

# IHB100SC



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

**OBSOLETE PRODUCT**  
Contact factory for replacement model

- RoHS Compliant
- 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
- IHB100SCC Series Are Approved to UL/CUL 1950, EN 60950

The IHB100SC 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

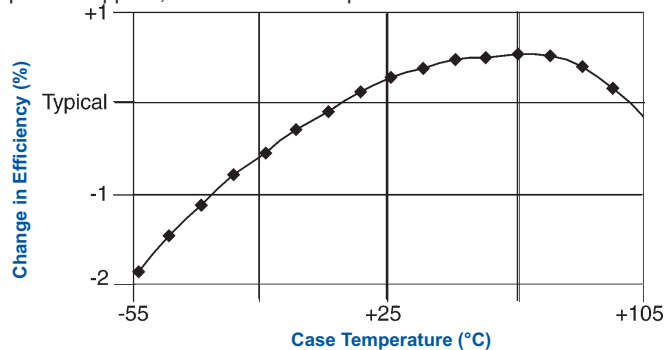
MODEL	INPUT VOLTAGE (VDC)	RATED VOUT (VDC)	RATED MAXIMUM IOU (A)
IHB100S4803C	48 (33-75)	3.3	30
IHB100S4805C	48 (33-75)	5.1	20

### ABSOLUTE MAXIMUM RATINGS

Output Short-Circuit Duration	Continuous
Baseplate Temperature	+100°C
Storage Temperature	+125°C
Input to Output Isolation	1500 VDC

### EFFICIENCY vs TEMPERATURE

T<sub>CASE</sub> = +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	Vdc
	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	
	<b>ISOLATION</b>						
	Input to Output	Peak Test	1500			Vdc	
	Input to Baseplate		1500			Vdc	
	Resistance, Input - Output		10			MΩ	
	Capacitance, Input - Output			2000		pF	
	Leakage Current	$V_{ISO} = 240V_{AC}, 60Hz$		180		μA, rms	
	<b>GENERAL</b>						
	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)	
	<b>TEMPERATURE</b>						
	Operation/Specification	Case Temperature	-40		+100	°C	
	Storage		-55		+125	°C	
	Shutdown		+100		+115	°C	
	Thermal Impedance	Case to Ambient		8.2		°C/W	

\* See Application Notes available on the web at [www.murata-ps.com](http://www.murata-ps.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 $I_O = I_{O, Nom}$	$V_{IN, Min} \leq V_{IN} \leq V_{IN, Max}$	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 Peak Deviation	50 to 100% Load Step		150	250	mV
Settling Time	$V_{OUT}, 1\% \text{ of } V_{OUT, Nom}$		35	50	$\mu$ Sec
Overvoltage Limit		4.2		5.0	V
Efficiency	$V_{IN} = \text{NOM}, I_O = 30A$	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 $I_O = I_{O, Nom}$	$V_{IN, Min} \leq V_{IN} \leq V_{IN, Max}$	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 Peak Deviation	50 to 100% Load Step		200	300	mV
Settling Time	$V_{OUT}, 1\% \text{ of } V_{OUT, Nom}$		35	50	$\mu$ Sec
Overvoltage Limit		6.0		7.0	V
Efficiency	$V_{IN} = \text{NOM}, I_O = 20A$	86	87		%

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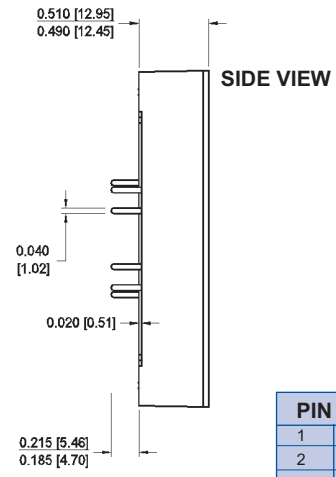
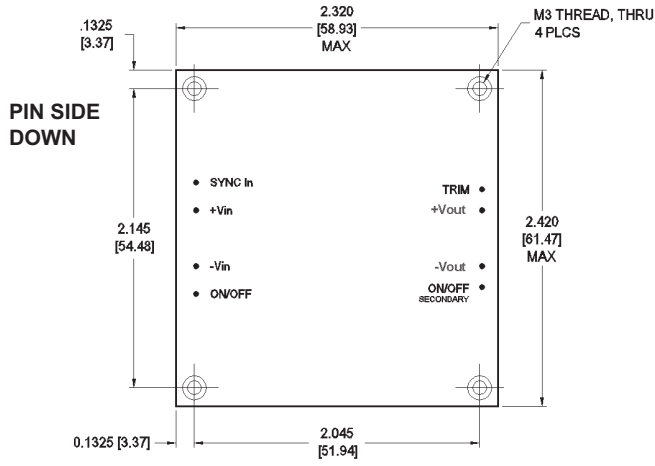
## THROUGH-HOLE SOLDERING INFORMATION

These devices are intended for wave soldering or manual soldering.

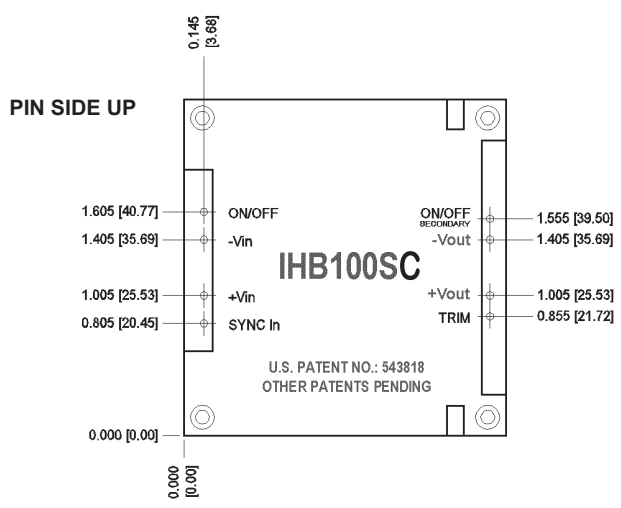
**They are not intended to be subject to surface mount processes under any circumstances.**

The normal wave soldering process can be used with these devices where the device is subjected to a maximum wave temperature of 260°C for a period of no more than 10 seconds. Within this time and temperature range, the integrity of the device's plastic body will not be compromised and internal temperatures within the converter will not exceed 175°C. Care should be taken to control manual soldering limits identical to that of wave soldering.

# 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:  $\pm 0.005$ "  
 MECHANICAL TOLERANCE:  $\pm 0.015$ "  
 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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