CFB400W SERIES

400W WATTS 4:1 INPUT DC-DC CONVERTERS SINGLE OUTPUT

E176177



FEATURES

* 400W Isolated Output
* Efficiency to 90%
* Fixed Switching Frequency
* Input Under Voltage Protection
* Over Temperature Protection
* Over Voltage/Current Protection
* Remote On/Off
* Full-Brick Size Meet Industry Standard
* Fully Isolated 1500VDC
* Without Tantalum Capacitor Inside
* UL60950-1 Approval

MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		(%) EFF.		CAPACITIVE LOAD MAX. (4, 5, 6)
			MIN.	MAX.	NO LOAD	FULL LOAD	(2)	(3)	
CFB400W-24S05	9-36 VDC	5 VDC	0 mA	80 A	600 mA	19.05 A	86.5	87.5	10000uF
CFB400W-24S12	9-36 VDC	12 VDC	0 mA	33.3 A	120 mA	19.36 A	85	86	10000uF
CFB400W-24S24	9-36 VDC	24 VDC	0 mA	16.7 A	120 mA	19.19 A	88	87	4700uF
CFB400W-24S28	9-36 VDC	28 VDC	0 mA	14.3 A	120 mA	19.18 A	86.5	87	4700uF
CFB400W-24S48	9-36 VDC	48 VDC	0 mA	8.3 A	120 mA	19.19 A	85.5	86.5	2200uF
CFB400W-48S05	18-75 VDC	5 VDC	0 mA	80 A	300 mA	9.36 A	88.5	89	10000uF
CFB400W-48S12	18-75 VDC	12 VDC	0 mA	33.3 A	60 mA	9.41 A	88.5	88.5	10000uF
CFB400W-48S24	18-75 VDC	24 VDC	0 mA	16.7 A	60 mA	9.28 A	90	90	4700uF
CFB400W-48S28	18-75 VDC	28 VDC	0 mA	14.3A	60 mA	9.27 A	90.5	90	4700uF
CFB400W-48S48	18-75 VDC	48 VDC	0 mA	8.3 A	60 mA	9.27 A	88	89.5	2200uF

NOTE:

1. Nominal Input Voltage 24, 48 VDC.
2. Measured at 12VDC for 24Vin, 24VDC for 48Vin.
3. Measured at Nominal Input Voltage.
4. The output terminal of 12V, 24V, 28V Vout models required a minimum capacitor 330uF to maintain specified regulation.
5. The output terminal of 5Vout models required a minimum capacitor 680uF to maintain specified regulation.
6. The output terminal of 48Vout models required a minimum capacitor 100uF to maintain specified regulation.

SPECIFICATIONS

All Specifications Typical At Nominal Line, Full Load, and 25℃ Unless Otherwise Noted

INPUT SPECIFICATIONS:

Input Voltage Range ..... 24V 9-36V
48V 18-75V
Under Voltage Lockout ..... 24Vin power up 8.5V
24Vin power down 7.5V
48Vin power up 17V
48Vin power down 15V
Input Over Voltage Protection ..... 24Vin Turn off … 42V, Turn on ... 40V
48Vin Turn off … 83V, Turn on … 80V
Opto Isolated Remote On/Off (note6)
Input Filter ..... LC Type

OUTPUT SPECIFICATIONS:

Voltage Accuracy ..... ±1.0% max.
Transient Response: 25% Step Load Change ..... <500μs
External Trim Adj. Range 80-110%
Load Share Accuracy ..... ±10% at 50% to 100% Full Load
Auxiliary Output Voltage/Current ..... 10±3Vdc/20mA max.
Ripple & Noise, 20MHz BW (note3)
5V ..... 40mV RMS max., 100mV pk-pk max.
12V ..... 60mV RMS max., 120mV pk-pk max.
24V ..... 100mV RMS max., 240mV pk-pk max.
28V ..... 100mV RMS max., 280mV pk-pk max.
48V ..... 120mV RMS max., 480mV pk-pk max.
Temperature Coefficient ..... ±0.03%/°C max.
Short Circuit Protection ..... Continuous
Line Regulation (note1) ..... ±0.2% max.
Load Regulation (note2) ..... ±0.5% max.
Over Voltage Protection Trip Range, % Vo nom. 115-140%
Current Limit ..... 110%-150% Nominal Output
Start up time ..... 120ms typ.

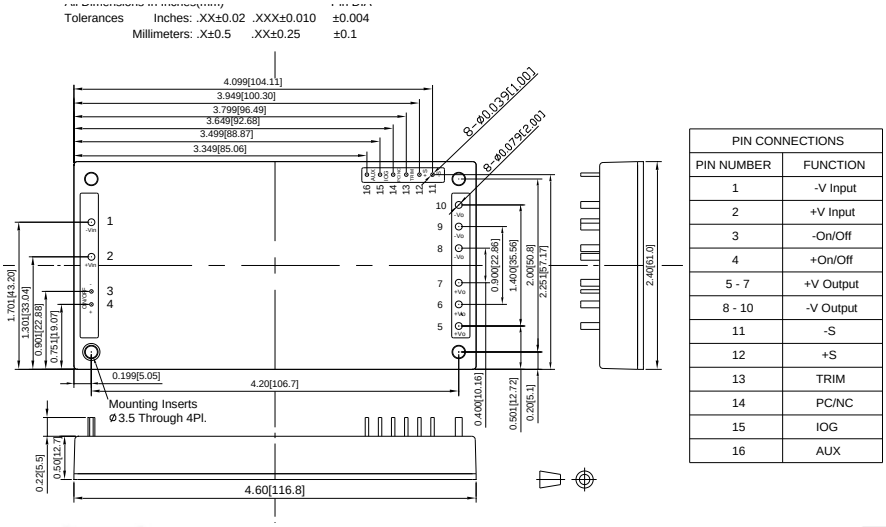
GENERAL SPECIFICATIONS:

Efficiency ..... See Table
Isolation Voltage ..... Input/Output ..... 1500VDC min.
Input/Case ..... 1500VDC min.
Output/Case ..... 1500VDC min.
Isolation Resistance ..... 10^7 ohm min.
Isolation Capacitance ..... 4000pF typ.
Switching Frequency ..... 230KHz typ.
Operating Case Temperature ..... -40℃ to 100℃
Storage Temperature ..... -55℃ to +110℃
Thermal Shutdown Case Temp. ..... 110℃ typ.
Humidity ..... 95% RH max. Non condensing
MTBF ..... MIL-HDBK-217F, GB, 25℃, Full Load ..... 340Khrs typ.
Dimensions ..... 4.60×2.40x0.50 inches (116.8x61.0×12.7 mm)
Case Material ..... Aluminum Baseplate with Plastic Case
Weight 220g

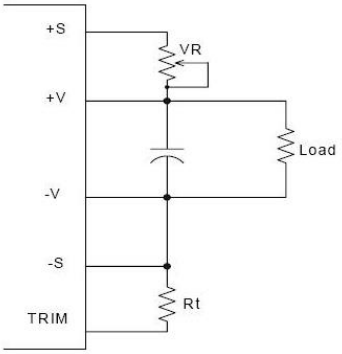
NOTE :

1. Measured from high line to low line.
2. Measured from full load to zero load.
3. Output ripple and noise measured with 10uF tantalum and 1uF ceramic capacitor across output.
4. The output adjustment circuit and trim equations show as figure1 and figure2.
5. An external input capacitor 1000uF for 24Vin or 330uF for 48Vin models are recommended to reduce input ripple voltage.
6. Standard model is negative logic , suffix “P” to the model number with positive logic. (refer application note)
7. If the remote sense feature is not to be used, the +sense pin should be connected to the +Vout pin and the –sense pin should be connected to the -Vout pin. (refer application note)

CASE FB



PIN CONNECTIONS	
PIN NUMBER	FUNCTION
1	-V Input
2	+V Input
3	-On/Off
4	+On/Off
5 - 7	+V Output
8 - 10	-V Output
11	-S
12	+S
13	TRIM
14	PC/NC
15	IOG
16	AUX



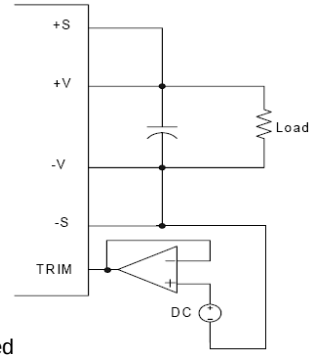
The output voltage can be determined by below equations:

$$Vf = \frac{1.24 \times (\frac{Rt \times 33}{Rt + 33})}{7.68 + \frac{Rt \times 33}{Rt + 33}}$$

$$Vout = (Vo + VR) \times Vf$$

Unit: KΩ
Vo: Nominal Output Voltage
Rt=6.8KΩ

Fig.1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.



Output Voltage = TRIM Terminal Voltage * Nominal Output Voltage

Fig.2 The schematic of output voltage adjusted by using external DC voltage.