Features

Regulated Converters

Rev.1

- Constant Current Output
- Power LED Driver
- Wide Input Voltage Range
- PWM/Digital Dimming and Analogue Voltage Dimming
- Short Circuit Protected
- 96% Efficiency

INNOLINE
DC/DC-Converter

RCD-24 Series

Constant Current Single Output

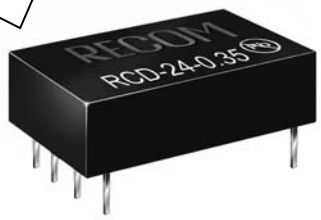
Description

The RCD series is a step-down constant current source designed for driving high power white LEDs. Standard output currents available are 300mA, 350mA, 500mA, 600mA and 700mA to make this driver compatible with a wide range of LEDs from many different manufacturers without the need for any external components. Despite its compact size, the RCD 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 operating temperature of 85°C.

Selection Guide

Part Number	Input Range (VDC)	Output Current (mA)	Output Voltage (V)	Dimming Control	Efficiency max. (%)
RCD-24-0.30*	4.5-36V	0-300	1.5-32	Digital + Analogue	96
RCD-24-0.35	4.5-36V	0-350	1.5-32	Digital + Analogue	96
RCD-24-0.50*	4.5-36V	0-500	1.5-28	Digital + Analogue	96
RCD-24-0.60*	4.5-36V	0-600	1.5-28	Digital + Analogue	96
RCD-24-0.70*	4.5-36V	0-700	1.5-28	Digital + Analogue	96

* coming soon, please contact RECOM



Specifications

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

Input Voltage (absolute maximum)		36VDC max.
Recommended Input Voltage		5V min. / 24V typ. / 36VDC max.
Input Filter		Capacitor
Output Voltage Range	Vin=36V	1.5V min. / 28V/32V max.
Output Current Range	Vin - Vout >1.5~4V	300mA-700mA
Output Current Accuracy	300mA-700mA	±2% typ.
Internal Power Dissipation	Full Load	700mW
Output Current Stability	Vin=36V, Vout =2~28V/32V	±1% max
Output Ripple and Noise (20MHz limited)	Vin=36V, Vout =2~28V/32V	120mVp-p max
Temperature Coefficient	-40~+85°C ambient	±0.015%/°C max.
Maximum Capacitive Load		100µF
Operating Frequency		210 kHz min/ 260kHz typ./ 300kHz max
Efficiency at Full Load		96% max.
Short Circuit Protection		Regulated at rated output current
Operating Temperature Range (free air convection)	300mA/350mA	-40°C to +85°C
	500mA	-40°C to +80°C
	600mA	-40°C to +75°C
	700mA	-40°C to +71°C
Storage Temperature Range		-55°C to +125°C
Maximum Case Temperature		100°C
Thermal Impedance	Natural Convection	55°C/Watt
Case Material		Non Conductive Black Plastic
Potting Material		Epoxy (UL94-V0)
Dimensions		22.1 x 12.6 x 8.5mm
Weight		4.5g
Wave Soldering Profile		Max. 265°C/10 sec.

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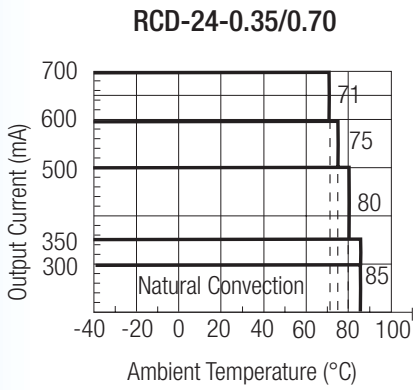
Derating Graph

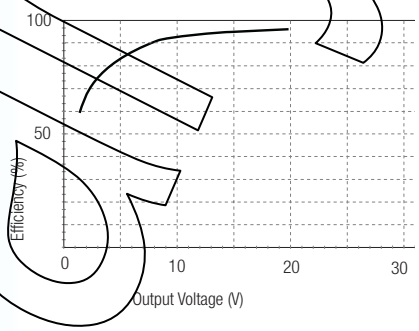
(Ambient Temperature)



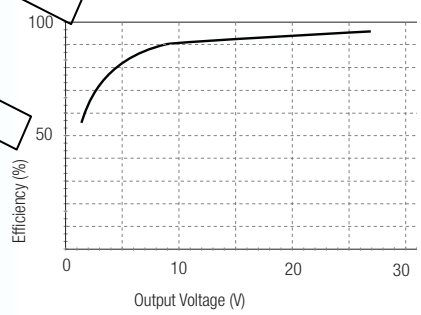
Specifications (typical at 25°C, nominal input voltage, rated output current unless otherwise specified)

PWM Dimming and ON/OFF Control (Leave open if not used)		
Remote ON/OFF	DC/DC ON	Open or 0V<Vr<0.6V
	DC/DC OFF	2.9V<Vr<6V
Remote Pin Drive Current	Vr=5V	1mA max.
Quiescent Input Current	Vin=36V, Vr=5V	200µA max.
Maximum PWM Frequency for Linear Operation		200Hz
Analogue Dimming Control (leave open if not used)		
Input Voltage Range		0 - 15V
Control Voltage Range Limits	Full On	0.13V ±4%
(see Graph)	Full Off	4.2V ±5%
Analogue Pin Drive Current	Vc=5V	0.2mA max.
Environmental		
Relative Humidity		5% to 95% RH, non-condensing
MTBF		TBD x 10^3hours min.

Vin = 24V, Iout = 300-700mA



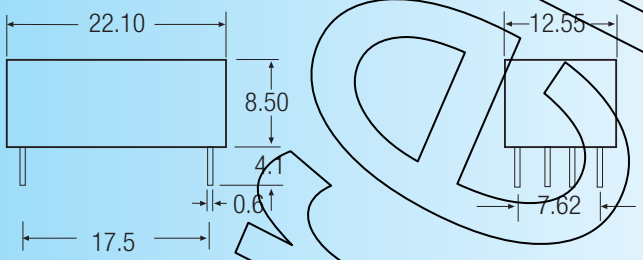
Vin = 32V, Iout = 300-700mA



Package Style and Pinning

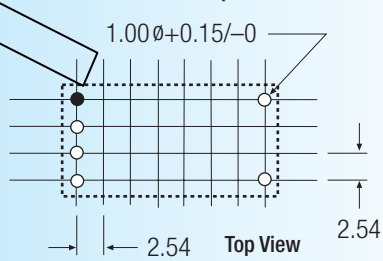
Through Hole Case Style

3rd angle projection



Leave 1 mm space arround case on pcb

Recommended Footprint Details

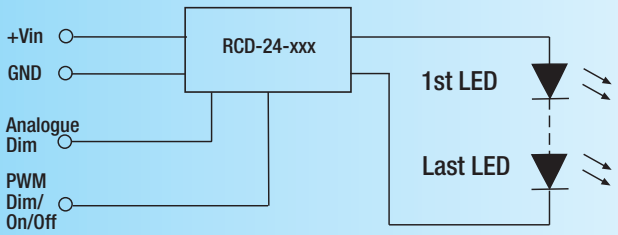


Pin Connections	RCD-24 Series	
Pin #	**Out**	**Comments**
1	+Vin	DC Supply
2	Analogue Dimming	Leave open if not used
3	PWM/ON/OFF	Leave open if not used
4	GND	Do not connect to -Vout
5	-Vout	LED Cathode Connection
6	+Vout	LED Anode Connection

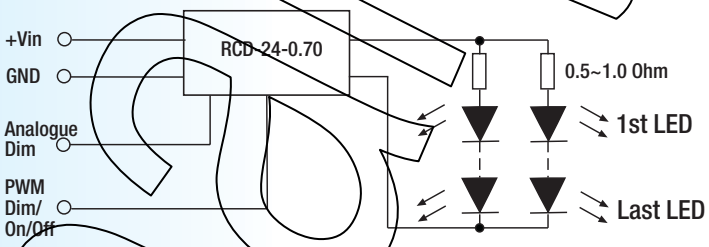
XX.X ± 0.5 mm
XX.XX ± 0.25 mm
Pin Tolerance ± 0.1 mm

Standard Application Circuits

LED DRIVER

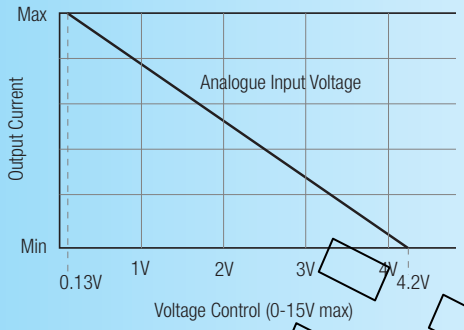


MULTIPLE LED DRIVER (up to 20 LEDS)

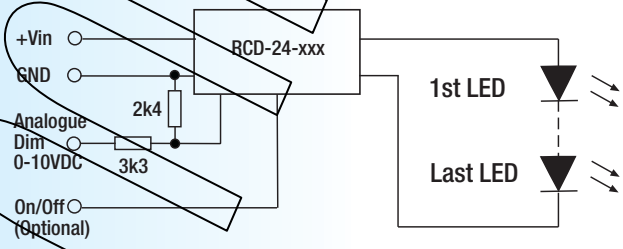


Driving Two Strings of 350mA LEDs with one 700mA Driver.

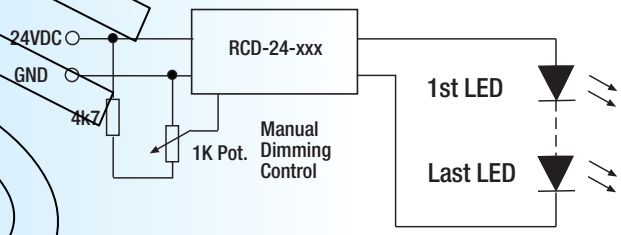
Analogue Dimming Control and Application Circuit Examples



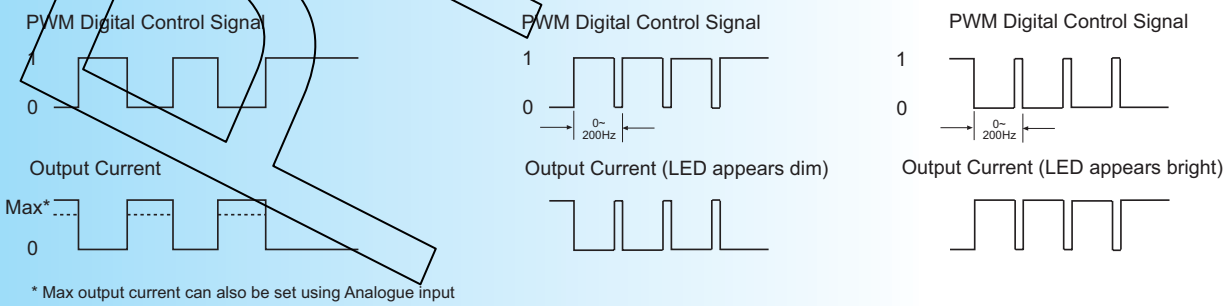
LED DRIVER with 0-10V Interface



LED DIMMER for up to 7 white LEDs



Digital Dimming Control



* Max output current can also be set using Analogue input