

Features

- Ultra low Ripple and Noise
- Full SMD-Design with Ceramic Capacitors
- Tightly regulated Outputs
- High Output Stability
- Short Circuit Protection
- Shielded Metal Case
- Single- and Dual Output Models
- 2 Year Product Warranty



The TYL and TVL Series are DC/DC-Converter with very low output ripple and noise specification. These DC/DC-Converter are an ideal solution for noise sensitive applications as analogue circuits, audio applications, reference voltages or measuring systems. SMD-technology and a 100 % production test ensure a very high reliability of these products.

Models

| Ordercode | Input voltage range | Output 1 | Output 2 | Ripple and noise max. |
|--|---------------------|---|--|--|
| TYL 05-05S30 TYL 05-12S12 TYL 05-15S10 TYL 05-05W08 TYL 05-12W06 TYL 05-15W05 | 4.75 – 6 VDC | 5 VDC / 300 mA 12 VDC / 120 mA 15 VDC / 100 mA + 5 VDC / 80 mA +12 VDC / 65 mA +15 VDC / 53 mA | - 5 VDC / 80 mA -12 VDC / 65 mA -15 VDC / 53 mA | 6 mVpk-pk 6 mVpk-pk 6 mVpk-pk 6 mVpk-pk 6 mVpk-pk 6 mVpk-pk |
| TVL 05-1220 TVL 05-1225 TVL 05-1516 TVL 05-1520 | 4.75 – 6 VDC | +12 VDC / 200 mA +12 VDC / 250 mA +15 VDC / 165 mA +15 VDC / 200 mA | -12 VDC / 200 mA -12 VDC / 125 mA -15 VDC / 165 mA -15 VDC / 100 mA | 3 mVpk-pk 3 mVpk-pk 3 mVpk-pk 3 mVpk-pk |

Input Specifications

| | | |
|---------------------------|--------------------------|------------------------------|
| Input current (no load) | TYL models TVL models | < 95 mA < 170 mA |
| Input current (full load) | TYL models TVL models | 500 mA typ. 1'600 mA typ. |

Output Specifications

| | | |
|-------------------------------------|--|--|
| Voltage set accuracy | | ± 3 % |
| Regulation | – Input variation Vin min. to Vin max. – Load variation 0 – 100 % | TYL models: ± 0.3 % max. TVL models: ± 0.03 % max. TYL models: ± 0.3 % max. TVL models: ± 0.18 % max. |
| Ripple and noise (20 MHz Bandwidth) | | TYL models: 6 mVpk-pk max. TVL models: 3 mVpk-pk max. |
| Temperature coefficient | | ± 0.02 % / °C |
| Output current limitation | | >120 % of Iout max. |
| Short circuit protection | | indefinite (automatic recovery) |

General Specifications

| | | |
|---|----------------------------|--|
| Temperature ranges | – Operating – Storage | – 25°C ... +71°C – 45°C ... +85°C |
| Derating | | 3%/°C above 50°C |
| Efficiency | | 60% (TVL 05-05W08: 45%) |
| Humidity (non condensing) | | 30 – 95 % rel H max. |
| Reliability, calculated MTBF (MIL-HDBK-217 F) | | >1'000'000h @ + 25 °C |
| Isolation voltage | Input/Output | 500 VDC |
| Isolation capacity | Input/Output | 100 pF |
| Isolation resistance | Input/Output (500 VDC) | > 10 M Ohm |
| Switching frequency | TYL models: TVL models: | 70 – 400 kHz depending on load 50 – 300 kHz depending on load |
| Vibration | | 5 to 10 Hz amplitude 10 mm pk-pk 10 to 55 Hz acceleration 2 G |
| Shock | | acceleration 20 G max. time 11 ms |

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

Physical Specifications

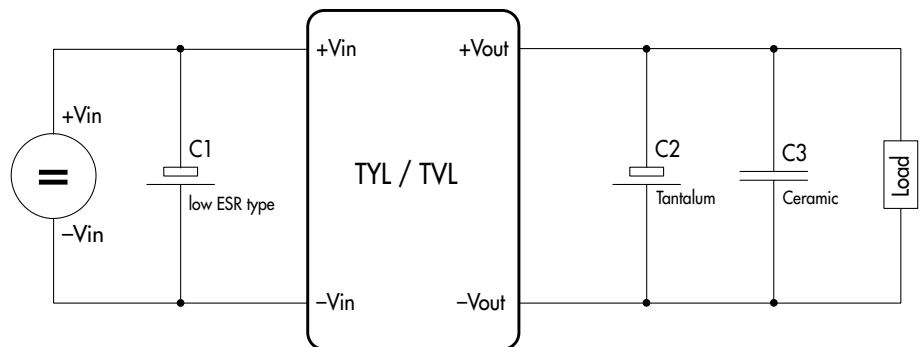
| | | |
|-----------------------|--|----------------------------------|
| Case material | Steel chrome-nickel plated | |
| Potting material | Silicon rubber TSE (flammability to UL94V-0) | |
| Weight | TYL models: TVL models: | 14 g (0.49 oz) 31 g (1.09 oz) |
| Soldering temperature | max. 260 °C / 10 sec. | |

Application

Ripple and noise reduction to <2mVpk-pk
Use external capacitors to reduce ripple and noise

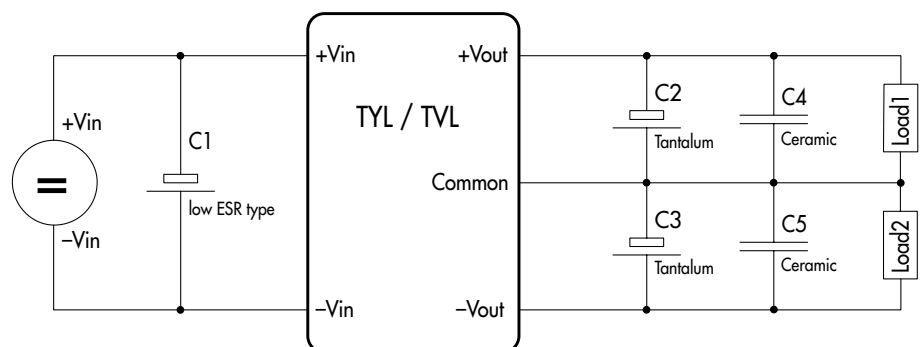
Single output models:

| | TVL | TYL |
|-----|-----------|-----------|
| C1: | 47 μF/10V | 10 μF/10V |
| C2: | 1 μF/16V | 1 μF/16V |
| C3: | 470 nF | 470 nF |



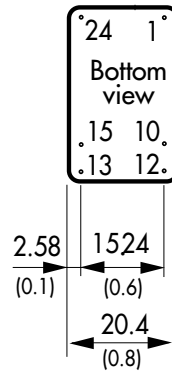
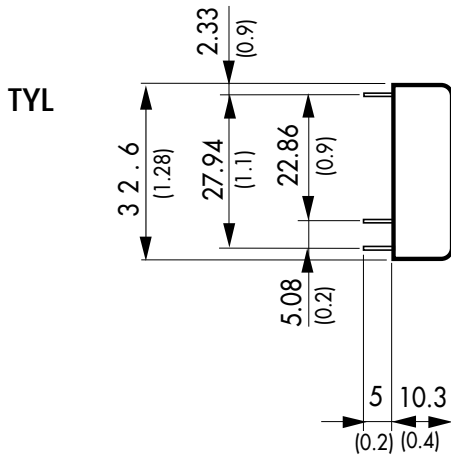
Dual output models:

| | TVL | TYL |
|--------|------------|-----------|
| C1: | 47 μF/10V | 10 μF/10V |
| C2+C3: | 2.2 μF/16V | 1 μF/16V |
| C4+C5: | 470 nF | 470 nF |

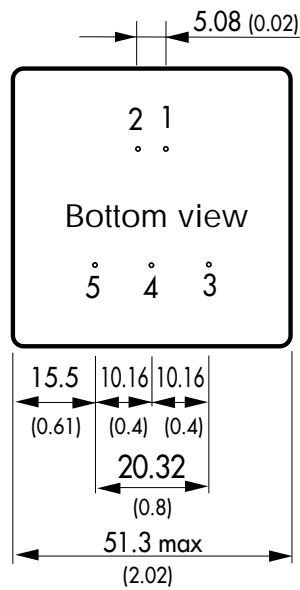
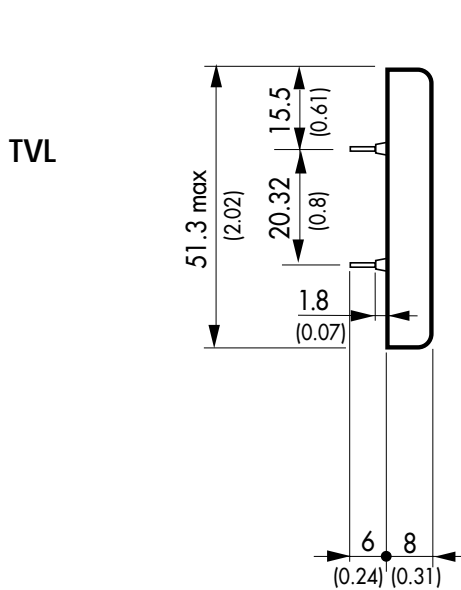


All specifications valid at nominal input voltage, full load and +25°C after warm-up time unless otherwise stated.

Outline Dimensions mm (inches)



| TYL Pin-Out | | |
|-------------|------------|------------|
| Pin | Single | Dual |
| 1 | -Vin (GND) | -Vin (GND) |
| 10 | -Vout | -Vout |
| 12 | -Vout | Common |
| 13 | +Vout | Common |
| 15 | +Vout | +Vout |
| 24 | +Vin (Vcc) | +Vin (Vcc) |



| TVL Pin-Out | |
|-------------|-------------|
| Pin | Dual output |
| 1 | +Vin (Vcc) |
| 2 | -Vin (GND) |
| 3 | +Vout |
| 4 | Common |
| 5 | -Vout |

Pin diameter $\varnothing 0.6 \pm 0.05$ (0.023 ± 0.002)

Tolerances ± 0.5 (0.02)

Specifications can be changed without notice