

IHB100S

100 Watt Single Output Half Brick DC/DC Converter



- 33 - 75V Input Range
- 1500V_{DC} Isolation Between Input and Output
- High Efficiency: 86% Typical
- Operation to 100°C Baseplate Temperature
- 50µS Transient Recovery, 0-90% Load Step
- Primary & Secondary Remote On/Off
- External Synchronization
- IHB100S Series Are Approved to UL/CUL 1950, EN 60950



The IHB100S series standard half brick modules are designed for today's demanding industrial applications. Available in two wide range inputs, these isolated converters offer many features in the standard models. With a complement of safety agency approvals and low noise operations, the converters respond extremely fast to change in load conditions. Inherent in the design are very well-controlled output voltage and no need for minimum loading.

PRODUCT SELECTION CHART

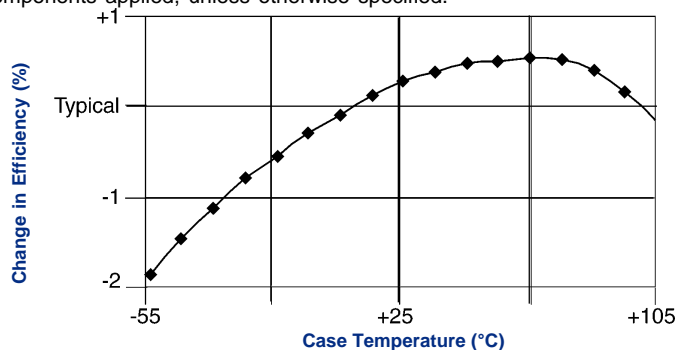
MODEL	INPUT VOLTAGE (VDC)	RATED VOUT (VDC)	RATED MAXIMUM IOU (A)
IHB100S4803	48 (33-75)	3.3	30
IHB100S4805	48 (33-75)	5.1	20

ABSOLUTE MAX. RATINGS

Output Short-Circuit Duration	Continuous
Baseplate Temperature	+100°C
Lead Temperature (soldering, 10 seconds max)	+300°C
Storage Temperature	+125°C
Input to Output Isolation	1500 VDC

EFFICIENCY vs TEMPERATURE

T_{CASE} = +40°C, nominal input voltage, nominal load, recommended external components applied, unless otherwise specified.*



SPECIFICATIONS, ALL MODELS

Specifications are at $T_{CASE} = +40^{\circ}C$ nominal input voltage unless otherwise specified.

INPUT	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
	Voltage Range		33	48	75	V _{DC}
	Reflected Ripple Current	Peak - Peak			370	mA
	Input Ripple Rejection	DC to 1KHz	50	60		dB
	Maximum Input Current	Output Power = 100W $V_{IN} = 30V$			5	A
	No Load Power Dissipation	$P_{OUT} = 0, V_{IN,Min} < V_{IN} < V_{IN,Max}$			6	W
	Inrush Charge				0.247	mC
	Quiescent Operating Current					
Primary On/Off Disabled			7.5	10	mA	
Secondary On/Off Disabled			15	20	mA	

GENERAL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
	ISOLATION						
	Input to Output	Peak Test	1500			V _{DC}	
	Input to Baseplate		1500			V _{DC}	
	Resistance, Input - Output		10			M Ω	
	Capacitance, Input - Output			2000		pF	
	Leakage Current	$V_{ISO} = 240V_{AC}, 60Hz$		180		$\mu A, rms$	
	GENERAL						
	Set Point Accuracy	$V_{IN} = \text{Nominal}, I_O = I_{NOM}$			1	%	
	Turn-on Time	Within 1% of Nominal V_{OUT}		3.5	5	mSec	
	Remote On/Off Control Inputs						
	Primary	Open Collector/Drain					
	Sink Current-Logic Low	$V_{IN} = V_{MAX}$			7	mA	
	Vlow				0.8	V	
	Vhigh				Open Collector		
	Secondary	Open Collector/Drain					
	Sink Current-Logic Low				100	μA	
	Vlow				0.4	V	
	Vhigh				Open Collector		
	External Synchronization Input						
	Frequency		440		520	KHz	
	Pulse Width		150		320	nSec	
	Source Impedance				47	Ω	
	Input High Voltage		4		5	V	
	Input Low Voltage		0		1	V	
	Input Impedance			470		Ω	
	Switching Frequency		470	480	490	KHz	
	Weight				3 (85)	oz (g)	
	TEMPERATURE						
	Operation/Specification	Case Temperature	-40		+100	$^{\circ}C$	
	Storage		-55		+125	$^{\circ}C$	
	Shutdown		+100		+115	$^{\circ}C$	
Thermal Impedance	Case to Ambient		8.2		$^{\circ}C/W$		

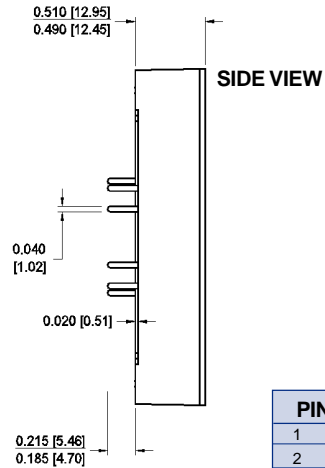
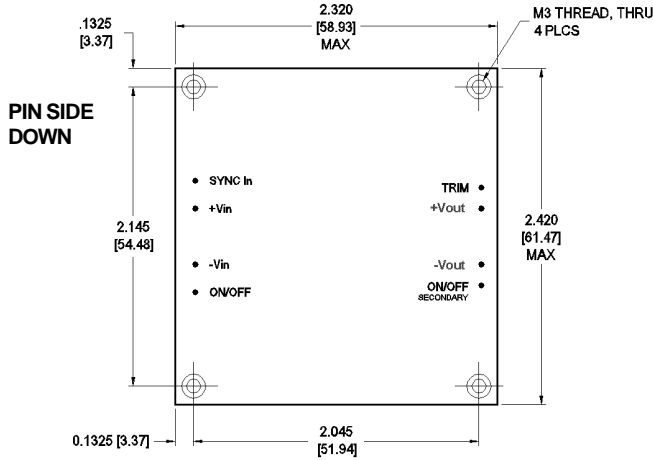
* See Application Notes available on the web at www.cdpowerelectronics.com

PARAMETER	CONDITIONS	V_{OUT}			UNITS
		Min	Nom	Max	
Output Power	100 Watts Max		50	100	W
Set Point Voltage	$I_{O,Nom}$		3.3		V
Output Current, I_{OUT}		0	15	30.0	A
Output Ripple, p-p	DC to 20MHz*		100	200	mV
Output Adjust Range	*	3.15		3.80	V
Output Temperature Drift			.02	.05	%/°C
Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$		0.05	0.10	%
Load Regulation	Min Load to Rated Load		0.50	1.00	%
Current Limit Inception			38		A
Short-Circuit Current			30	38	A
Transient Response	50 to 100% Load Step				
Peak Deviation			150	250	mV
Settling Time	V_{OUT} , 1% of $V_{OUT,Nom}$		35	50	μSec
Overvoltage Limit		4.2		5.0	V
Efficiency	$V_{IN}=NOM, I_O=30A$	83	84		%

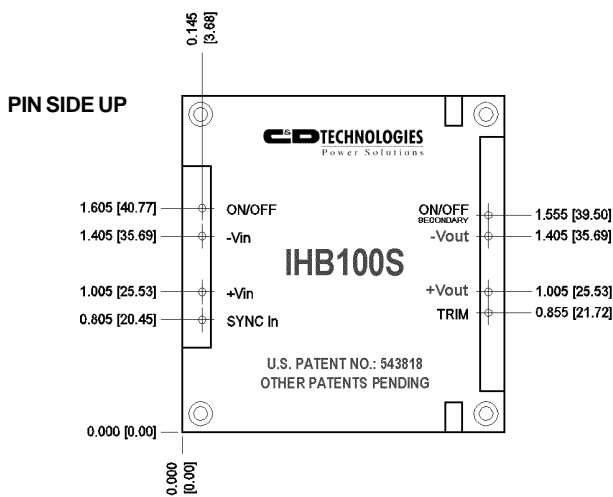
PARAMETER	CONDITIONS	V_{OUT}			UNITS
		Min	Nom	Max	
Output Power	100 Watts Maximum		50	100	W
Set Point Voltage	$I_{O,Nom}$		5.1		V
Output Current, I_{OUT}		0	10	20	A
Output Ripple, p-p	DC to 20MHz*		100	150	mV
Output Adjust Range	*	4.60		5.50	V
Output Temperature Drift			.02	.05	%/°C
Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$		0.05	0.10	%
Load Regulation	Min Load to Rated Load		0.5	1.0	%
Current Limit Inception			26.0		A
Short-Circuit Current			20.0	26.0	A
Transient Response	50 to 100% Load Step				
Peak Deviation			200	300	mV
Settling Time	V_{OUT} , 1% of $V_{OUT,Nom}$		35	50	μSec
Overvoltage Limit		6.0		7.0	V
Efficiency	$V_{IN}=NOM, I_O=20A$	86	87		%

* See Application Notes available on the web at www.cdpowerelectronics.com

MECHANICAL



PIN CONNECTIONS	
1	PRIMARY ON/OFF
2	-VIN
3	+VIN
4	SYNC IN
5	TRIM
6	+VOUT
7	-VOUT
8	SECONDARY ON/OFF



NOTES:

All dimensions are in inches (millimeters).
 PIN PLACEMENT TOLERANCE: ± 0.005 "
 MECHANICAL TOLERANCE: ± 0.015 "

Marked with: specific model ordered, date code, job code.

MATERIAL: Units are encapsulated in a low thermal resistance molding compound which has excellent chemical resistance and electrical properties in high humidity environments and over a wide operating temperature range. The encapsulant and outer shell of the unit have UL94V-0 ratings. Lead material is solder plated to allow ease of solderability.

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