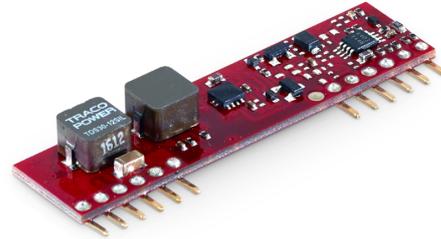


- Small size, low profile
- SIP version
- Cost-efficient open frame design
- Wide input voltage ranges
- Output voltages trim from 0.8 VDC to 5.5 VDC
- Delivers up to 30 A with minimal derating
- Ultra high efficiency to 93 %
- Fast transient response
- Remote On/Off control
- Wide temperature range -40°C to $+85^{\circ}\text{C}$



The TOS 30SIL series is a range of high performance non-isolated DC/DC converters with very high efficiency that can supply up to 30 A of output current. These modules provide precisely regulated output voltages which can be set via an external resistor to a value from 0.8 VDC to 5.5 VDC. These converters work over a wide input voltage range of 4.5 to 5.5 VDC or 6.0 to 14.0 VDC. Further features include remote On/Off, under voltage lockout, over temperature and over current protection. These products have an open-frame construction with very small footprint and are available in an industry standard SIP package. The TOS 30SIL series is fully RoHS compliant and can withstand industry standard handling, cleaning and the high temperatures of lead-free reflow solder processes.

Models

| Order Code | Output Current max. | Input Voltage Range | Output Voltage nom. (adjustable) | Efficiency typ. |
|--------------|---------------------|----------------------------|----------------------------------|-----------------|
| TOS 30-05SIL | 30'000 mA | 4.5 - 5.5 VDC (5 VDC nom.) | 0.8 VDC (0.8 - 3.63 VDC) | 93 % |
| TOS 30-12SIL | | 6 - 14 VDC (12 VDC nom.) | 0.8 VDC (0.8 - 5.5 VDC) | 92 % |

Note - 12 Vin model: 25 A output voltage higher than 2.75 VDC

Input Specifications

| | | |
|------------------------|--------------|--|
| Input Current | - At no load | 5 Vin models: 180 mA typ. 12 Vin models: 200 mA typ. (at Vout max.) |
| Under Voltage Lockout | | 5 Vin models: 3 VDC min. / 4 VDC typ. / 4.4 VDC max. 12 Vin models: 4 VDC min. / 4.5 VDC typ. / 5.5 VDC max. |
| Recommended Input Fuse | | 5 Vin models: 35'000 mA (fast acting) 12 Vin models: 30'000 mA (fast acting) (The need of an external fuse has to be assessed in the final application.) |
| Input Filter | | Internal Capacitor |

Output Specifications

| | | |
|----------------------------|--|---|
| Output Voltage Adjustment | | 0.8 Vout models: 0.8 - 3.63 VDC 0.8 - 5.5 VDC (By external trim resistor) See application note: www.tracopower.com/overview/tos30sil (Vout < Vin - 0.5 VDC) |
| Voltage Set Accuracy | | ±1.5% max. |
| Regulation | - Input Variation (Vmin - Vmax) - Load Variation (0 - 100%) | 0.1% max. 0.4% max. |
| Ripple and Noise | - 20 MHz Bandwidth | 75 mVp-p typ. |
| Capacitive Load | | 10'000 µF max. (ESR ≥ 10 mOhm) |
| Minimum Load | | Not required |
| Temperature Coefficient | | ±0.5 %/K max. |
| Start-up Time | | 2.5 ms typ. |
| Start-up Overshoot Voltage | | 3% max. |
| Short Circuit Protection | | Continuous, Automatic recovery |
| Output Current Limitation | | 150% typ. of Iout max. |
| Transient Response | - Peak Variation - Response Time | 350 mV typ. (50% to 100% Load Step) 25 µs typ. (50% to 100% Load Step) (1 µF MLCC // 10 µF T/C) |
| Load Share Accuracy | | 10% |

General Specifications

| | | |
|--|---|--|
| Relative Humidity | | 95% max. (non condensing) |
| Temperature Ranges | - Operating Temperature - Storage Temperature | -40°C to +85°C -55°C to +125°C |
| Power Derating | - High Temperature | See application note: www.tracopower.com/overview/tos30sil |
| Over Temperature Protection Switch Off | - Protection Mode - Measurement Point | 125°C typ. (Automatic recovery) See application note: www.tracopower.com/overview/tos30sil |
| Cooling System | | Natural convection (20 LFM) |
| Sense Function | | 62.5% max. of Vout nom. (= 0.5 VDC max.) |
| Remote Control | - Voltage Controlled Remote - Off Idle Input Current | On: 3.0 VDC to Vin max. or open circuit Off: -0.3 to 1.2 VDC Refers to 'Remote' and 'GND' Pin 3.3 mA max. |
| Switching Frequency | | 261 - 339 kHz (PWM) 300 kHz typ. (PWM) |
| Insulation System | | Non-isolated |
| Reliability | - Calculated MTBF | 1'260'000 h (MIL-HDBK-217F, ground benign) |

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

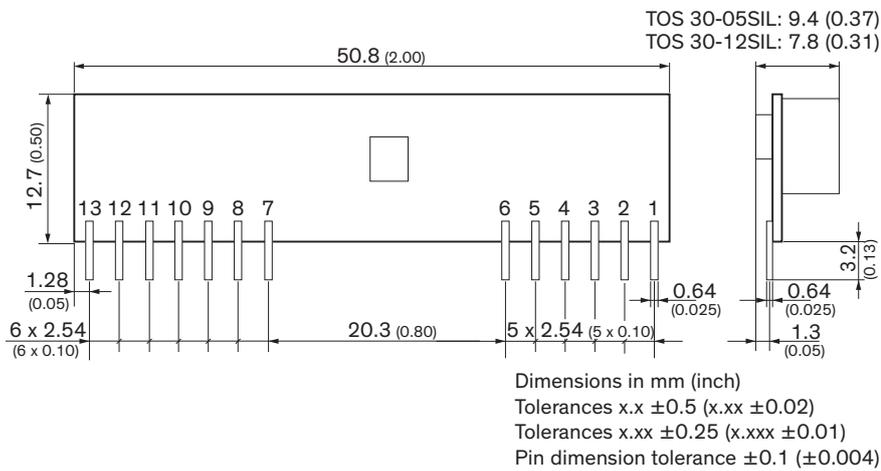
| | | |
|--------------------------|--------------------------------|--|
| Environment | - Vibration - Thermal Shock | MIL-STD-810F MIL-STD-810F |
| Pin Material | | Copper |
| Pin Foundation Plating | | Nickel (3 - 5 μm) |
| Pin Surface Plating | | Gold (50 - 75 nm), matte |
| Soldering Profile | | Wave Soldering 260°C / 6 s max. |
| Connection Type | | THD (Through-Hole Device) |
| Weight | | 7 g |
| Environmental Compliance | - Reach - RoHS | www.tracopower.com/info/reach-declaration.pdf www.tracopower.com/info/rohs-declaration.pdf |

Supporting Documents

Overview Link (for additional Documents)

www.tracopower.com/overview/tos30sil

Outline Dimensions



Pinout

| Pin | Function |
|-----|----------------|
| 1 | +Vout |
| 2 | +Vout |
| 3 | +Sense |
| 4 | +Vout |
| 5 | GND |
| 6 | GND |
| 7 | Share (option) |
| 8 | GND |
| 9 | +Vin |
| 10 | +Vin |
| 11 | SEQ |
| 12 | Trim |
| 13 | Remote On/Off |

For SEQ description see Application-Note