

- High efficiency ..... 91%@28V/18A
- High useable power--- Add Heat-Sink (5.0mm Height)  
..... 28V/16.2A/454W at Tc 50°C/500LFM
- Low profile (Open Frame) ..... 0.50"(12.7mm)
- Standard footprint ..... 2.66"×2.62"
- Operation temperature ..... -40°C~110°C

The UH2H280abcd-x18 provides up to 504W/18A outputs with industry standard half brick package. The efficient SR stage is combined with patented "Buck Reset" topology for reduce power loss to achieve 144W/in<sup>3</sup> power density. The multi-layer single side circuit board design plus the patented Sink-Plate technology is able to 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 *	Maximum Input	Maximum Output	Efficiency
UH2H280abcd-x18	200V~420V	554W	28V/18.0A
		504W	91.0%

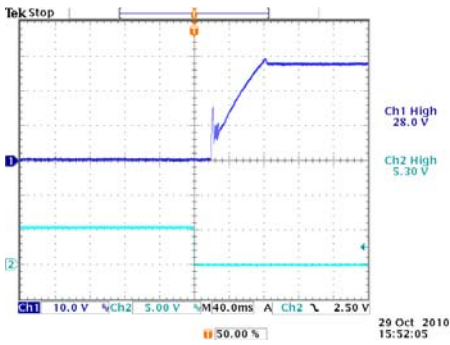
\* Options for **UH2H280abcd-x18** are listed as follows:

- a** (Enable Logic): **P**: Positive **N**: Negative  
**b** (Pin Length): **0**: 0.12" **1**: 0.16" **2**: 0.20" **3**: 0.24"  
**c** (Standoff Height): **0**: 0.02"  
**d** (Base-Plate/Module Thickness): **E**: Metallic enclosure with 1.0mm Metal Plate /0.48"  
**x** (Current Share): **N**: Without Current Share **S**: Secondary current share  
**18**(Output): for output current rating **18A**

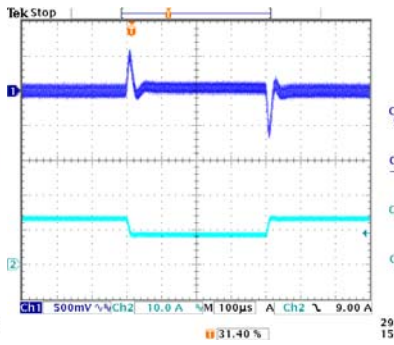


**Example:** **UH2H280P20E-N18** is a **UH2H** series half brick 200~400V to 28V/18A dc/dc converter with positive control logic, 0.20" pin length, 0.02" of standoff height and 1.0mm metal plate. It features no current share function and the total height is 0.02"+0.44"=0.46"

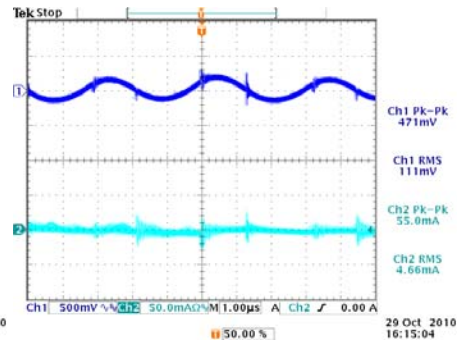
ABSOLUTE MAXIMUM RATINGS			INPUT SPECIFICATIONS		
Temperature	Operation	-40°C to +110°C	Operation Voltage Range	300V Models	+200V to +400Vdc
	Storage	-55°C to +125°C	Reflected Ripple Current	L <sub>EXT</sub> = 20uH C <sub>EXT</sub> = 270uF	
Input Voltage Range	Operation:		Input Over Voltage Protection		20mA(rms)/100mAp-p +435VMax.
	300V Models	+190V to +420Vdc	Turn-On Voltage Threshold	300V Models	+190V to +198Vdc
	Transient (100ms):		Turn-Off Voltage Threshold	300V Models	+185V to +194Vdc
	300V Models	450V Maximum	Off State Input Current	V <sub>NOM</sub>	8mA Max
Isolation Voltage	Input to Output	3.0KVdc	Latch-State Input Current	V <sub>NOM</sub>	12mA Max
	Input to Case	1.5KVdc	Input Capacitance	300V Models	4.7uF Max
	Output to Case	1.0KVdc			
Remote Control		-0.5V to +12Vdc			
GENERAL SPECIFICATION			OUTPUT SPECIFICATIONS		
Conversion Efficiency	Typical	See table	Voltage Accuracy	Typical	±1%
Switching Frequency	Typical	160KHz	Line Regulation	Full Input Range	±0.3%
MTBF	Bellcore	2.62×10 <sup>6</sup> hrs @GB/25°C.	Load Regulation	5%~100%	±0.3%
	TR-332 issue 6	1.09×10 <sup>6</sup> hrs @GB/50°C.	Temperature Drift	-40°C ~100°C	±0.03%/°C
OTP	Internal	110°C±5°C (T <sub>c</sub> )	Output Tolerance Band	All Conditions	±4%
Weight		163g/1mm Metal Plate	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>	108%~125%
			Voltage Trim	V <sub>NOM</sub> , 10% Load	±10%
			Input Ripple Rejection (<1KHz)	V <sub>NOM</sub> , Full Load	-50dB
Remote Control	Logic High	+3.0V to +6.5V	Step Load (2.5A/uS)	50%~75% Load	±4%Vo/500us
	Logic Low	0V to +1.0V	Start-Up Delay Time	V <sub>NOM</sub> , Full Load	100ms/250ms
Input Current of Remote Control Pin		-0.5mA ~ +1.5mA			



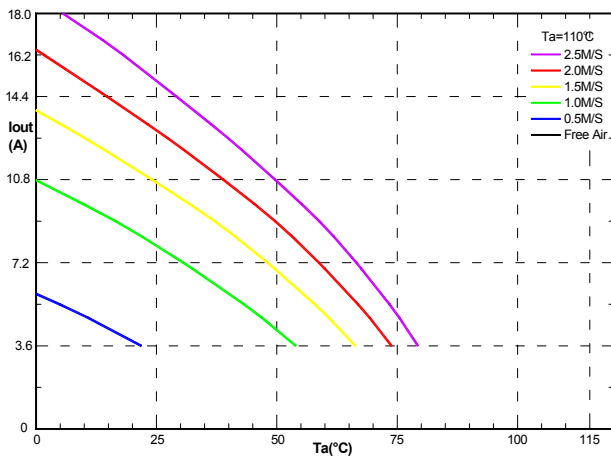
**Start-Up Waveform**  
 (VIN: 270V, Load: 18A)  
 (External CAP 100uF/100V)



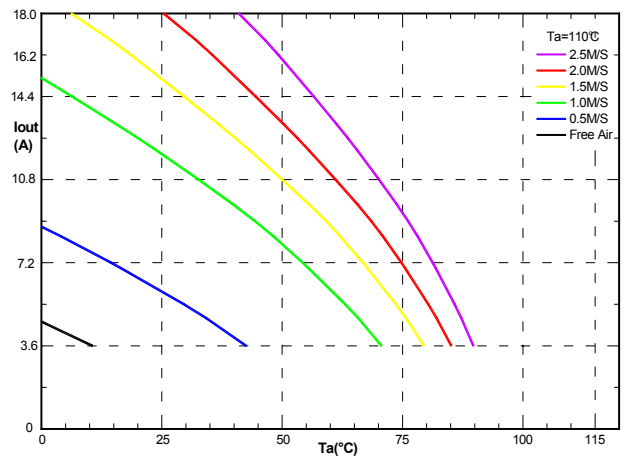
**Transient Response**  
 (VIN: 270V, Load: 7.5A/4.5A@2.5A/μS)  
 (External CAP 100uF/100V)



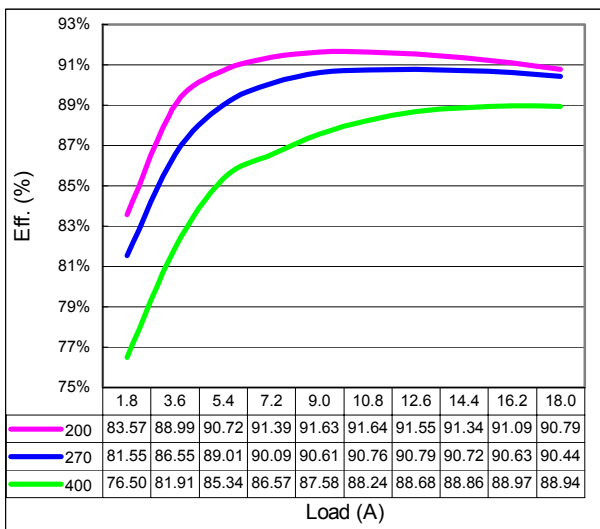
**Output Ripple/Noise and Input Ripple Current**  
 (VIN: 270V, Load: 9A, LIN=20uH, CIN=270uF)  
 (External CAP 100uF/100V)



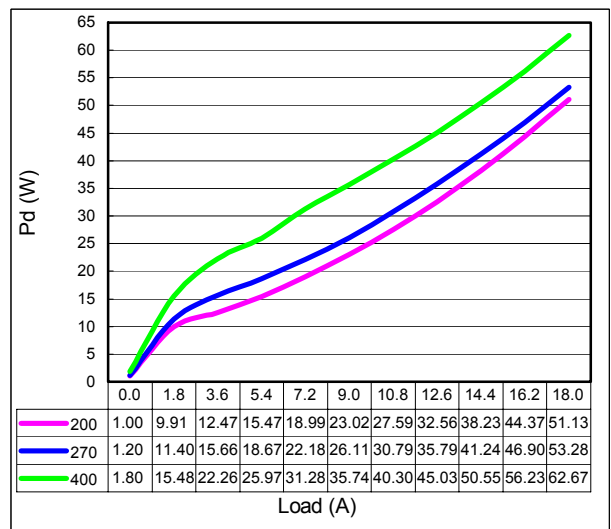
**Derating Plot of UH2H280P20E-N18**  
 Vin: 270V



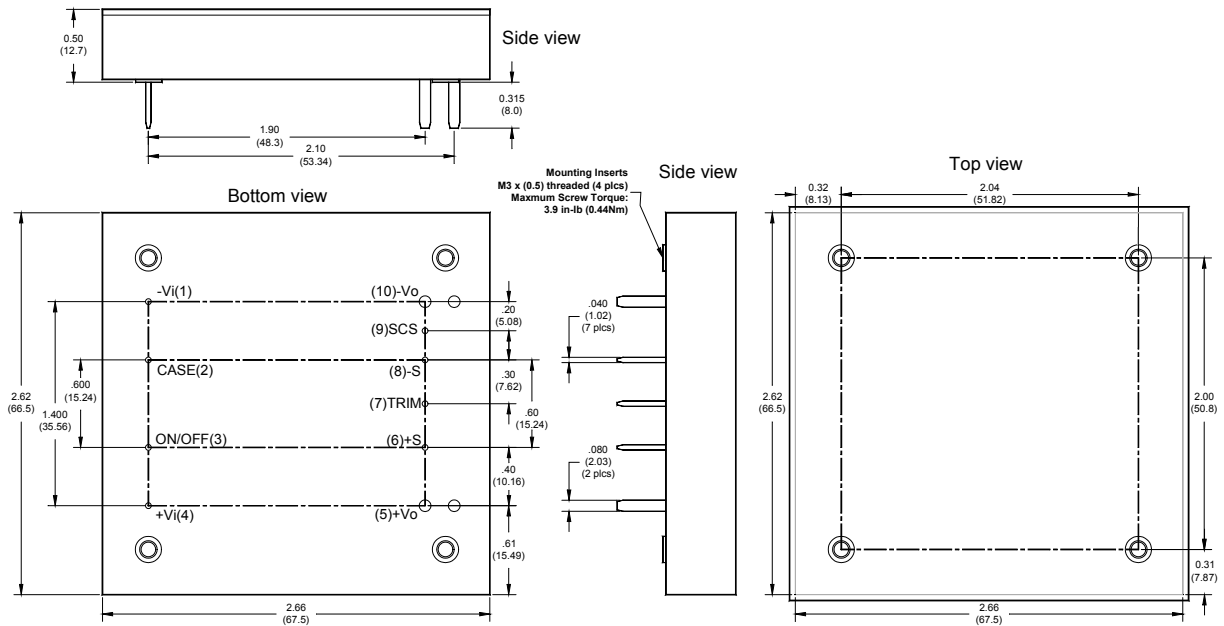
**Derating Plot of UH2H280P20V-N18**  
 Vin: 270V / Add Heat-Sink (5.0mm Height)



**Efficiency Plot**



**Power Loss Plot**



**Module Mechanical Data**

**Connection:**

Designation	Function Description	Pin #
-Vi	Negative input	1
CASE	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:** 87g 1.0mm Metal Plate

94g 3.0mm Sink-Plate

**Base plate:** Aluminum alloy with anode oxide

**Mounting inserts:** Iron alloy with Nickel plated

**Maximum Torque:** 3.9 in-lb (0.44Nm)

**Pin material:** Copper alloy or Brass

**Pin plating:** Golden over Nickel

**Referenced EMC Circuit:**

The tested curve and referenced EMC circuit:

TBD	TBD
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**Important Note:**

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 Glary's service and warranty coverage, please carefully go through the application notes stated at the end of this document. For needs of usage beyond the application notes, please contact us or our regional sales representative office for help.

## Reliability Prediction Result of UH2H280abcd-x18

**Base Plate Temperature ( ° C): 25**

**Input Range: 200~420Vdc**

**Output Power: 28Vdc / 18A / 504W**

The MTBF, calculated in accordance with the Parts Count Method of Bellcore TR-332 issue 6, December 1997. The General Case is used for calculations.

### *Parts Failure Rates*

Resistors :	18.52
Capacitors :	52.11
Diodes :	34.25
BiopolarTransistors :	10.97
Field Effect Transistors :	68.31
Optocouplers :	10.97
Chokes :	68.17
Transformers :	9.04
Integreated Circuits :	100.11
Zener Diode:	6.54
Thermistor:	1.71
Total :	380.70

$$\begin{aligned} \text{Unit} &= E * p \\ &= \mathbf{380.70 \text{ Failures} / 10^9 \text{ Hours}} \\ \text{MTBF} &= \mathbf{2,626,717 \text{ Hours}} \\ &= \mathbf{299.854 \text{ Years}} \end{aligned}$$

The detail MTBF calculation of UH2H series dc/dc converters are base on specified base plate temperature with component temperature rise listed as following pages.

## Reliability Prediction Result of UH2H280abcd-x18

**Base Plate Temperature ( ° C): 50**

**Input Range: 200~420Vdc**

**Output Power: 28Vdc / 18A / 504W**

The MTBF, calculated in accordance with the Parts Count Method of Bellcore TR-332 issue 6, December 1997. The General Case is used for calculations.

### *Parts Failure Rates*

Resistors :	29.10
Capacitors :	60.59
Diodes :	66.45
BiopolarTransistors :	90.43
Field Effect Transistors :	125.87
Optocouplers :	90.43
Chokes :	105.61
Transformers :	13.98
Integreated Circuits :	311.74
Zener Diode:	10.28
Thermistor:	5.70
Total :	910.17

$$\begin{aligned} \text{Unit} &= E * p \\ &= \mathbf{910.17 \text{ Failures} / 10^9 \text{ Hours}} \\ \text{MTBF} &= \mathbf{1,098,702 \text{ Hours}} \\ &= \mathbf{125.423 \text{ Years}} \end{aligned}$$

The detail MTBF calculation of UH2H series dc/dc converters are base on specified base plate temperature with component temperature rise listed as following pages.

## Reliability Prediction Result of UH2H280abcd-x18

**Base Plate Temperature ( ° C): 75**

**Input Range: 200~420Vdc**

**Output Power: 28Vdc / 18A / 504W**

The MTBF, calculated in accordance with the Parts Count Method of Bellcore TR-332 issue 6, December 1997. The General Case is used for calculations.

### *Parts Failure Rates*

Resistors :	42.85
Capacitors :	68.93
Diodes :	117.23
BiopolarTransistors :	550.41
Field Effect Transistors :	215.29
Optocouplers :	550.41
Chokes :	153.77
Transformers :	20.34
Integreated Circuits :	844.52
Zener Diode:	15.14
Thermistor:	15.99
Total :	2594.88

$$\begin{aligned} \text{Unit} &= E * p \\ &= \mathbf{2594.88 \text{ Failures} / 10^9 \text{ Hours}} \\ \mathbf{MTBF} &= \mathbf{385,374 \text{ Hours}} \\ &= \mathbf{43.992 \text{ Years}} \end{aligned}$$

The detail MTBF calculation of UH2H series dc/dc converters are base on specified base plate temperature with component temperature rise listed as following pages.