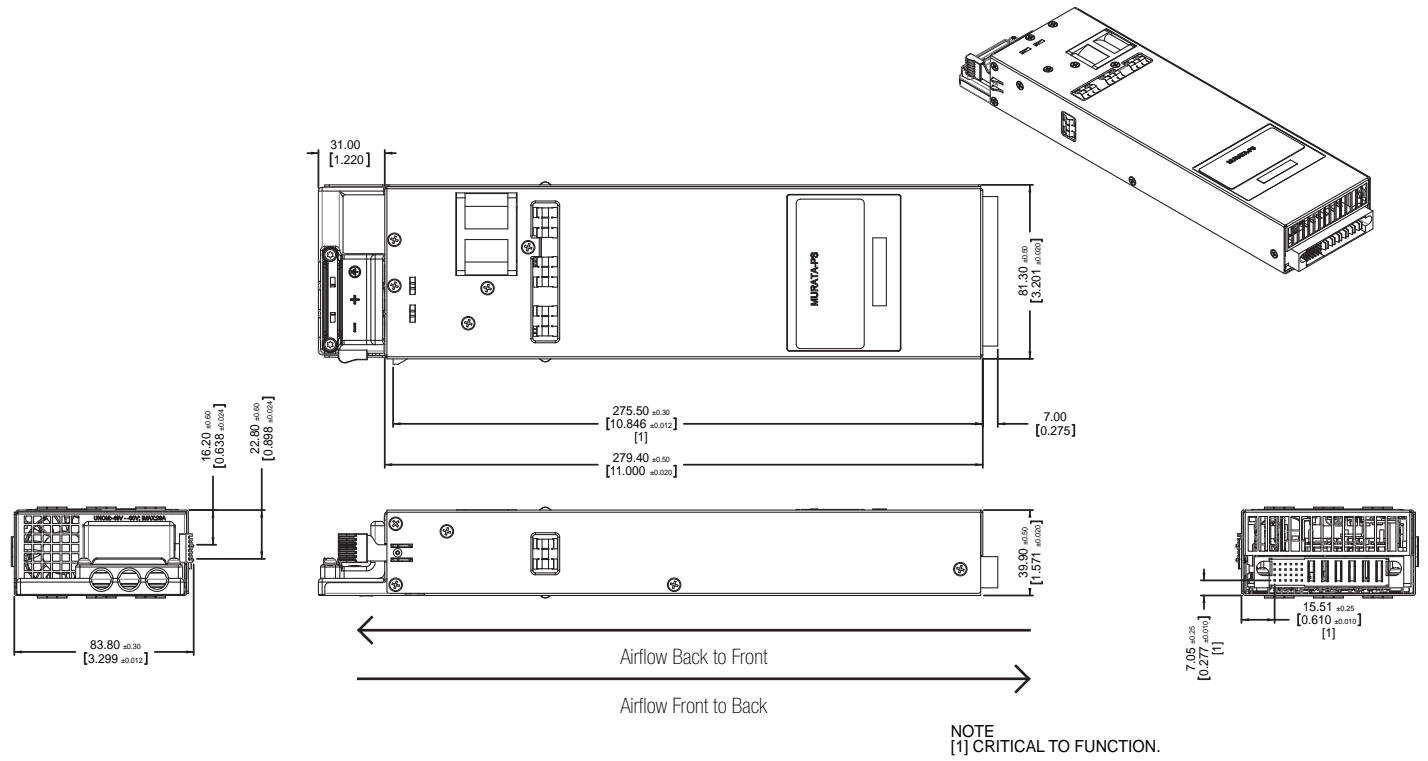
Current sharing can be achieved with or without remote sense connected to the common load.

+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 8 units can be paralleled together. Please consult your Murata sales representative if operation with more than 8 units in parallel is needed.

**MECHANICAL DIMENSIONS**



Dimensions: 3.20" x 11.00" x 1.571" [81.3mm x 279.4mm x 39.9mm]

**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	<a href="http://www.murata-ps.com/data/apnotes/acan-41.pdf">www.murata-ps.com/data/apnotes/acan-41.pdf</a>
ACAN-43	D1U3CS-x Communication Protocol	<a href="http://www.murata-ps.com/data/apnotes/acan-43.pdf">www.murata-ps.com/data/apnotes/acan-43.pdf</a>

Murata Power Solutions, Inc.  
11 Cabot Boulevard, Mansfield, MA 02048-1151 U.S.A.  
ISO 9001 and 14001 REGISTERED



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

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Тел: +7 (812) 336 43 04 (многоканальный)  
Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)