



Features

- ◆ Fully encapsulated low profile plastic casing in PCB- or chassis mount version
- ◆ 2 x MOPP Medical safety according to AAMI/ANSI ES 60601-1:2005(R) and IEC/EN 60601-1 3rd edition
- ◆ IT and industrial safety according to IEC/EN/UL 60950-1 and UL 508
- ◆ Ready to meet ErP directive <math><0.3\text{W}</math> no load power consumption
- ◆ -40°C start-up temperature
- ◆ Safety class II prepared
- ◆ Protection against over-temperature overload and short circuit
- ◆ 3-year product warranty



Also available with 40 and 60 Watt!

TMM 40 Series, 40 Watt:

www.tracopower.com/products/tmm40.pdf

TMM 60 Series, 60 Watt:

www.tracopower.com/products/tmm60.pdf

The TMM 24 Series of fully encapsulated 24 Watt AC/DC power supply modules feature a reinforced/double I/O isolation system according to latest medical safety standards 60601-3 3rd edition for 2 x MOPP (Means Of Patient Protection). The high efficiency and the use of highest grade components make the units suitable for an operating temperature range of -40°C to $+65^{\circ}\text{C}$ while it goes up to 80°C with 50% load derating. EMI/EMC characteristics and the safety approval package qualify these modules not only for medical devices but also for demanding applications in transportation systems and for equipment in industrial an commercial environment.

24 Watt Models

| Order code | | Output power max. | Output 1 | Output 2 | Efficiency |
|------------|---------------|-------------------|-------------------|-------------------|------------|
| PCB mount | Chassis mount | | | | |
| TMM 24105 | TMM 24105C | 15 W | 5.0 VDC / 3000 mA | | 76 % |
| TMM 24112 | TMM 24112C | 24 W | 12 VDC / 2000 mA | | 82 % |
| TMM 24115 | TMM 24115C | | 15 VDC / 1600 mA | | 82 % |
| TMM 24124 | TMM 24124C | | 24 VDC / 1000 mA | | 82 % |
| TMM 24212 | TMM 24212C | | +12 VDC / 1000 mA | -12 VDC / 1000 mA | 82 % |
| TMM 24215 | TMM 24215C | | +15 VDC / 800 mA | -15 VDC / 800 mA | 82 % |

Input Specifications

| | | |
|--|---|--|
| Input voltage | <ul style="list-style-type: none"> - nominal - AC range (universal input) - DC range | 100 – 240 VAC 85 – 264 VAC 120 – 370 VDC |
| Input frequency | | 47 – 440 Hz |
| Input current at full load (115 VAC / 230 VAC nominal input) | 5.0 VDC model: other models: | 285 mA / 170 mA typ. 425 mA / 255 mA typ |
| Leakage current | | 80 μ A typ. |
| No-load power consumption | | <0.3 W |
| Internal fuse | | T2A 250VAC (both life and neutral) |

Output Specifications

| | | |
|---|---|--|
| Voltage set accuracy | | \pm 2% |
| Minimum load | | no minimum load required |
| Regulation | <ul style="list-style-type: none"> - Input variation - Load variation (0-100%) | 0.5% typ. single output models: 0.5% typ. dual output models: 2.5% typ. |
| Temperature coefficient | | 0.02 %/°C |
| Ripple and noise (20 MHz bandwidth) | 5.0 VDC model: other models: | <1.8% of Vout [Vp-p] max. <1.3% of Vout [Vp-p] max. |
| Current limitation | | above 105 % of rated output current. hicup, auto recovery |
| Overvoltage protection by Zehner diode (main output only) | | 120 % of Vout typ. |
| Short circuit protection | | continuous |
| Max. capacitive load | 5.0 VDC model: 12 VDC model: 15 VDC model: 24 VDC model: \pm 12 VDC model: \pm 15 VDC model: | 2200 μ F 1000 μ F 680 μ F 480 μ F 470 μ F (each output) 330 μ F (each output) |

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

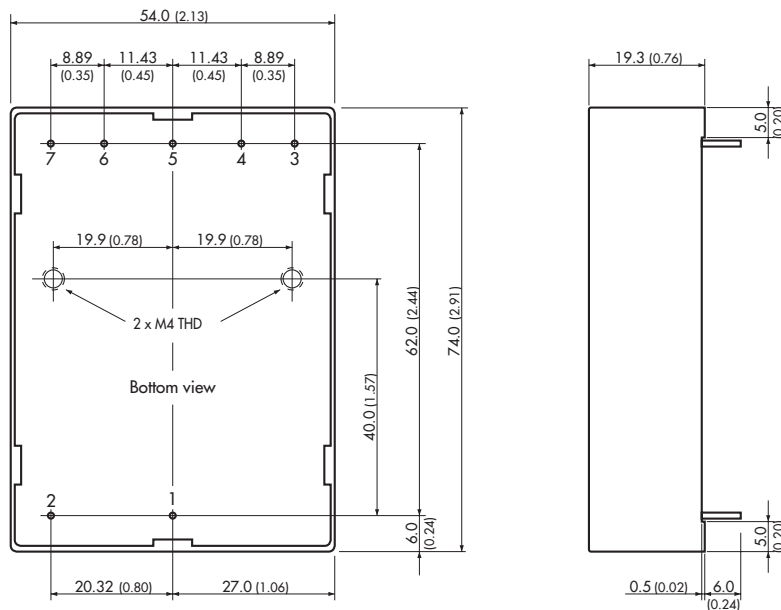
General Specifications

| | | |
|--|--|---|
| Temperature ranges | <ul style="list-style-type: none"> - Operating (natural convection cooling 20 LFM) - Power derating above +65°C - Storage (non operating) | -40°C to +80°C 5.0 %/K -40°C to +95°C |
| Over temperature protection | | shutdown: at 90°C automatic recovery: at approx 67°C |
| Humidity (non condensing) | | 95 % rel max. |
| Altitude during operation | | 5000 m |
| Switching frequency (pulse width modulation PWM) | | 132 kHz typ. |
| Hold-up time | | 115 VAC: 20 ms typ. 230 VAC: 80 ms typ. |
| Isolation voltage | - Input/Output | 4'000 VAC |
| Isolation resistance | - at 500 VDC | 1'000 MOhm |
| Reliability /calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | | >400'000 h |
| EMI / RFI conducted and radiated | | EN 55022, class B, FCC part 15, level B EN 55011 class B |
| Electromagnets compatibility (EMC), immunity | <ul style="list-style-type: none"> - Electrostatic discharge ESD - RF field immunity - Electrical fast transients/burst immunity - Surge - Conducted RF - Magnetic field immunity | IEC / EN 61000-4-2, 8kV/4kV perf. criteria B IEC / EN 61000-4-3, 10V/m perf. criteria A IEC / EN 61000-4-4, ± 2kV perf. criteria B IEC / EN 61000-4-5, ± 1kV/± 2kV perf. criteria B IEC / EN 61000-4-6, 10 Vr.m.s perf. criteria B IEC / EN 61000-4-8, 30A/m perf. criteria A |
| Voltage dip and interruptions according to EN 61000-4-11 reference: 115 VAC / 60Hz | | 30%, 10ms perf. criteria B 60%, 100ms perf. criteria C 95%, 5000ms perf. criteria C |
| Protection class II | | according IEC/EN 60536 |
| Safety standards | | UL 60950-1, IEC/EN 60950-1, IEC 60601-1 3rd edition, 2 x MOPP ANSI/AAMI ES 60601-1:2005(R)2012 UL 508 for chassis mount version |
| Safety approvals and certifications | <ul style="list-style-type: none"> - UL online certification (ES60601-1:2005(R)2012) - UL certificate (UL 60950-1) - UL approval for UL 508 (chassis mount models only) - CB certificate (60601-1 3rd edition 2 x MOPP) - CB certificate (IEC/EN 60950-1) | www.ul.com File e188913, copy: e188913qqhm2.pdf www.ul.com File e188913, copy: e188913qqgq2.pdf www.ul.com -> certifications -> File: e322109 www.tracopower.com/products/imm24-cb60601.pdf www.tracopower.com/products/imm24-cb60950.pdf |
| Casing material | | plastic resin + fiberglass (UL 94V-0 rated) |
| Environmental compliance | <ul style="list-style-type: none"> - Reach - RoHS | www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU |

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

Outline Dimensions

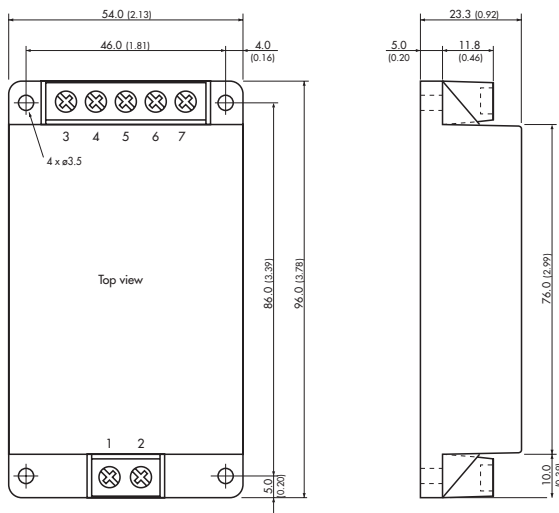
TMM 24:
for PCB mount:



Pin diameter \varnothing 1.0 mm (0.039)

Weight: 137 g (4.83oz)

TMM 24C:
for chassis mount:



Weight: 147 g (5.19oz)

Pinout / Connection

| Pin/con. | Single | Dual |
|----------|-------------|-------------|
| 1 | AC (N) | AC (N) |
| 2 | AC (L) | AC(L) |
| 3 | No Pin / NC | No Pin / NC |
| 4 | -Vout | -Vout |
| 5 | No Pin / NC | Common |
| 6 | +Vout | +Vout |
| 7 | No Pin / NC | No Pin / NC |

NC = not to connect

Dimensions in [mm], () = Inches
Tolerances = 0.5mm (0.02)

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

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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