

I-DRIVE 5, 25.2 WATT LED DRIVER

Single Channel 120V, 0-210mA

GENERAL DESCRIPTION

This Driver provides a single board LED Driver solution for the powering of a LED backlight consisting of two types of LEDs, High Bright "Day" LEDs, and IR filtered "NVIS" LEDs. The ACI-3174 provides the power to the Day LEDs only.

This driver operates as a true constant current LED Driver. The driver supplies power out of CON3, pins 1 and 5.

The driver is capable of driving series connected LEDs with a forward voltage drop up to 120V, and operates over an input voltage range from +10.5V to +18V DC.

This driver also features an enable and intensity control input with logarithmic output brightness response, yielding a combined dimming range of greater than 10,000 to 1.

MECHANICAL/ENVIRONMENTAL

Weight = 35.7 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 3.25 IN x 2.00 IN x 0.47 IN

PCB thickness = 0.062 IN

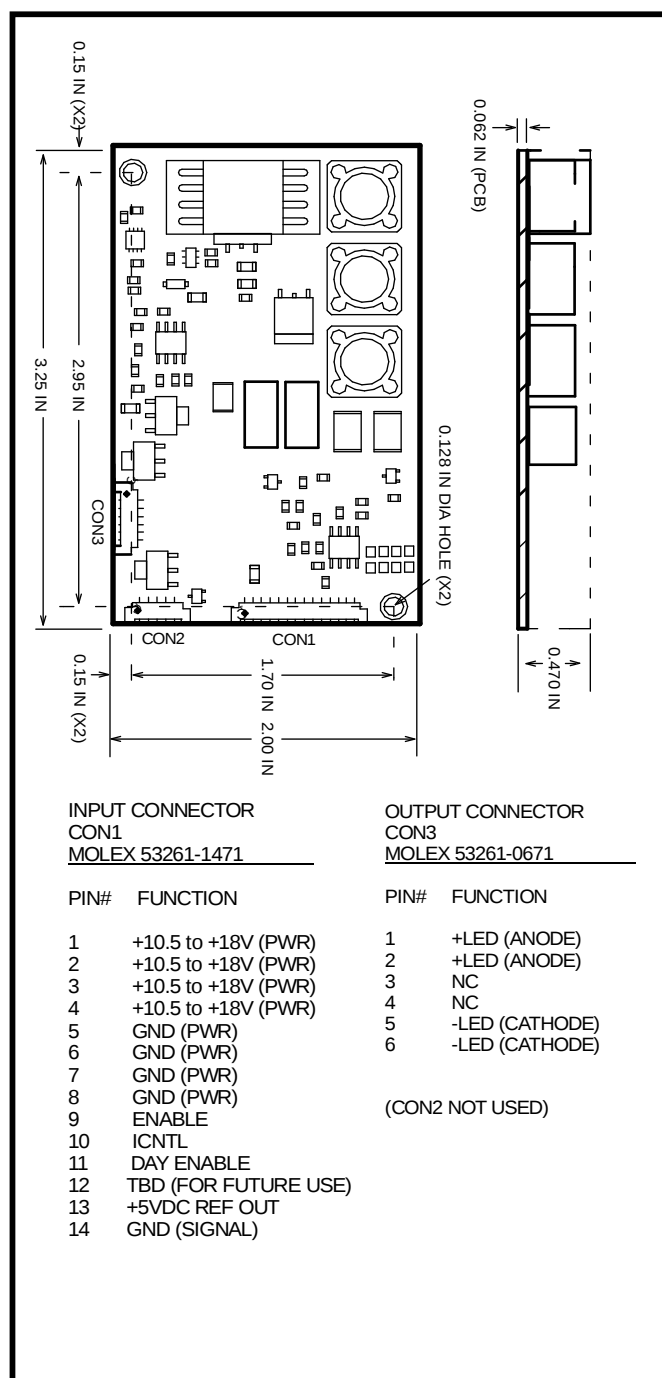
Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON3

PCB Conformally Coated with Humiseal 1B73

RoHS Compliant



MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.7 to 20	Vdc
Vip	Voltage applied to any Input Pin (Referenced to Ground)	-0.7 to 5.7	Vdc
Iop	Current sourced or sinked from any Output Control Pin	+/- 10	mAdc
Pin	Input Power (DC Input Voltage x DC Input Current)	33.5	W
Top	Operating Temperature (Still air ambient around Driver)	-30 to +85	°C
Tstg	Storage Temperature	-40 to +105	°C

*Maximum Ratings are those values beyond which damage to the driver may occur.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	10.5	18.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage (DAY)	36	120	Vdc
Icntl	LED Intensity Control Voltage	0.25	4.75	Vdc

ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	133	140	147	Vdc
ENoff	Enable Control, Unit Off	Pin 9			0.5	Vdc
ENon	Enable Control, Unit ON	Pin 9	2.0			Vdc
DEon	Day Enable ON	Pin 11	2.0			Vdc
DEoff	Day Enable OFF	Pin 11			0.5	Vdc
DEd	Day Enable Delay (Time for Day output channel to Enable or Disable)			0.2		sec
+5Vref	+5V Output Reference Voltage	1K Ohm Load to Ground (Pin 12)	4.75	5.0	5.25	Vdc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V		8		mA
Eff	Electrical Efficiency			87		%

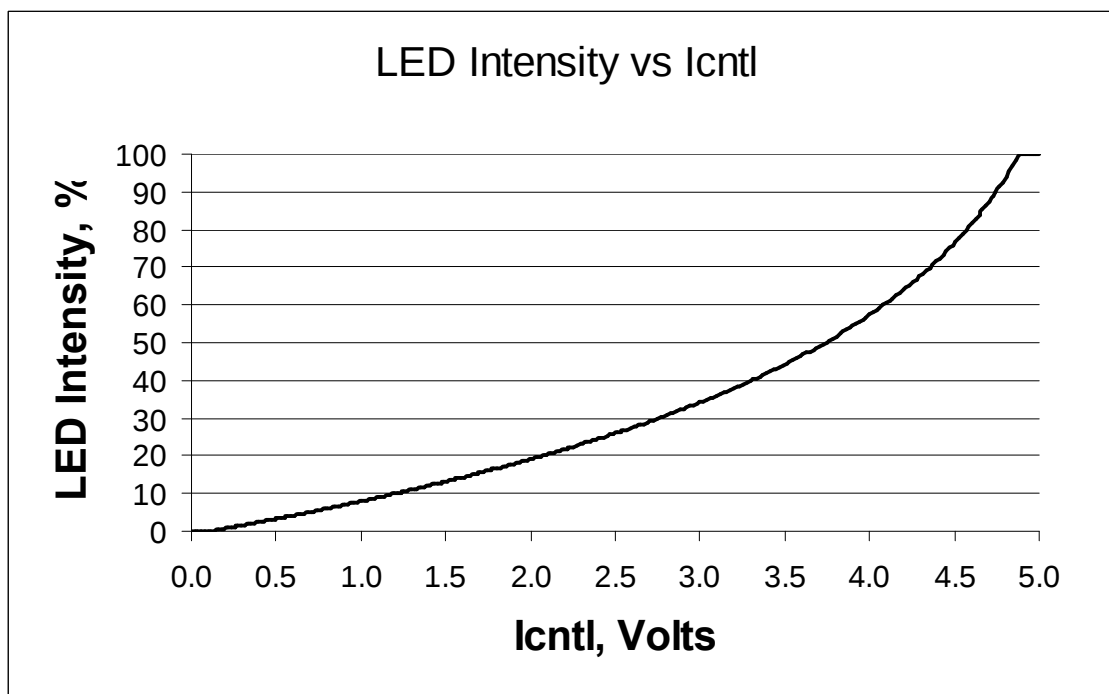
Electricals continued on page 3.

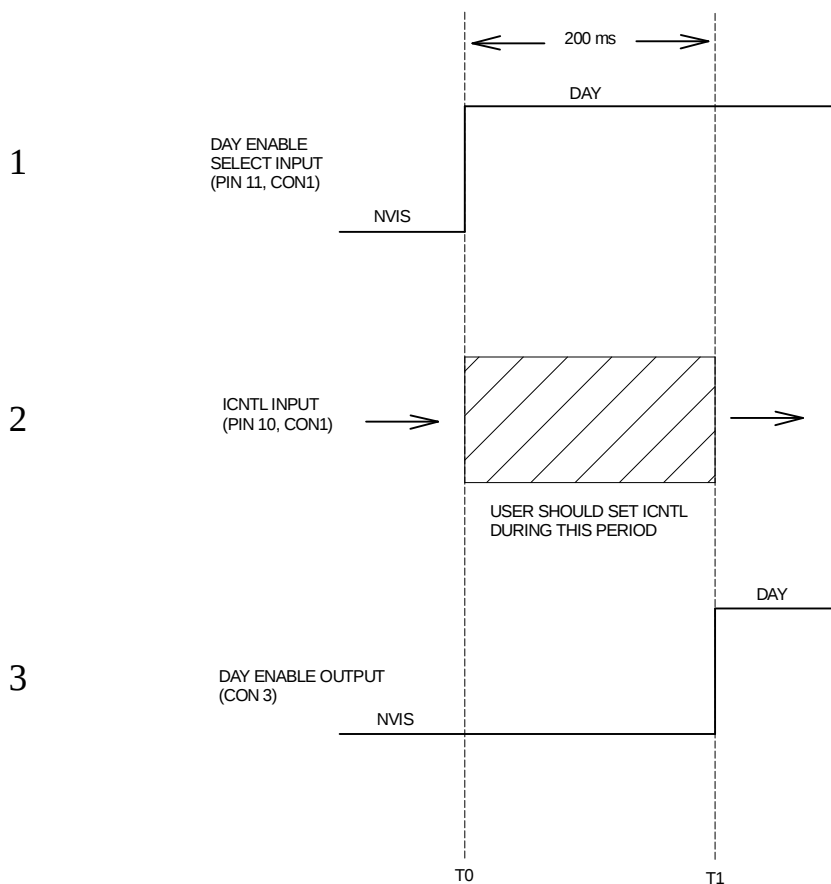
ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
DE = 5V						
Iout	Output Current		199	210	221	mAdc
Iadj	Nominal Output Current Adjustment Range	Icntl(Pin 10) ≤ +0.25V	0			mAdc
		Icntl(Pin 10) ≥ +4.75V			210	mAdc
Iin	Input Current Draw	Vf = 120V		2.4		Adc

BRIGHTNESS CURVE





TIMING DIAGRAM – Example of Switching from NVIS to Day Mode

When user wants to Day Enable, do the following:

1. Change to the desired state, via Pin 11 on CON1 (This is shown to occur at T0).
2. Update Icntl setting, Pin 10 on CON1, within 200ms of mode change.
3. 200ms after mode change, the Day output will switch on, and the new Icntl setting will appear (this is shown to occur at T1).