



electronic powersolutions

# CFB800 SERIES 800 WATT 2:1 INPUT ISOLATED DC-DC CONVERTER

## Features

- Efficiency Up to 90%
- Fixed Switching Frequency
- Regulated Outputs
- Remote On/Off
- Fully Protected (OTP/OCP/OVP/UVLO)
- 1500Vdc I/O Isolation
- Operating Case Temperature -40 to +100°C
- Full-Brick Size Meet Industrial Standard  
4.60"x2.40"x0.5"
- Shock & Vibration Meets MIL-STD-810F
- Safety Meets UL/IEC/EN 62368-1



MODEL NUMBER	INPUT VOLTAGE	OUTPUT VOLTAGE	OUTPUT CURRENT		INPUT CURRENT		% EFF.	CAPACITOR LOAD MAX.
			MIN.	MAX.	NO LOAD	FULL LOAD		
CFB800-24S28	18-36 VDC	28 VDC	0 mA	28.5 A	200 mA	36.94 A	90	5000uF
CFB800-24S56	18-36 VDC	56 VDC	0 mA	14.25 A	200 mA	36.94 A	90	5000uF

NOTE:

1. Nominal Input Voltage 24 VDC.
2. An External Input Capacitor 220uF for All Models are Recommended to Reduce Input Ripple Voltage.
3. The Output Terminal Required a Minimum Capacitor 470uF to Maintain Specified Regulation.

## PART NUMBER

Series	Nominal Input Voltage	Number of Outputs	Nominal Output Voltage	Remote On/Off Logic	Mounting Inserts
CFB800-	II	O	XX	L	-Y (Option)
CFB800	24 : 24 VDC	S : Single	28 : 28VDC 56 : 56VDC	P : Positive None : Negative	None : Clear Mounting Insert (3.5mm DIA.)

Part Number Example:

**CFB800-24S28P**: Full Brick, 800W, 2:1 18-36Vdc Input, Single 28Vdc Output, Positive Logic, Clear Mounting Insert



## TECHNICAL SPECIFICATIONS

(All specifications are typical at nominal input, full load at 25°C unless otherwise noted.)

### ABSOLUTE MAXIMUM RATINGS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Input Voltage	Continuous	All	-0.3		36	V <sub>dc</sub>
Input Surge Voltage	100ms max.	All			50	V <sub>dc</sub>
Operating Case Temperature	At the center part of base plate	All	-40		100	°C
Storage Temperature		All	-55		105	°C

### INPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units	
Operating Input Voltage		All	18	24	36	V <sub>dc</sub>	
Input Under Voltage Lockout							
Turn-On Voltage Threshold		All	16.5	17.0	17.5	V <sub>dc</sub>	
Turn-Off Voltage Threshold		All	15.5	16.0	16.5	V <sub>dc</sub>	
Lockout Hysteresis Voltage		All		1.0		V <sub>dc</sub>	
Maximum Input Current	V <sub>in</sub> =18V, Full load	All		49		A	
No-Load Input Current	V <sub>in</sub> =24V, I <sub>o</sub> =0A	See Model Number Table					mA
Input Filter	Pi filter	All					
Inrush Current (I <sup>2</sup> t)	As per ETS300 132-2	All			1.0	A <sup>2</sup> s	
Input Reflected Ripple Current	P-P Thru 12uH Inductor, 5Hz to 20MHz	All		90		mA	

### OUTPUT CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units	
Voltage Set Point Accuracy	V <sub>in</sub> =24V, Full load, T <sub>c</sub> =25°C	All	-1.0		+1.0	%	
Output Voltage Regulation							
Load Regulation	Full Load to no load	All			±0.5	%	
Line Regulation	V <sub>in</sub> =High line to low line, full load	All			±0.2	%	
Temperature Coefficient	T <sub>c</sub> =-40°C to 100°C	All			±0.02	%/°C	
Output Voltage Ripple and Noise (5Hz to 20MHz Bandwidth)							
Peak-to-Peak	Full Load, 10uF Tantalum capacitor and 1uF ceramic capacitors	28V <sub>o</sub>			280	mV	
		56V <sub>o</sub>			560		
RMS.		28V <sub>o</sub>			100	mV	
		56V <sub>o</sub>			200		
Output Current Range	V <sub>in</sub> = 18 to 36V	See Model Number Table					A
Over Current Protection	Continuous current. Auto recovery	All	105	110	120	%	
Short Circuit Protection		All	Continuous, Auto Recovery				
External Load Capacitance	Full load (resistive)	See Model Number Table					uF
Output Voltage Trim Range	P <sub>o</sub> ≤ max. rated power, I <sub>o</sub> ≤ I <sub>o_max</sub> .	All	-40		+10	%	
Output Voltage Remote Sense Range	P <sub>o</sub> ≤ max. rated power, I <sub>o</sub> ≤ I <sub>o_max</sub> . % of nominal V <sub>o</sub>	All			+10	%	
Over Voltage Protection	Limited voltage, % of nominal V <sub>o</sub>	All	115	125	140	%	
Auxiliary Output Voltage		All	7	10	13	V	
Auxiliary Output Current		All			20	mA	
Power Good Signal (IOG)	V <sub>out</sub> ready: low level, sink current	All			20	mA	
	V <sub>out</sub> not ready: open drain output, applied voltage	All			50	V	
Load Share Accuracy (50%-100% load)		All	-5		+5	%	

### EFFICIENCY

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units	
100% Load	V <sub>in</sub> =24V	See Model Number Table					%



## DYNAMIC CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Output Voltage Current Transient						
Error Band	75% to 100% of $I_{o\_max}$ , step load change	All		±3	±5	%
Recovery Time	$dI/dt=0.1A/us$ (within 1% $V_{out}$ nominal)	All			500	us
Turn-On Delay and Rise Time						
Full load (constant resistive load)						
Turn-On Delay Time, From On/Off Control	$V_{on/off}$ to 10% $V_{o\_set}$ , Remote on	All			75	ms
Turn-On Delay Time, From Input	$V_{in\_min}$ to 10% $V_{o\_set}$ , Power up	All			250	ms
Output Voltage Rise Time	10% $V_{o\_set}$ to 90% $V_{o\_set}$	All			50	ms

## ISOLATION CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Isolation Voltage (100% Factory Hi-Pot Tested @2sec.)	1 Minute; input to output	All			1500	$V_{dc}$
	1 Minute; input to case (base plate)				1500	
	1 Minute; output to case (base plate)				1500	
Isolation Resistance	Input to output	All	10			MΩ
Isolation Capacitance	Input to output	All		2760		pF
	Input to case (base plate)			2000		
	Output to case (base plate)			2000		

## FEATURE CHARACTERISTICS

PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
Switching Frequency	Pulse width Modulation (PWM), fixed	All	225	250	275	KHz
On/Off Control, Negative Remote On/Off Logic, Refer to -Vin Pin						
Logic Low (Module Off)	$V_{on/off}$ at $I_{on/off}=1.0mA$	All	1		10	mA
Logic High (Module On)	$V_{on/off}$ at $I_{on/off}=0.0uA$ , Pin open=on	All	0		0.01	mA
On/Off Control, Positive Remote On/Off Logic, Refer to -Vin Pin						
Logic High (Module Off)	$V_{on/off}$ at $I_{on/off}=0.0uA$ , Pin open=off	All	0		0.01	mA
Logic Low (Module On)	$V_{on/off}$ at $I_{on/off}=1.0mA$	All	1		10	mA
Off Converter Input Current	Shutdown input idle current	All			50	mA
Over Temperature Shutdown	Temperature at the center part of base plate, non-latching	All		110		°C
Over Temperature Recovery		All		90		°C

## GENERAL SPECIFICATIONS

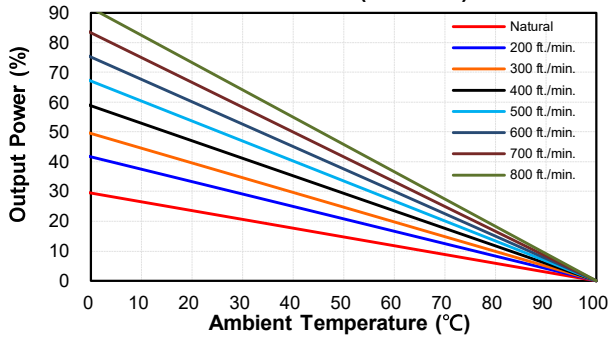
PARAMETER	NOTES and CONDITIONS	Device	Min.	Typ.	Max.	Units
MTBF	$I_o=100%$ of $I_{o\_max}$ ;	24S28		410		K hours
	MIL-HDBK - 217F_Notice 1, GB, 25°C	24S56		492		
Weight		All		220		grams
Case Material	Plastic, DAP					
Base plate Material	Aluminum					
Potting Material	UL 94V-0					
Pin Material	Base: Copper Plating: Nickel with Matte Tin					
Shock/Vibration	Meet MIL-STD-810F					
Humidity	95% RH max. Non Condensing					
Altitude	2000m Operating Altitude, 12000m Transport Altitude					
EMI	Meet EN55032 with External Filter					Class A
Application Note Link	<a href="#">CFB800 Series App Notes</a>					
Packaging Information Link	<a href="#">Packaging Information</a>					



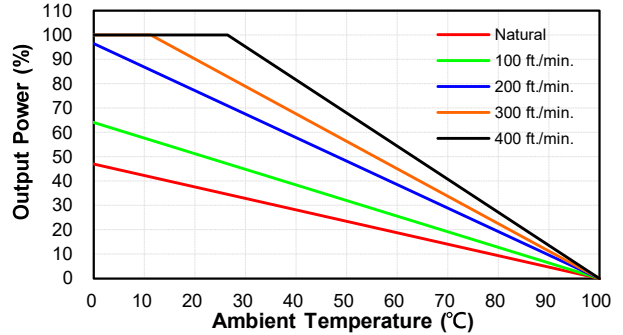
## CHARACTERISTIC CURVE

### Power Derating Curve

**CFB800-24S Derating Curve without Heatsink (Vin=24V)**

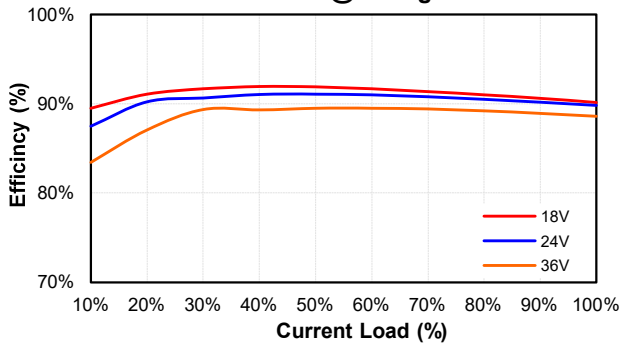


**CFB800-24S Derating Curve with Heatsink FBL254 (Vin=24V)**

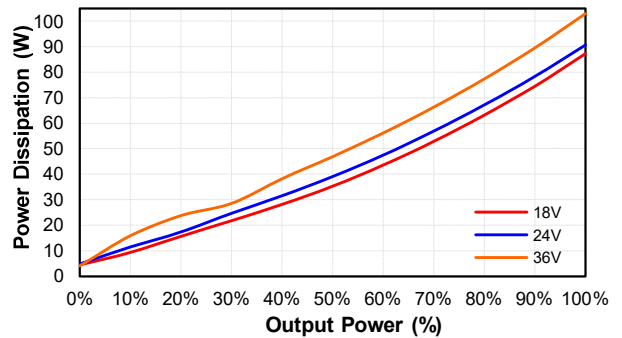


### Performance Data

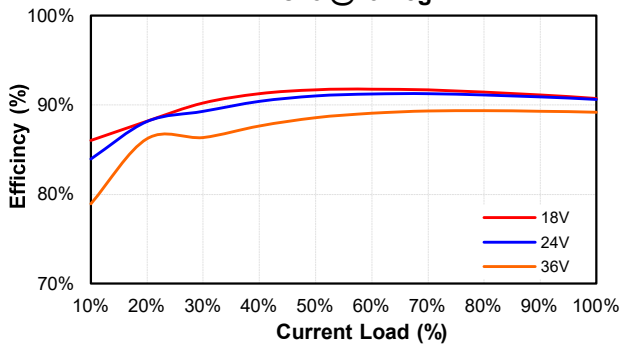
**CFB800-24S28 Eff Vs Io @25 Deg. C**



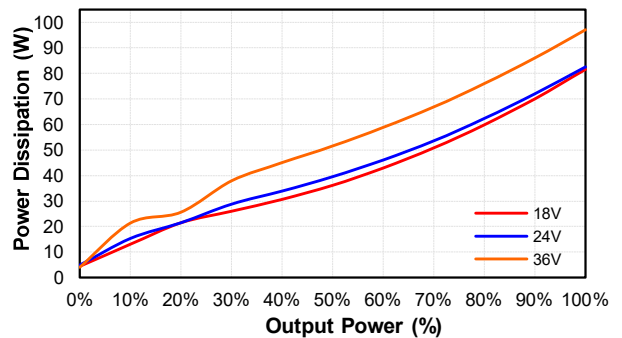
**CFB800-24S28 Pd Vs Po @25 Deg. C**



**CFB800-24S56 Eff Vs Io @25 Deg. C**

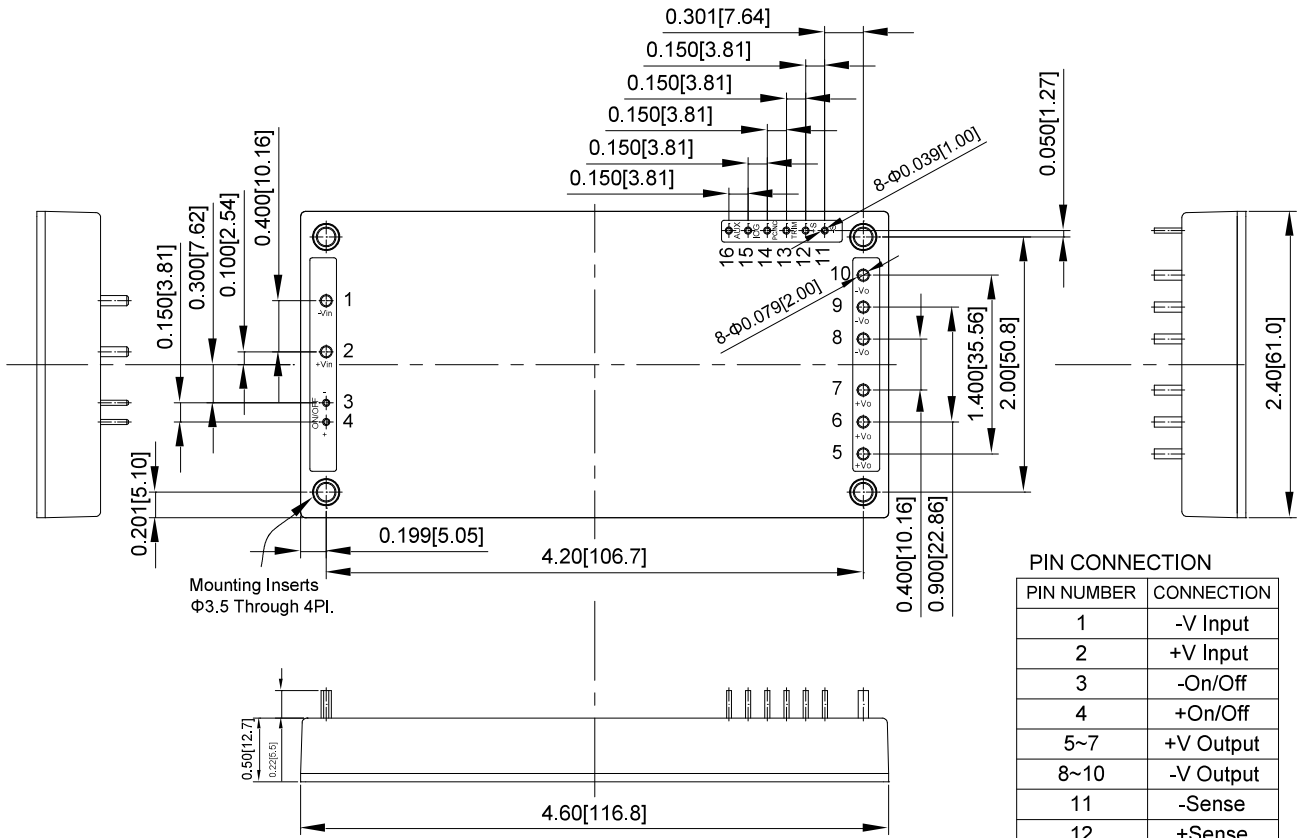


**CFB800-24S56 Pd Vs Po @25 Deg. C**





## MECHANICAL SPECIFICATION



### PIN CONNECTION

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

All Dimensions in Inches[mm]  
 Tolerance Inches:x.xx=±0.02 , x.xxx=±0.01 ±0.04  
 Millimeters:x.x=±0.5 , x.xx=±0.25 ±0.1