

Features

Regulated Converters

- SMD Constant Current LED Driver
- Built-in Class A or Class B EMC Filter
- Wide Input and Output Voltage Range
- Digital PWM and Analogue Voltage Dimming
- Short Circuit and Overtemperature Protected
- Low Cost
- EN/RAILWAYS Certified
- 5 Year Warranty

Description

The RCD-24-xxx/PL series is a step-down constant current source designed for driving high power LEDs. The converter uses a pinless SMD open frame design to reduce cost and size. Output currents available are 300mA, 350mA, 500mA, 600mA, 700mA and 1000mA with either Class A (Suffix /A) or Class B (suffix /B) built-in EMC filtering. Despite its compact size, the RCD-PL series is fully featured with very high efficiency, wide input voltage range, high ambient operating temperature and two means of LED dimming: PWM/digital control and analogue voltage dimming. Both dimming controls are independent and can be combined. The driver is also designed to be as reliable as the LEDs it is driving, even at the full ambient operating temperature and is designed for strip lighting, wall washers and fluorescent tube replacement designs, where a low profile and narrow width are demanded.

Selection Guide

| Part Number | Input Range (VDC) | Output Current (mA) | Output Voltage (Vmin-Vmax) | Dimming Control | Mounting Style |
|------------------|-------------------|---------------------|----------------------------|--------------------|----------------|
| RCD-24-0.30/PL* | 4.5-36V | 0-300 | 2-35 | Digital + Analogue | Pinless SMD |
| RCD-24-0.35/PL* | 4.5-36V | 0-350 | 2-35 | Digital + Analogue | Pinless SMD |
| RCD-24-0.50/PL* | 4.5-36V | 0-500 | 2-35 | Digital + Analogue | Pinless SMD |
| RCD-24-0.60/PL* | 4.5-36V | 0-600 | 2-35 | Digital + Analogue | Pinless SMD |
| RCD-24-0.70/PL* | 4.5-36V | 0-700 | 2-35 | Digital + Analogue | Pinless SMD |
| RCD-24-1.00/PL/A | 6-36V | 0-1000 | 2-32 | Digital + Analogue | Pinless SMD |

* /A for EMC Class A input Filter add -R for Tape and Reel Packaging e.g. RCD-24-0.35/PL/B-R

* /B for EMC Class B input Filter

Note: RCD-24-1.00/PL/A only available with Class A Filter

Specifications (typical at 25°C, nominal input voltage, rated output current unless otherwise specified)

| | | |
|------------------------------------|---|------------------------------------|
| Input Voltage (absolute maximum) | 40VDC max | |
| Recommended Input Voltage | 6V min. / 24V typ. / 36VDC max | |
| Input Filter | Suffix /A | Capacitor |
| | Suffix /B | Class B with Pi Filter |
| | RCD-24-1.00/PL/A | Class A with Pi Filter |
| Output Current Accuracy (Vin=24V) | 300-700mA | ±2% typ, ±3% max |
| | 1000mA | ±3% typ, ±5% max |
| Internal Power Dissipation | Worst case load of 5 LEDs (300-700mA) | 700mW max. |
| | Worst case load of 8 LEDs (1000mA), Vin=36V | 1.6W typ. |
| Output Current Stability | Vin = 36V, Vout = 1-9 LEDs (300-700mA) | ±1% max |
| | Vin = 36V, Vout = 1-8 LEDs (1000mA) | ± 1.5% max. |
| Output Ripple and Noise (20MHz BW) | Vin=36V, Vout = 1-9 LEDs (300-700mA) | 300mVp-p max |
| | Vin=36V, Vout = 1-8 LEDs (1000mA) | |
| Temperature Coefficient | -40°C to +85°C ambient ±0.015%/°C max | |
| Maximum Capacitive Load | 100µF | |
| Operating Frequency | 300-1000mA | 212kHz min/ 250kHz typ/ 280kHz max |
| Efficiency at Full Load | 300-700mA | 96% typ. |
| | Vin=36V, Vout=8 LEDs (1000mA) | 94% typ. |
| Short Circuit Protection | Regulated at rated output current | |
| Operating Temperature Range | 300/350mA | -40°C to +85°C |
| | 500mA | -40°C to +80°C |
| | 600/700mA | -40°C to +75°C |
| | 1000mA | -40°C to +65°C |
| Storage Temperature Range | -55°C to +125°C | |
| Relative Humidity | 5% to 95% RH, non-condensing | |

continued on next page

LIGHTLINE

DC/DC-Converter

with 5 year Warranty

RECOM

Constant Current LED Driver



E358085

EN-50121-3-2 Certified

EN-60950-1 Certified

UL-60950-1 Certified

RCD-24/PL

Derating-Graph

(Ambient Temperature)



Refer to Application Notes

Specifications (typical at 25°C, nominal input voltage, rated output current unless otherwise specified)

| | | |
|--|------------------------------------|--------------------|
| Dimensions | 31.0 x 11.4 x 6.6mm | |
| Weight | 1.9g | |
| Packing Quantity | 12 pcs per Tube / 400 pcs per Reel | |
| Reflow Soldering Profile | 265°C/10 sec max | |
| MTBF | (using MIL HDBK 217F) +25°C | >600 khours |
| PWM Dimming and ON/OFF Control (Leave open if not used) | | |
| Remote ON/OFF | DC/DC ON | Open or 0V<Vr<0.6V |
| Threshold Voltages | DC/DC OFF (Standby) | 0.6<Vr<2.9V |
| | DC/DC OFF (Full Shutdown) | 2.9V<Vr<6V |
| Remote Pin Drive Current | Vr=5V | 1mA max |
| Quiescent Input Current in Shutdown Mode | Vin=36V | 200µA max |
| Recommended PWM Frequency (measured 10%~90% Dimming) | For Linear Operation | 200Hz |
| | Maximum Frequency | 1000Hz |
| Analogue Dimming Control (leave open if not used) | | |
| Input Voltage Range | 300-1000mA | -0.3V - 15V |
| Control Voltage Range Limits (see Graph) | 300-1000mA / Full On | 0.13V ± 50mV |
| | 300-700mA / Full Off | 4.2V ± 150mV |
| | 1000mA / Full Off | 4.35V ±100mV |
| Analogue Pin Drive Current | 300-1000mA / Vc=5V | 0.2mA max. |
| Environmental | | |
| Shock / Vibration | EN61373 | |
| EMC Railways | EN50121-3-2:2006 | |
| Conducted Emissions | 300-1000mA (/A Suffix) | EN55022, Class A |
| | 300-700mA (/B Suffix) | EN55022, Class B |
| Radiated Emissions | EN55022, Class B | |
| ESD | EN61000-4-2, Criterion A | |
| Radiated Immunity | EN61000-4-3, Criterion A | |
| Fast Transient | EN61000-4-4, Criterion A | |
| Conducted Immunity | EN61000-4-6, Criterion A | |

Note:

- All LED Drivers may not be used without a load. They must be switched on the primary side only. Noncompliance may damage the LED or reduce its lifetime.
- It is not possible to parallel the drivers to increase the current.

Typical Characteristics

Vin = 24V, Iout = 300~1000mA



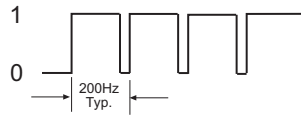
Vin = 32V, Iout = 300~1000mA



Dimming

Digital Dimming

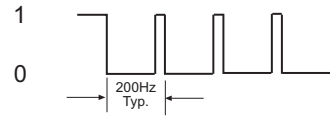
PWM Digital Control Signal



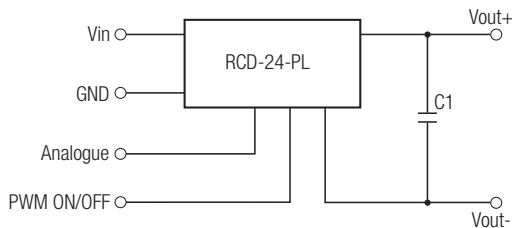
Output Current (LED appears dim)



PWM Digital Control Signal



Output Current (LED appears bright)

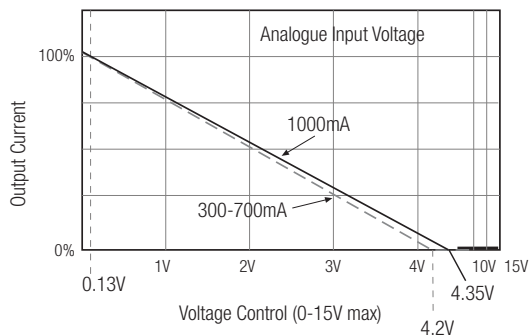


| P/N | C1 |
|------------------|-------|
| RCD-24-0.30/PL/X | 33µF |
| RCD-24-0.35/PL/X | |
| RCD-24-0.50/PL/X | |
| RCD-24-0.60/PL/X | 47µF |
| RCD-24-0.70/PL/X | 150µF |
| RCD-24-1.00/PL/A | |

Note:

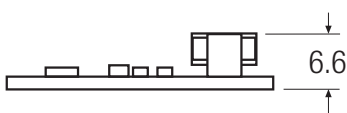
- If PWM dimming is used, a capacitor on output in parallel is required.

Analogue Dimming

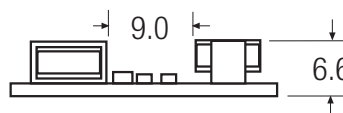


Package Style and Pinning

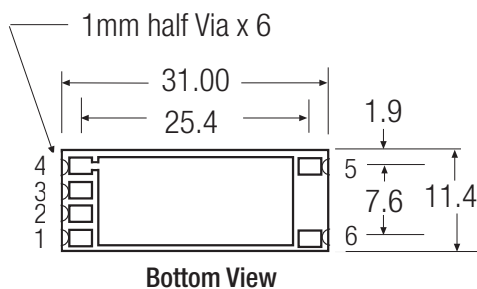
Class A Version



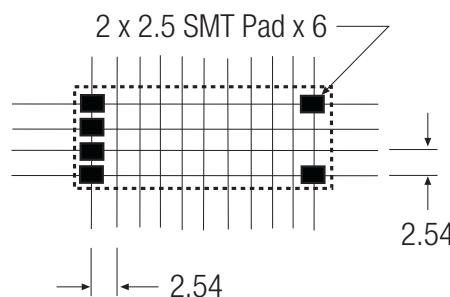
Class A (1.00A-Version)
Class B Version



PCB Layout Top View



Bottom View



| Pad Connections | | RCD-24-PL Series |
|-----------------|------------------|-------------------------|
| Pad # | Out | Comments |
| 1 | +Vin | DC Supply |
| 2 | Analogue Dimming | Leave open if not used |
| 3 | PWM/ON/OFF | Leave open if not used |
| 4 | GND | Do not connect to -Vout |
| 5 | -Vout | LED Cathode Connection |
| 6 | +Vout | LED Anode Connection |

XX.X ± 0.5 mm
XX.XX ± 0.25 mm

The product information and specifications are subject to change without prior notice. RECOM products are not authorized for use in safety-critical applications (such as life support) without RECOM's explicit written consent. A safety-critical application is defined as an application where a failure of a RECOM product may reasonably be expected to endanger or cause loss of life, inflict bodily harm or damage property. The buyer shall indemnify and hold harmless RECOM, its affiliated companies and its representatives against any damage claims in connection with the unauthorized use of RECOM products in such safety-critical applications.

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: info@moschip.ru

Skype отдела продаж:

moschip.ru

moschip.ru_4

moschip.ru_6

moschip.ru_9