V-INFINITY
a division of CUI INC

PART NUMBER: VFB200 **DESCRIPTION:** full brick dc-dc converter

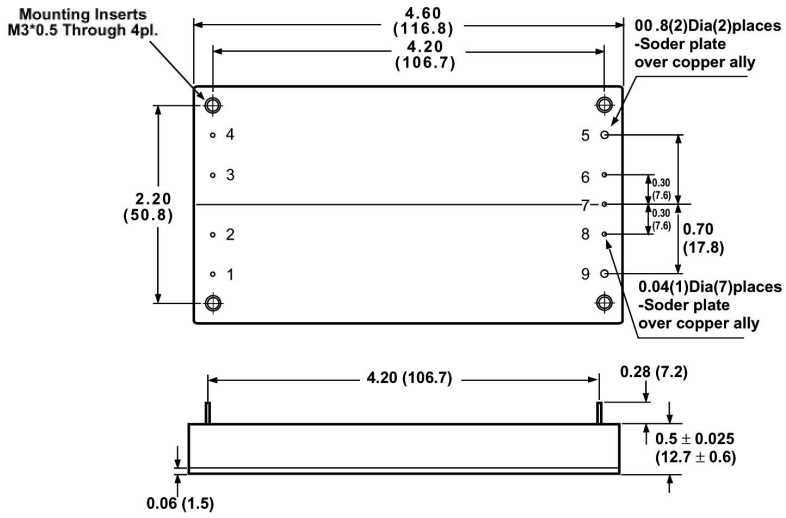
features

- 100 - 200W isolated output
- efficiency to 85%
- 300KHz switching frequency
- 2:1 input range
- regulated outputs
- continuous short circuit protection
- industry standard half-brick package

RoHS

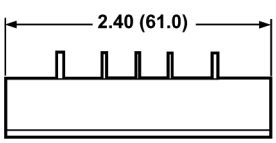
MODEL	input voltage (V dc)	output voltage (V dc)	output current	input current min.	input current max.	efficiency %
VFB200-D48-S2R5	36~75	2.5	40 A	25 mA	2.8 A	74
VFB200-D48-S3R3	36~75	3.3	40 A	25 mA	3.5 A	79
VFB200-D48-S5	36~75	5	40 A	25 mA	5 A	83
VFB200-D48-S12	36~75	12	17 A	25 mA	5 A	85
VFB200-D48-S15	36~75	15	13.3 A	25 mA	5 A	85
VFB200-D48-S24	36~75	24	8.4 A	25 mA	5 A	85
VFB200-D48-S28	36~75	28	7.14 A	25 mA	5 A	85
VFB200-D48-S48	36~75	48	4.2 A	25 mA	5 A	85

note: 1. nominal input voltage is 48 V dc



Pin Connection

Pin	Function
1.	+Vin
2.	ON/OFF
3.	Case
4.	-Vin
5.	-Vout
6.	-Sense
7.	Trim
8.	+Sense
9.	+Vout



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INPUT

parameter	conditions/description	min	nom	max	units
input voltage		36	48	75	V dc
under voltage lockout	48 Vin power up				
	48 Vin power down		32.5 V		
positive logic remote On/Off3 and 4					
input filter			PI Type		

OUTPUT

parameter	conditions/description	min	nom	max	units
voltage accuracy				±1%	
transient response	25% Step Load Change			500	µ/sec.
External Trim Adj. Range			±10%		
Ripple & Noise	20MHz BW 2.5V 3.3V 5V, 100mV pk-pk, max.			40	mV RMS
	20MHz BW 12V & 15V, 150mV pk-pk, max.			60	mV RMS
	20MHz BW 24V & 48V, 240mV/480mV pk-pk, max.			100	mV RMS
Temperature Coefficient			±0.03		%/°C
Short Circuit Protection			Continuous		
Line Regulation1				±0.2	%
Load Regulation2				±0.2	%
Over Voltage Protection Trip Range, % Vo nom		115		140	%
Current Limit	Nominal Output	110		150	%

GENERAL SPECIFICATIONS

parameter	conditions/description	min	nom	max	units
efficiency	see table				
isolation voltage	input/output	1500			V dc
	input/case	1500			V dc
	output/case	1500			V dc
isolation resistance			10^7		Ω
switching frequency			300		KHz
operating case temperature		-40		100	°C
storage temperature		40		105	°C
thermal shutdown, case temp			100		°C
dimensions	4.6 x 2.4 x 0.5 inches (116.8 x 61.0 x 12.7mm)				
case material	aluminum baseplate with plastic case				

notes:

1. measured from high line to low line
2. measured from full load to zero load
3. logic compatibility: open collector ref to-input
   module ON: open circuit
   module OFF: <0.8 V dc
4. suffix “N” to the model number with negative logic remote ON/OFF

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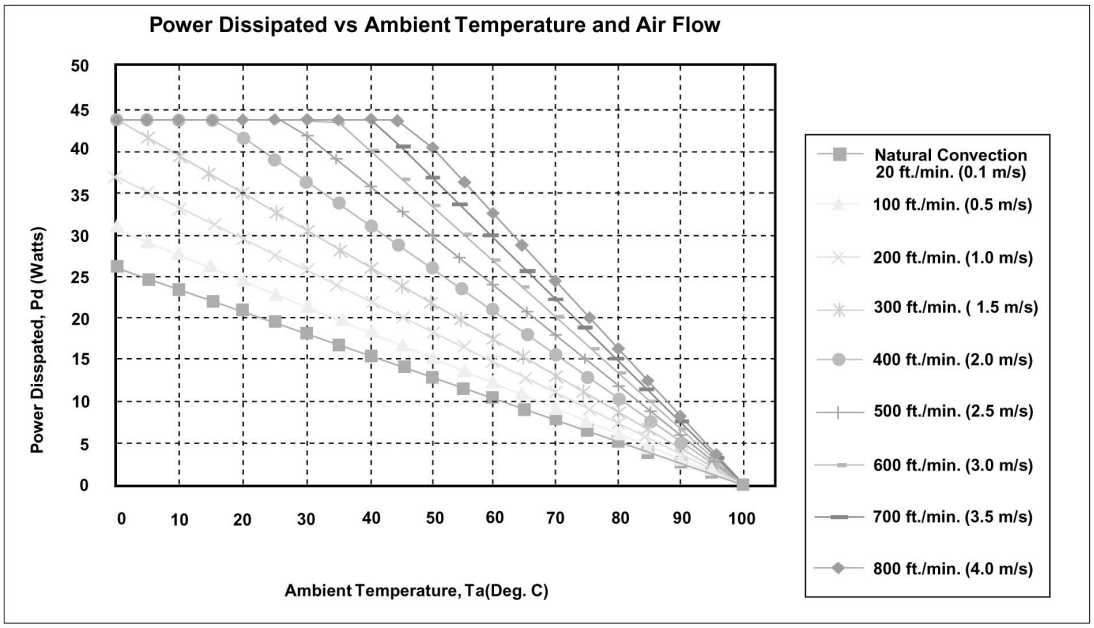
APPLICATION NOTES

Derating:
The operating case temperature range of the VFB200 series is -40°C to +100°C. When operating the VFB200, proper derating or cooling is needed. Following is the derating curve of VFB200 without heat sink.



Where:
The power dissapation (Pd) is

$$P_d = P_i - P_o = P_o (1-n)/n$$

The thermal resistance are listed below.

Chart of Thermal Resistance vs Air Flow:

AIR FLOW RATE	TYPICAL Rca
Natural Convection 20ft./min. (0.1m/s)	3.82 °C/W
100 ft./min. (0.5m/s)	3.23 °C/W
200 ft./min. (1.0m/s)	2.71 °C/W
300 ft./min. (1.5m/s)	2.28 °C/W
400 ft./min. (2.0m/s)	1.92 °C/W
500 ft./min. (2.5m/s)	1.68 °C/W
600 ft./min. (3.0m/s)	1.50 °C/W
700 ft./min. (3.5m/s)	1.35 °C/W
800 ft./min. (4.0m/s)	1.23 °C/W

The temperature rise (dT):

$$dT = Pd * Rca$$

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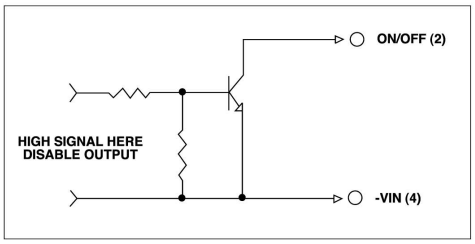
REMOTE ON/OFF CONTROL

The VFB200 series allows the user to switch the module on and off electronically with the remote on/off feature. The VFB200 series is available with “positive logic” or “negative logic” options.

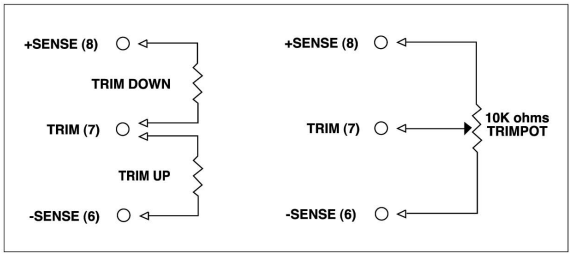


Logic Table

Logic State (Pin 2)	Negative Logic	Positive Logic
Logic Low - Switch Closed	Module on	Module off
Logic High - Switch Open	Module off	Module on

EXTERNAL OUTPUT TRIMMING

Output may optionally be externally trimmed (±10%) with a fixed resistor or an external trimpot as shown.



OUTPUT NOISE

The output noise is measured with a 10µF tantalum capacitor and a 1.0µF ceramic capacitor across the output.