

### Features

- ◆ Highest power density encased  
100 W power supply in 2.44" x 3" package
- ◆ 2 x MOPP Medical safety according to  
AAMI/ANSI ES 60601-1:2005(R) and  
IEC/EN 60601-1 3rd edition
- ◆ Ready to meet ErP directive,  
< 0.3 W no load power consumption
- ◆ Highest efficiency 91 to 92%  
across 10% – 100% load range
- ◆ Active power factor correction (>95)
- ◆ Protection class II prepared
- ◆ Operating up to 5000m altitude
- ◆ Adjustable output voltage
- ◆ 3-year product warranty



The TPP 100 Series of 100 Watt AC/DC power supplies feature a reinforced double I/O isolation system according to latest medical safety standards (60601-3 3rd edition, 2 x MOPP).

The excellent efficiency of up to 92% allows a high power density for the standard 2.44" x 3.0" packaging format. The full load operating temperature range is -25°C to +50°C while it goes up to 70°C with 50% load derating.

They come with an active power factor correction and the EMC characteristic is dedicated for applications in industrial and domestic fields.

High reliability is provided by use of industrial quality grade components and an excellent thermal management. It makes the products an ideal solution for medical devices and for demanding safety and space critical applications.

### Models

| Order code  | Output voltage<br>(adjustment range) | Output current<br>max. | Efficiency<br>max. |
|-------------|--------------------------------------|------------------------|--------------------|
| TPP 100-112 | 12 VDC (10.8 - 13.2)                 | 8.34 A                 | 91 %               |
| TPP 100-115 | 15 VDC (13.5 - 16.5)                 | 6.67 A                 | 92 %               |
| TPP 100-124 | 24 VDC (21.6 - 26.4)                 | 4.17 A                 | 92 %               |
| TPP 100-128 | 28 VDC (25.2 - 30.8)                 | 3.58 A                 | 92 %               |
| TPP 100-136 | 36 VDC (32.4 - 39.6)                 | 2.78 A                 | 91 %               |
| TPP 100-148 | 48 VDC (43.2 - 52.8)                 | 2.09 A                 | 91 %               |

## Input Specifications

|                             |                                            |                                                        |
|-----------------------------|--------------------------------------------|--------------------------------------------------------|
| Input voltage range         | – AC range (universal input)<br>– DC range | 85 – 264 VAC<br>120 – 370 VDC                          |
| Input frequency             |                                            | 47 – 63 Hz                                             |
| Input current at full load  | – at 115 VAC / 230 VAC                     | 1.15 A max. / 0.55 A max.                              |
| Input protection            |                                            | T3.15 A/250 VAC (internal fuse in both line & neutral) |
| Zero load power consumption |                                            | 0.3 W (acc. ErP directive)                             |
| Harmonic limits             | – Power factor                             | EN 61000-3-2, Class A & D<br>0.95                      |

## Output Specifications

|                                               |                                                                                                    |                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage set accuracy                          |                                                                                                    | ±1%                                                                                                                                                                                                                                                                                                           |
| Regulation                                    | – Input variation<br>– Load variation (0 - 100%)                                                   | 0.2% max.<br>0.5% max.                                                                                                                                                                                                                                                                                        |
| Minimum load                                  |                                                                                                    | not required                                                                                                                                                                                                                                                                                                  |
| Temperature coefficient                       |                                                                                                    | 0.02%/K                                                                                                                                                                                                                                                                                                       |
| Hold-up time                                  | – $V_{in} = 115 \text{ VAC} / 230 \text{ VAC}$                                                     | 16 ms min.                                                                                                                                                                                                                                                                                                    |
| Start-up time                                 |                                                                                                    | <1s                                                                                                                                                                                                                                                                                                           |
| Rise time                                     |                                                                                                    | 20ms typ.                                                                                                                                                                                                                                                                                                     |
| Output voltage adjustment                     |                                                                                                    | ±10%                                                                                                                                                                                                                                                                                                          |
| Ripple and noise (20Mhz Bandwidth)            | 12 VDC model:<br>15 VDC model:<br>24 VDC model:<br>28 VDC model:<br>36 VDC model:<br>48 VDC model: | 120 mVp-p typ. with cap. 10µF/25V 1206 X7R MLCC<br>150 mVp-p typ. with cap. 10µF/25V 1206 X7R MLCC<br>160 mVp-p typ. with cap. 1µF/50V 1206 X7R MLCC<br>180 mVp-p typ. with cap. 1µF/50V 1206 X7R MLCC<br>190 mVp-p typ. with cap. 1µF/50V 1206 X7R MLCC<br>340 mVp-p typ. with cap. 0.1µF/100V 1206 X7R MLCC |
| Overvoltage protection                        |                                                                                                    | 115 – 135% of nominal $V_{out}$                                                                                                                                                                                                                                                                               |
| Overload protection by current limit          |                                                                                                    | at 115 – 150% $I_{out}$ max.                                                                                                                                                                                                                                                                                  |
| Short circuit protection                      |                                                                                                    | continuous (automatic recovery)                                                                                                                                                                                                                                                                               |
| Transiente response<br>(25% load step change) | – Peak deviation<br>– Recovery time                                                                | 3% of $V_{out}$<br>500µs                                                                                                                                                                                                                                                                                      |

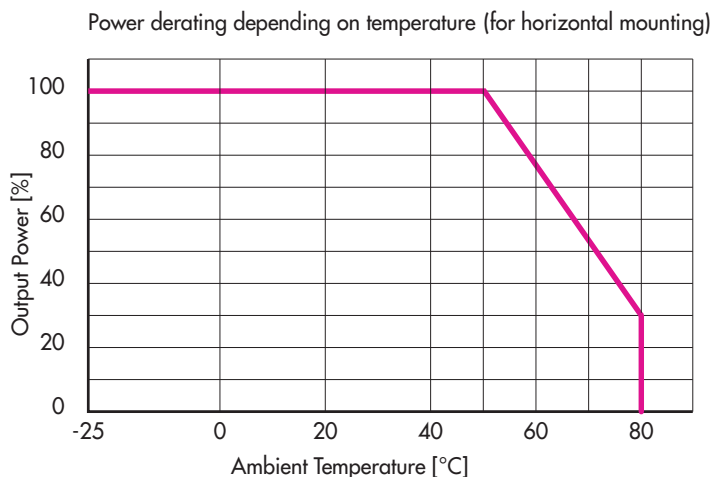
## General Specifications

|                                              |                                                                                                                      |                                                |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Operating temperature                        |                                                                                                                      | –25°C to +80°C with derating, see below        |
| Output power derating                        | – Temperature<br>– Low input voltage                                                                                 | 2.33 %/K above +50°C<br>1.33 %/V below 100 VAC |
| Storage temperature                          |                                                                                                                      | –40°C to +85°C                                 |
| Humidity (non condensing)                    |                                                                                                                      | 5 – 90 % rel. H max.                           |
| Altitude during operation                    |                                                                                                                      | 5000 m                                         |
| Switching frequency                          |                                                                                                                      | 60 kHz typ. (pulse width modulation)           |
| Isolation voltage 1min (2 x MOPP insulation) | – Input / Output<br>– Input / Case                                                                                   | 4000 VAC<br>1500 VAC                           |
| Leakage current (at 264 VAC/60Hz)            |                                                                                                                      | 75 µA max.                                     |
| Isolation resistance (at 500 VDC)            |                                                                                                                      | 100 Mohm min.                                  |
| Reliability                                  | – calculated MTBF at +25°C acc. to IEC 61709<br>– Bellcore TR-NWT-000332 Case 1:50% Stress, $T_a = 40^\circ\text{C}$ | 276'000 h<br>1'919'000 h                       |
| Protection class                             |                                                                                                                      | class II prepared                              |

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

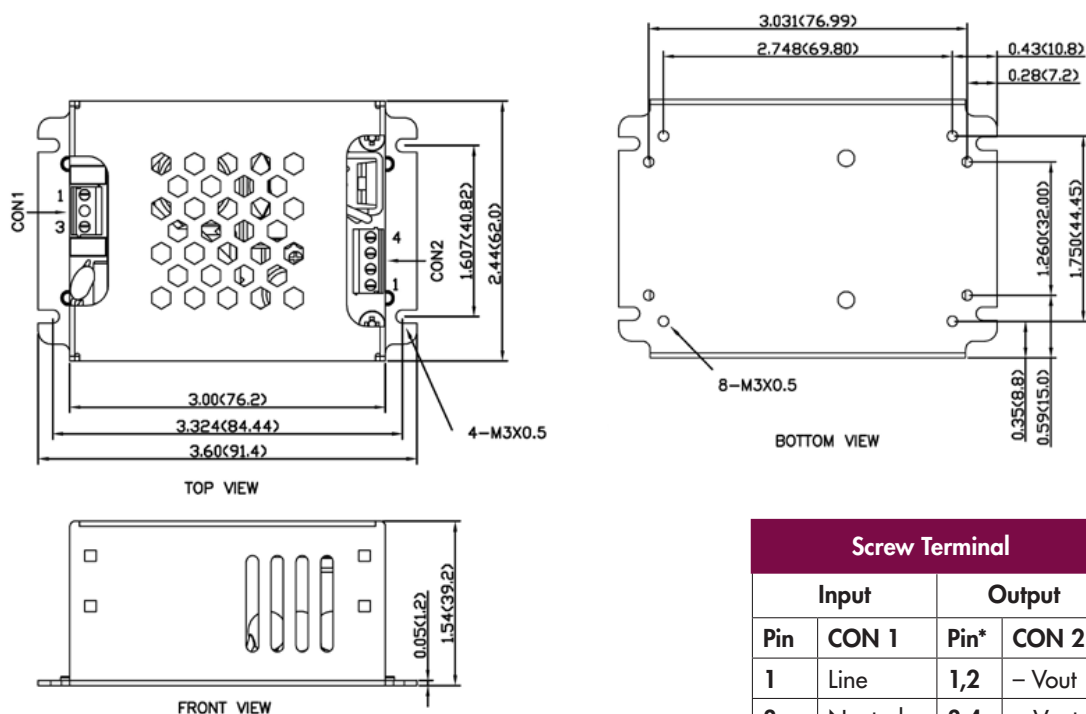
## General Specifications

|                                                                                   |                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electromagnetic compatibility (EMC), emissions                                    | <ul style="list-style-type: none"> <li>– Conducted input RI suppression</li> <li>– Harmonic current emissions</li> <li>– Voltage flicker</li> <li>– Radiated input suppression</li> </ul>                                                            | EN 55022, class B<br>IEC / EN 61000-3-2, class A & D<br>IEC / EN 61000-3-3, (class tba.)<br>EN 55011, class A                                                                                                                                                                                                 |
| Electromagnets compatibility (EMC), immunity                                      | <ul style="list-style-type: none"> <li>– Electrostatic discharge ESD</li> <li>– RF field immunity</li> <li>– Electrical fast transients/burst immunity</li> <li>– Surge</li> <li>– Conducted RF</li> <li>– Power frequency magnetic field</li> </ul> | IEC / EN 61000-4-2, 8kV/6kV perf. criteria A<br>IEC / EN 61000-4-3, 20V/m perf. criteria A<br>IEC / EN 61000-4-4, $\pm 2$ kV perf. criteria A<br>IEC / EN 61000-4-5, $\pm 1$ kV/ $\pm 2$ kV perf. criteria A<br>IEC / EN 61000-4-6, 20 Vr.m.s perf. criteria A<br>IEC / EN 61000-4-8, 10 A/M perf. criteria A |
| Voltage dip and interruptions according to EN 60601-1-2 reference: 100 VAC / 50Hz |                                                                                                                                                                                                                                                      | 30%, 500ms perf. criteria A<br>60%, 100ms perf. criteria B<br>> 95%, 10ms perf. criteria A<br>> 95%, 5000ms perf. criteria B                                                                                                                                                                                  |
| Safety standards                                                                  | <ul style="list-style-type: none"> <li>– Information technology equipment</li> <li>– Information medical equipment</li> <li>– Certification documents</li> </ul>                                                                                     | UL 60950-1, IEC/EN 60950-1,<br>IEC/EN 60601-1 3rd edition, (2x MOPP)<br>ANSI/AAMI ES60601-1:2005(R)2012<br><a href="http://www.tracopower.com/overview/tpp100">www.tracopower.com/overview/tpp100</a>                                                                                                         |
| Environment                                                                       | <ul style="list-style-type: none"> <li>– Vibration acc. IEC 60068-2-6;</li> <li>– Shock acc. IEC 60068-2-27</li> </ul>                                                                                                                               | 3 axis, sine sweep, 10–55Hz, 1g, 1oct/min<br>3 axis, 10g half sine, 11msShock<br>20 G (3 directions each 3 times)                                                                                                                                                                                             |
| Environmental compliance                                                          | <ul style="list-style-type: none"> <li>– Reach</li> <li>– RoHS</li> </ul>                                                                                                                                                                            | <a href="http://www.tracopower.com/overview/tpp100">www.tracopower.com/overview/tpp100</a><br>RoHS directive 2011/65/EU                                                                                                                                                                                       |
| Connection                                                                        |                                                                                                                                                                                                                                                      | screw terminal                                                                                                                                                                                                                                                                                                |



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

## Dimensions



Weight: 210g (7.41 oz)

### Screw Terminal

| Input |         | Output |        |
|-------|---------|--------|--------|
| Pin   | CON 1   | Pin*   | CON 2  |
| 1     | Line    | 1,2    | - Vout |
| 3     | Neutral | 3,4    | + Vout |

\*Terminal rated for 10 A max.  
(at higher current connection has to be splitted)

Dimensions in inch, ( ) = mm  
Tolerances: x.xx±0.02 (x.x±0.5) x.xxx±0.01 (x.xx±0.25)  
Wire dimensions range 26 - 16 AWG

Customized versions on request (e.g. open frame, PIN-connector, DIN-Rail clip)

## 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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