



- RoHS Compliant
- 18 - 40 & 33 - 75V Input Range
- Each Channel Independently Current Limited
- High Efficiency: 87% Typical
- 1500Vdc Isolation Between Input and Output
- Operation to 100°C Baseplate Temperature
- 50mS Transient Recovery, 0-90% Load Step
- Primary & Secondary Remote On/Off
- IHB60TC48 Series Approved to UL/CUL 1950, EN60950

The IHB60TC 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 voltages and minimal need for minimum loading on main (V1) output.

PRODUCT SELECTION CHART

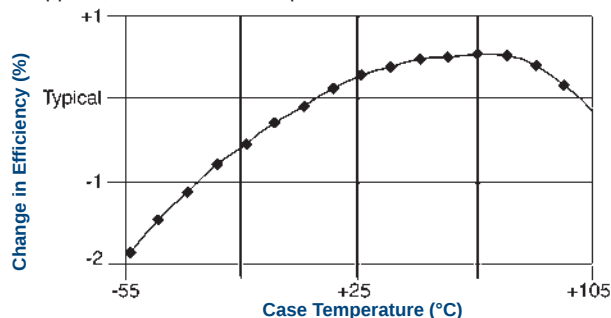
MODEL	INPUT VOLTAGE (Vdc)	RATED V _{OUT} (Vdc)			RATED MAXIMUM I _{OUT} (A)		
		V1 (±)	V2 (±)	V3 (±)	V1(±)	V2(±)	V3(±)
IHB60T240312C	24 (18-40)	3.3	12	12	18	2.5	2.5
IHB60T240315C	24 (18-40)	3.3	15	15	18	2.0	2.0
IHB60T240512C	24 (18-40)	5.1	12	12	12	2.5	2.5
IHB60T240515C	24 (18-40)	5.0	15	15	12	2.0	2.0
IHB60T480312C	48 (33-75)	3.3	12	12	18	2.5	2.5
IHB60T480315C	48 (33-75)	3.3	15	15	18	2.0	2.0
IHB60T480512C	48 (33-75)	5.1	12	12	12	2.5	2.5
IHB60T480515C	48 (33-75)	5.0	15	15	12	2.0	2.0

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
INPUT	Voltage Range				
	IHB60T24XXC Series	18	24	40	V _{DC}
	IHB60T48XXC Series	33	48	75	V _{DC}
	Reflected Ripple Current	Peak - Peak		220	mA
	Input Ripple Rejection	DC to 1KHz	60		dB
	Maximum Input Current	Output Power = 60W			
	IHB60T24XXC Series	$V_{IN} = 16\text{V}$		6	A
	IHB60T48XXC Series	$V_{IN} = 30\text{V}$		3	A
	No Load Power Dissipation	$P_{OUT} = 0, V_{IN, Min} < V_{IN} < V_{IN, Max}$		6	W
	Inrush Charge				
	IHB60TC24XX Series			0.29	mC
	IHB60TC48XX Series			0.165	mC
	Quiescent Operating Current				
	Primary On/Off Disabled		7.5	10	mA
	Secondary On/Off Disabled		15	25	mA

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
ISOLATION	Input to 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	Case Temperature				
	Operation/Specification	-40		+100	°C
	Storage	-55		+125	°C
	Shutdown	+100		+115	°C
	Thermal Impedance	Case to Ambient	8.2		°C/W

PARAMETER	CONDITIONS	V1			V2			V3			UNITS
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
IHB60TX0312C** OUTPUT	Output Power	Total Combined O/P Power = 60 Watts Max.		30	60	15	30	15	30		W
	Set Point Voltage	$I_O = I_{O, Nom}$		3.3		12.2		12.2			V
	Output Current, I _{OUT}	0.5	9	18	0	1.25	2.5	0	1.25	2.5	A
	Output Ripple, p-p	DC to 20MHz*		100	200	150	250	150	250		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	1.0	1.0	2.0	1.0	2.0		%
	Load Regulation	Min Load to Rated Load		0.50	1.0	See Regulation Curves			See Regulation Curves		%
	Current Limit Inception	Other Outputs Min Load		23		5.0		5.0			A
	Short-Circuit Current			19	25	4.0	5.0	4.0	5.0		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	$I_{OUT1} = 9\text{A}, (I_{OUT2} + I_{OUT3}) = 2.5\text{A}$ F.L. $V_{IN} = \text{Nominal}$		85	86						%

* See Application Notes available on the web at www.cd4power.com

** X = Either 24 or 48

SPECIFICATIONS, ALL MODELS

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

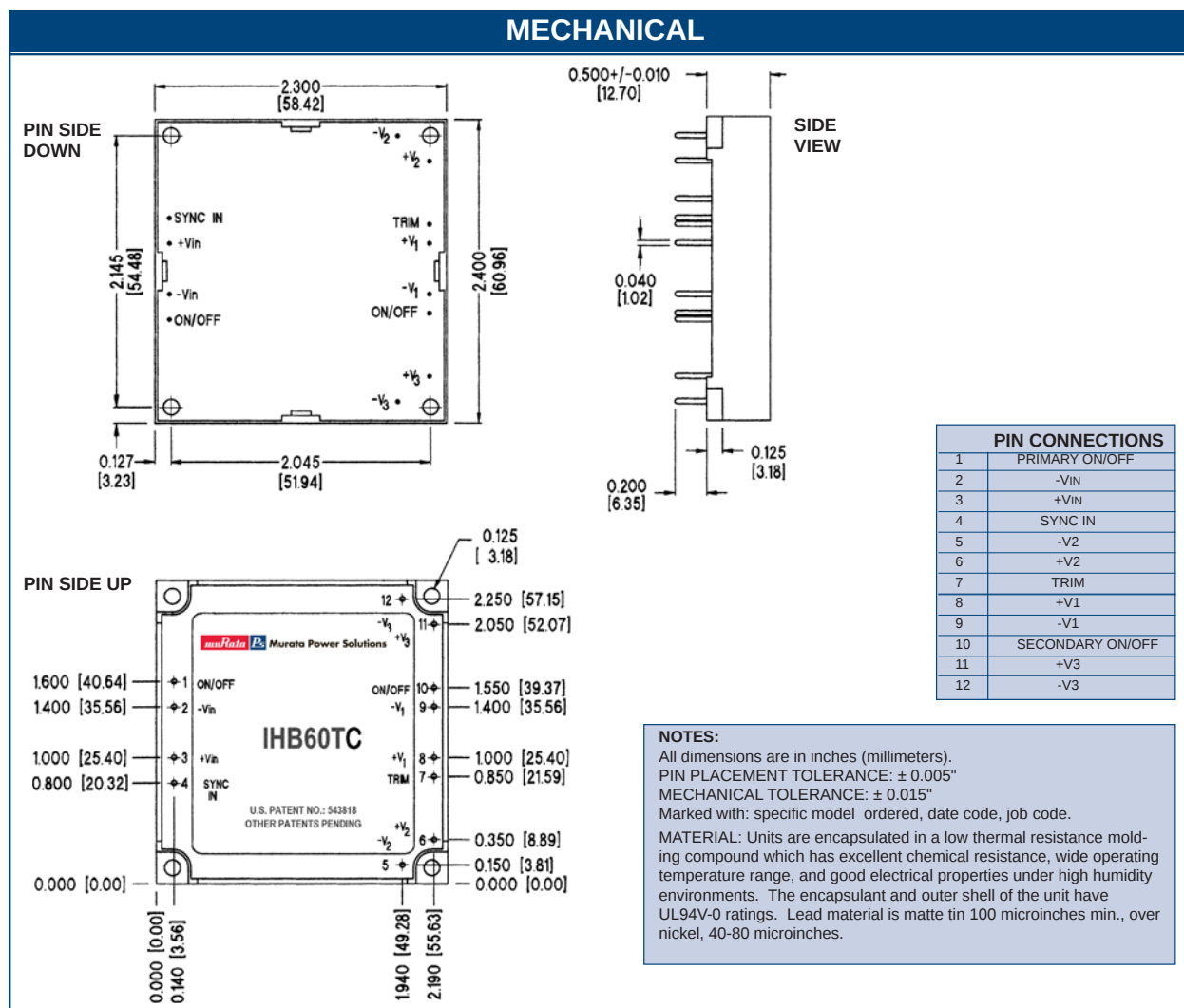
PARAMETER	CONDITIONS	V1			V2			V3			UNITS
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
IHB60TX0315C** OUTPUT	Output Power	Total Combined O/P Power = 60 Watts Max.									W
	Set Point Voltage	$I_{O, Nom}$									V
	Output Current, I_{OUT}	0.5	9	18	0	1	2	0	1	2	A
	Output Ripple, p-p	DC to 20MHz*									mV
	Output Adjust Range	See Application Notes*			Dependent on V1						V
	Output Temperature Drift										%/ $^{\circ}\text{C}$
	Line Regulation	$V_{IN, Min} \leq V_{IN} \leq V_{IN, Max}$ $I_O = I_{O, Nom}$									%
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves			%
	Current Limit Inception	Other Outputs Min Load									A
	Short-Circuit Current										A
	Transient Response	50 to 100% Load Step									mV
	Peak Deviation										
	Settling Time	V_{OUT} 1% of $V_{OUT, Nom}$									μSec
	Overvoltage Limit										V
	Efficiency	$I_{OUT1}=9\text{A}, (I_{OUT2}+I_{OUT3})=2\text{A}$ F.L. V_{IN} =Nominal									%

PARAMETER	CONDITIONS	V1			V2			V3			UNITS
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
IHB60TX0512C** OUTPUT	Output Power	Total Combined O/P Power = 60 Watts Max									W
	Set Point Voltage	$I_{O, Nom}$									V
	Output Current, I_{OUT}	0.5	6.0	12	0	1.25	2.5	0	1.25	2.5	A
	Output Ripple, p-p	DC to 20MHz*									mV
	Output Adjust Range	*			Dependent on V1						V
	Output Temperature Drift										%/ $^{\circ}\text{C}$
	Line Regulation	$V_{IN, Min} \leq V_{IN} \leq V_{IN, Max}$ $I_O = I_{O, Nom}$									%
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves			%
	Current Limit Inception	Other Outputs Min Load									A
	Short-Circuit Current										A
	Transient Response	50 to 100% Load Step									mV
	Peak Deviation										
	Settling Time	V_{OUT} 1% of $V_{OUT, Nom}$									μSec
	Overvoltage Limit										V
	Efficiency	$I_{OUT1}=6\text{A}, (I_{OUT2}+I_{OUT3})=2.5\text{A}$ F.L. V_{IN} =Nominal									%

PARAMETER	CONDITIONS	V1			V2			V3			UNITS
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
IHB60TX0515C** OUTPUT	Output Power	Total Combined O/P Power = 60 Watts Max									W
	Set Point Voltage	$I_{O, Nom}$									V
	Output Current, I_{OUT}	0.5	6	12	0	1	2	0	1	2	A
	Output Ripple, p-p	DC to 20MHz*									mV
	Output Adjust Range	*			Dependent on V1						V
	Output Temperature Drift										%/ $^{\circ}\text{C}$
	Line Regulation	$V_{IN, Min} \leq V_{IN} \leq V_{IN, Max}$ $I_O = I_{O, Nom}$									%
	Load Regulation	Min Load to Rated Load			See Regulation Curves			See Regulation Curves			%
	Current Limit Inception	Other Outputs Min Load									A
	Short-Circuit Current										A
	Transient Response	50 to 100% Load Step									mV
	Peak Deviation										
	Settling Time	V_{OUT} 1% of $V_{OUT, Nom}$									μSec
	Overvoltage Limit										V
	Efficiency	$I_{OUT1}=6\text{A}, (I_{OUT2}+I_{OUT3})=2\text{A}$ F.L. V_{IN} =Nominal									%

* See Application Notes available on the web at www.cd4power.com

** X = Either 24 or 48



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.

Mouser Electronics

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