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
- 96% Efficiency
- 5 Year Warranty

LIGHTLINE
DC/DC-Converter
with 5 year Warranty

RECOM

Constant Current LED Driver

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 flourescent tube replacement designs, where a low profile and narrow width are demanded.

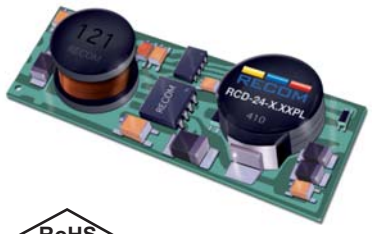
Selection Guide

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
* /B for EMC Class B input Filter

add -R for Tape and Reel Packaging e.g. RCD-24-0.35/PL/B-R

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



RoHS 2002/95/EC 6/6

EN-60950-1 Certified

RCD-24-PL

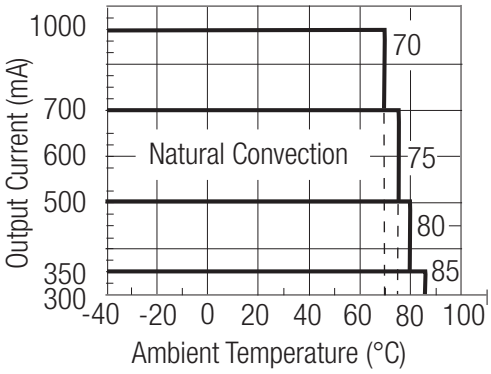
Specifications

(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	Common Mode Choke + 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	1.4W max
Output Current Stability	Vin=36V, Vout =1-9 LEDs	±1% max
Output Ripple and Noise (20MHz BW)	Vin=36V, Vout =1-9 LEDs	300mVp-p max
Temperature Coefficient	-40°C~+85°C ambient	±0.015%/°C max
Maximum Capacitive Load		100µF
Operating Frequency	300-700mA	212kHz min/ 250kHz typ/ 280kHz max
	1000mA	260kHz typ
Efficiency at Full Load		96% 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
Dimensions		31.0 x 11.4 x 6.6mm
Weight		1.9g

Derating Graph

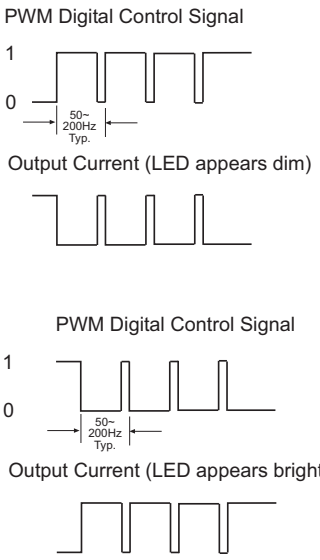
(Ambient Temperature)



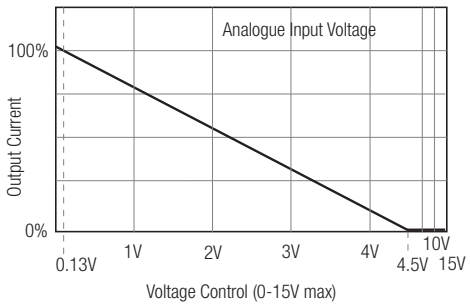
Specifications -Continued

Packing Quantity			12 pcs per Tube / 400 pcs per Reel
Reflow Soldering Profile			265°C/10 sec max
MTBF		25°C	>600 khours
(using MIL HDBK 217F)		75°C	>500 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		For Linear Operation	20 -200Hz
(measured 10%~90% Dimming)		Maximum Frequency	2000Hz
Analogue Dimming Control (leave open if not used)			
Input Voltage Range		300-700mA	-0.3V - 15V
		1000mA	0 - 15V
Control Voltage Range Limits (see Graph)		300-1000mA / Full On	0.13V ± 50mV
		300-1000mA / Full Off	4.5V ± 200mV
Analogue Pin Drive Current		300-1000mA / Vc=5V	0.2mA max.
Environmental			
Conducted Emissions	300-1000mA (/A Suffix)	EN55022	Class A
	300-700mA (/B Suffix)	EN55022	Class B
Radiated Emissions	(all series)	EN55022	Class B
ESD	(all series)	EN61000-4-2	Class A
Radiated Immunity	(all series)	EN61000-4-3	Class A
Fast Transient	(all series)	EN61000-4-4	Class A
Conducted Immunity	(all series)	EN61000-4-6	Class A

Digital Dimming

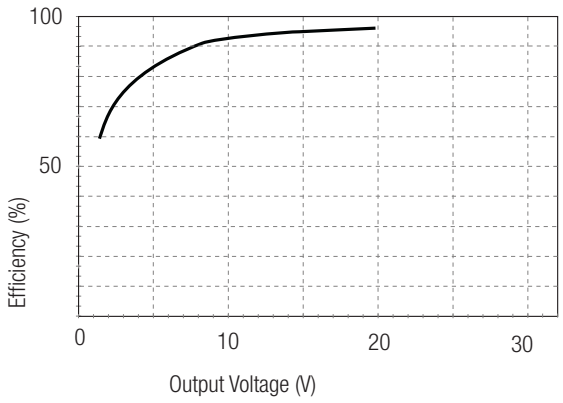


Analogue Dimming

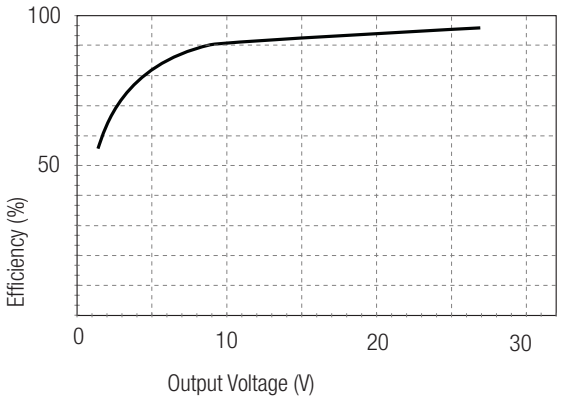


Typical Characteristics

Vin = 24V, Iout = 300~1000mA



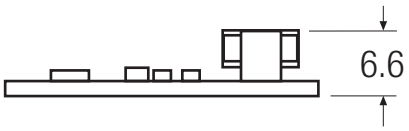
Vin = 32V, Iout = 300~1000mA



RCD-24-PL Series

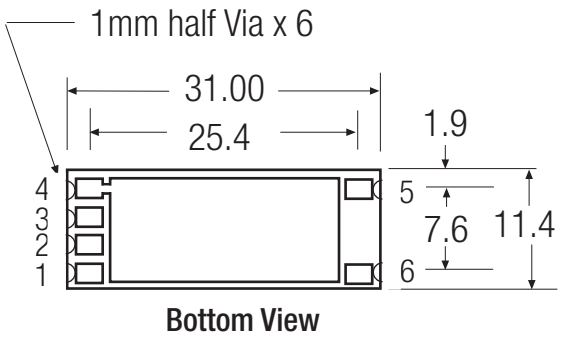
Package Style and Pinning

Class A Version



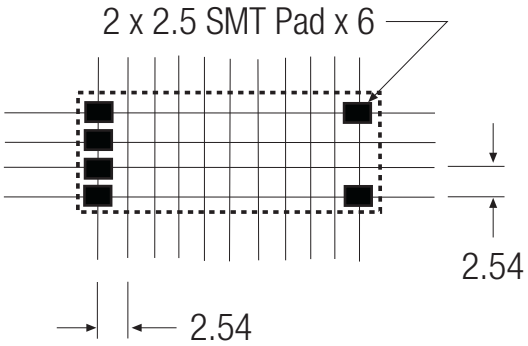
Class B Version

3rd angle projection



Bottom View

PCB Layout Top View



RCD-PL

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