

This module provides 12V/25A output with 91% efficiency is designed for telecommunication, computer servers, enterprise networking equipment and other applications that use a 48V (36~75V) input bus.

- High efficiency ..... 92%@12V/20A  
..... 91%@12V/25A
- High useable current (with 5.0mm Sink-Plate)  
..... 12V/17A at 75°C 200LFM  
..... 12V/15A at 85°C 200LFM
- High power density ..... 150W/in<sup>3</sup>
- Low profile ..... 0.36"(9.1mm)
- Sink-Plate (SP) flexible thermal managing capability (see drawing)



Part Number *	Maximum Input	Maximum Output	Efficiency
CPH48S120ABCD-EF	36V~75V	335W	12V/25A 300W 91%

Part Number *	Maximum Input	Maximum Output	Efficiency

\* Options for CPH48120ABCD-EF are as follows:  
**A** (Enable Logic): P: Positive N: Negative  
**B** (Pin Dimension): 0: 0.12" 1: 0.16" 2: 0.20" 3: 0.24"  
**C** (Standoff Height): 0: 0.02" 1: 0.08" 2: 0.16"  
**D** (Base-Plate/Module Thickness): M: 1.0mm Metal Plate/0.34" A: 3.0mm Sink-Plate/0.42" B: 5.0mm Sink-Plate/0.50"  
**EF** (Output): 00 to 99 for output current rating

Example: CPH48120N00A-25 is a CPH series half brick size 48V to 12V/25A dc/dc converter with options of negative control logic, 0.12" pin length, 0.02" of standoff height and 3.0mm Sink-Plate attached. The total height of this module is 0.02"+0.42"=0.44"

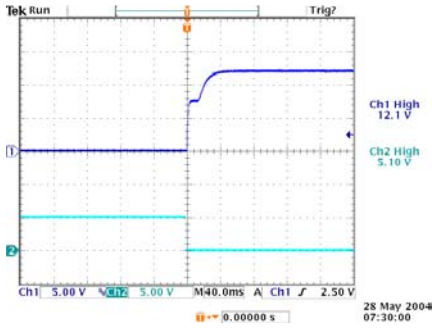
ABSOLUTE MAXIMUM RATINGS		
Temperature	Operation	-40°C to +120°C
	Storage	-55°C to +125°C
Input Voltage Range	Operation:	
	24V Models	-0.5V to +40Vdc
	48V Models	-0.5V to +80Vdc
	Transient (100mS):	
24V Models	50V Maximum	
48V Models	100V Maximum	
Isolation Voltage	Input to Output	2.0KV Minimum
	Input to Case	1.0KV Minimum
	Output to Case	1.0KV Minimum
Remote Control Voltage		-0.5V to +12Vdc

INPUT SPECIFICATIONS		
Operation Voltage Range	24V Models	+18V to +36Vdc
	48V Models	+36V to +75Vdc
Reflected Ripple Current	L <sub>EXT</sub> = 10uH	20mA Max
Power ON Voltage Ranges	24V Models	+17.5V to +17.9Vdc
	48V Models	+35.0V to +35.8Vdc
Power OFF Voltage Ranges	24V Models	+17.0V to +17.4Vdc
	48V Models	+34.0V to +34.8Vdc
Off State Input Current	V <sub>NOM</sub>	6mA Max
Latch-State Input Current	V <sub>NOM</sub>	8mA Max
Input Capacitance	24V Models	33.0uF Max
	48V Models	6.8uF Max

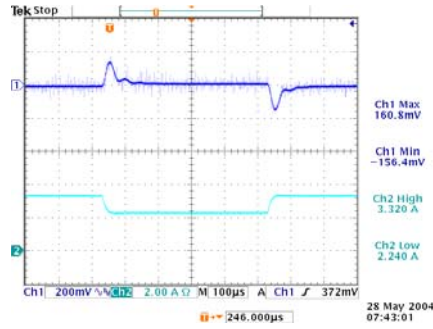
GENERAL SPECIFICATIONS		
Conversion Efficiency	Typical	See table
Switching Frequency	Typical	300KHz
MTBF	Bellcore	3.45×10 <sup>6</sup> hrs @GB.
OTP	Internal	120°C
Weight		1.9 oz
Size		2.30"×2.40"×0.36"

OUTPUT SPECIFICATIONS		
Voltage Accuracy	Typical	±1%
Line Regulation	Full Input Range	±0.2%
Load Regulation	10%~100%	±0.2%
Temperature Drift	-40°C ~100°C	±0.02%/°C
Output Tolerance Band	All Conditions	±3%
Ripple & Noise (20MHz)	Peak-Peak (RMS)	3% (1%) V <sub>o</sub>
Over Voltage Protection	V <sub>NOM</sub> , 10% Load	115~130 %V <sub>o</sub>
Output Current Limits	V <sub>NOM</sub>	105%~125%
Voltage Trim	V <sub>NOM</sub> , 10% Load	±10%
Input Ripple Rejection (<1KHz)	V <sub>NOM</sub> , Full Load	-50dB
Step Load (2.5A/uS)	50%~75% Load	300mV/300uS
Start-Up Delay Time	V <sub>NOM</sub> , Full Load	20mS/250mS

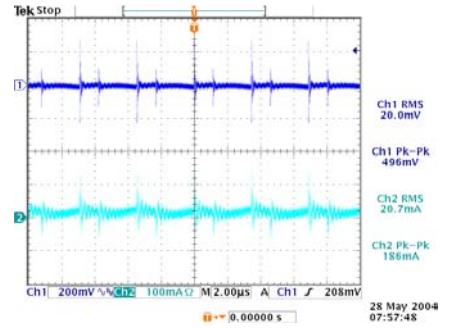
CONTROL FUNCTIONS		
Remote Control	Logic High	+3.0V to +6.5V
	Logic Low	0V to +1.0V
Input Current of Remote Control Pin		-0.5mA ~ +1.5mA



Start-Up Waveform  
( $V_{IN}$ : 50V, Load: 25A)



Transient Response  
( $V_{IN}$ : 50V, Load: 15A/10A@2.5A/µs)



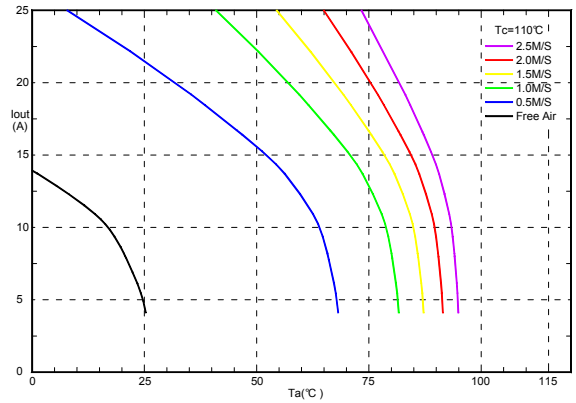
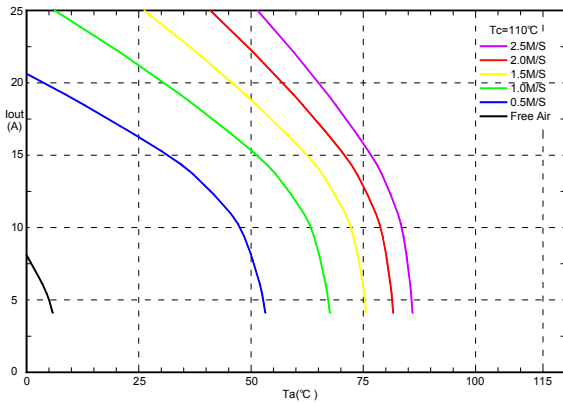
Output Ripple/Noise and Input Ripple Current  
( $V_{IN}$ : 50V, Load: 25A,  $L_{IN}$ =10µH)

To be provide in next version

To be provide in next version

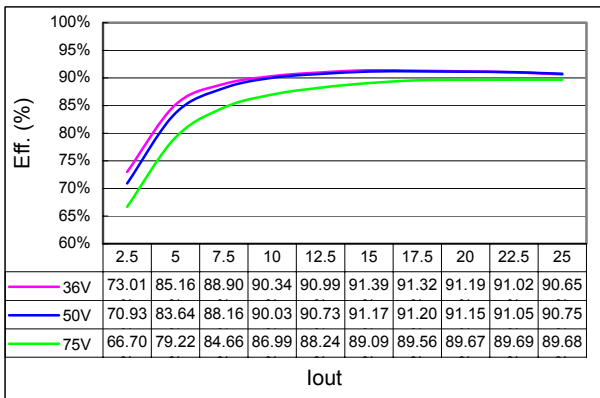
Thermal Plot with 55°C-200LFM Airflow at +Vi/+Vo Direction

Thermal Plot with 55°C-200LFM Airflow at +Vi/-Vi Direction

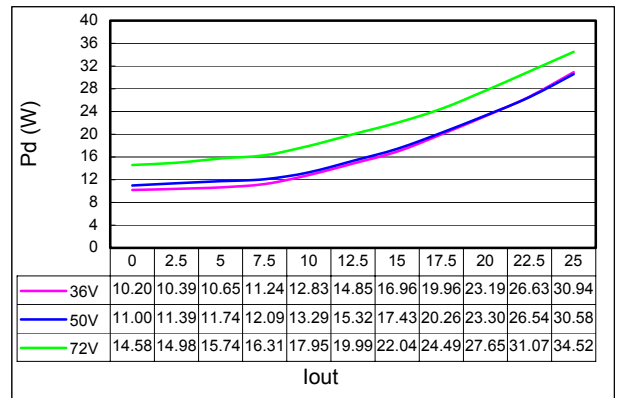


Derating Plot of CPH48120xxxM-25  
(The cooling effect of test PCB was canceled)

Derating Plot of CPH48120xxxA-25  
(The cooling effect of test PCB was canceled)



Efficiency Plot



Power Loss Plot