

## PCB Mounted, Current Style Voltage Transformer

The **TV31B** Series of PCB mounted current style voltage transformer is designed for application where an AC current signal must be transformed into lower AC voltage signal appropriate for micro-processor based circuits.

The TV31B series is essentially a mA current transformer with a 1:1 ratio. A limiting resistor in series with the primary winding is a requirement. The small physical dimensions are designed specifically for integration into products which require exceptionally accurate signal transformation with low phase shift while exposed to harsh environmental operating conditions.



### Specifications:

- Input/ Output Options:
  - 1mA/ 1mA
  - 2mA/ 2mA
- Frequency: 50 to 1000 Hz
- Voltage Rating: 600V<sub>AC</sub>
- Dielectric Resistance: 1,000 MOhms @ 500 V<sub>DC</sub>
- Isolation Voltage: 4000 V<sub>RMS</sub> for 1 minute @0.5 mA.
- Surge withstand potential: 5000V (1.2/50μ second standard shock wave)
- Operating Temperature: -40°C to +85° C
- Construction:
  - Case Material: ABB or PBT Resin, UL 94 V-0
  - Interior Insulation: Epoxy resin

- RoHS compliant



- UL Certified (File #E331000)



### Performance:

- Accuracy Class: 0.1, 0.2 (IEC 60044-1 Part 1 Current Transformers Class 0.1, 0.2)
- Linearity Class: 0.1L (IEC 60044-1 Part 1 Current Transformers Class 0.1, 0.2)
- Linearity: 5% to 120% of Rated Voltage
- Phase shift @ Rated Current: ≤ 30'
- Secondary burden resistance: ≤ 500 Ohm

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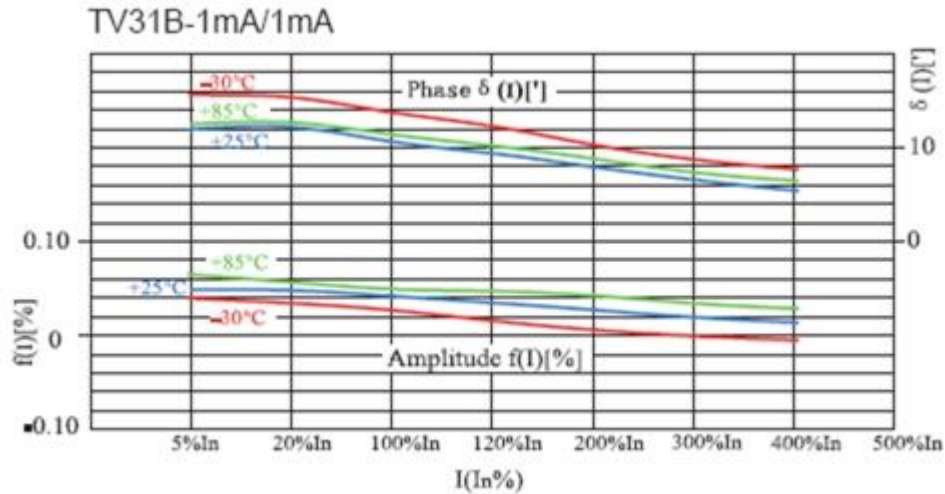
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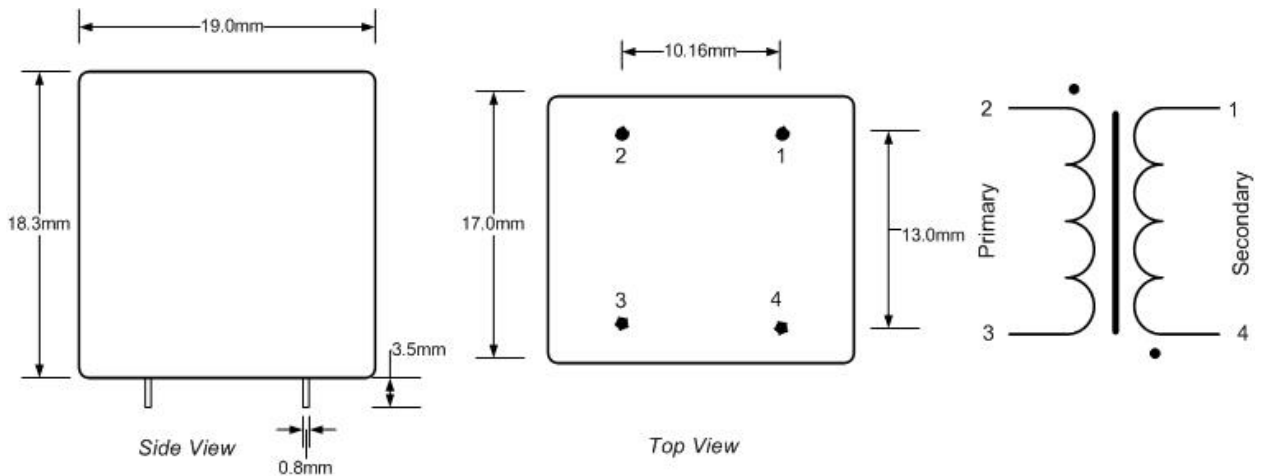
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**Typical Performance TV31B**



**Outline Drawing:**



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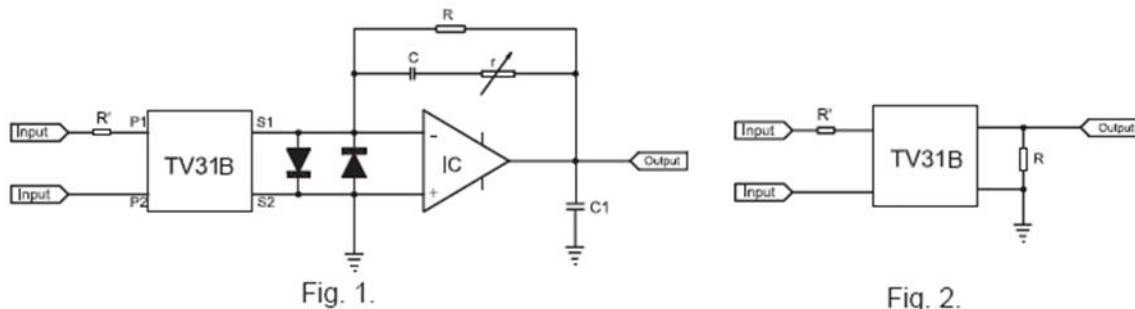
**NOTE:** The PCB mounted voltage transformers are bulk packed. Purchase order quantities should be in increments of the bulk packaging quantities:

**TV31B –**        **234** pieces. per inner box,  
                   **1,872** pieces per bulk pack box.  
                   Bulk pack box =    27.6 kg/ 60.7lbs  
   0.029 CBM (38.0cm/15" x 27.0cm/11" x 28.5cm/12")

**Application Note:**

**R'** – Limiting resistor

**Figure 1:** Incorporation of an operational amplifier I/V conversion circuit results in a minimal burden on the TV31B transformer. The result is very accurate primary to secondary conversion with minimal phase shift.



**Figure 2:** Voltage conversion using a sampling resistor (**R**) in parallel with the secondary winding. The selected value must not exceed the maximum secondary burden impedance specified. The lower the burden the better the accuracy and minimal the phase shift.

**Custom toroidal voltage transformer designs** are available to meet the specific application requirements. For a no obligation technical evaluation, please provide the specific performance requirements to [engineering@tichenassociates.com](mailto:engineering@tichenassociates.com) or the address below.

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