



## CFB600 SERIES

### 600 TO 700 WATTS 2:1 INPUT DC-DC CONVERTERS



## FEATURES

- \* 600-700W Isolated Output
- \* Efficiency to 92%
- \* Fixed Switching Frequency
- \* Input Under-Voltage Protection
- \* Over Temperature Protection
- \* Over Voltage/Current Protection
- \* Remote On/Off
- \* Industry Full-Brick Package
- \* Fully Isolated 1500VDC
- \* IEC/EN/UL 62368-1 Approval



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
CFB600-24S12	18-36 VDC	12 VDC	0 mA	50 A	150 mA	28.09 A	88	10000 $\mu$ F <sup>(2)</sup>
CFB600-24S24	18-36 VDC	24 VDC	0 mA	25 A	150 mA	27.78 A	89	5000 $\mu$ F <sup>(2)</sup>
CFB600-24S28	18-36 VDC	28 VDC	0 mA	21.5 A	150 mA	27.87 A	90	5000 $\mu$ F <sup>(2)</sup>
CFB600-24S32	18-36 VDC	32 VDC	0 mA	19 A	150 mA	27.84 A	91	70000 $\mu$ F <sup>(2)</sup>
CFB600-24S48	18-36 VDC	48 VDC	0 mA	12.5 A	200 mA	27.47 A	91	5000 $\mu$ F <sup>(2)</sup>
CFB600-48S12	36-75 VDC	12 VDC	0 mA	50 A	90 mA	13.89 A	90	10000 $\mu$ F <sup>(2)</sup>
CFB600-48S24	36-75 VDC	24 VDC	0 mA	25 A	100 mA	13.59 A	92	5000 $\mu$ F <sup>(2)</sup>
CFB700-48S28	36-75 VDC	28 VDC	0 mA	25 A	105 mA	16.03 A	91	5000 $\mu$ F <sup>(2)</sup>
CFB600-48S32	36-75 VDC	32 VDC	0 mA	19 A	90 mA	13.77 A	92	5000 $\mu$ F <sup>(2)</sup>
CFB600-48S48	36-75 VDC	48 VDC	0 mA	12.5 A	130 mA	13.59 A	92	5000 $\mu$ F <sup>(2)</sup>

#### NOTE:

1. Nominal Input Voltage 24, 48 VDC
2. The Output Terminal of All Models Required a Minimum Capacitor 470 $\mu$ F to Maintain Specified Regulation.

# SPECIFICATIONS

All Specifications Typical at Nominal Line, Full Load, and 25°C Unless Otherwise Noted

## INPUT SPECIFICATIONS:

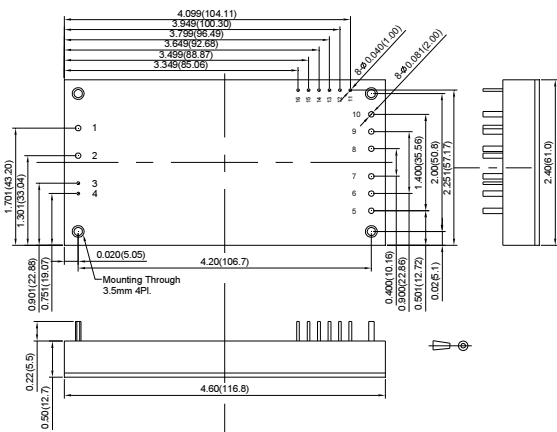
Input Voltage Range.....	24V .....	18-36V
	48V .....	36-75V
Input Surge Voltage (100ms max.) .....	24V .....	50Vdc max.
	48V .....	100Vdc max.
Under voltage lockout .....	24Vin power up .....	17V
	24Vin power down .....	16V
	48Vin power up .....	35V
	48Vin power down .....	33V
Input over voltage protection ...	24Vin turn off ....	40V, turn on .... 38V
	48Vin turn off ....	80V, turn on .... 77V
Opto Isolated Remote On/Off (note6)		
Input Filter .....		PI Type

## OUTPUT SPECIFICATIONS:

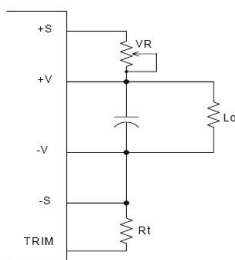
Voltage Accuracy .....	±1.0% max.
Transient Response:25% Step Load Change .....	<500us
External Trim Adj. Range .....	60-110%
Load share Accuracy .....	±10% at 50% to 100% Full Load
Auxiliary output voltage/current .....	10±3Vdc/20mA max.
Ripple & Noise, 20MHz BW	
12V .....	60mV RMS max., 120mV pk-pk max.
24V .....	100mV RMS max., 240mV pk-pk max.
28V .....	100mV RMS max., 280mV pk-pk max.
32V .....	120mV RMS max., 320mV pk-pk max.
48V .....	200mV 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 .....	160ms typ.

## CASE FB

All Dimensions In Inches(mm)  
 Tolerances Inches: .XX±0.02 .XXX±0.010 ±0.004  
 Millimeters: .X±0.5 .XX±0.25 ±0.1



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:

$$V_f = \frac{1.24 \times \left( \frac{R_t \times 33}{R_t + 33} \right)}{7.68 + \frac{R_t \times 33}{R_t + 33}}$$

$$V_{out} = (V_o + VR) \times V_f$$

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

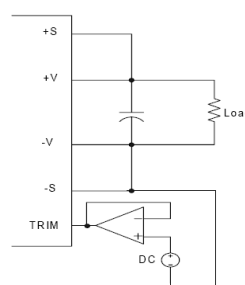
Fig.1 The schematic of output voltage adjusted by using external resistor and/or variable resistor.

## GENERAL SPECIFICATIONS:

Efficiency .....	See Table
Isolation Voltage .....	Input/Output, Input/Case, Output/Case ..... 1500VDC min.
Isolation Resistance .....	10 <sup>7</sup> ohm min.
Isolation Capacitance .....	4000pF typ.
Switching Frequency .....	48S12&48S28&48S32 ..... 300KHz typ.
	Others ..... 250KHz typ.
Operating Case Temperature .....	-40°C to 100°C
Storage Temperature .....	-55°C to +105°C
Thermal Shutdown, Case Temp. ....	110°C typ.
Humidity .....	95% RH max. Non Condensing
MTBF .....	MIL-HDBK-217F, GB, 25°C, Full Load ..... 450Khrs typ.
Dimensions .....	4.60×2.40×0.50 Inches(116.8×61.0×12.7 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 figure 1 and figure 2.
5. An external input capacitor 1000uF for CFB600-24S32, 220uF for other 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 Item 6.9)



Output Voltage = TRIM Terminal Voltage \* Nominal Output Voltage

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

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