

- **Highly cost efficient design**
- **I/O isolation: 1'500 VDC**
- **Operating temperature range -40 to +85 °C without derating**
- **5 VDC ( $\pm 10\%$ ) input voltage range**
- **Unregulated outputs**
- **Efficiency up to 78%**
- **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<br>(5 VDC nom.) | 5 VDC               | 200 mA              | 78 %            |

### Input Specifications

|                        |              |   |
|------------------------|--------------|---|
| Input Current          | - At no load | 28 mA typ.  |
| Surge Voltage          |              | 9 VDC max. (1 s max.)   |
| Recommended Input Fuse |              | 500 mA (slow blow)<br>(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               | - Input Variation (1% Vin step)<br>- Load Variation (10 - 90%) | 1.5% max.<br>9% max.            |
| Ripple and Noise         | - 20 MHz Bandwidth   | 100 mVp-p max.<br>50 mVp-p typ. |
| Capacitive Load          |  | 470 µF max.                     |
| Minimum Load             |  | Not required                    |
| Temperature Coefficient  |  | ±0.03 %/K max.                  |
| Start-up Time            |  | 30 ms max.                      |
| Short Circuit Protection |  | Limited 1 s max.                |

### Safety Specifications

|                  |                             |  |
|------------------|-----------------------------|--|
| Safety Standards | - IT / Multimedia Equipment | Designed for EN 60950-1 (no certification) |
|------------------|-----------------------------|--|

### General Specifications

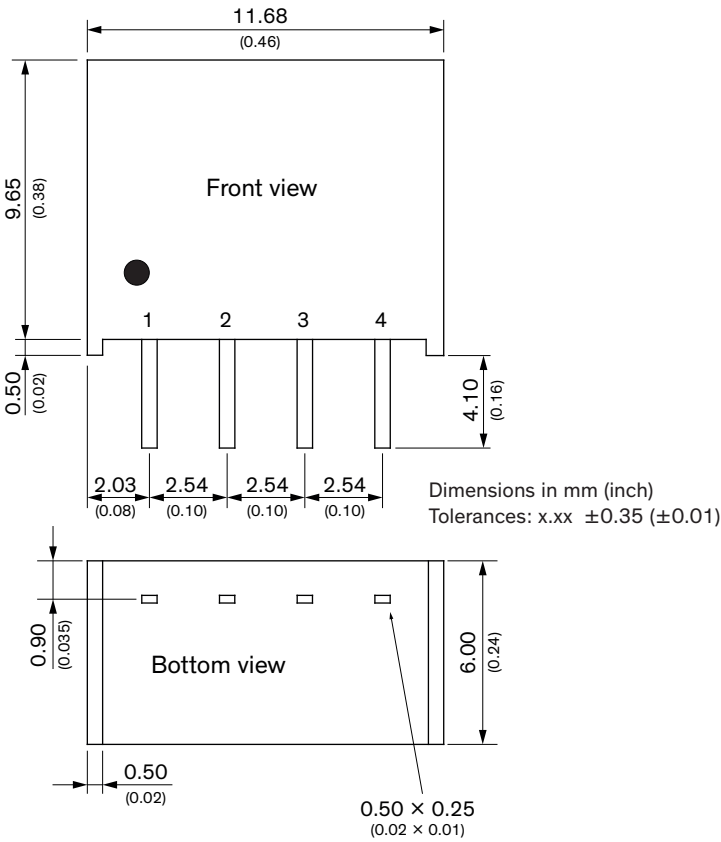
|                          |  |  |
|--------------------------|--|--|
| Relative Humidity        |  | 95% max. (non condensing)  |
| Temperature Ranges       | - Operating Temperature<br>- Case Temperature<br>- Storage Temperature | -40°C to +95°C<br>+105°C max.<br>-55°C to +125°C   |
| Power Derating           | - High Temperature   | 5 %/K above 85°C   |
| Cooling System           |  | Natural convection (20 LFM)  |
| Switching Frequency      |  | 100 kHz typ.   |
| 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)   |
| Housing Material         |  | Plastic (UL 94 V-0 rated)  |
| Potting Material         |  | Epoxy (UL 94 V-0 rated)  |
| Pin Material             |  | Tinned Copper  |
| Weight                   |  | 1.6 g  |
| Environmental Compliance | - Reach<br>- RoHS  | <a href="http://www.tracopower.com/info/reach-declaration.pdf">www.tracopower.com/info/reach-declaration.pdf</a><br><a href="http://www.tracopower.com/info/rohs-declaration.pdf">www.tracopower.com/info/rohs-declaration.pdf</a> |

### Supporting Documents

|  |  |
|--|--|
| Overview Link (for additional Documents) | <a href="http://www.tracopower.com/overview/tea1">www.tracopower.com/overview/tea1</a> |
|--|--|

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

**Outline Dimensions**



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

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