AC/DC Power Supplies

TPP 100 Series, 100 Watt

ES 60601-1
UL 60950-1

Features

- Highest power density encased 100 W power supply in 2" 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 2.0" 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 (adjustment range)	Output current max.	Efficiency 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 100-136	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) – DC range	85 – 264 VAC 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 0.95

Output Specifications

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

General Specifications

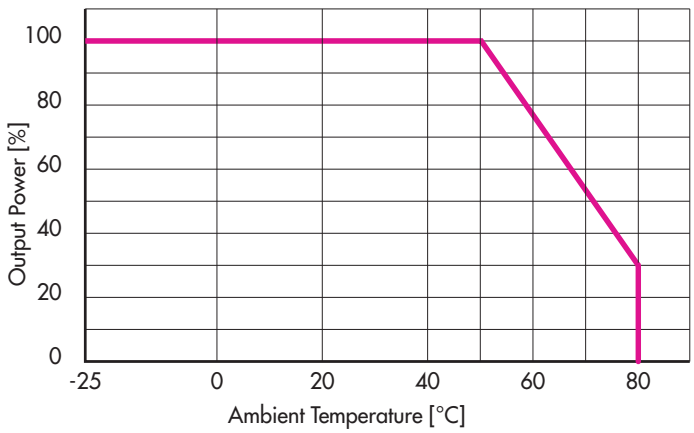
Operating temperature		–25°C to +80°C with derating, see below
Output power derating	– Temperature – Low input voltage	2.33 %/K above +50°C 1.33 %/V below 100 VAC
Storage temperature		–40°C to +85°C
Humidity (non condensing)		0 – 90 % rel. H max.
Altitude during operation		5000 m
Switching frequency		60 kHz typ. (pulse width modulation)
Isolation voltage 1min (2 x MOPP insulation)	– Input / Output – Input / Case	4000 VAC 1500 VAC
Operating temperature		–25°C to +80°C with derating, see below
Output power derating	– Temperature – Low input voltage	2.33 %/K above +50°C 1.33 %/V below 100 VAC
Storage temperature		–40°C to +85°C
Humidity (non condensing)		0 – 90 % rel. H max.
Altitude during operation		5000 m

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

General Specifications

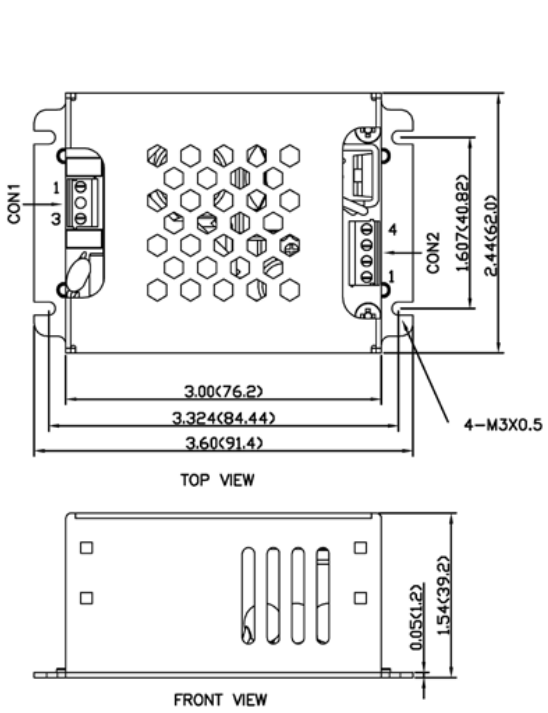
Switching frequency		60 kHz typ. (pulse width modulation)
Isolation voltage 1min (2 x MOPP insulation)	– Input / Output – Input / Case	 4000 VAC 1500 VAC
Leakage current (at 264 VAC/60Hz)		75 µA max.
Isolation resistance (at 500 VDC)		100 Mohm min.
Reliability, calculated MTBF at +25°C acc. to IEC 61709		> 790'000 h
Protection class		class II prepared
Electromagnetic compatibility (EMC), emissions	– Conducted input RI suppression – Harmonic current emissions – Voltage flicker – Radiated input surpression	EN 55022, class B IEC / EN 61000-3-2, class A & D IEC / EN 61000-3-3, (class tba.) EN 55011, class A
Electromagnets compatibility (EMC), immunity	– Electrostatic discharge ESD – RF field immunity – Electrical fast transients/burst immunity – Surge – Conducted RF	IEC / EN 61000-4-2, 8kV/6kV perf. criteria A IEC / EN 61000-4-3, 20V/m perf. criteria A IEC / EN 61000-4-4, ± 2kV perf. criteria A IEC / EN 61000-4-5, ± 1kV/± 2kV perf. criteria A IEC / EN 61000-4-6, 20 Vr.m.s perf. criteria A
Voltage dip and interruptions according to EN 60601-1-2 reference: 100 VAC / 50Hz		30%, 500ms perf. criteria A 60%, 100ms perf. criteria B > 95%, 10ms perf. criteria A > 95%, 5000ms perf. criteria B
Safety standards		UL 60950-1, IEC/EN 60950-1, IEC/EN 60601-1 3rd edition, ANSI/AAMI ES60601-1:2005(R)2012
Safety approvals and certifications	– UL online certification (ES60601-1:2005(R)2012) – UL certificate (UL 60950-1) – 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.tracopower.com/products/tpp100-cb60601.pdf www.tracopower.com/products/tpp100-cb60950.pdf
Environment	– Vibration acc. IEC 60068-2-6; – Shock acc. IEC 60068-2-27	3 axis, sine sweep, 10–55Hz, 1g, 1oct/min 3 axis, 10g half sine, 11msShock 20 G (3 directions each 3 times)
Environmental compliance	– Reach – RoHS	www.tracopower.com/products/reach-declaration.pdf RoHS directive 2011/65/EU Pending
Connection		screw terminal

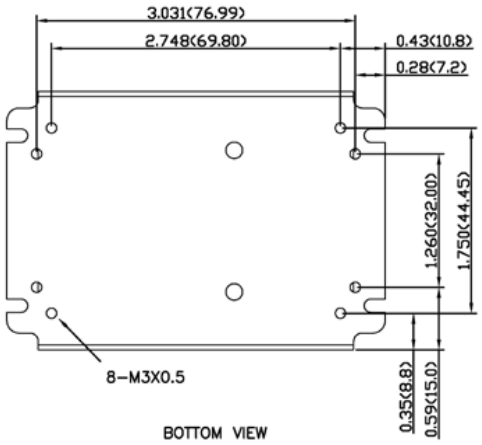
Power derating depending on temperature (for horizontal mounting)



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 splittet)

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

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

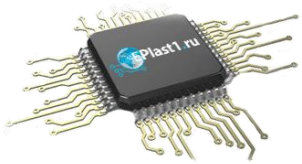
Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

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

Телефон: 8 (812) 309 58 32 (многоканальный)
Факс: 8 (812) 320-02-42
Электронная почта: org@eplast1.ru
Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.