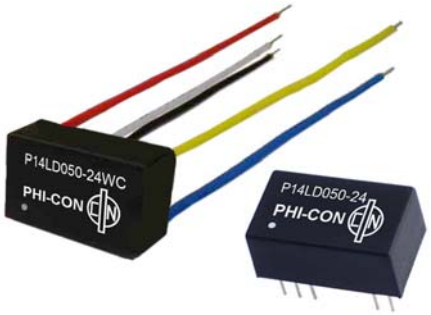
P14LD050-24 Step Down Driver for 0.5 A Power-LED

PHI-CON

- Constant Current Output
- Dimmer function via analogue Control
- Dimmer function via PWM Control
- Remote control function
- 16 Pin DIL Package
- Efficiency up to 95 %
- MTBF > 4.7 MHours



P14LD050-24 is a high efficiency step-down converter optimized to drive high current LEDs. The control algorithm allows highly efficient and precise LED current regulation. This driver operates in an dc supply voltage range between 7 V and 30 V and provides an externally adjustable output current of up to 0.5 A and output power up to 14 watts. A compact size allows designer to integrate this driver together with LED module.

Specification at 25 °C, Vin nominal and rated output current

Input	
Input voltage range	7…30 V
Input filter	Capacitor
Output	
Output voltage range at Vin 30 V	2…28 V
Output current range at Vin - Vout > 1.5 V to 3 V	500 mA
Output power	14 W, max.
Typical output current accuracy, at Iout 1000 mA	±6 %
Output ripple and noise, bandwidth 20 MHz	250 mVp-p, max.
Temperature coefficient at Ta -40 to +85 °C	±0.05 % / °C, max.
Capacitive load	47 µF, max.
Operating frequency range	70 kHz…330 kHz
Efficiency, maximum at full load	95 %
Short circuit protection	Regulated at rated output current
PWM dimming & remote control	
Vdim input, remote ON level	Open or 0.3 V … 1.25 V
Vdim input, remote OFF level (shutdown)	0.15 V max.
Vdim input, drive current (Vdim 1.25V)	1 mA, max.
Quiescent supply current in shutdown mode at Vin 30V	25 µA, max.
Recommended maximum operation frequency	1 kHz
Minimum switch 'ON' time	200 ns
Minimum switch 'OFF' time	200 ns
Analog dimming control	
Vdim input control voltage range for 25 … 100 % output current range	0.3 V … 1.25 V
Vdim input control voltage range ON	0.2 V … 0.3 V
Vdim input control voltage range OFF	0.15 V … 0.25 V
Vdim input, drive current (Vdim 1.25V)	1 mA, max.
Physical conditions	
Operating ambient temperature range	-40 to +85 °C
Storage temperature range	-40 to +125 °C
Operating Package temperature	100 °C, max.
Thermal impedance, nature convection	40 K/W
Humidity	95 % rel H
Reliability calculated MTBF (MIL-HDBK-217 F)	>4.7 Mhrs
Case material	Non-conductive black plastic (UL94-V0)
Potting material	Epoxy (UL94-V0)
Pin material	0.5 mm brass solder-coated
Weight	6.2 g PCB version, 11 g wire version
Dimensions	23.4 x 14 x 10.2 mm
Soldering temperature 1.5 mm distance from body	260 °C for 10 sec
EMC Specifications in accordance with	
EMI radiated and conducted emissions EN55015 (CISPR22)	
EMS Immunity EN61547	
IEC 61000-4-2	Perf. Criteria A
IEC 61000-4-3	Perf. Criteria A
IEC 61000-4-4	Perf. Criteria A
IEC 61000-4-6	Perf. Criteria A
IEC 61000-4-8	Perf. Criteria A

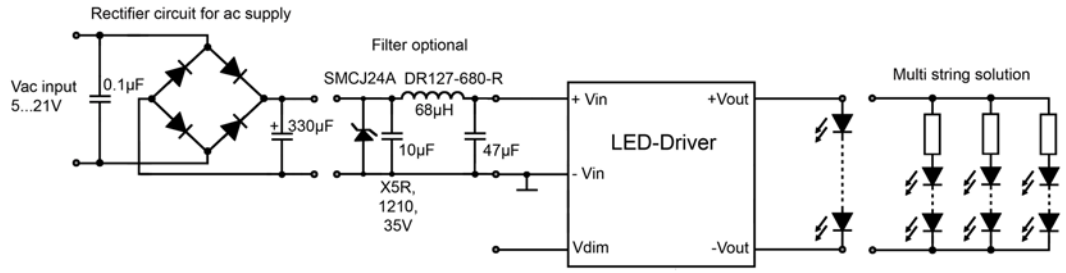
HY-LINE® POWER COMPONENTS

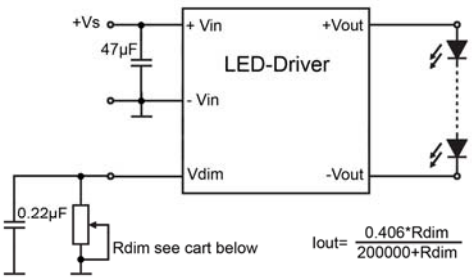
Deutschland:
Inselkammerstraße 10
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Tel.: 089 614 503-10
E-Mail: power@hy-line.de

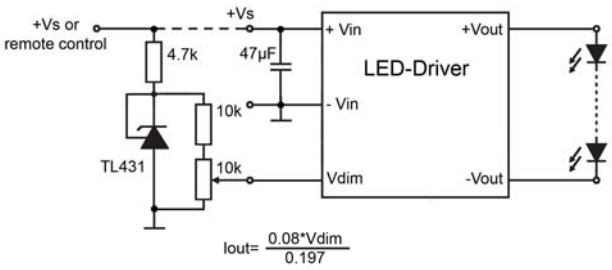
Schweiz:
Gründenstrasse 82
CH-8247 Flurlingen
Tel.: 052 647 42 00
E-Mail: power@hy-line.ch

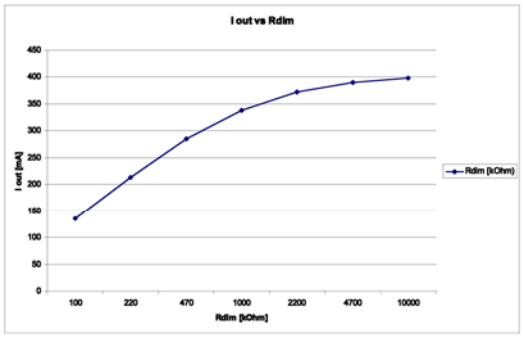
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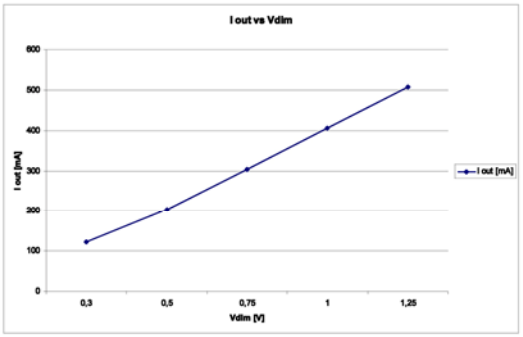
Typical application circuits

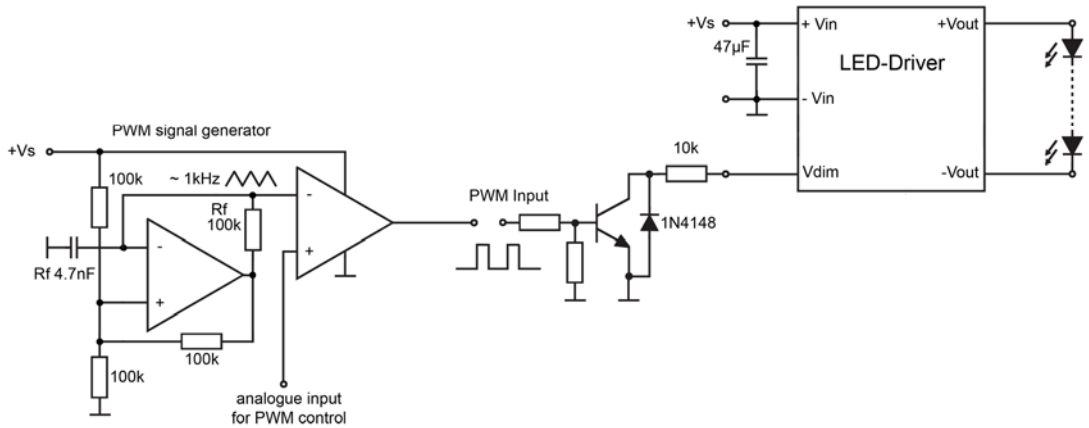












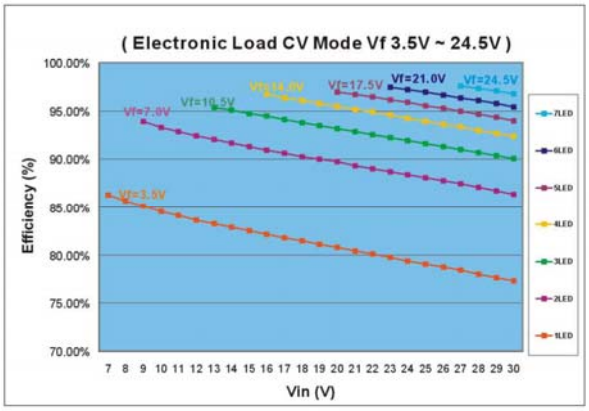
Notes:
1. Do not use the driver over 14 W output power!
2. Do not connect a reversed power source!
3. Do not connect the input side with output side!

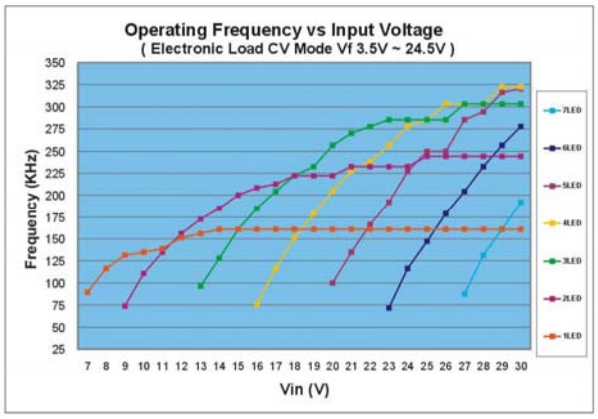
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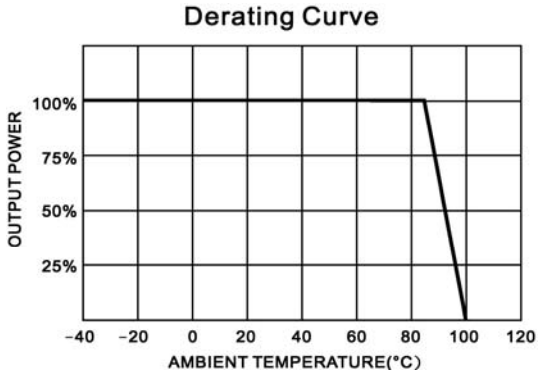
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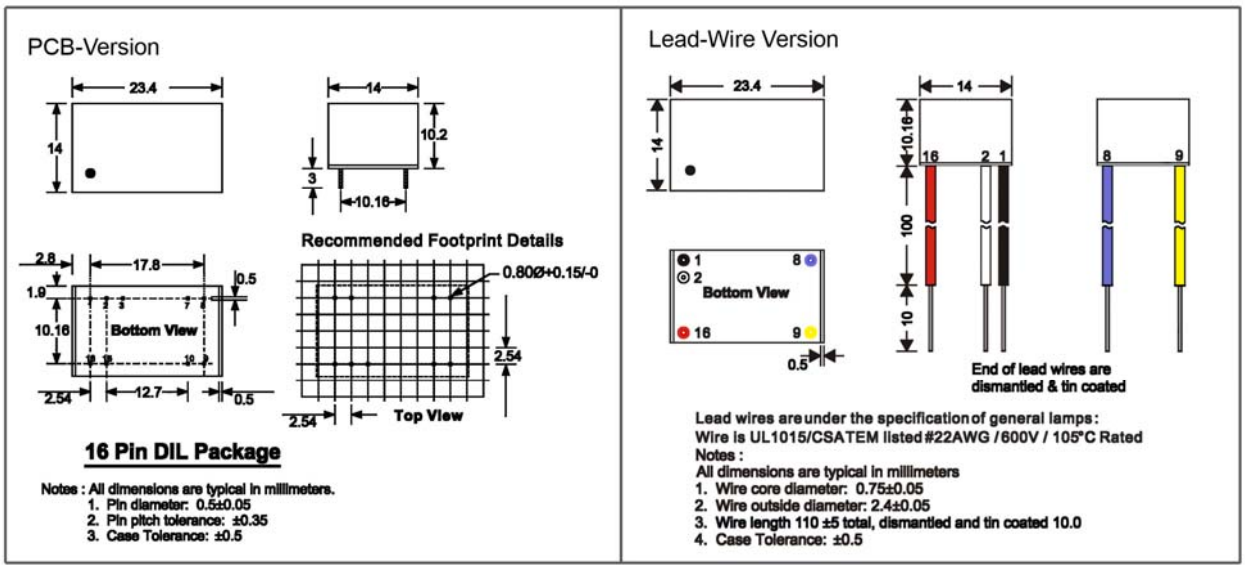


Pin connections

Pin	
1, 2	- V supply
3	Vdim
7, 8	- V output
9, 10	+ V output
15, 16	+ V supply

Pin	Wire-Version
1 black	- V supply
2 white	Vdim
8 blue	- V output
9 yellow	+ V output
16 red	+ V supply

Dimensions



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