

I-DRIVE 3, 12.0 WATT LED DRIVER

Dual Mode, 120V, (0-100mA Day), (0-40mA NVIS)

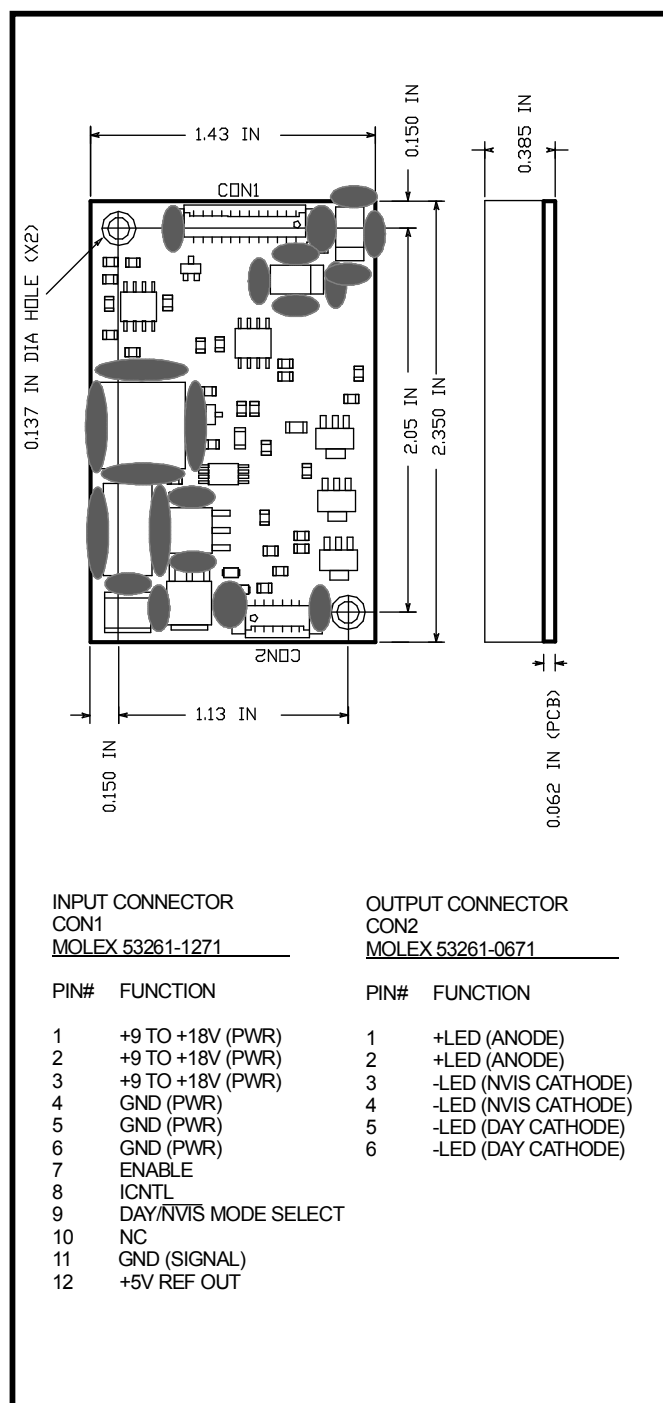
GENERAL DESCRIPTION

The ACI-2779A provides a single board LED Driver solution for powering a LED backlight consisting of two types of LEDs, High Bright "Day" LEDs, and IR filtered "NVIS" LEDs.

This driver operates as a Dual Mode constant current LED Driver. In "Day" mode, the driver supplies power out of the Day channel (CON2, pins 1,2 and 5,6), and in the "NVIS" mode, out of the NVIS channel (CON2, pins 1,2 and 3,4). Mode selection is accomplished via a signal provided by the user on pin 9 of CON1.

The driver is capable of driving series connected LEDs with a forward drop of up to 100V, and operates over an input voltage range of +9V to +18V.

This driver also features an enable and intensity control input.



MECHANICAL/ENVIRONMENTAL

Weight = 20.5 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 2.35 IN x 1.43 IN x 0.385 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.137 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

Specified Components secured with 3M DP190 Gray Epoxy

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)	16.1	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)	9.0	18.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	36	120	Vdc
Icntl	LED Intensity Control Voltage	0.1	4.6	Vdc

ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Icntl = +4.6V, 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 7 <= 0.5V			0.5	Vdc
Enon	Enable Control, Unit ON	Pin 7 >= 2.0V	2.0			Vdc
Ms	Mode Select, Day Mode	Pin 9 >= 2.0V	2.0			Vdc
Ms	Mode Select, NVIS Mode	Pin 9 <= 0.5V			0.5	Vdc
Msd	Mode Select Delay (Time for output channel to switch to alternate mode/channel)			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 7) = 0V		8		mA
Eff	Electrical Efficiency		87			%

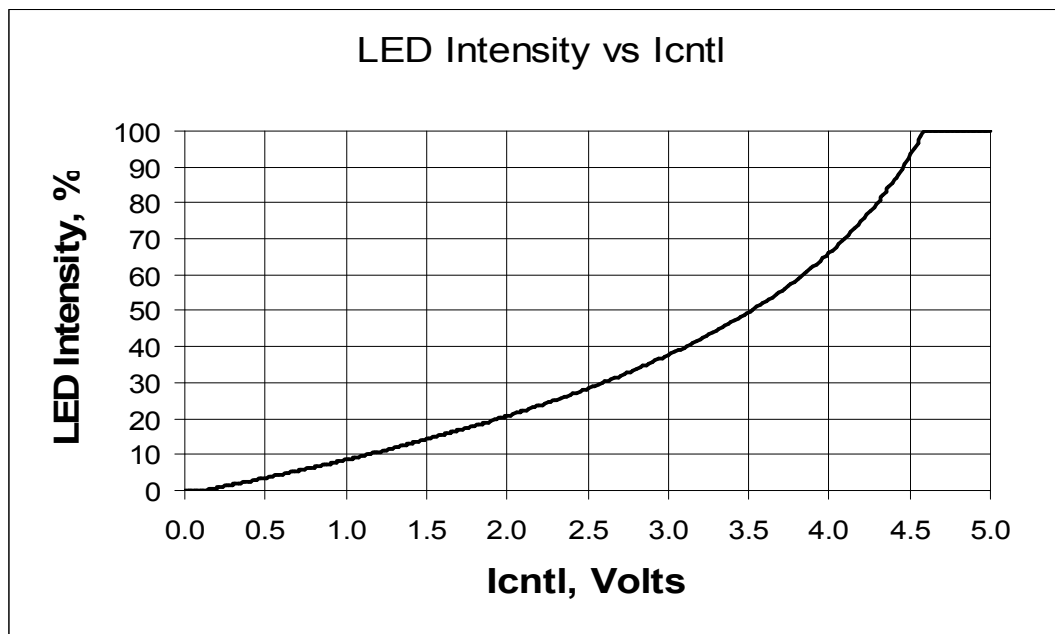
Electricals continued on page 3.

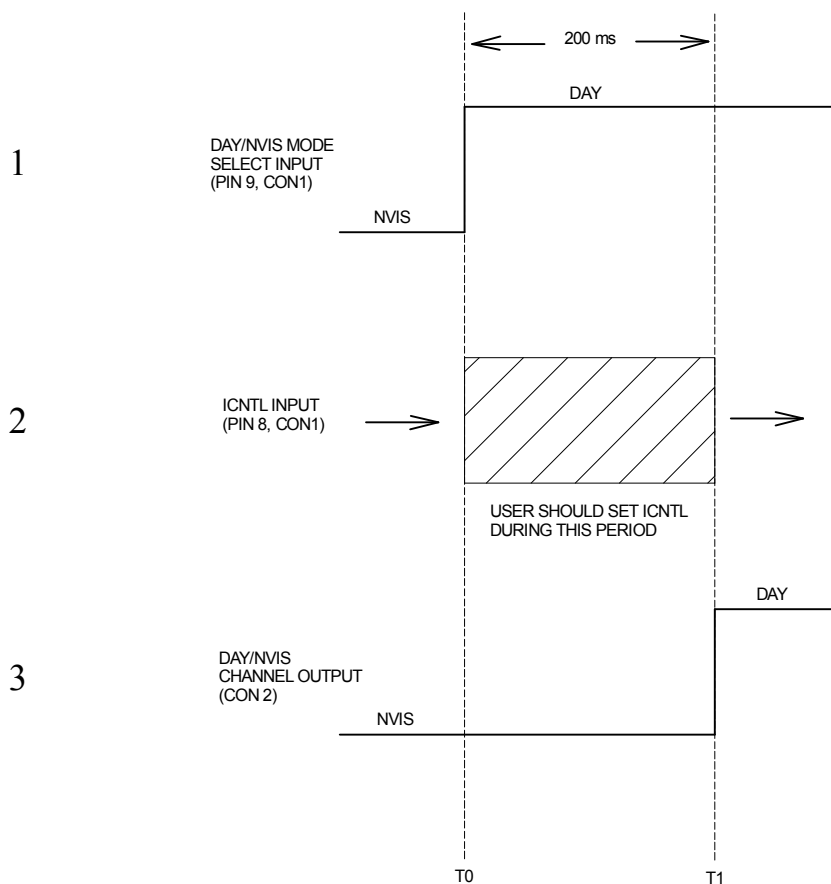
ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Icntl = +4.6V, Enable = +5V unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
Day Mode, Ms = 5V						
Iout	Output Current		94	100	106	mA
Iadj	Nominal Output Current Adjustment Range	Icntl(Pin 8) = +0.1V to +4.6V	0		100	mA
Iin	Input Current Draw	Vf = 120V		1.15		Adc
NVIS Mode, Ms = 0V						
Iout	Output Current		38	40	42	mA
Iadj	Nominal Output Current Adjustment Range	Icntl(Pin 8) = +0.1V to +4.6V	0		40	mA
Iin	Input Current Draw	Vf = 120V		0.46		Adc

BRIGHTNESS CURVE





TIMING DIAGRAM – Example of Switching from NVIS to Day Mode

When user wants to switch modes, do the following:

1. Change to the desired mode, via Pin 9 on CON1 (This is shown to occur at T0).
2. Update Icntl setting, Pin 8 on CON1, within 200ms of mode change.
3. 200ms after mode change, the output channel will switch, and the new Icntl setting will appear (this is shown to occur at T1).



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ACI-2779A

PRODUCT DATA SHEET

11/10/16

REVISION HISTORY

PART NUMBER	CHANGE	DATE
ACI-2779	Initial Design	08/23/2016
ACI-2779A	Added 200ms delay to mode change output, as described in Timing Diagram on page 4 of this datasheet.	11/10/2016