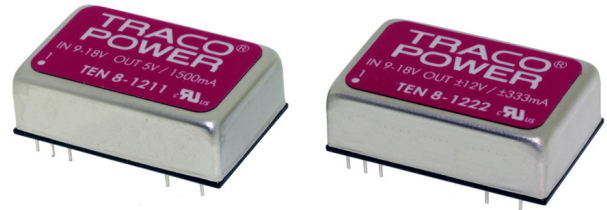


Features

- ◆ DIP-24 package with industry standard footprint
- ◆ Wide 2:1 input voltage range
- ◆ Input filter meets EN 55022, class A
- ◆ Extended operating temperature range: -40°C to +85°C
- ◆ Remote On/Off
- ◆ Shielded metal casing with insulated baseplate
- ◆ Lead free design, RoHS compliant
- ◆ 3-year product warranty



The TEN 8 series is a family of high performance 8 Watt dc/dc-converter modules featuring wide 2:1 input voltage ranges in a DIP-24 package with industry standard footprint. A very high efficiency allows an operating temperature range of -40°C to +85°C. A built-in EMI input filter complies with EN 55022, class A without external components. Further standard features include remote On/Off and short-circuit protection.

Typical applications for these converters are battery operated equipment, instrumentation, communication and industrial electronics, everywhere where isolated, tightly regulated voltages are required and space is limited on the PCB.

Models

| Order code | Input voltage range | Output voltage | Output current max. | Efficiency typ. |
|------------|---------------------------------|----------------|---------------------|-----------------|
| TEN 8-1210 | 9 – 18 VDC (12 VDC nominal) | 3.3 VDC | 2'000 mA | 80 % |
| TEN 8-1211 | | 5 VDC | 1'500 mA | 83 % |
| TEN 8-1212 | | 12 VDC | 665 mA | 88 % |
| TEN 8-1213 | | 15 VDC | 535 mA | 87 % |
| TEN 8-1221 | | ±5 VDC | ±800 mA | 83 % |
| TEN 8-1222 | | ±12 VDC | ±335 mA | 87 % |
| TEN 8-1223 | | ±15 VDC | ±265 mA | 85 % |
| TEN 8-2410 | 18 – 36 VDC (24 VDC nominal) | 3.3 VDC | 2'000 mA | 80 % |
| TEN 8-2411 | | 5 VDC | 1'500 mA | 83 % |
| TEN 8-2412 | | 12 VDC | 665 mA | 86 % |
| TEN 8-2413 | | 15 VDC | 535 mA | 85 % |
| TEN 8-2421 | | ±5 VDC | ±800 mA | 82 % |
| TEN 8-2422 | | ±12 VDC | ±335 mA | 86 % |
| TEN 8-2423 | | ±15 VDC | ±265 mA | 85 % |
| TEN 8-4810 | 36 – 75 VDC (48 VDC nominal) | 3.3 VDC | 2'000 mA | 80 % |
| TEN 8-4811 | | 5 VDC | 1'500 mA | 83 % |
| TEN 8-4812 | | 12 VDC | 665 mA | 86 % |
| TEN 8-4813 | | 15 VDC | 535 mA | 86 % |
| TEN 8-4821 | | ±5 VDC | ±800 mA | 85 % |
| TEN 8-4822 | | ±12 VDC | ±335 mA | 87 % |
| TEN 8-4823 | | ±15 VDC | ±265 mA | 87 % |

Input Specifications

| | | |
|--------------------------------|--|---|
| Input current (no load) | | 12 Vin models: 15 mA typ. 24 Vin models: 15 mA typ. 48 Vin models: 10 mA typ. |
| Input current (full load) | 12 Vin; 12 Vin; 24 Vin; 24 Vin; 48 Vin; 48 Vin; | 3.3 VDC models: 720 mA typ. other output models: 800 mA typ. 3.3 VDC models: 360 mA typ. other output models: 400 mA typ. 3.3 VDC models: 180 mA typ. other output models: 200 mA typ. |
| Surge voltage (100 msec. max.) | | 12 Vin models: 36 V max.. 24 Vin models: 50 V max.. 48 Vin models: 100 V max. |
| Conducted noise (input) | | EN 55022 level A, FCC part 15, level A For 12 Vin models with external input capacitor: 4.7 µF / 25 V 1210 MLCC |
| ESD (electrostatic discharge) | | EN 61000-4-2, air ±8 kV, contact ±6 kV, perf. criteria A |
| Radiated immunity | | EN 61000-4-3, 10 V/m, perf. criteria A |
| Fast transient / Surge | | EN 61000-4-4, ±2 kV, perf. criteria A EN 61000-4-5, ±1 kV perf. criteria A With external input capacitor e.g. Nippon chemi-con KY 220 µF, 100 V, ESR 48 mOhm |
| Conducted immunity | | EN 61000-4-6, 10 Vrms, perf. criteria A |

Output Specifications

| | | |
|---|---|---|
| Voltage set accuracy | | ±1 % |
| Regulation | – Input variation Vin min. to Vin max – Load variation 0 – 100 % | 0.2 % max. single output models: 1 % max. dual output models: 1 % max. – Load cross variation 25 % / 100 % 5 % max. |
| Temperature coefficient | | 0.02 %/K |
| Ripple and noise (20 MHz Bandwidth) | | 50 mVpk-pk typ. |
| Start up time (nominal Vin and constant resistive load) | | 700 ms max. |
| Transient response (25% load step change) | | 200 µs typ. |
| Short circuit protection | | indefinite (automatic recovery) |
| Over load protection | | 150 % of Iout max. typ. foldback |
| Capacitive load | | 3.3 Vout models: 3300 µF max. 5 Vout models / ±5 Vout models: 1600 µF max. / ±1000 µF max. 12 Vout models / ±12 Vout models: 350 µF max. / ±160 µF max. 15 Vout models / ±15 Vout models: 240 µF max. / ±100 µF max. |

General Specifications

| | | |
|---------------------------|--|--|
| Temperature ranges | – Operating – Case temperature – Storage | –40°C to +85°C +100°C max. –55°C to +105°C |
| Derating | | 3.3 %/K above 70°C |
| Humidity (non condensing) | | 95 % rel H max. |

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

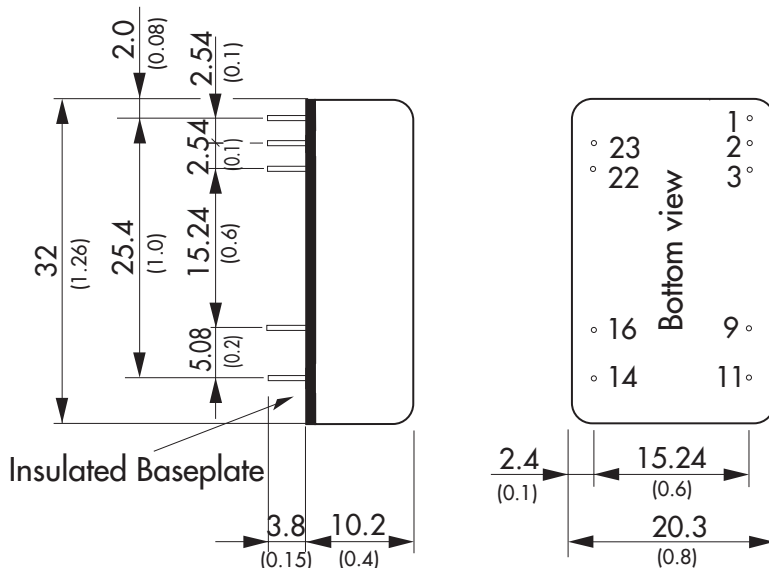
General Specifications

| | |
|---|---|
| Reliability, calculated MTBF (MIL-HDBK-217F, at +25°C, ground benign) | >1.2 Mio h |
| Isolation voltage (60sec.) – Input/Output | 1500 VDC |
| Isolation capacitance – Input/Output | 300 pF max. |
| Isolation Resistance – Input/Output | >1000 MOhm |
| Switching frequency | 300 kHz typ. (pulse width modulation PWM) |
| Thermal shock, mechanical shock & vibration – Test conditions | EN 61373, MIL-STD-810F www.tracopower.com/products/mil810.pdf |
| Safety standards | UL/cUL 60950-1, IEC/EN 60950-1 |
| Safety approvals – UL/cUL | www.ul.com -> certifications -> File e188913 |
| Remote On/Off | On: 3.5 ... 12 VDC or open circuit Off: 0 ... 1.2 VDC or short circuit pin 1 and pin 2/3 Off idle current: 2.5 mA |
| Environmental compliance – Reach – RoHS | www.tracopower.com/products/ten8-reach.pdf RoHS directive 2011/65/EU |

Physical Specifications

| | |
|----------------------------|------------------------|
| Casing material | copper, nickel plated |
| Baseplate material | non conductive plastic |
| Potting material | epoxy (UL94V-0 rated) |
| Weight | 17 g (0.60 oz) |
| Soldering temperature max. | 265°C / 10 sec. |

Outline Dimensions



| Pin-Out | | |
|---------|---------------|---------------|
| Pin | Single | Dual |
| 1 | Remote On/Off | Remote On/Off |
| 2 | -Vin (GND) | -Vin (GND) |
| 3 | -Vin (GND) | -Vin (GND) |
| 9 | No con. | Common |
| 11 | No con. | -Vout |
| 14 | +Vout | +Vout |
| 16 | -Vout | Common |
| 22 | +Vin (Vcc) | +Vin (Vcc) |
| 23 | +Vin (Vcc) | +Vin (Vcc) |

Dimensions in [mm], () = Inch
 Pin diameter $\varnothing 0.5 \pm 0.05$ (0.02 ± 0.002)
 Tolerances ± 0.5 (± 0.02)
 Pin pitch tolerances ± 0.25 (± 0.01)

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



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.