PART NUMBER: VLD24-XXX **DESCRIPTION:** constant current dc-dc converter

applications

The VLD24-XXX series is a step-down constant current source designed for driving high power LEDs. The available output currents are: 300mA, 350mA, 500mA, 600mA, 700mA. Despite its compact size, the VLD24-XXX series is fully featured with very high efficiency, wide input voltage range, high ambient operating temperature, and two means of LED dimming: PWM digital dimming and analog dimming control, via a trim POT.

features

- **power LED driver**
- **high efficiency up to 95%**
- **wide input voltage range**
- **constant current output**
- **PWM digital dimming**
- **short-circuit protection**
- **analog dimming**
- **output on/off control**

RoHS

model	input range (V dc)	output voltage (V dc)	output current (mA)	dimming control	efficiency (%)
VLD24-300	5.5~36	2~32	0~300	PWM+analog	95
VLD24-350	5.5~36	2~32	0~350	PWM+analog	95
VLD24-500	5.5~36	2~32	0~500	PWM+analog	95
VLD24-600	5.5~36	2~32	0~600	PWM+analog	95
VLD24-700	5.5~36	2~32	0~700	PWM+analog	95

INPUT

parameter	conditions/description	min	nom	max	units
input voltage	absolute max before device failure			40	VDC
	opperating input range	5.5	24	36	VDC
quiescent input current in off mode	Vin = 24V, V_{DIM} < 0.6V			400	µA
input filter	capacitor				

OUTPUT

parameter	conditions/description	min	nom	max	units
voltage range	Vin is at least 1.5~4V higher than Vout	2		32	VDC
current range	Vin-Vout > 1.5~4V	300		700	mA
current accuracy	300~700mA		±8	±12	%
current stability	Vin = 24V, Vout = 2~32V		±10	±18	%
temp. coefficient	-40°C ~ 71°C ambient			±0.03	%/°C
maximum capacitive load				470	µF

PROTECTION CIRCUIT

parameter	conditions/description
short-circuit protection	regulated at rated output current

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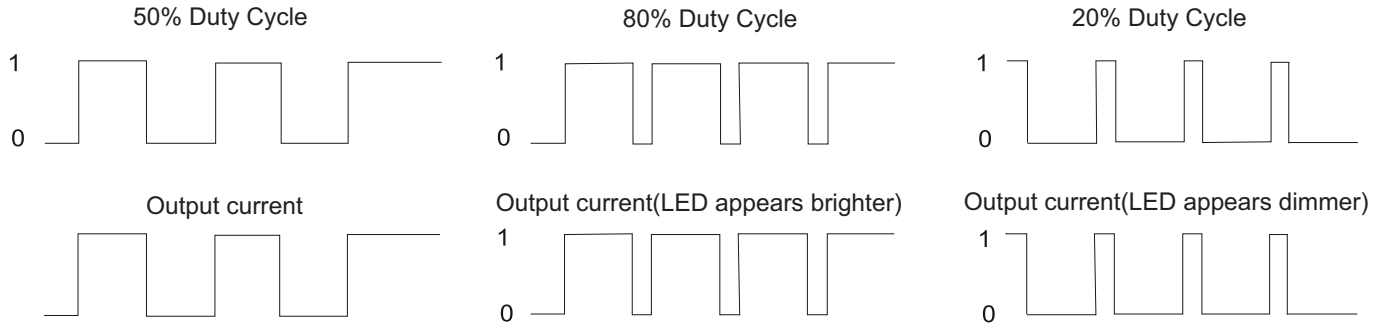
DIMMING AND CONTROL

parameter	conditions/description	min	nom	max	units
remote on/off	dc-dc ON (Vr on pin3)		open or 2.8V<Vr<6V		
	dc-dc OFF		Vr <0.6V		
remote pin current	Vr = 5V			1	mA
PWM frequency			0.2	10	kHz

GENERAL

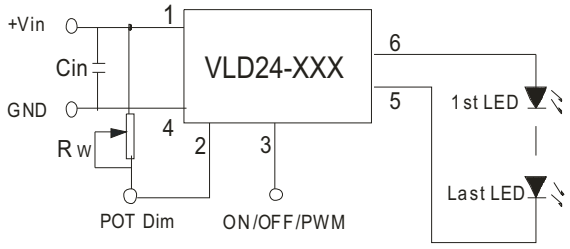
parameter	conditions/description	min	nom	max	units
ambient temp.	300/350mA	-40		85	ºC
	500/600/700mA	-40		71	ºC
storage temp.		-55		125	ºC
max. case temp.				100	°C
RoHS	yes				
case material	plastic (UL94V-0)				
dimensions	22.8 x 10.2 x 9.5 (L x W x H)				
weight			3.5		g
efficiency	at full load			95	%

DIGITAL DIMMING CONTROL



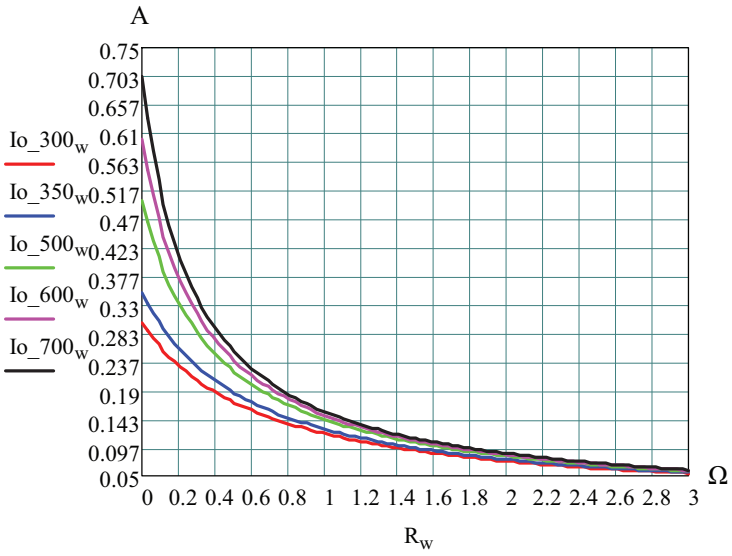
PART NUMBER: VLD24-XXX **DESCRIPTION:** constant current dc-dc converter

ANALOG DIMMING CONTROL



Cin = 47µF for best performance

Io can be set between 0A and Io(max) with trim pot Rw. For example, to set the output current (Io) to 200mA using the VLD24-350, choose Rw=0.4Ω. The trim pot should be placed close to pins 1 and 2 with shortest possible leads.



TYPICAL APPLICATION CIRCUITS

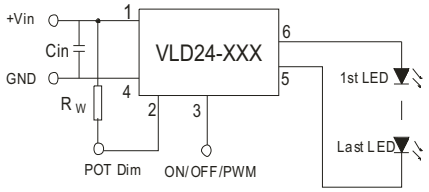


Figure 1a. Series Configuration

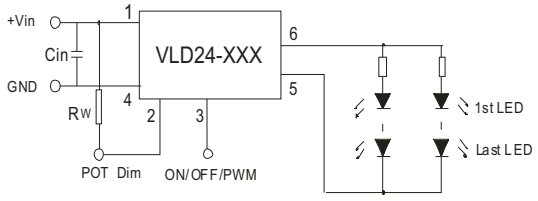
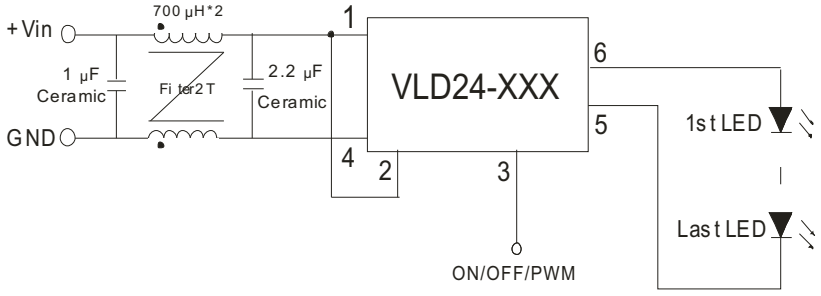


Figure 1b. Parallel Configuration

EMS FILTER CIRCUITS



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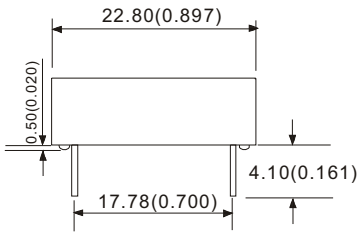
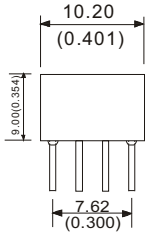
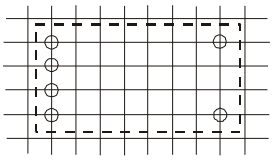
MECHANICAL DRAWING AND PIN-OUT





Third Angle Projection

RECOMMENDED FOOTPRINT
Top view,grid:2.54mm(0.1inch), diameter:1.00mm(0.039inch)



FOOTPRINT DETAILS

Pin	Function	Comments
1	Vin	DC Supply
2	Analog Dim	Set Output Current
3	ON/OFF/PWM	Output enable/PWM
4	GND	Do not connect to -Vout
5	-Vout	LED Cathode connection
6	+Vout	LED Anode connection

Note:
Unit:mm(inch)
Pin diameter:0.50mm(0.020inch)
Pin tolerances:±0.10mm(±0.004inch)
General tolerances:±0.25mm(±0.010inch)