

Unregulated DC/DC Converter

TEA 1 Series, 1 Watt

- **Highly cost efficient design**
- **I/O isolation: 1'500 VDC**
- **Operating temperature range
-40 to +85 °C without derating**
- **5 VDC (±10%) input voltage range**
- **Unregulated outputs**
- **Efficiency up to 79%**
- **Industry standard SIP-4 package**
- **3-year product warranty**



The TEA 1 is an unregulated 1 Watt DC/DC SIP-4 converter series which is specifically designed to offer a low-cost solution while keeping a high quality standard. This new series focuses on a simple but effective design approach, which minimizes component and labor cost and is complemented with a complete automatization of the manufacturing process. An operating temperature range from -40°C to 85°C without derating and an I/O-isolation of 1'500 VDC enables this series to cover many different applications. The industry standard package of this converter offers a broad application range in any space, cost critical application and is especially suited for high volume projects where simple but reliable products are needed.

Models

Order Code	Input Voltage Range	Output Voltage nom.	Output Current max.	Efficiency typ.
TEA 1-0505	4.5 - 5.5 VDC (5 VDC nom.)	5 VDC	200 mA	79 %

Input Specifications

Surge Voltage	9 VDC max. (1 s max.)
Recommended Input Fuse	500 mA (slow blow) (The need of an external fuse has to be assessed in the final application.)
Input Filter	Internal Capacitor

Output Specifications

Voltage Set Accuracy	±3% max. (at 60 % load)
Regulation (Unregulated)	- Input Variation (1% Vin step) - Load Variation See application note: www.tracopower.com/tea1-cc/
Ripple and Noise	- 20 MHz Bandwidth 100 mVp-p max. 50 mVp-p typ.
Capacitive Load	2'200 µF max.
Minimum Load	See application note: www.tracopower.com/tea1-cc/
Temperature Coefficient	±0.02 %/K max.
Start-up Time	30 ms max.
Short Circuit Protection	Limited 1 s max., Automatic recovery

Safety Specifications

Standards	- IT / Multimedia Equipment	Designed for IEC/EN/UL 62368-1 (not certified)
Over Voltage Category		Not mains connected

General Specifications

Relative Humidity	95% max. (non condensing)
Temperature Ranges	- Operating Temperature - Case Temperature - Storage Temperature -40°C to +95°C +105°C max. -55°C to +125°C
Power Derating	- High Temperature 5.0 %/K above 85°C See application note: www.tracopower.com/tea1-cc/
Cooling System	Natural convection (20 LFM)
Switching Frequency	150 kHz max. (Royer) 80 kHz typ. (Royer)
Insulation System	Functional Insulation
Isolation Test Voltage	- Input to Output, 60 s 1'500 VDC
Isolation Resistance	- Input to Output, 500 VDC 1'000 MΩ min.
Isolation Capacitance	- Input to Output, 100 kHz, 1 V 30 pF typ.
Reliability	- Calculated MTBF 2'000'000 h (MIL-HDBK-217F, ground benign)
Washing Process	Not allowed
Housing Material	Plastic (UL 94 V-0 rated)
Potting Material	Epoxy (UL 94 V-0 rated)
Pin Material	Phosphor Bronze (C5191)
Pin Foundation Plating	Nickel (1 µm min.)
Pin Surface Plating	Tin (3 µm min.), bright
Housing Type	Plastic Case
Mounting Type	PCB Mount
Connection Type	THD (Through-Hole Device)
Footprint Type	SIP4
Soldering Profile	Lead-Free Wave Soldering 265 °C / 5 s max.
Weight	1.6 g

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

Environmental Compliance - REACH Declaration

www.tracopower.com/info/reach-declaration.pdf

- RoHS Declaration

REACH SVHC list compliant

REACH Annex XVII compliant

www.tracopower.com/info/rohs-declaration.pdf

Exemptions: 7(a), 7(c)-I

(RoHS exemptions refer to the component concentration only, not to the overall concentration in the product (O5A rule).)

- SCIP Reference Number

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Additional Information

Supporting Documents

www.tracopower.com/overview/tea1

Frequently Asked Questions

www.tracopower.com/glossary-faq

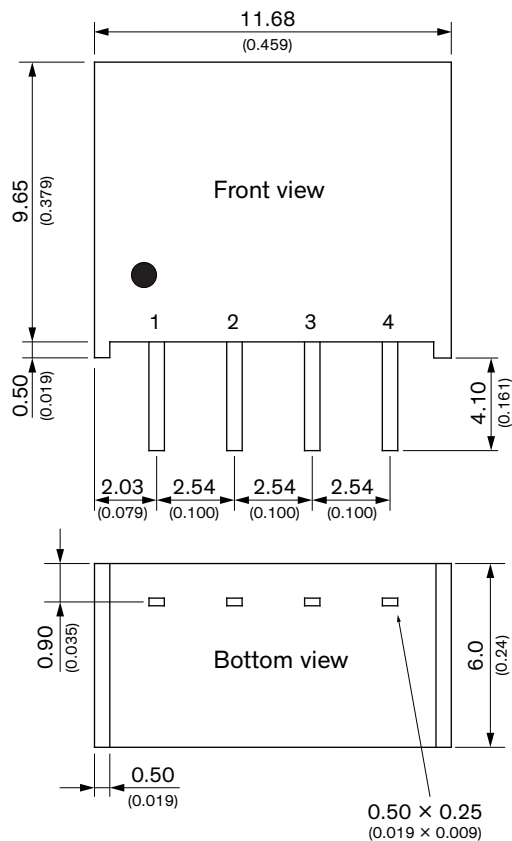
Glossary

www.tracopower.com/info/glossary.pdf

Service Portal

www.tracoserviceportal.com

Outline Dimensions



Pinout	
Pin	Function
1	-Vin (GND)
2	+Vin (Vcc)
3	-Vout
4	+Vout

Avoid routing PCB traces under the converter.

Dimensions in mm (inch)

Tolerances: x.x ±0.5 (x.xx ±0.02)

x.xx ±0.25 (x.xxx ±0.01)

Pin dimension tolerance: ±0.1 (±0.004)

