

Features

- ◆ Ultra wide 4:1 input voltage range
- ◆ Adjustable output voltage
- ◆ Remote On/Off
- ◆ Continuous short circuit protection
- ◆ Over voltage protection
- ◆ Over temperature protection
- ◆ I/O isolation 1500 VDC
- ◆ Input filter meets EN 55022, class A and FCC, level A without external components
- ◆ Fully RoHS compliant
- ◆ 3-year product warranty



The TEN 25WI series is a family of high performance dc-dc converter modules up to 30 Watt featuring ultra wide 4:1 input voltage ranges in a compact low profile case with industry standard footprint. Standard features include remote On/Off, output voltage trimming, over voltage protection, under voltage lockout, over temperature and short circuit protection.

Another feature is the internal EMI-filter to meet EN 55022, class A. Typical applications for these converter modules are industrial electronics, communication systems, battery operated equipment and distributed power systems.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|---------------|---------------------------------|---------------------------------|---------------------|-----------------|
| TEN 25-2410WI | 10 – 40 VDC (24 VDC nominal) | 3.3 VDC | 5'500 mA | 82 % |
| TEN 25-2411WI | | 5 VDC | 5'000 mA | 85 % |
| TEN 25-2412WI | | 12 VDC | 2'500 mA | 89 % |
| TEN 25-2413WI | | 15 VDC | 2'000 mA | 89 % |
| TEN 25-2422WI | | ±12 VDC | ±1'250 mA | 89 % |
| TEN 25-2423WI | | ±15 VDC | ±1'000 mA | 89 % |
| TEN 25-4810WI | | 18 – 75 VDC (48 VDC nominal) | 3,3 VDC | 5'500 mA |
| TEN 25-4811WI | 5 VDC | | 5'000 mA | 85 % |
| TEN 25-4812WI | 12 VDC | | 2'500 mA | 89 % |
| TEN 25-4813WI | 15 VDC | | 2'000 mA | 89 % |
| TEN 25-4822WI | ±12 VDC | | ±1'250 mA | 89 % |
| TEN 25-4823WI | ±15 VDC | | ±1'000 mA | 89 % |

Input Specifications

| | |
|--|--|
| Input current no load | 24 V models: 20 mA max. 48 V models: 10 mA max. |
| Input current full load | 24 V; 3.3 VDC models: 920 mA typ. 24 V; 5.0 VDC models: 1220 mA typ. 24 V; other output models: 1400 mA typ. 48 V; 3.3 VDC models: 460 mA typ. 48 V; 5.0 VDC models: 610 mA typ. 48 V; other output models: 700 mA typ. |
| Surge voltage (100 msec. max.) | 24 V models: 50 V max. 48 V models: 100 V max. |
| Reverse polarity | 2 A max. |
| Reflected input ripple current | 24 V models: 50 mA typ. 48 V models: 25 mA typ. |
| Conducted noise (input) | EN 55022 level A, FCC part 15, level A |
| Start-up voltage / under voltage shut down | 24 V models: 9.7 VDC / 9.3 VDC typ. 48 V models: 17.5 VDC / 16.5 VDC typ. |

Output Specifications

| | |
|--|---|
| Voltage set accuracy | ±1 % |
| Output voltage adj. range | ±10 % with external resistor (see page 4) |
| Regulation | – Input variation Vin min. to Vin max. 0.5 % max. – Load variation 10 – 100 % single output models: 1.0 % max. dual output models balanced load: 2.0 % max. |
| Minimum load | 10 % of rated max current (operation at lower load condition is safe but a higher output ripple will be experienced) |
| Temperature coefficient | ±0.02 %/°C max. |
| Ripple and noise (20 MHz Bandwidth) | 80 mVpk-pk max. |
| Transient response (25 % load step change) | 150 µs typ. |
| Output current limitation | >120 % of Iout max. |
| Short circuit protection | indefinite, automatic recovery |
| Thermal shutdown | at 115°C typ. |
| Capacitive load | 3.3 & 5 VDC models: 10'000 µF 12 & 15 VDC models: 1'000 µF dual output models: 330 µF |

General Specifications

| | |
|---|---|
| Temperature ranges | – Operating –40°C to +85°C (with derating) – Case temperature +105°C max. – Storage –50°C to +125°C |
| Load derating | – without heatsink 2 %/K above 55°C – with heatsink 2.5 %/K above 65°C |
| Humidity (non condensing) | 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | >550'000 h |
| Isolation voltage (60 sec.) | – Input/Output 1'500 VDC |
| Isolation capacitance | – Input/Output (100 kHz, 1 V) 1200 pF typ. |
| Isolation resistance | – Input/Output (500 VDC) >1'000 MΩ |
| Switching frequency (fixed) | 330 kHz typ. (puls width modulation) |

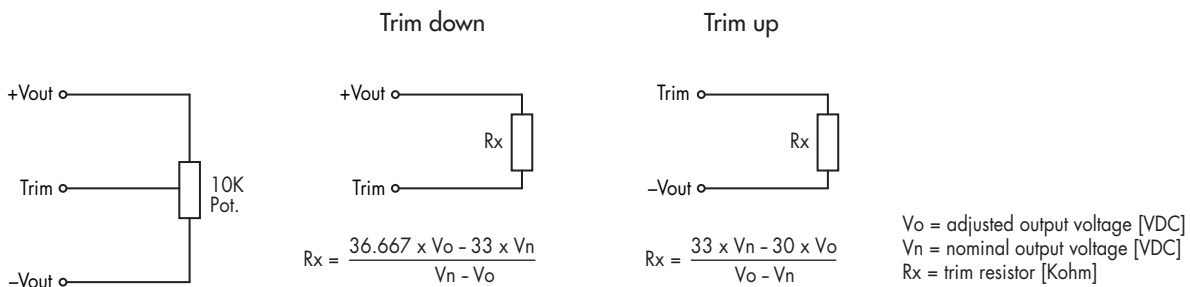
General Specifications

| | | |
|------------------|---------------------------------------|---|
| Remote On/Off: | - On: - Off: - Standby current: | 2.5 to 100 VDC or open circuit. -1.0 to +1.0 VDC or short circuit pin 3 and 2 5 mA max. |
| Safety standards | | UL/cUL 60950-1, IEC/EN 60950-1 |
| Safety approvals | - UL/cUL | www.ul.com -> certifications -> File e188913 |

Physical Specifications

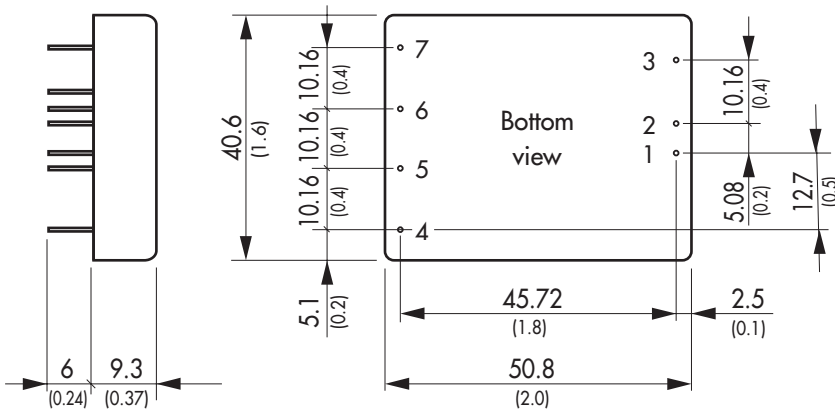
| | | |
|--------------------------|-------------------|---|
| Casing material | | copper, nickel plated |
| Baseplate | | non conductive FR4 |
| Potting material | | silicon (UL 94 V-0 rated) |
| Weight | | 48 g (1.69oz) |
| Soldering temperature | | max. 265°C / 10 sec. |
| Environmental compliance | - Reach - RoHS | www.tracopower.com/products/ten25wi-reach.pdf RoHS directive 2002/95/EC |

Output Voltage Adjustments



Nominal output voltage at open Trim input.

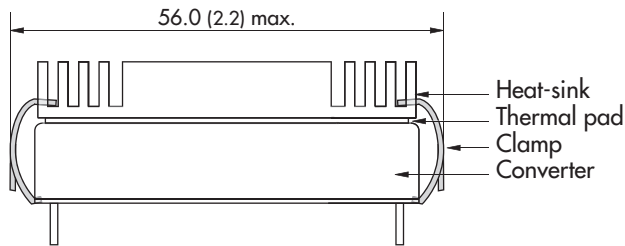
Outline Dimensions



| Pin-Out | | |
|---------|---------------|------------|
| Pin | Single | Dual |
| 1 | +Vin (Vcc) | +Vin (Vcc) |
| 2 | -Vin (GND) | -Vin (GND) |
| 3 | Remote On/Off | |
| 4 | No pin | + Vout |
| 5 | + Vout | Common |
| 6 | -Vout | -Vout |
| 7 | Trim | |

Dimensions in [mm], () = Inch
 Pin diameter: 1.0 ±0.05 (0.02 ±0.002)
 Pin pitch tolerances: ±0.35 (±0.014)
 Case tolerances: ±0.5 (±0.02)

Heat-sink TEN-HS5 (optional)



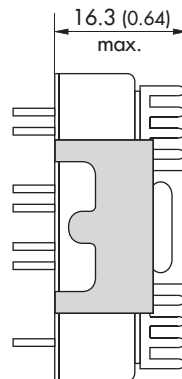
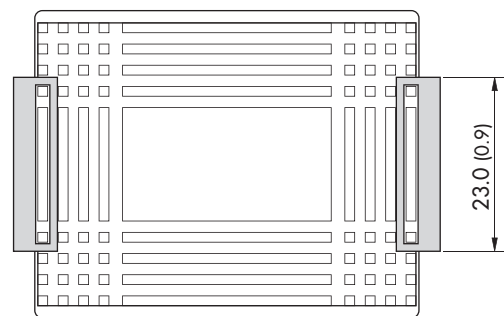
Order code: TEN-HS5

(cont.: heat-sink, thermal pad, 2 clamps)

Material: Aluminum

Finish: Anodic treatment (black)

Weight: 19 g (0.67oz) (without converter)



Note:

The product label on converter has to be removed before mounting the heat-sink. For volume orders converters will be supplied with heat-sinks already mounted. Please contact factory for quotation. Separate heat-sinks are only available for prototypes and small quantity orders.

Specifications can be changed any time without notice.