TRACO POWER

Unregulated DC/DC Converter

TEA 1E 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-7 package**
- **3-year product warranty**



The TEA 1E is an unregulated 1 Watt DC/DC SIP-7 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 1-0505E	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:	1.5% max. www.tracopower.com/tea1e-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/tea1e-cc/
Temperature Coefficient			±0.02 %/K max.
Start-up Time			10 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/tea1e-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		10 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			SIP7
Soldering Profile			Lead-Free Wave Soldering 265 °C / 5 s max.
Weight			2.3 g

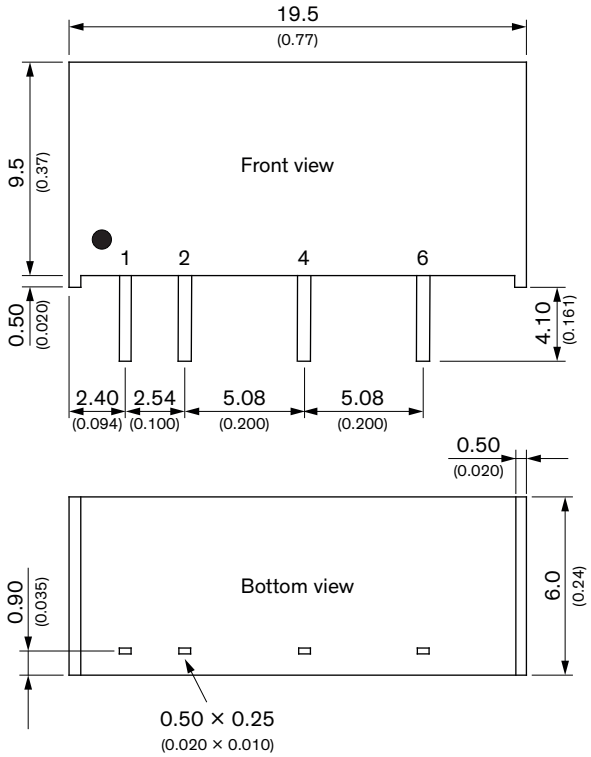
All specifications valid at nominal voltage, resistive full load and +25°C after warm-up time, unless otherwise stated.

Environmental Compliance	- REACH Declaration	www.tracopower.com/info/reach-declaration.pdf REACH SVHC list compliant REACH Annex XVII compliant
	- RoHS Declaration	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	32d47a25-73b5-4ff8-9578-5d32c84ecced

Additional Information

Supporting Documents	www.tracopower.com/overview/tea1e
Frequently Asked Questions	www.tracopower.com/glossary-faq
Glossary	www.tracopower.com/info/glossary.pdf
Service Portal	www.tracoserviceportal.com

Outline Dimensions



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)

Pinout

Pin	Function
1	+Vin (Vcc)
2	–Vin (GND)
4	–Vout
6	+Vout

Avoid routing PCB traces under the converter.

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