

#### 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.	

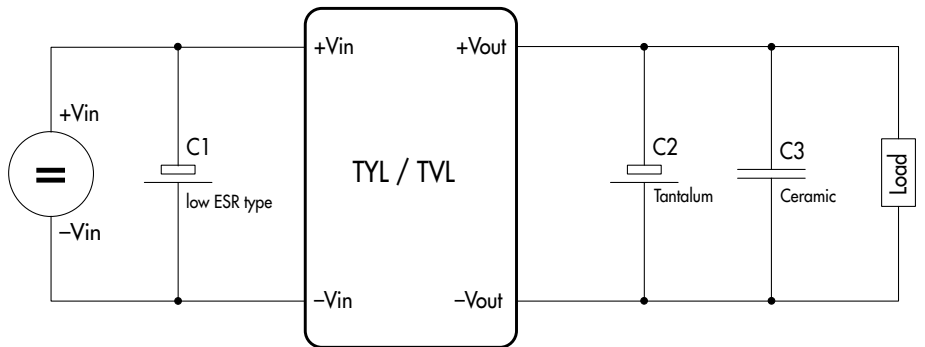
**Application**

Ripple and noise reduction to <2mVpk-pk

Use external capacitors to reduce ripple and noise

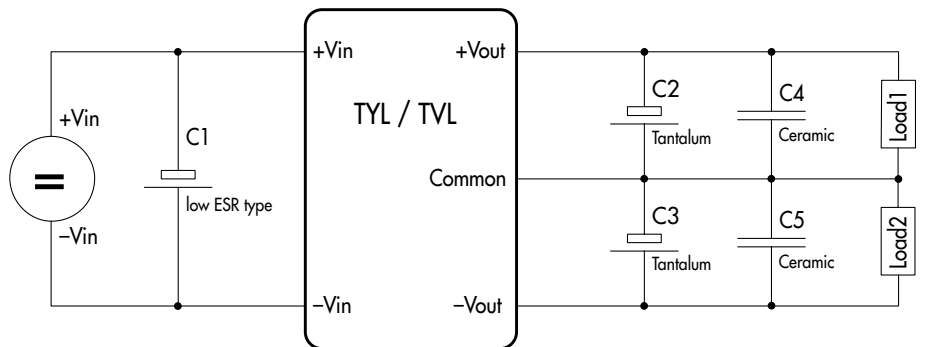
Single output models:

	TVL	TYL
C1:	47 $\mu$ F/10V	10 $\mu$ F/10V
C2:	1 $\mu$ F/16V	1 $\mu$ F/16V
C3:	470 nF	470 nF



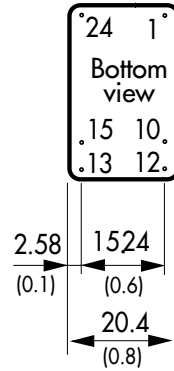
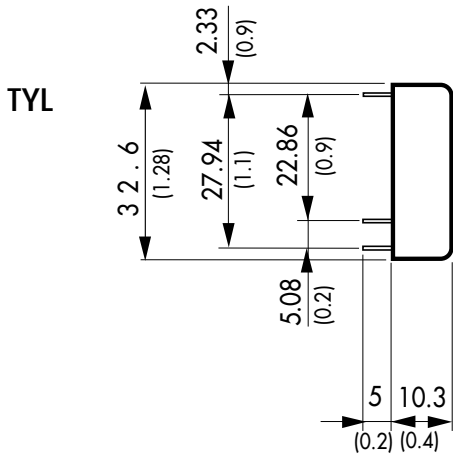
Dual output models:

	TVL	TYL
C1:	47 $\mu$ F/10V	10 $\mu$ F/10V
C2+C3:	2.2 $\mu$ F/16V	1 $\mu$ F/16V
C4+C5:	470 nF	470 nF

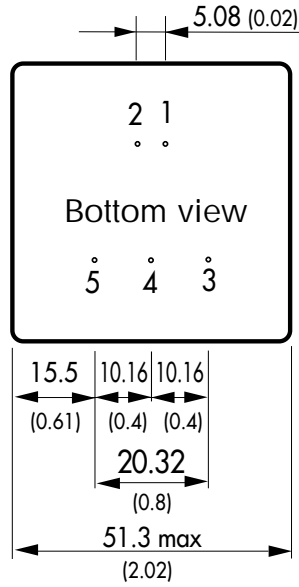
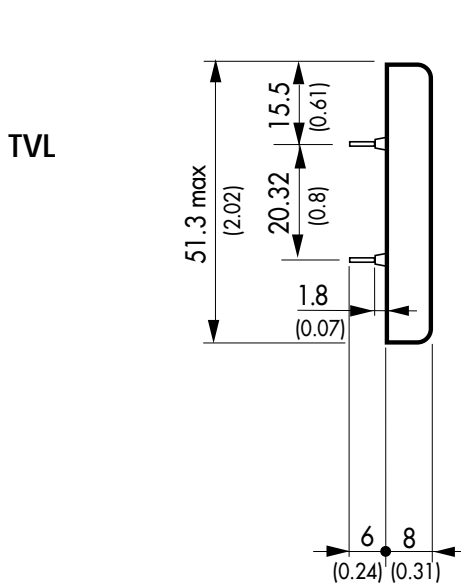


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**Outline Dimensions mm (inches)**



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  $\varnothing 0.6 \pm 0.05$  ( $0.023 \pm 0.002$ )

Tolerances  $\pm 0.5$  (0.02)

Specifications can be changed without notice