



- 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

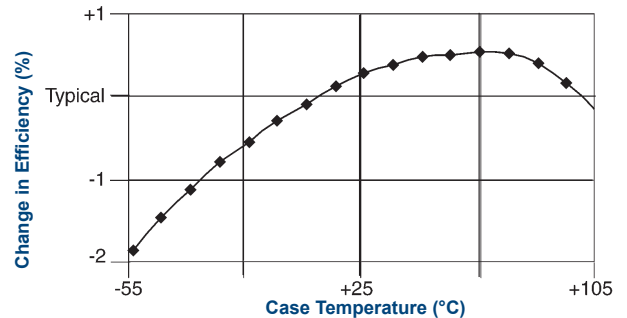
MODEL	INPUT VOLTAGE (Vdc)	RATED V _{OUT} (Vdc)			RATED MAXIMUM I _{OUT} (A)		
		V1 (±)	V2 (±)	V3 (±)	V1(±)	V2(±)	V3(±)
IHB60T240312C	24 (18-40)	3.3	12	12	18	2.5	2.5
IHB60T240315C	24 (18-40)	3.3	15	15	18	2.0	2.0
IHB60T240512C	24 (18-40)	5.1	12	12	12	2.5	2.5
IHB60T240515C	24 (18-40)	5.0	15	15	12	2.0	2.0
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.*



For full details go to www.murata-ps.com/rohs



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					
	IHB60T24XXC Series		18	24	40	Vdc
	IHB60T48XXC Series		33	48	75	Vdc
	Reflected Ripple Current	Peak - Peak			220	mA
	Input Ripple Rejection	DC to 1KHz	50	60		dB
	Maximum Input Current	Output Power = 60W				
	IHB60T24XXC Series	$V_{IN} = 16V$			6	A
	IHB60T48XXC Series	$V_{IN} = 30V$			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	

GENERAL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	
	ISOLATION						
	Input to Output	Peak Test	1500			Vdc	
	Input to Baseplate		1500			Vdc	
	Channel to Channel	Any Channel to Any Channel	500			Vdc	
	Resistance, Input - Output		10			MΩ	
	Capacitance, Input - Output			2000		pF	
	Leakage Current	$V_{ISO} = 240V_{AC}, 60Hz$		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	
	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	°C		
Storage		-55		+125	°C		
Shutdown		+100		+115	°C		
Thermal Impedance	Case to Ambient		8.2		°C/W		

IHB60TX0312C**	PARAMETER	CONDITIONS	V1			V2			V3			UNITS
			Min	Nom	Max	Min	Nom	Max	Min	Nom	Max	
	Output Power	Total Combined O/P Power = 60 Watts Max.		30	60		15	30		15	30	W
	Set Point Voltage			3.3			12.2			12.2		V
	Output Current, I_{OUT}	$I_{O, Nom}$	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	$I_{OUT1} = 9A, (I_{OUT2} + I_{OUT3}) = 2.5A$ 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 $T_{CASE} = +40^{\circ}C$ nominal input voltage unless otherwise specified.

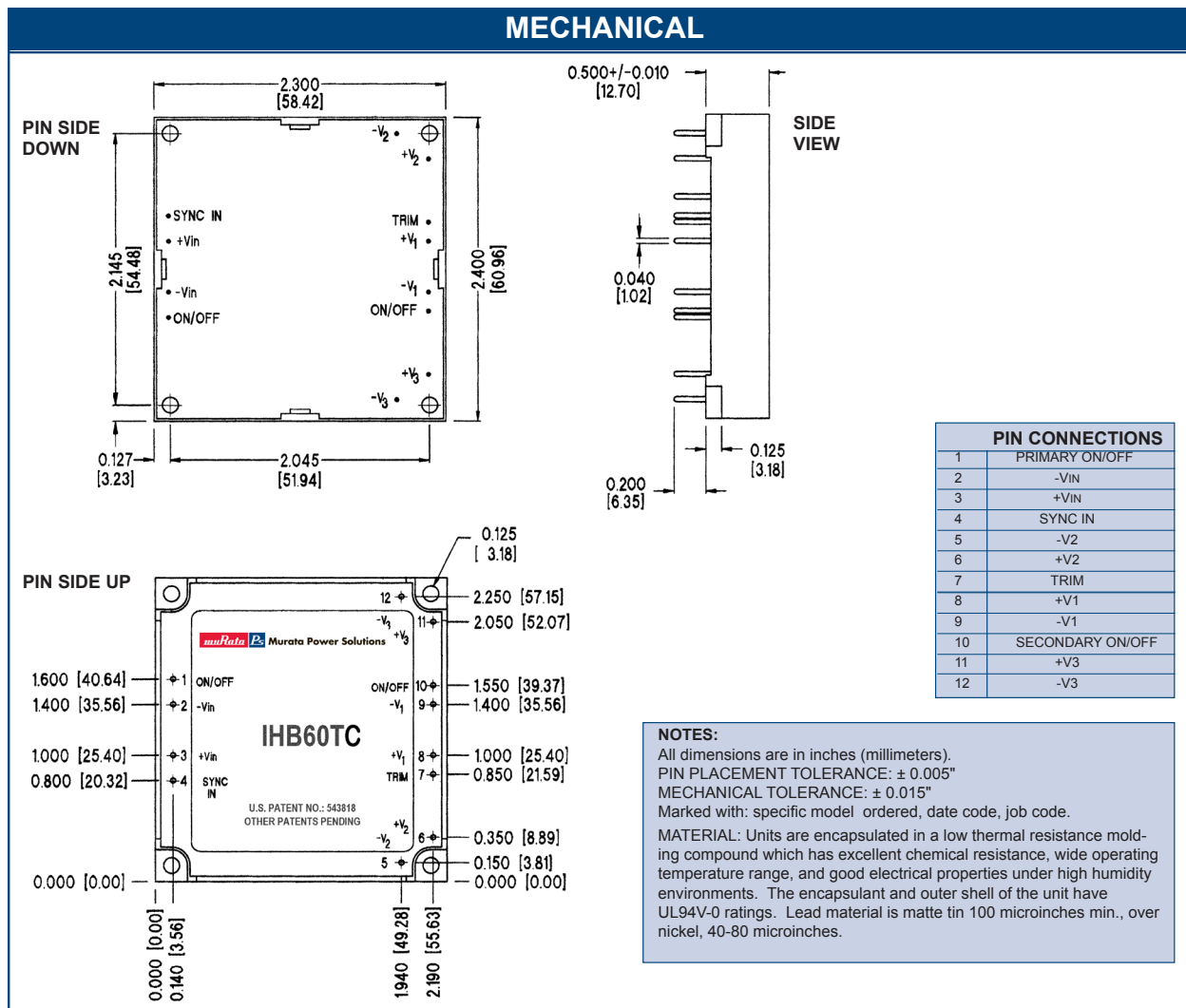
PARAMETER	CONDITIONS	V1			V2			V3			UNITS	
		Min	Nom	Max	Min	Nom	Max	Min	Nom	Max		
IHB60TX0315C** OUTPUT	Output Power	Total Combined O/P Power = 60 Watts Max.									W	
	Set Point Voltage	$I_{O,Nom}$									V	
	Output Current, I_{OUT}	0.5	9	18	0	1	2	0	1	2	A	
	Output Ripple, p-p	DC to 20MHz*									mV	
	Output Adjust Range	See Application Notes*									V	
	Output Temperature Drift										$\%/^{\circ}C$	
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$	0.05	1.0	1.0	2.0	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			4.0			4.0			A
	Short-Circuit Current		19			3.2			4.0			A
	Transient Response	50 to 100% Load Step										mV
	Peak Deviation		150			250						
	Settling Time	V_{OUT} : 1% of $V_{OUT,Nom}$	35			50						μ Sec
	Overvoltage Limit		4.2			5.0						V
	Efficiency	$I_{OUT1}=9A, (I_{OUT2}+I_{OUT3})=2A$ F.L. V_{IN} =Nominal	85	86								%

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	*									V	
	Output Temperature Drift										$\%/^{\circ}C$	
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$	0.05	0.10	1.0	2.0	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	16			5.0			5.0			A
	Short-Circuit Current		12.6			4.0			5.0			A
	Transient Response	50 to 100% Load Step										mV
	Peak Deviation		200			300						
	Settling Time	V_{OUT} : 1% of $V_{OUT,Nom}$	35			50						μ Sec
	Overvoltage Limit		6.0			6.8						V
	Efficiency	$I_{OUT1}=6A, (I_{OUT2}+I_{OUT3})=2.5A$ F.L. V_{IN} =Nominal	86	87								%

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	*									V	
	Output Temperature Drift										$\%/^{\circ}C$	
	Line Regulation	$V_{IN,Min} \leq V_{IN} \leq V_{IN,Max}$ $I_O = I_{O,Nom}$	0.05	0.10	1.0	2.0	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	16			4.0			4.0			A
	Short-Circuit Current		12.6			3.2			4.0			A
	Transient Response	50 to 100% Load Step										mV
	Peak Deviation		200			300						
	Settling Time	V_{OUT} : 1% of $V_{OUT,Nom}$	35			50						μ Sec
	Overvoltage Limit		6.0			6.8						V
	Efficiency	$I_{OUT1}=6A, (I_{OUT2}+I_{OUT3})=2A$ F.L. V_{IN} =Nominal	86	87								%

* 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.