Features

◆ Compact high voltage power supplies
◆ Full SMD design with ceramic capacitors for highest reliability
◆ Positive or negative polarity models
◆ PCB- and flying lead versions
◆ Excellent output stability
◆ Low temperature coefficient
◆ Ultra low ripple
◆ Remote voltage programming 0 to 100 %
◆ Short circuit protection
◆ Shielded metal case
◆ 3-year product warranty

The THV / SHV series are regulated miniature high voltage power modules using SMD and hybrid technology. They are designed for PCB mounting (THV series) or chassis mounting (SHV series). The use of high stability components guarantees a minimal temperature drift and a very stable output voltage. Typical applications for these high voltage power supplies are photomultiplier tubes, gas chromatography, analytical instruments and wherever where small size and high output voltage stability is requested.

## Models

<table>
<thead>
<tr>
<th>Order code</th>
<th>Input voltage range</th>
<th>Output voltage</th>
<th>Output current max.*</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>THV 12-180P</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...+180 VDC</td>
<td>12 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-180N</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...–180 VDC</td>
<td>12 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-300P</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...+300 VDC</td>
<td>10 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-300N</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...–300 VDC</td>
<td>10 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-350P</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...+350 VDC</td>
<td>7 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-350N</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...–350 VDC</td>
<td>7 mA</td>
<td>A</td>
</tr>
<tr>
<td>THV 12-500P</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...+500 VDC</td>
<td>6 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-500N</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...–500 VDC</td>
<td>6 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-1000P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+1000 VDC</td>
<td>2 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-1000N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–1000 VDC</td>
<td>2 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-1500P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+1500 VDC</td>
<td>1.3 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-1500N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–1500 VDC</td>
<td>1.3 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-2000P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+2000 VDC</td>
<td>1 mA</td>
<td>B</td>
</tr>
<tr>
<td>THV 12-2000N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–2000 VDC</td>
<td>1 mA</td>
<td>B</td>
</tr>
<tr>
<td>SHV 12-0.5 K 6000P</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...+500 VDC</td>
<td>6 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-0.5 K 6000N</td>
<td>12 VDC 10.8 – 13.2 VDC</td>
<td>0...–500 VDC</td>
<td>6 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-1.0 K 2000P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+1000 VDC</td>
<td>2 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-1.0 K 2000N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–1000 VDC</td>
<td>2 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-1.5 K 1300P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+1500 VDC</td>
<td>1.3 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-1.5 K 1300N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–1500 VDC</td>
<td>1.3 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-2.0 K 1000P</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...+2000 VDC</td>
<td>1 mA</td>
<td>C</td>
</tr>
<tr>
<td>SHV 12-2.0 K 1000N</td>
<td>12 VDC 10.8 – 16.5 VDC</td>
<td>0...–2000 VDC</td>
<td>1 mA</td>
<td>C</td>
</tr>
</tbody>
</table>

*see page 2 for max. output current vs output voltage
Appendix P for positive output polarity / Appendix N for negative output polarity

http://www.tracopower.com
Input Specifications

Input voltage
- 180, 300, 350 & 500 VDC models: +10.8 to +13.2 VDC
- other VDC models: +10.8 to +16.5 VDC

Reverse voltage protection
none

Conducted noise [input]
internal filter

Output Specifications

Max. output current vs output voltage

Voltage set accuracy
±5 %

Voltage adjustment range
(adjustable with external voltage 0 to +4 VDC or with 5 kOhm variable resistor)
0 – 100 %

Remote On/Off control [not for 180, 300, 350 VDC models]
On = pin 2 to pin 5 open
Off = pin 2 to pin 5 short

Ripple and noise
(20 MHz Bandwidth)
- 180, 300 & 350 VDC models: 30 mVpk-pk typ.
- 500 VDC models: 10 mVpk-pk typ.
- 1.0, 1.5 & 2.0 kVDC models: 8 mVpk-pk typ.

Temperature coefficient
±0.01 %/K

Stability
0.05 % 8h after warm-up time

Output current limitation
105 % of Iout max., fold back

Short circuit protection
indefinite, automatic recovery

General Specifications

Temperature ranges
- Operating
- Case temperature
- Storage
-10°C to +60°C
+95°C max.
-25°C to +85°C

Derating
4 %/K above 50°C

Humidity [non condensing]
95 % rel. H max.

Efficiency
60 – 65 %

Reliability, calculated MTBF (MIL-HDBK217F, at +25°C, ground benign)
>300,000 h

Isolation (Input/Output)
- Voltage
none

Switching frequency
125 kHz typ. (fixed)

Vibration
5 – 100 Hz amplitude 10 mm pk-pk
10 – 55 Hz acceleration 2 G

Thermal shock
acceleration 20 G max. time 11 ms.

Environmental compliance
- Reach
- RoHS
www.tracopower.com/overview/thv
RoHS Directive 2011/65/EU

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

<table>
<thead>
<tr>
<th>Casing material</th>
<th>Steel chrome-nickel plated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>THV models case A</td>
<td>47 g (1.66 oz)</td>
</tr>
<tr>
<td>THV models case B</td>
<td>65 g (2.29 oz)</td>
</tr>
<tr>
<td>SHV models</td>
<td>98 g (3.46 oz)</td>
</tr>
<tr>
<td>Soldering temperature</td>
<td>max. 265°C / 10 sec.</td>
</tr>
</tbody>
</table>

### Connection Diagram

**Connection for remote control by variable resistor**

**Connection for remote control voltage control**

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

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Pin-Out

<table>
<thead>
<tr>
<th>Pin</th>
<th>Case A</th>
<th>Case B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+Vin (Vcc)</td>
<td>+Vin (Vcc)</td>
</tr>
<tr>
<td>2</td>
<td>–Vin (GND)</td>
<td>–Vin (GND)</td>
</tr>
<tr>
<td>3</td>
<td>V adj.</td>
<td>V adj.</td>
</tr>
<tr>
<td>4</td>
<td>V ref.</td>
<td>V ref.</td>
</tr>
<tr>
<td>5</td>
<td>Common</td>
<td>ON/OFF</td>
</tr>
<tr>
<td>6</td>
<td>Vout</td>
<td>Common</td>
</tr>
<tr>
<td>7</td>
<td>no pin</td>
<td>Vout</td>
</tr>
</tbody>
</table>

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Dimensions in [mm], () = Inch
Pin diameter: 0.65 ±0.05 (0.03 ±0.002)
Tolerances: ±0.5 (±0.02)

Lead length 250 mm (10.0)

Specifications can be changed without notice! Make sure you are using the latest documentation, downloadable at www.tracopower.com