C&D TECHNOLOGIES
Power Solutions

Corporate: www.cdtechno.com
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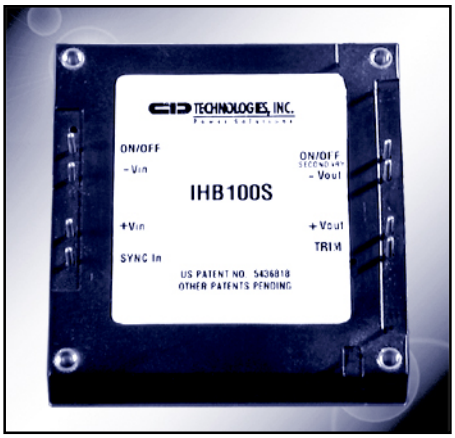
# IHB100S

## 100 Watt Single Output Half Brick DC/DC Converter




- 33 - 75V Input Range
- 1500VDC 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

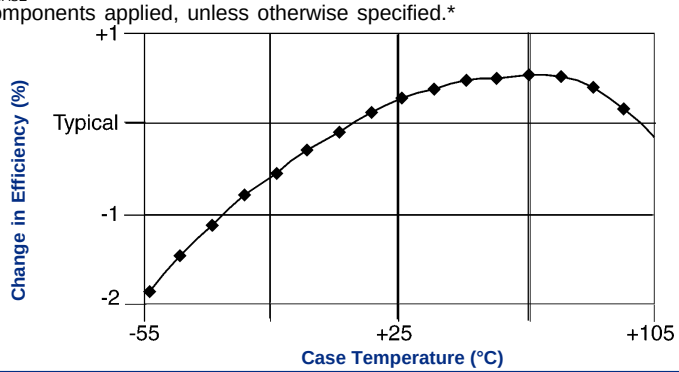
| MODEL | INPUT VOLTAGE (VDC) | RATED VOUT (VDC) | RATED MAXIMUM IOUT (A) |
|---|---|---|---|
| IHB100S4803 | 48 (33-75) | 3.3 | 30 |
| IHB100S4805 | 48 (33-75) | 5.1 | 20 |

## 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°C nominal input voltage unless otherwise specified.**

| | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| INPUT | Voltage Range | | 33 | 48 | 75 | VDC |
| | Reflected Ripple Current | Peak - Peak | | | 370 | mA |
| | Input Ripple Rejection | DC to 1KHz | 50 | 60 | | dB |
| | Maximum Input Current | Output Power = 100W<br>$V_{IN}$ = 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 |

| | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNITS |
|---|---|---|---|---|---|---|
| GENERAL | **ISOLATION** | | | | | |
| | Input to Output | Peak Test | 1500 | | | VDC |
| | Input to Baseplate | | 1500 | | | VDC |
| | Resistance, Input - Output | | 10 | | | MΩ |
| | Capacitance, Input - Output | | | 2000 | | pF |
| | Leakage Current | $V_{ISO}$ = 240VAC, 60Hz | | 180 | | µA, rms |
| | **GENERAL** | | | | | |
| | Set Point Accuracy | $V_{IN}$ = 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 Impedence | | | | 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** | Case Temperature | | | | |
| | Operation/Specification | | -40 | | +100 | °C |
| | Storage | | -55 | | +125 | °C |
| | Shutdown | | +100 | | +115 | °C |
| | Thermal Inpedance | Case to Ambient | | 8.2 | | °C/W |

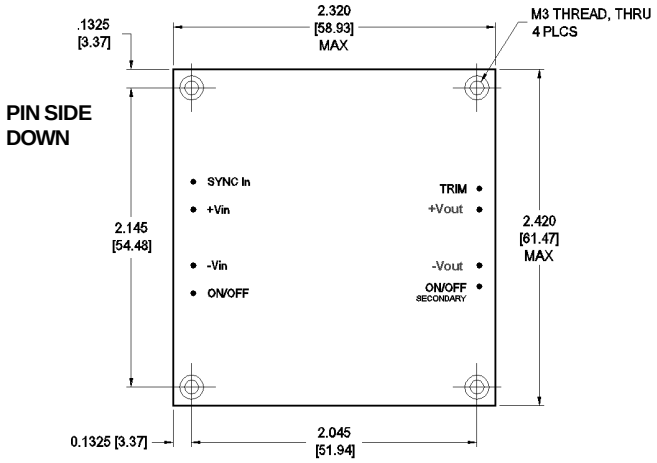
* See Application Notes available on the web at www.cdpowerelectronics.com

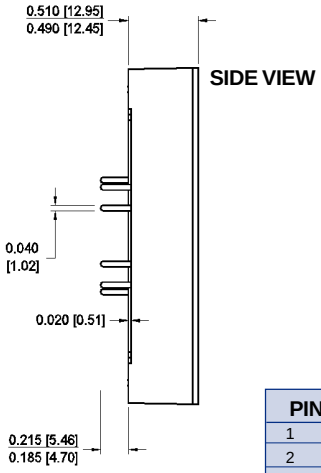
| IHB100S4803 OUTPUT | PARAMETER | CONDITIONS | Min | $V_{OUT}$ Nom | Max | UNITS |
|---|---|---|---|---|---|---|
| | Output Power | 100 Watts Max | | 50 | 100 | W |
| | Set Point Voltage | $I_{O\,Nom}$ | | 3.3 | | V |
| | Output Current, $I_{OUT}$ | | 0 | 15 | 30.0 | A |
| | Output Ripple, p-p | DC to 20MHz* | | 100 | 200 | mV |
| | Output Adjust Range | * | 3.15 | | 3.80 | V |
| | Output Temperature Drift | | | .02 | .05 | %/°C |
| | Line Regulation | $V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$<br>$I_O = I_{O,Nom}$ | | 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 | | % |

| IHB100S4805 OUTPUT | PARAMETER | CONDITIONS | Min | $V_{OUT}$ Nom | Max | UNITS |
|---|---|---|---|---|---|---|
| | 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 | $V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$<br>$I_O = I_{O,Nom}$ | | 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 | | % |

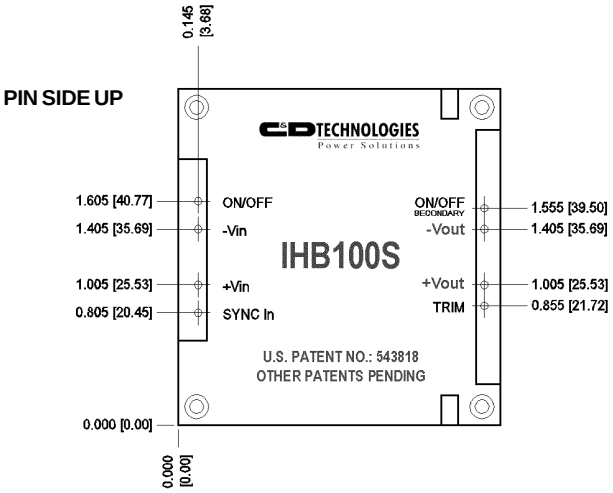
* See Application Notes available on the web at www.cdpowerelectronics.com

# 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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