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Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from, Europe, America and south Asia, supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts, Customers Priority, Honest Operation, and Considerate Service", our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip, ALPS, ROHM, Xilinx, Pulse, ON, Everlight and Freescale. Main products comprise IC, Modules, Potentiometer, IC Socket, Relay, Connector. Our parts cover such applications as commercial, industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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TRACO[®] POWER

DC/DC Converters

THB 3 Series, 3 Watt

Features

- Supplementary and reinforced insulation
- I/O isolation 4800 VACrms rated for 1000 Vrms (1410 Vpk) working voltage
- Medical safety to ES 60601-1 and IEC/EN 60601-1 3rd edition, 2 x MOOP
- Industrial safety to IEC/EN/UL 60950-1
- Isolation test voltage 6000 Vpk
- Wide 2:1 input voltage ranges
- Extended operating temperature range -40°C to 85°C max.
- Input filter meets EN55022, class A
- Continuous short-circuit protection
- High reliability

Models

3-year product warranty



The THB-3 series is a range of high performance, regulated DC/DC converters in a DIP-24 plastic package. A reinforced I/O-isolation system and a wide 2:1 input voltage range make this product the best choice for many demanding applications like transportation systems, industrial controls, medical equipments, instrumentations, everywhere where high basic-, supplementary- or reinforced insulation is required to meet requested safety standards.

A high efficiency allows safe operation in a temperature range of -40°C to +85°C. Other features of this product are over voltage protection and internal EMI-input filter to meet EN 55022, class A without additional components. Full SMD-design with exclusive use of ceramic capacitors ensure a very high reliability and a long product lifetime.

moucis				
Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THB 3-0511	4.5 – 9 VDC (5 VDC nominal)	5 VDC	600 mA	70 %
THB 3-0512		12 VDC	250 mA	75 %
THB 3-0515		24 VDC	125 mA	76 %
THB 3-0522		±12 VDC	±125 mA	75 %
THB 3-0523		±15 VDC	±100 mA	75 %
THB 3-1211	9 – 18 VDC (12 VDC nominal)	5 VDC	600 mA	74 %
THB 3-1212		12 VDC	250 mA	80 %
THB 3-1215		24 VDC	125 mA	81 %
THB 3-1222		±12 VDC	±125 mA	80 %
THB 3-1223		±15 VDC	±100 mA	80 %
THB 3-2411	18 – 36 VDC (24 VDC nominal)	5 VDC	600 mA	78 %
THB 3-2412		12 VDC	250 mA	83 %
THB 3-2415		24 VDC	125 mA	84 %
THB 3-2422		±12 VDC	±125 mA	83 %
THB 3-2423		±15 VDC	±100 mA	83 %
THB 3-4811	36 – 75 VDC (48 VDC nominal)	5 VDC	600 mA	78 %
THB 3-4812		12 VDC	250 mA	83 %
THB 3-4815		24 VDC	125 mA	84 %
THB 3-4822		±12 VDC	±125 mA	83 %
THB 3-4823		±15 VDC	±100 mA	83 %

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DC/DC Converters THB 3 Series 3 Watt

input opecifications			
Input current at no load		5 Vin models: 12 Vin models: 24 Vin models: 48 Vin models:	40 mA typ. 30 mA typ. 20 mA typ. 10 mA typ.
Start-up voltage / under voltage shut down		5 Vin models: 12 Vin models: 24 Vin models: 48 Vin models:	4.5 VDC / 4.0 VDC (or lower) 9 VDC / 8.5 VDC (or lower) 18 VDC / 17 VDC (or lower) 36 VDC / 34 VDC (or lower)
Recommended external inp	but fuse (slow blow)	5 Vin models: 12 Vin models: 24 Vin models: 48 Vin models:	2.0 A 1.0 A 0.5 A 0.25 A
Surge voltage (1 sec. max.)	5 Vin models: 12 Vin models: 24 Vin models: 48 Vin models:	11 VDC max. 25 VDC max. 50 VDC max. 100 VDC max.
Input filter			EN 55022 class A, FCC part 15, class A
Output Specification	1S		
Voltage set accuracy			±1 %
Regulation	– Input variation Vin min. to Vin – Load variation 25 – 100 %:	max. single output models: dual output models:	0.5 % max. 1.0 % max 2.0 % max. balanced load
Minimum load			15 % of rated max. output current. (Operation at lower load is safe but major deviations to specifyed data may occur)
Ripple and noise (20 MHz Bandwidth) 5 VDC models: other models:			100 mVpk-pk max. 150 mVpk-pk max.
Transient response (25% la	bad step change)		150 μs typ.
Current limitation			>120 % lout max.
Short circuit protection			continuous (automatic recovery)
Capacitive load	ot	5 VDC output models: ner single output models: dual output models:	1000 μF max. 470 μF max. 220 μF max. (each output)
Isolation / Safety St	tandards		
Isolation test voltage (end o	of line flash test 1 sec.)		6000 Vpk
I/O isolation voltage (50Hz, 60sec.)	– according IEC/EN 60601-1 – according IEC/EN 60950-1		3000 VACrms, rated for 300 Vrms working voltage, 2 x MOOP 4800 VACrms, rated for 1000 Vrms (1410 Vpk) working voltage
Leakage current			2 μA (at 240VAC, 60Hz)
Isolation capacitance	– Input/Output		13 pF max. (at 100KHz, 1V)
Isolation resistance	– Input/Output		>10 Gohm (at 500VDC)
Safety standards	- Certification documents		IEC 60950-1:2005 (2nd ed.) +A1:2009 and/or EN 60950-1:2006 +A1:2010 +A11:2009 +12:2011, UL 60950-1 (2nd ed.) CSA C22.2 No. 60950-1-03 IEC 60601-1 3rd edition, 2 x MOOP, EN 60601-1 + A11:2011 ES 60601-1, CSA C22.2 No. 601.1 www.tracopower.com/overview/thb3

All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

TRACO[®] POWER

DC/DC Converters THB 3 Series 3 Watt

General Specifications

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Temperature ranges	– Operating – Casing – Storage	−40°C to +85°C +95°C max. −50°C to +125°C
Derating		3.3 %/K above 70°C
Humidity (non condensing)		95 % rel H max.
Temperature coefficient		±0.02 %/K typ.
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>1 Mio. h
Switching frequency		150 kHz typ. (puls width modulation)
Casing material		non conductive plastic (UL 94V-O-rated)
Potting material		Silicone TSE 3331 (UL 94V-O-rated)
Pin material		Copper alloy with goldplated nickel subplate
Weight		1 3.0 g (0.46 oz)
Soldering temperature		max. 265°C / 10 sec.
Altitude during operation		up to 5′000 m (16′400 ft) approved
Environmental compliance	– Reach – RoHS	www.tracopower.com/products/reach-declaration.pdf according RoHS directive 2011/65/EU

Supporting documents : www.tracopower.com/overview/thb3



- The component is not be used in an oxygen rich environment.

- The component is not to be used in conjunction with flammable anaesthetics and agents.
- The component has to be disposed appropriately. Please refer to local regulations (Waste Electrical and Electronic Equipment).
 A modification of the component is not allowed.

Outline Dimensions





Pin-Out				
Pin	Single	Dual		
1	+Vin (Vcc)	+Vin (Vcc)		
11	No pin	Common		
12	-Vout	No pin		
13	+Vout	-Vout		
15	No pin	+Vout		
23	–Vin (GND)	–Vin (GND)		
24	–Vin (GND)	–Vin (GND)		

Dimensions in [mm], () = Inch Pin diameter Ø 0.6 \pm 0.05 (0.024 \pm 0.002) Tolerances \pm 0.25 (\pm 0.001) Pin pich tolerances \pm 0.13 (\pm 0.005)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com