

UH2H Series

1/2 Brick up to 504W/42A



The **UH2H** series provides up to 504W/42A output with industry standard half brick package. The efficient SR stage is combined with patented “Buck Reset” topology that would reduce power loss to achieve 144W/in³ power density. The multi-layer single side circuit board design plus the patented Sink-Plate technology would enhance the thermal performance and improve its reliability. Modules are designed for Telecom, Servers, Networking equipments and other applications that use a 300V (200~400V) input bus.

PART NUMBER SYSTEM

UH	2H	480	a	b	c	d	-	N	10	XX	X
Series Name	Input Voltage	Output Voltage	Enable Logic	Pin Dimension	Standoff Height	Base-Plate		Current Share	Output Current	Suffix	Version
UH	200V~420V	Unit: 0.1V Increments 480=48V 120=12V	P: Positive N: Negative	0 : 0.12" 1 : 0.16" 2 : 0.20" 3 : 0.24"	0 : 0.02"	E : 1.0mm Metal Plate		N : without Current share S : secondary Current share	00~A0 : for output current rating	For marketing purpose only	

MODEL LIST (Contact to factory for special input / output)

Part Number *	Maximum Input	Maximum Output	Efficiency
UH2H480abcd-N10XXX	200V~420V 554W	48V/10.5A 504W	91%
UH2H280abcd-N18XXX	200V~420V 554W	28V/18.0A 504W	91%
UH2H120abcd-N42XXX	200V~420V 554W	12V/42.0A 404W	91%
UH2H480abcd-N10XXX	200V~420V 554W	48V/10.5A 504W	91%

REFERENCED THERMAL IMAGES

To be updated in next version	To be updated in next version

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SPECIFICATIONS

Absolute Maximum Ratings		
Temperature	Operation Storage	-40°C to +110°C -55°C to +125°C
Input Voltage Range	Operation: 300V Models Transient (100mS): 300V Models	+190V to +420Vdc 450V Maximum
Isolation Voltage	Input to Output Input to Case Output to Case	3.0KV Minimum 1.5KV Minimum 1.0KV Minimum
Remote Control		-0.5V to +12Vdc

General Parameters		
Conversion Efficiency	Typical	See table
Switching Frequency	Typical	160KHz
MTBF	Bellcore TR-332 issue 6	2.23×10 ⁶ hrs @GB/25°C. (UH2H280abcd-N18XXX)
OTP	Internal	110°C(Tc) ±5°C
Weight	1.0mm metal plate	163g

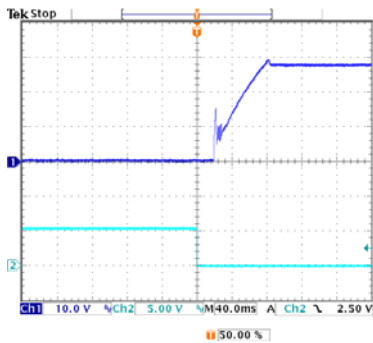
Control Functions		
Remote Control	Logic High Logic Low	+3.0V to +6.5V 0V to +1.0V
Input Current of Remote Control Pin		-0.5mA ~ +1.5mA

Input		
Operation Voltage Range	300V Models	+200V to +400Vdc
Reflected Ripple Current	L _{EXT} = 20uH	30mA rms/200mA _{p-p}
Input Over Voltage Protection		+435V _{max} .
Turn-On Voltage Threshold	300V Models	+190V to +198Vdc
Turn-Off Voltage Threshold	300V Models	+185V to +194Vdc
Off State Input Current	V _{NOM}	8mA Max
Latch-State Input Current	V _{NOM}	12mA Max
Input Capacitance	300V Models	4.7uF Max

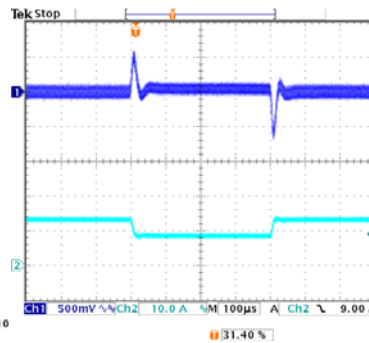
Output		
Voltage Accuracy	Typical	±1.0%
Line Regulation	Full Input Range	±0.3%
Load Regulation	5%~100%	±0.3%
Temperature Drift	-40°C ~100°C	±0.03%/°C
Output Tolerance Band	All Conditions	±4%
Ripple & Noise (20MHz)	Peak-Peak (RMS)	3% (1%) V _O
Over Voltage Protection	V _{NOM} , 10% Load	115~130 %V _O
Output Current Limits	V _{NOM}	108%~125%
Voltage Trim	V _{NOM} , 10% Load	±10%
Input Ripple Rejection (<1KHz)	V _{NOM} , Full Load	-50dB
Step Load (2.5A/μS)	50%~75% Load	±6%Vo/500μS
Start-Up Delay Time	V _{NOM} , Full Load	100mS/250mS

UH2H Series

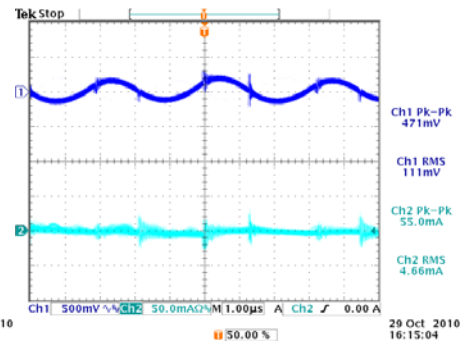
TYPICAL WAVES AND CURVES



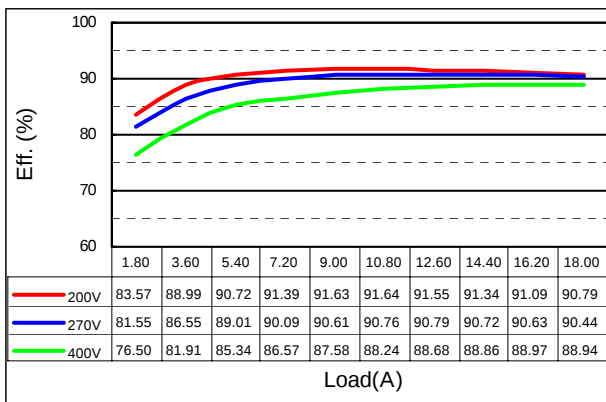
Start-up waveform of UH2H280abcd-S18XXX
(V_{IN} : 270V, Load: 18A) (External CAP100uF/100V)



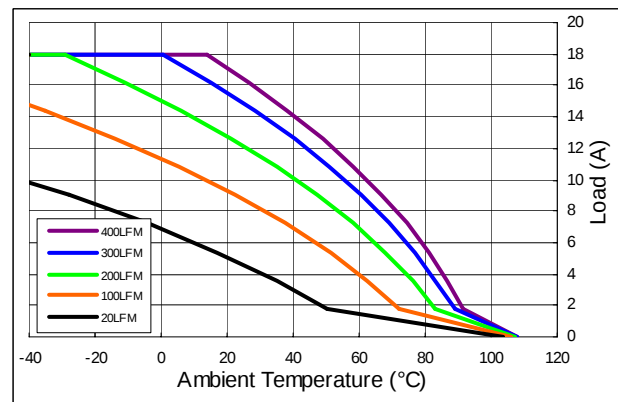
Transient response of UH2H280abcd-S18XXX
(V_{IN} : 270V, Load: 14.5A/7.5A@2.5A/μS)
(External CAP100uF/100V)



Input/Output ripples of UH2H280abcd-S18XXX
(V_{IN} : 270V, Load: 18A, L_{IN} =20uH, C_{IN} =270uF)
(External CAP100uF/100V)



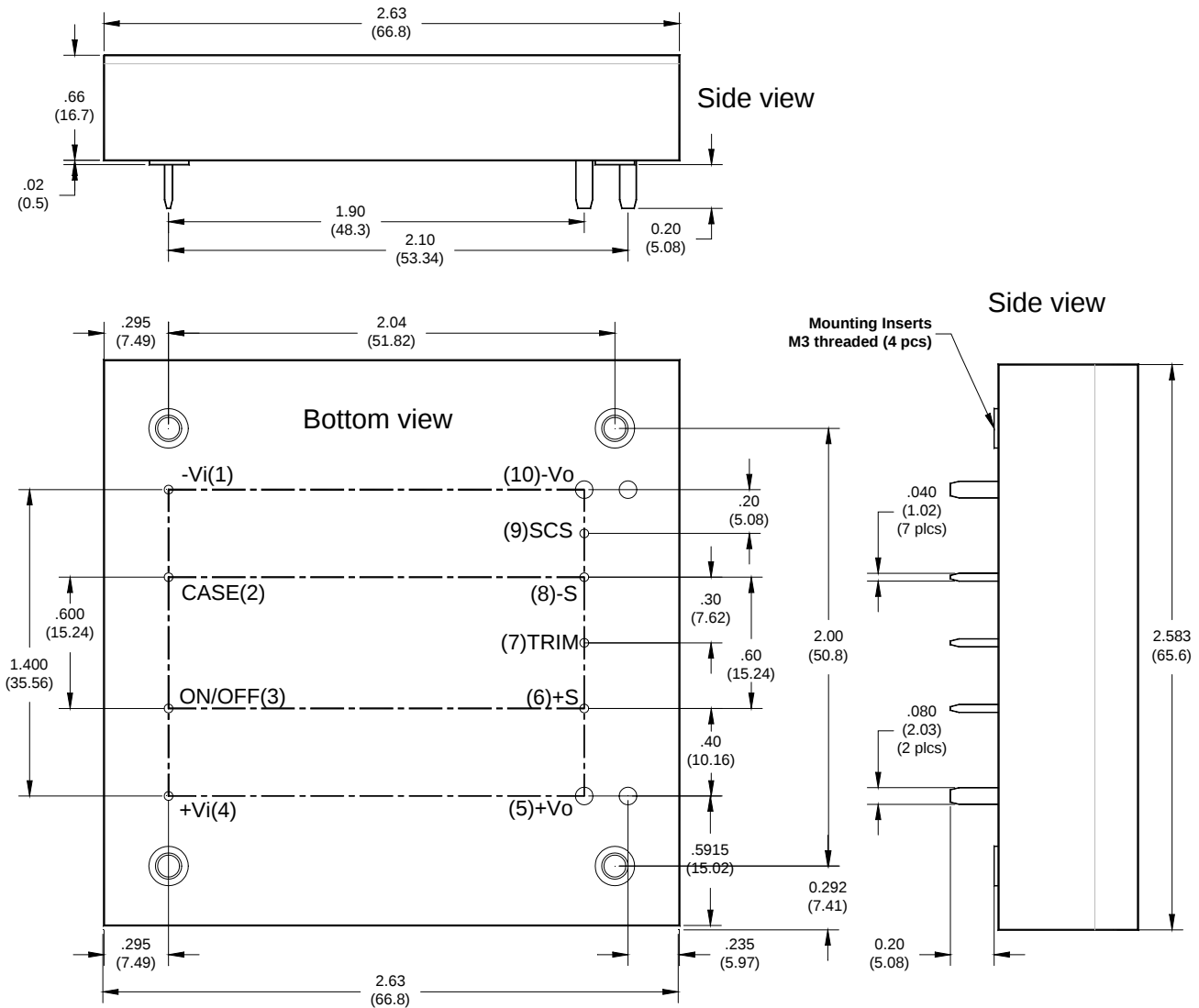
Efficiency plot of UH2H280abcE-S18XXX



Derating curves of UH2H280abcE-S18XXX for $T_C = 110^\circ\text{C}$

UH2H Series

METAL ENCLOSED PACKAGE



Dimensions and Pin Connections

Designation	Function Description	Pin #
-Vi	Negative input	1
CASE	Connected to base plate	2
ON/OFF	Remote control. To turn-on and turn-off output.	3
+Vi	Positive input	4
+Vo	Positive output	5
+S	Positive remote sense	6
TRIM	Output voltage adjust	7
-S	Negative remote sense	8
SCS	Secondary current share bus	9
-Vo	Negative output	10

Dimensions: inches (mm)

Tolerances: .xx±0.02 (.x±0.5)
.xxx±0.01 (.x±0.25)

Weight: 163g

Base plate: Aluminum alloy with anode oxide

Mounting inserts: Stainless steel

Maximum torque: 3.9 in-lb (0.44Nm)

Pin material: Copper alloy or Brass

Pin plating: Golden over Nickel

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REFERENCED EMC CIRCUIT

Referenced EMC Performance

The tested result shown in left-hand side is obtained by loading the power module with a resistive load only. It can be used as a design reference for customer system. However! The performance of customer's system depends on the whole system design. It should be noted that modifications on the circuit parameters and fine adjustment of the final layout affect the final EMC performance greatly.

To be updated in next version

Bandwidth of EMC Components

No components are ideal for infinite frequency range. The bandwidth of EMC components should be taking into consideration when designing an EMC filter circuit. To connect ceramic capacitor with electricity capacitor in parallel and connect low inductance inductor with big one could get a better bandwidth.

NOTE:

1. It is recommended that the input should be protected by fuses or other protection devices.
2. All specifications are typical at nominal input, full load and 25°C unless otherwise noted.
3. Specifications are subject to change without notice.
4. Printed or downloaded datasheets are not subject to Onetech document control.
5. Product labels shown, including safety agency certificates, may vary based on the date of manufacture.
6. Information provided in this documentation is for ordering purposes only.
7. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications, which necessitate specific safety and regulatory standards other than the ones listed in this datasheet.

IMPORTANT

※ General specifications and the performances are related to standard series only, no special customer specification display here except requested items.

※ In order to secure effective usage of converter and the validity of Onetech's service and warranty coverage, please refer to the applicatio

notes for general usage. For needs of usage beyond the application notes, please contact to Onetech headquarter or our regional salesrepresentative office for help.