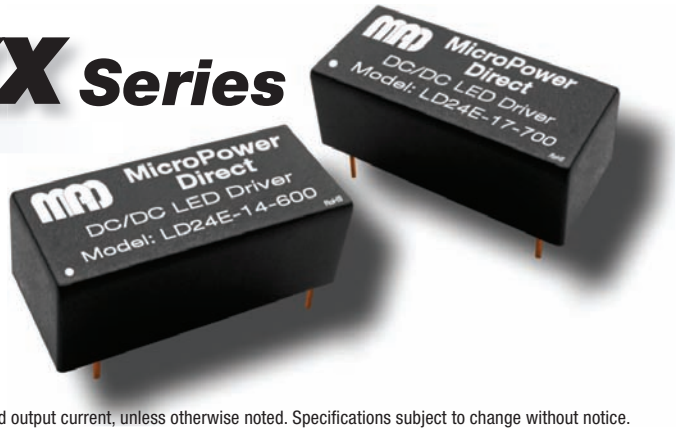
LD24E-xx-xxx Series

Low Cost, PWM Control Constant Current Output DC/DC LED Drivers



Key Features:

- 300 - 700 mA Output Current
- Constant Current Output
- PWM Dimming
- Wide 5.5V to 36V Input Range
- Efficiency to 95%
- Miniature Case
- 4.7 MHrs MTBF
- ***Low, Low Cost!***

RoHS

Another Cost Cutter Product From MPD

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Electrical Specifications

Specifications typical @ +25°C, nominal input voltage & rated output current, unless otherwise noted. Specifications subject to change without notice.

Input

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Voltage Range		5.5	24.0	36.0	VDC
Max Input Voltage	See Note 1			40.0	VDC
Input Filter	Internal Capacitor				

Output

Parameter	Conditions	Min.	Typ.	Max.	Units
Output Voltage Range	Vin = 36V	2		32	VDC
Output Current	See Model Selection Guide				
Output Current Accuracy	Vin = 24V		±5.0	±8.0	%
Output Current Stability	Vin = 24V		±5.0	±10.0	%
Output Capacitive Load				470	µF
Efficiency	Iout = 100%			95	%
Temperature Coefficient				±0.03	%/°C
Output Short Circuit	Regulated At Rated Output Current				

Environmental

Parameter	Conditions	Min.	Typ.	Max.	Units
Operating Temperature Range, Ambient	300 mA, 350 mA Output Models	-40	+25	+85	°C
	All Other Models	-40	+25	+71	
Operating Temperature Range, Case	Case			+100	°C
Storage Temperature Range		-55		+125	°C
Cooling	Free Air Convection				
Humidity	RH, Non-condensing			95	%
Lead Temperature	1.5 mm From Case For 10 Sec			260	°C

Physical

Case Size	0.90 x 0.40 x 0.374 Inches (22.80 x 10.20 x 9.50 mm)
Case Material	Non-Conductive Black Plastic (UL94-V0)
Weight	0.123 Oz (3.5g)

Remote On/Off Control

Parameter	Conditions	Min.	Typ.	Max.	Units
DC/DC On			Open 0r 2.8V < Vcont <6.0V		
DC/DC Off				Vcont <0.6V	
Remote Pin Drive Current	Vcont = 5.0V			1	mA
Quiescent Input Current (Shutdown Mode)	Vin = 24V, Vcont = <0.6V			400	µA

PWM Dimming

Parameter	Conditions	Min.	Typ.	Max.	Units
Operation Frequency		0.2		10	kHz

Reliability Specifications

Parameter	Conditions	Min.	Typ.	Max.	Units
MTBF	MIL HDBK 217F, 25°C, Gnd Benign	2.0			MHours
Safety Standards	Meets EN 60950, IEC 60950				

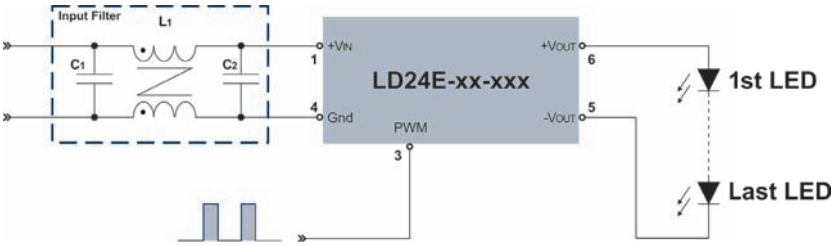
Model Selection Guide

Model Number	Input		Output		Dimming Control	Efficiency (%, Max)
	Voltage (VDC)		Voltage (VDC)	Current (mA)		
	Nominal	Range				
LD24E-07-300	24	5.5 - 36.0	2.0 - 32.0	0.0 - 300	PWM	95
LD24E-08-350	24	5.5 - 36.0	2.0 - 32.0	0.0 - 350	PWM	95
LD24E-12-500	24	5.5 - 36.0	2.0 - 32.0	0.0 - 500	PWM	95
LD24E-14-600	24	5.5 - 36.0	2.0 - 32.0	0.0 - 600	PWM	95
LD24E-17-700	24	5.5 - 36.0	2.0 - 32.0	0.0 - 700	PWM	95

Specification Notes:

1. Exceeding 40V on the unit input could damage the unit.
2. No connection should be made between input ground and the output.
3. These are step-down devices, the maximum output open voltage is equal to the input voltage.
4. The PWM/Cont input (Pin 3) should be left open if not used.
5. Exceeding the specified maximum output power could cause damage to the unit.

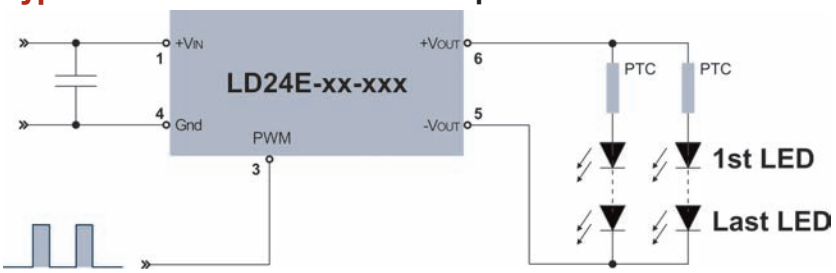
Typical Connection:



Connection Notes:

1. In some noise sensitive applications, the addition of the input filter components (C_1, L_1 & C_2) will help to reduce conducted emissions.
2. Input gnd (Pin 4) cannot be connected to the output.
3. If not being used, the PWM/Control input (Pin 3) should be left open.

Typical Connection: Parallel Output



Connection Notes:

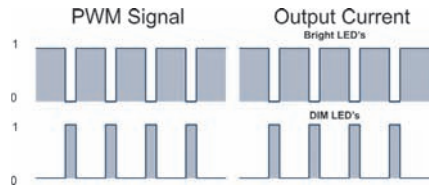
1. A positive temperature coefficient PTC is connected to each parallel channel for protection.

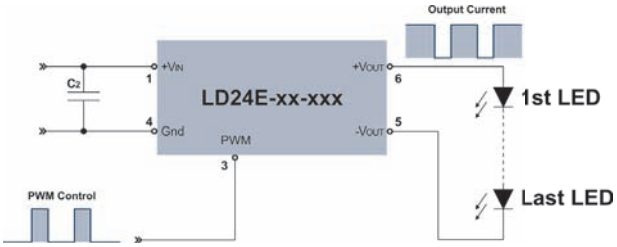
Pin Connections

Pin	Function	
1	+VIN	+DC Supply
3	PWM	PWM, On/Off
4	Gnd	-DC Supply
5	-VOUT	LED Cathode Conn.
6	+Vout	LED Anode Conn.

PWM Output Current Control

Output current may be adjusted by using a pulse width modulated (PWM) signal. By varying the signal duty cycle (as shown at right) the output current is adjusted up or down.



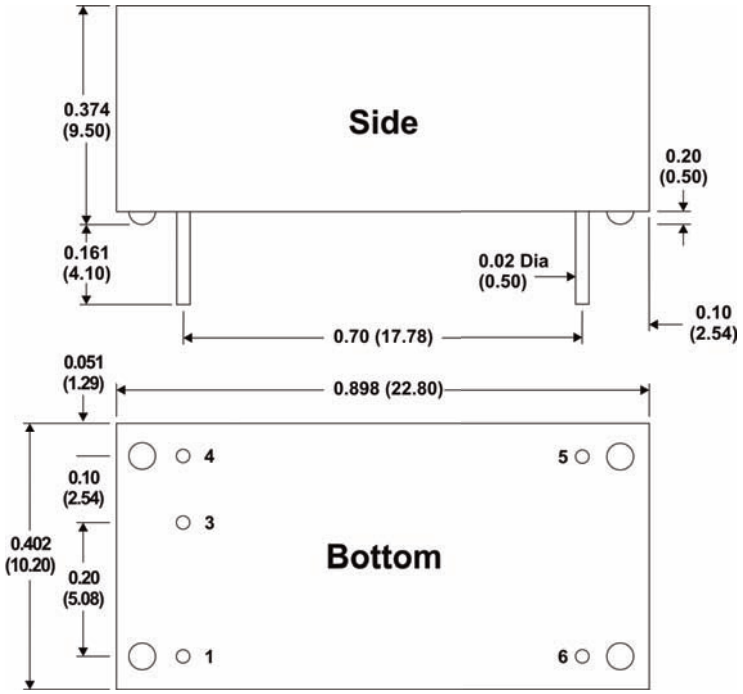


Output current may be calculated by the formula:

$$I_{OUT} = I_{RATED} \times D_{PWM}$$

Where Iout = Required output current
Irated = Full rated output current for the unit
Dpwm = Duty cycle of the control signal

Mechanical Dimensions



Notes:

- All dimensions are typical in inches (mm)
- Tolerance x.xx = ±0.01 (±0.25)
- Pin 1 is marked by a "dot" or indentation on the top of the unit

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