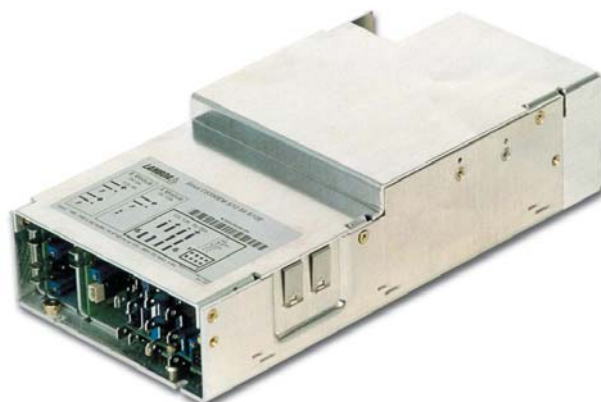


250-350W Multiple Output Modular Power Supply

Features

- ◆ Universal AC Input, PFC
- ◆ AC Fail Signal / Global Inhibit
- ◆ Up to 6 fully regulated & independent outputs
- ◆ 150% Peak Current Capability
- ◆ Low Leakage Medical Options
- ◆ Input Transient Protection
- ◆ Multiple Cooling Options
- ◆ International Safety Agency Approvals
- ◆ No Minimum Load on Flexi (CSF) Models



Key Market Segments & Applications



Specifications

Model		CS250	CSF250	CSF350*
AC Input Voltage & Frequency	-	85-264VAC, 47-440Hz (Approvals apply up to 63 Hz)		
Input Current	A	5A maximum		7A maximum
Inrush Current	A	< 40A		< 30A
Leakage Current	NA	<800uA @ 264VAC, 50Hz (see input leakage filter options for lower ratings)		
Low Leakage Filters	-	Optional. Refer to options table for codes & ratings.		
Efficiency	%	>70% @ 230VAC & full load		
Power Factor Correction	-	Compliant to EN61000-3-2 (>0.93 typical, reduced PFC > 254VAC or > 65Hz)		
Conducted EMI	-	EN55022 level B, FCC Class B		
Radiated EMI	-	EN55022 level A, FCC Class A		
Output Voltage Adjustment	-	Via trim pot. Refer to the output module code selector table for ranges.		
Overcurrent Protection	-	All outputs short circuit protected (with auto-recovery)		
Overvoltage Protection	-	All outputs protected, shuts down converter, auto restart		
Line & Load Regulation	-	50mV for 3.3V & 5V outputs, 3% for outputs >5V		
Ripple & Noise	-	1% pk - pk for outputs >5V. 50mV on outputs £5V.		
Noise (20 MHz Bandwidth)	%	2% pk-pk on CS250	1% pk-pk on CSF250 & CSF350	
No Load Operation	-	10% on O/P 1 for full rated load	No preload is required on Flexi Sirius (CSF) models.	
Hold Up Time	ms	15mS minimum at full rated output		
Remote Sense	-	Available on all main board outputs 1 & 2, and output modules L & A		
Options	-	Refer to options tables for case, fan, and low leakage option codes.		
Operating Temperature	°C	0°C to +50°C full load, derate each output at 2.5% / °C from 50°C to 70°C.		
Thermal Protection	-	Thermal protection on converter and output regulators (with auto recovery)		
Storage Temperature	°C	-40°C to +85°C (max 12 months)		
Temperature Coefficient	%/ °C	0.02% per °C		
Humidity	%RH	5% - 95% Non-condensing		
Altitude	ft	0 - 6,560 ft. Operating (2,000 m)		0 - 9,800 ft. (3,000 m)
Cooling	-	End/Top mounted fan - forced-air cooling. Customer air version avail. on 250W models.		
Isolation	-	I/P - O/P 4.3kVDC (4kVAC on CSF without Y-caps), I/P - Ground 2.3kVDC, O/P - Ground 500VDC		
Switching Frequency	kHz	110kHz on PFC converter, 190kHz on output converter.		
Vibration	g	1.5G, 10 - 200Hz		
Shock	g	3,000 bumps, 10G, 16ms half-sine pulses.		
Safety Agency Approvals	-	UL60950-1, IEC60950-1, CSA22.2 No.60950-1, EN60950-1, IEC601-1 & EN60601-1(CSF models), CE Mark (LVD)		
Module Slots	-	2		
Weight	g	1270		
Size (WxHxD)	in.	5.0" x 2.0" x 10.2"		5.0" x 2.5" x 10.2"
Warranty	yrs	Three Years		

* CSF350 - Obsolete Dec 2010

OBSELETE

Part Number Breakdown:

CSF250	EM	LL	5.5/12	3.3L	12/12.2G
Case Code	Fan & Connection Code	Low Leakage Filter Option	Main Output Code	Auxiliary Output Codes	

1 Case Code		
Code	Power	Minimum Load Required
CS250	250	Yes
CSF250	250	No
CSF350*	350	No

2 Fan & Connection Codes			
Choose the desired fan & AC input connector options from the following table.			
Code	Fan Option	AC Connector	Dimensions (H x W x L)
For CS250 & CSF250			
NM*	No Fan (Covered)	Molex	2" x 5" x 9"
LM*	No Fan (No Cover)	Molex	2" x 5" x 9"
TM	Top Fan	Molex	3.2" x 5" x 9"
EI	Dual End Fan	IEC with AC On/Off Switch	2" x 5" x 10.2"
EM	Dual End Fan	Molex	2" x 5" x 10.2"
SM	Single End Fan	Molex	2" x 5" x 10.2"
For CSF350			
TQ	Top Fan	Fast-On	3.5" x 5" x 9"
EQ	End Fan	Fast-On	2.5" x 5" x 10.2"
EI	End Fan	IEC with AC On/Off Switch	2.5" x 5" x 10.2"

*A minimum of 3m/s (38 CFM) airflow required directly through PSU at 0 load (Not a convection cooled PSU).

3 Main Output Codes						
From the table below, select outputs 1&2.						
Main Output Code	V nom	Output 1 Amps	V adjust ¹⁰	Output 2 Amps	V adjust ¹⁰	
For CS250						
5/3.3 ¹	5	35	5 - 5.5 ²	3.3	16 ⁵	2.7 - 3.5 ³
5/12 ¹	5	35	5 - 5.5 ²	12	8	9 - 15
24	24	10	24 - 28	-	-	-
For CSF250						
3.3/5 ¹	3.3	30	1.8 - 3.8 ⁴	5	20	4.5 - 5.5 ²
5/12 ⁶	5	25	4.5 - 8.0 ⁴	12	10	9 - 13
5/24 ⁶	5	25	4.5 - 8.0 ⁴	24	6	18 - 25
For CSF350						
5/3.3 ¹	5	50 ⁷	3.9 - 5.7	3.3	20	1.8 - 3.9
3.3/5 ¹	3.3	50 ⁸	1.8 - 3.9	5	20	3.9 - 5.7
24	24	15	18 - 28	-	-	-
5/12 ⁶	5	50 ⁹	3.9 - 5.7	12	12	10 - 16
3.3/12 ⁶	3.3	50 ⁹	1.8 - 3.9	12	12	10 - 16

Notes:
1) Outputs 1 & 2 have common 0V.
2) Maximum voltage at terminals = 5.7V
3) Maximum voltage at terminals = 3.8V
4) Includes sense voltage (total line drop).
5) Max. current from output #2 must not exceed 2x the actual current on output #1.
6) Outputs 1 & 2 are galvanically isolated.
7) 40A above 45°C, 45A above 35°C ambient.
8) 45A above 45°C.
9) 45A above 40°C.
10) Users may specify required output voltage within adjustment range. (i.e. if 5.2V and 12.7V are needed, description = CSF250 EM 5.2/12.7)

4 Auxiliary Output Codes									
From the table below, select up to (2) modules for up to an additional (4) outputs. Format = Desired Voltage + Module Code Letter (26V @ 4A = "26C") or (5.1V @ 5A & 24V @ 2A = "5.1/24F")									
Auxiliary Outputs Modules ¹	Code	V1 nom	Amps ⁵	V2 nom	Amps ⁵	V1 adjust ⁶	V2 adjust ⁶		
Single Output	L	3.3	107 (16)	-	-	1.8 - 3.9 ² (1.8 - 3.8) ²	-		
	A	5	10 (12)	-	-	4.5 - 5.5 ² (4.5 - 6.0) ²	-		
	B	12	8 (9.5)	-	-	11 - 158 (9 - 16)	-		
	C	24	4 (4.5)	-	-	16 - 28 (17 - 30)	-		
Dual Outputs	D ⁹	5	5 (6)	3.3	5 (6)	4.5 - 5.5 (4.5 - 6.0)	2.7 - 3.9 (2.7 - 4)		
	M	5	5 (6)	5	5 (6)	4.5 - 5.5 (4.5 - 6.0)	4.5 - 5.5 (4.5 - 6.0)		
	E	5	5 (6)	12	4 (4.5)	4.5 - 5.5 (4.5 - 6.0)	9 - 15 (9 - 16)		
	F	5	5 (6)	24	2 (2.5)	4.5 - 5.5 (4.5 - 6.0)	16 - 28 (17 - 30)		
	G	12	4 (4.5)	12	4 (4.5)	9 - 15 (9 - 16)	9 - 15 (9 - 16)		
	H	12	4 (4.5)	24	2 (2.5)	9 - 15 (9 - 16)	16 - 28 (17 - 30)		
	J	24	2 (2.5)	24	2 (2.5)	16 - 28 (17 - 30)	16 - 28 (17 - 30)		

Notes:
1) All module outputs are isolated.
2) Will allow 0.5V remote sense (total line drop), but will not adjust above specified range.
3) Modules are capable of 150% current value for 1 minute.
4) Format for module code = desired voltage + module code letter. Refer to the following examples: (26V @ 4A = "26C") or (5.1V @ 5A & 24V @ 2A = "5.1/24F").
5) Currents within () represents values when used with the Flexi Sirius 350 (CSF350).
6) Voltages within () represents values when used with the Flexi Sirius 250 (CSF250).
7) Rated 14A for CSF250 models.
8) Rated 9 - 15V for CSF350 models.
9) D module outputs have common 0V.

Leakage Options			
Option	Description	Max. Leakage	EMC
Standard	Curve B Filter	0.8 mA	Curve B
ML	Medium Leakage	0.5 mA	Curve A
LL	Low Leakage	0.3 mA	Curve A
RL	Reduced Leakage	150 µA	Above Curve A
TL	Tiny Leakage	90 µA	Above Curve A

Sample Configurations													
	Output 1		Output 2		Output 3		Output 4		Output 5				
	V	A	V	A	V	A	V	A	V	A	V	A	A
CS250EI-24	24	10	-	-	-	-	-	-	-	-	-	-	-
CS250TM-5/15	5	35	15	8 (12)	-	-	-	-	-	-	-	-	-
CS250EI-24-5/12E	24	10	5	5 (7.5)	12	4 (6)	-	-	-	-	-	-	-
CSF350EQ-LL-5/12-12.7B	5	45	12	12 (18)	12.7	9.5 (14.3)	-	-	-	-	-	-	-
CSF250EI-3.3-12B	3.3	30	5	20	12	8 (12)	-	-	-	-	-	-	-
CS250TM-5/12-12B-24C	5	35	12	8 (12)	12	4 (6)	24	2 (6)	-	-	-	-	-
CS250EI-5/12-3.3L-12/12G	5	35	12	8 (12)	3.3	10 (15)	12	4 (6)	12	4 (6)	-	-	-

Note: 1) Output currents in brackets () are peak currents for 1 minute

For Additional Information, please visit
us.tdk-lambda.com/lp/products/sirius-series.htm

