D1U3CS-D-850-12-HxxC Series

DC/DC Front End Power Supply

Murata Power Solutions

FEATURES

- 850W output power
- 87% efficient at half power
- 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 8 in parallel)
- Active current sharing on 12V main output; ORing FET
- Overvoltage, overcurrent, overtemperature protection
- Internal cooling fan (variable speed)
- PMbus / I²C 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 5V or 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	Airflow
	D1U3CS-D-850-12-HC4C	850W	12V	3.3V	Back to front
*	D1U3CS-D-850-12-HA4C	850W	12V	5V	Back to front
*	D1U3CS-D-850-12-HC3C	850W	12V	3.3V	Front to back
*	D1U3CS-D-850-12-HA3C	850W	12V	5V	Front to back

INPUT CHARACTERISTICS

Parameter	Conditions	Min.	Nom.	Max.	Units
Input Voltage Operating Range		-40	-48	-72	Vdc
Turn-on Input Voltage	Ramp up	-40	-43.5	-44	
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[1]	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[1]	20MHz Bandwidth			50	mV p-p
	Output Current		0		6	A
	Load Capacitance				10000	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				10000	µF

[1] Ripple and noise are measured with 0.1 uF of ceramic capacitance and 10 uF of tantalum capacitance on each of the power supply outputs. A short coaxial cable with 50ohm scope termination is used.
* Contact Murata Sales for availablity.

RoHS COMPLIANT

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For full details go to
www.murata-ps.com/rohs

CB Test Certificate and Test Report

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 within regulation				
Holdup Time		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	Calculated per Telcordia SR322M1C1 @40°C	250K			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 80A/170VDC slow blow fuse on 48V input				
Material Flammability	UL 94V-0				
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
	Overtemperature (intake)	Autorestart	57	60	63	°C
12V	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 - 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 A
Electromagnetic Field	IEC/EN 61000-4-3	Level 3 criteria B
Electrical Fast Transients/Burst	IEC/EN 61000-4-4	Level 3 criteria A
Surge	IEC/EN 61000-4-5	Level 3 criteria A
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, Dip 100% Duration 10ms (A) 230Vin, 50% load, Dip 100% Duration 20ms (VSB:A, V1:A) 230Vin, 100% load, Dip 100% Duration > 20ms (VSB, V1:B)

OUTPUT CONNECTOR AND SIGNAL SPECIFICATION

DC and Signal Connector: FCI 51721-10002406AA

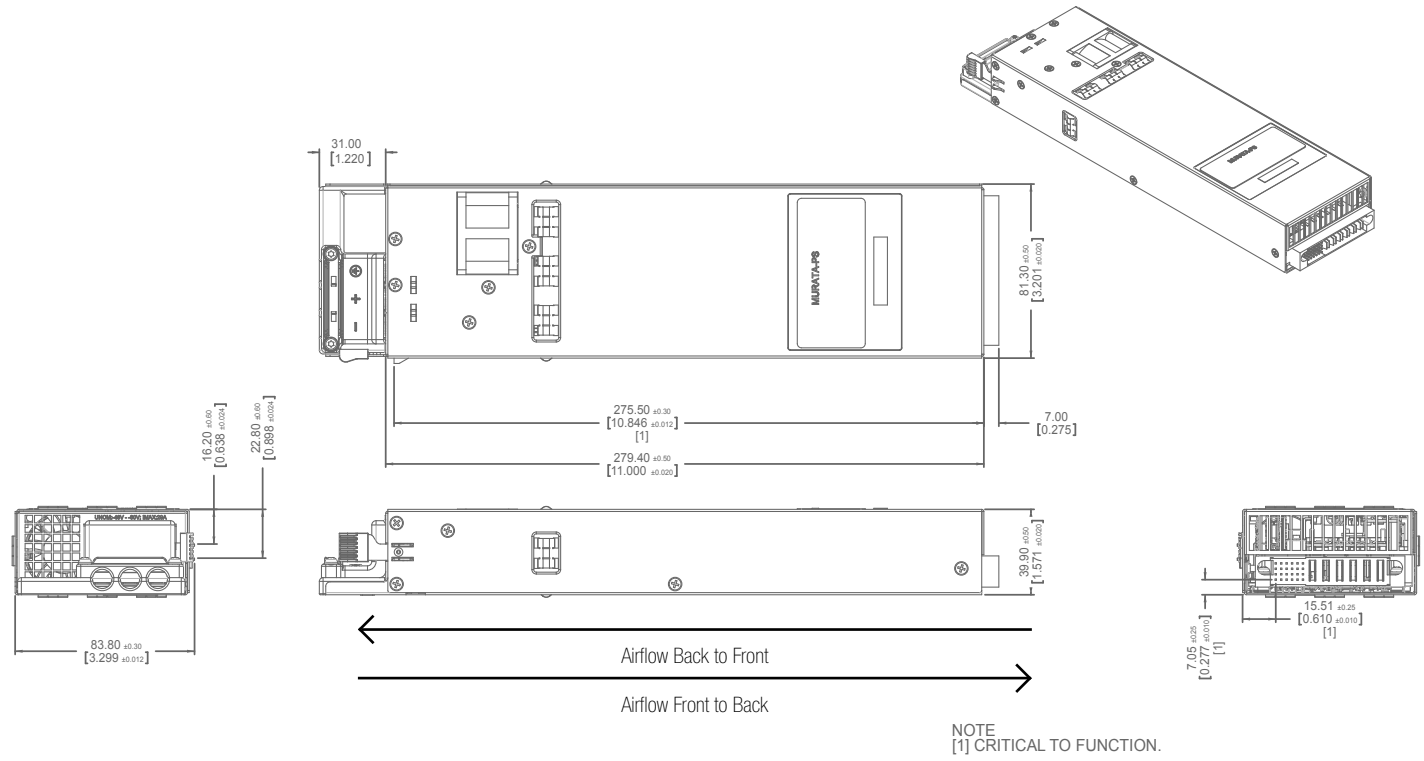
D1	D2	D3	D4	D5	D6	PB1	PB2	PB3	PB4	PB5	PB6
C1	C2	C3	C4	C5	C6						
B1	B2	B3	B4	B5	B6						
A1	A2	A3	A4	A5	A6						

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, DS	+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



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
TBD	Output Connector Card for D1U3CS
TBD	D1U3CS Communication Protocol

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ISO 9001 and 14001 REGISTERED