

IHB100TC



100 Watt Triple Output Half Brick DC/DC Converter

OBSOLETE PRODUCT
Contact factory for replacement model

- RoHS Compliant
- 33 - 75V Input Range
- Each Channel Independently Current Limited
- High Efficiency: 88% Typical
- 1500VDC Isolation Between Input and Output
- Operation to 100°C Baseplate Temperature
- 50μs Transient Recovery, 0-90% Load Step
- Primary & Secondary Remote On/Off
- IHB100TC Series Approved to UL/CUL 1950, EN60950

The IHB100TC series triple output 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 minimal need for minimum loading on main (V1) output.



PRODUCT SELECTION CHART

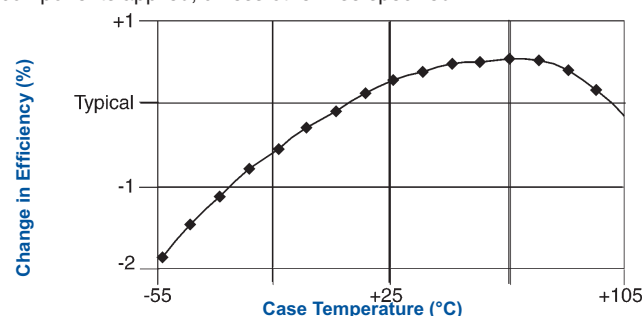
MODEL	INPUT VOLTAGE (VDC)	RATED V _{OUT} (VDC)			RATED MAXIMUM I _{OUT} (A)		
		V1 (±)	V2 (±)	V3 (±)	V1(±)	V2(±)	V3(±)
IHB100T480312C	48 (33-75)	3.3	12	12	30	4.2	4.2
IHB100T480315C	48 (33-75)	3.3	15	15	30	3.4	3.4
IHB100T480512C	48 (33-75)	5.1	12	12	20	4.2	4.2
IHB100T480515C	48 (33-75)	5.0	15	15	20	3.4	3.4

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



SPECIFICATIONS, ALL MODELS

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

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 $V_{IN} = 30\text{V}$			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
ISOLATION					
Input to Each Output	Peak Test	1500			V _{DC}
Input to Baseplate		1500			V _{DC}
Channel to Channel	Any Channel to Any Channel	500			V _{DC}
Resistance, Input - Output		10			MΩ
Capacitance, Input - Output			2000		pF
Leakage Current	$V_{ISO} = 240\text{VAC}, 60\text{Hz}$		180		μA, rms
GENERAL					
Set Point Accuracy	$V_{IN} = \text{Nominal}, 50\% \text{ Load}$			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
V _{low}				0.8	V
V _{high}				Open Collector	
Secondary	Open Collector/Drain				
Sink Current-Logic Low				100	μA
V _{low}				0.4	V
V _{high}				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	°C
Storage		-55		+125	°C
Shutdown		+100		+115	°C
Thermal Impedance	Case to Ambient		8.2		°C/W

PARAMETER	CONDITIONS	Min	Nom	Max	V1 Min	V1 Nom	V1 Max	V2 Min	V2 Nom	V2 Max	
Output Power	Total Combined O/P Power = 100 Watts Max		50	100		25	50		25	50	W
Set Point Voltage	$I_{O, Nom}$		3.3			12.2			12.2		V
Output Current, I_{OUT}		0.5	15	30.0	0	2.1	4.2	0	2.1	4.2	A
Output Ripple, p-p	DC to 20MHz*		100	200		150	500		150	500	mV
Output Adjust Range	*	3.15		3.80		Dependent on V1					V
Output Temperature Drift			.02	.05		.02	.05		.02	.05	%/°C
Line Regulation	$V_{IN, Min} < V_{IN} < V_{IN, Max}$ $I_O = I_{O, Nom}$		0.05	0.10		1.0	2.0		1.0	2.0	%
Load Regulation	Min Load to Rated Load		0.50	1.00	See Regulation Curves			See Regulation Curves			%
Current Limit Inception	Other Outputs Min Load		38			6.0			6.0		A
Short-Circuit Current			30	38		5.0	6.0		5.0	6.0	A
Transient Response	50 to 100% Load Step										
Peak Deviation			150	250							mV
Settling Time	$V_{OUT}^*, 1\% \text{ of } V_{OUT}^*, \text{ Nom}$		35	50							μSec
Overvoltage Limit		4.2		5.0							V
Efficiency	$I_{OUT1} = 15\text{A}, (I_{OUT2} + I_{OUT3}) = 4.2\text{A}$ F.L. $V_{IN} = \text{Nominal}$	85	86								%

* See Application Notes available on the web at www.murata-ps.com

SPECIFICATIONS, ALL MODELS

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

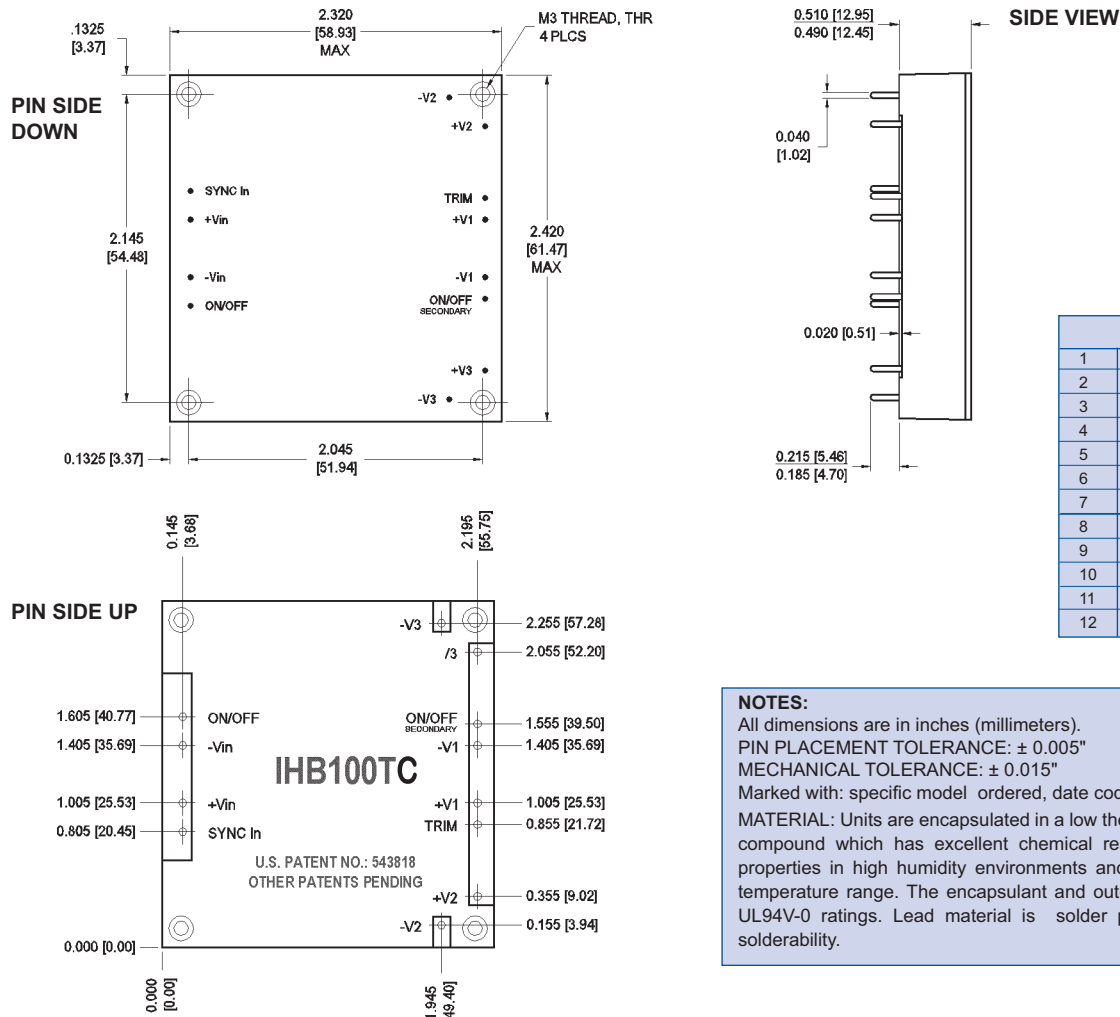
PARAMETER	CONDITIONS				V1			V2		
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
IHB100T480315C OUTPUT	Output Power	Total Combined O/P Power = 100 Watts Maximum				25	50		25	50
	Set Point Voltage	$I_{O,Nom}$				15.85			15.85	
	Output Current, I_{OUT}	0.5	15	30.0	0	1.66	3.33	0	1.66	3.33
	Output Ripple, p-p	DC to 20MHz*				125	500		125	500
	Output Adjust Range	*			Dependent on V1					
	Output Temperature Drift					.02	.05		.02	.05
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$				1.0	2.0		1.0	2.0
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves		
	Current Limit Inception	Other Outputs Min Load			5.0			5.0		
	Short-Circuit Current	30			4.0			4.0		
	Transient Response	50 to 100% Load Step								
	Peak Deviation	150								
	Settling Time	V_{OUT} , 1% of $V_{OUT,Nom}$			35					
	Overvoltage Limit	4.2								
	Efficiency	$I_{OUT1}=15A, (I_{OUT2}+I_{OUT3})=3.4A$ F.L. V_{IN} =Nominal			85					

PARAMETER	CONDITIONS				V1			V2		
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
IHB100T480512C OUTPUT	Output Power	Total Combined O/P Power = 100 Watts Combined				25	50		25	50
	Set Point Voltage	$I_{O,Nom}$				12			12	
	Output Current, I_{OUT}	0.5	10	20	0	2.1	4.2	0	2.1	4.2
	Output Ripple, p-p	DC to 20MHz*				150	500		150	500
	Output Adjust Range	*			Dependent on V1					
	Output Temperature Drift					.02	.05		.02	.05
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$				1.0	2.0		1.0	2.0
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves		
	Current Limit Inception	Other Outputs Min Load			6.0			6.0		
	Short-Circuit Current	20.0			5.0			5.0		
	Transient Response	50 to 100% Load Step								
	Peak Deviation	200								
	Settling Time	V_{OUT} , 1% of $V_{OUT,Nom}$			35					
	Overvoltage Limit	6.0								
	Efficiency	$I_{OUT1}=10A, (I_{OUT2}+I_{OUT3})=4.2A$ F.L. V_{IN} =Nominal			86					

PARAMETER	CONDITIONS				V1			V2		
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max
IHB100T480515C OUTPUT	Output Power	Total Combined O/P Power = 100 Watts Max				25	50		25	50
	Set Point Voltage	$I_{O,Nom}$				15.3			15.3	
	Output Current, I_{OUT}	0.5	10	20	0	1.66	3.33	0	1.66	3.33
	Output Ripple, p-p	DC to 20MHz*				125	500		125	500
	Output Adjust Range	*			Dependent on V1					
	Output Temperature Drift					.02	.05		.02	.05
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$				1.0	2.0		1.0	2.0
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves		
	Current Limit Inception	Other Outputs Min Load			5.0			5.0		
	Short-Circuit Current	20.0			4.0			4.0		
	Transient Response	50 to 100% Load Step								
	Peak Deviation	200								
	Settling Time	V_{OUT} , 1% of $V_{OUT,Nom}$			35					
	Overvoltage Limit	6.0								
	Efficiency	$I_{OUT1}=10A, (I_{OUT2}+I_{OUT3})=4.2A$ F.L. V_{IN} =Nominal			86					

* See Application Notes available on the web at www.murata-ps.com

MECHANICAL



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.

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.



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