

Features

- ◆ Ultra wide 4:1 input voltage
- ◆ I/O isolation 5000 VACrms rated for 250 working voltage
- ◆ 2 x MOPP Medical safety according to AAMI/ANSI ES 60601-1:2005(R) and IEC/EN 60601-1 3rd edition
- ◆ Low leakage current <2 μ A
- ◆ Very high efficiency up to 87%
- ◆ Extended operating temperature range -40°C to 94°C at full load.
- ◆ Input filter to meet EN55022 class A
- ◆ 3-year product warranty



The THM-3WI series is a range of high performance, regulated 3 Watt DC/DC converters in a DIP-24 plastic package. The reinforced I/O-isolation system complies with the medical safety requirements for MOPP (Means Of Patient Protection). Together with a wide 4:1 input voltage range, and an internal EMI filter to meet EN55022 class A the converters constitute also a reliable solution for many demanding applications such as transportation systems, industrial control equipments, measurement equipments, and some IGBT driver applications. With A high efficiency of up to 87% and highest grade components the converters can reliably operate in an ambient temperature range of -40 up to +94°C at full load.

Models

Order code	Input voltage range	Output voltage	Output current max.	Efficiency typ.
THM 3-0510WI	4.5 – 9 VDC (5 VDC nominal)	3.3 VDC	1000 mA	81.0 %
THM 3-0511WI		5.0 VDC	600 mA	84.5 %
THM 3-0512WI		12 VDC	250 mA	85.0 %
THM 3-0513WI		15 VDC	200 mA	85.0 %
THM 3-0515WI		24 VDC	125 mA	85.5 %
THM 3-0521WI		±5.0 VDC	±300 mA	83.0 %
THM 3-0522WI		±12 VDC	±125 mA	86.0 %
THM 3-0523WI		±15 VDC	±100 mA	86.0 %
THM 3-2410WI	9 – 36 VDC (12 VDC nominal)	3.3 VDC	1000 mA	82.0 %
THM 3-2411WI		5.0 VDC	600 mA	84.5 %
THM 3-2412WI		12 VDC	250 mA	87.0 %
THM 3-2413WI		15 VDC	200 mA	87.0 %
THM 3-2415WI		24 VDC	125 mA	87.0 %
THM 3-2421WI		±5.0 VDC	±300 mA	83.0 %
THM 3-2422WI		±12 VDC	±125 mA	86.5 %
THM 3-2423WI		±15 VDC	±100 mA	86.0 %
THM 3-4810WI	18 – 75 VDC (48 VDC nominal)	3.3 VDC	1000 mA	81.0 %
THM 3-4811WI		5.0 VDC	600 mA	83.0 %
THM 3-4812WI		12 VDC	250 mA	86.5 %
THM 3-4813WI		15 VDC	200 mA	87.0 %
THM 3-4815WI		24 VDC	125 mA	86.0 %
THM 3-4821WI		±5.0 VDC	±300 mA	83.0 %
THM 3-4822WI		±12 VDC	±125 mA	86.0 %
THM 3-4823WI		±15 VDC	±100 mA	86.0 %

Input Specifications

Input current at no load	5 Vin models: 20 mA typ. 24 Vin models: 6 mA typ. 48 Vin models: 4 mA typ.
Start-up voltage / under voltage shut down	5 Vin models: 4.5 VDC / 4.0 VDC typ. 24 Vin models: 9.0 VDC / 8.0 VDC typ. 48 Vin models: 18 VDC / 16 VDC typ.
Surge voltage (1 sec. max.)	5 Vin models: 16 VDC max. 24 Vin models: 50 VDC max. 48 Vin models: 100 VDC max.
Conducted noise	EN 55022 class A, without external components
ESD (electrostatic discharge)	EN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A
Radiated immunity	EN 61000-4-3, 10 V/m, perf. criteria A
Fast transient / surge (with external input capacitor / diode)	EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±2 kV perf. criteria A
– external input capacitor:	5 Vin models: Nippon chemi-con KY 1000 µF/ 25 V and reverse diode (Vishay V10P45) in parallel 24 Vin models: Nippon chemi-con KY 470 µF/ 50 V 48 Vin models: Nippon chemi-con KY 330 µF/ 100 V
Conducted immunity	EN 61000-4-6, 10 V, perf. criteria A
External input fuse required (recommended values, slow blow type)	5 Vin models: 2.5 A 24 Vin models: 1.5 A 48 Vin models: 1 A

Output Specifications

Voltage set accuracy	±1.0 % max.
Regulation	– Input variation single output models: 0.2 % max. dual output models: 0.5 % max. – Load variation 0 – 100 %: single output models: 0.2 % max.. dual output models balanced load: 1.0 % max. dual output models unbalanced load: 5.0 % max.
Minimum load	not required
Start up time	30 mS
Ripple and noise (20 MHz Bandwidth)	3.3 & 5.0 VDC models: 30 mVp-p typ. with cap. 10µF/25V X7R MLCC 12 & 15 VDC models: 40 mVp-p typ. with cap. 10µF/25V X7R MLCC 24 VDC models: 50 mVp-p typ. with cap. 4.7µF/50V X7R MLCC
Transient response (25% load step change)	250 µs typ.
Current limitation	150 % Iout nominal typ. (hiccup mode)
Short circuit protection	continuous (automatic recovery)
Over voltage protection	3.3 VDC output models: 3.7 – 5.4 VDC 5 VDC output models: 5.6 – 7.0 VDC 12 VDC output models: 13.5 – 19.6 VDC 15 VDC output models: 18.3 – 22.0 VDC 24 VDC output models: 29.1 – 32.5 VDC
Capacitive load	3.3 VDC output models: 1050 µF max. 5 VDC output models: 750 µF max. 12 VDC output models: 130 µF max. 15 VDC output models: 100 µF max. 24 VDC output models: 39 µF max. ±5 VDC output models: 430 µF max. (each output) ±12 VDC output models: 75 µF max. (each output) ±15 VDC output models: 56 µF max. (each output)

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

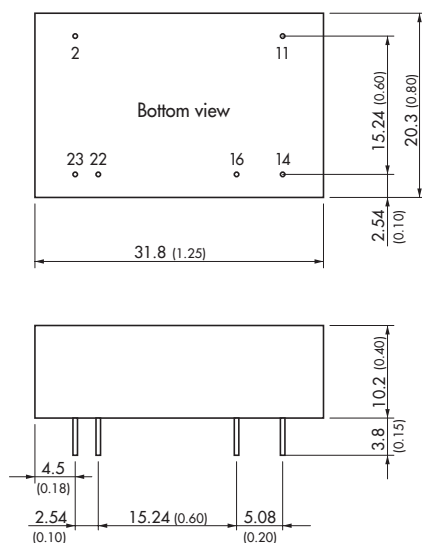
General Specifications

Temperature ranges	- Operating - Casing - Storage	-40°C to +94°C (withou derating) +105°C max. -55°C to +125°C
Humidity (non condensing)		95 % rel H max.
Temperature coefficient		±0.02 %/K typ.
Switching frequency		150 kHz ±15 kHz (puls width modulation)
I/O isolation voltage (50Hz, 60sec.)	- to meet UL/IEC/EN 60601-1	5000 VACrms, rated for 250 Vrms working voltage, 2 x MOPP
Clearance/creepage		8 mm min.
Leakage current		2 µA max. (at 240 VAC, 60 Hz)
Isolation capacitance	- Input/Output	17 pF max. (at 100 KHz, 1 V)
Safety standards		ANSI/AAMI ES 60601-1:2005/(R)2012, IEC/EN 60601-1 3rd edition
Safety approvals	- UL online certification UL 60601-1	www.ul.com File E188913, copy: e188913qqhm2.pdf
Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign)		>1.3 Mio. h
Casing material		non conductive plastic (UL 94V-0-rated)
Potting material		silicone (UL 94V-0-rated)
Vibration and thermal shock resistance		according to MIL-STD-810F
Weight		14.0 g (0.48 oz)
Soldering temperature		max. 265°C / 10 sec.
Environmental compliance	- Reach - RoHS	www.tracopower.com/products/reach-declaration.pdf according RoHS directive 2011/65/EU



- 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
2	-Vin (GND)	-Vin (GND)
11	No con.	-Vout
14	+Vout	+Vout
16	-Vout	Common
22	+Vin (Vcc)	+Vin (Vcc)
23	+Vin (Vcc)	+Vin (Vcc)

Dimensions in [mm], (I) = Inch
 Pin diameter $\varnothing 0.6 \pm 0.1$ (0.024 \pm 0.004)
 Tolerances ± 0.5 (± 0.02)
 Pin pitch tolerances ± 0.25 (± 0.01)

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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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