Applied Concepts
INNOVATION IN POWER CONVERSION TECHNOLOGY

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ACI-A030021-2037

PRODUCT DATA SHEET

12/05/11

I-LITE, 3.75 WATT LED DRIVER

(Common-Cathode, Six Channels[1])

GENERAL DESCRIPTION

The ACI-A030021-2037 is designed to drive up to 6 parallel channels of series connected LEDs.

The number of channels and current per channel are configurable per Table 1 on Page 3, by setting a four-position switch located on the driver, enabling the driver to support a wide range of displays.

Operating as a true constant current source, the driver provides a complete integrated solution that operates from a nominal +4.75V to +9.0 VDC source.

Simple to connect and operate, the driver solution is capable of providing precise control to support dimming applications of over 5,000 to 1.

MECHANICAL/ENVIRONMENTAL

Weight = 7.2 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 2.0 IN x 0.95 IN x 0.285 IN

PCB thickness = 0.062 IN

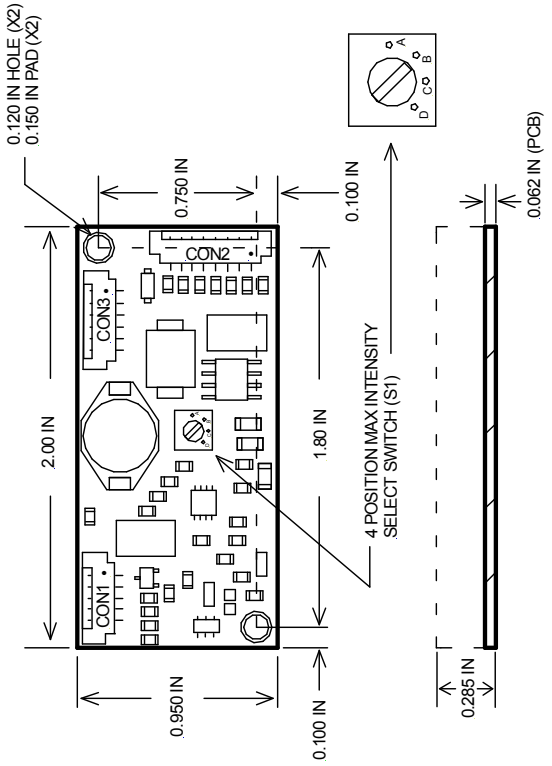
Mounting Holes = 0.120 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connectors = CON2 and CON3

RoHS Compliant

[1] When using less than the total number of channels available, refer to I-Lite Application Note.



INPUT CONNECTOR
CON1
MOLEX 53261-0571

PIN #	FUNCTION
1	+VIN(PWR)
2	GND(PWR)
3	ENABLE (IN)
4	INTENSITY CNTL (IN)
5	+3.3V REF (OUT)

OUTPUT CONNECTOR
CON2
MOLEX 53261-0871

PIN #	FUNCTION
1	LED ANODE #1
2	LED ANODE #2
3	LED ANODE #3
4	LED ANODE #4
5	LED ANODE #5
6	LED ANODE #6
7	NC
8	LED CATHODE (COMMON)

OUTPUT CONNECTOR
CON3
MOLEX 53261-0671

PIN #	FUNCTION
1	LED CATHODE (COMMON)
2	LED CATHODE (COMMON)
3	LED CATHODE (COMMON)
4	LED CATHODE (COMMON)
5	LED CATHODE (COMMON)
6	LED CATHODE (COMMON)

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MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.3 to 12	Vdc
Vip	Voltage applied to any Input Pin (Referenced to Ground)	-0.3 to 3.6	Vdc
Iop	Current sourced or sinked from any Output Control Pin	+/- 10	mAdc
Pin	Input Power (DC Input Voltage x DC Input Current)	5.0	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 LED driver may occur.

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Conditions	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)		4.75	9.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	Switch S1 = A	18	30	Vdc
		Switch S1 = B, C or D	18	40	Vdc
Icntl	LED Intensity Control Voltage		0.25	3.0	Vdc

A maximum Forward Voltage, Vf, of 40V is allowed for Switch settings B, C and D, since the maximum output power does not exceed 3.75W.

ELECTRICAL CHARACTERISTICS

Vin = +4.75V, Vf = 30V per channel, # of channels = 6, Icntl = +3.0V, Enable = +3V, S1 = A, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	45	50	55	Vdc
Iout-a	Output Current per Channel, Setting A	Switch S1 = A	19.8	20.8	21.8	mADC
Iout-b	Output Current per Channel, Setting B	Switch S1 = B	14.2	15	15.8	mADC
Iout-c	Output Current per Channel, Setting C	Switch S1 = C	11.8	12.5	13.1	mADC
Iout-d	Output Current per Channel, Setting D	Switch S1 = D	7.9	8.3	8.7	mADC
ICNTL	Nominal Output Current per Channel Adjustable Range	ICNTL (Pin 4) = +0.25V to +3.0V	0		20.8	mADC
ENoff	Enable Control, Unit Off	Enable (Pin 3)			0.4	Vdc
ENon	Enable Control, Unit ON	Enable (Pin 3)	1.8			Vdc
+3.3Vref	+3.3V Output Reference Voltage	1K Ohm Load to Ground (Pin 5)	3.13	3.3	3.47	Vdc
Iin	Input Current Draw			0.93		
Iind	Input Current Draw (Disabled)	Enable (Pin 3) = 0V		0.001	0.06	Adc
Eff	Electrical Efficiency			85		%

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Possible Configurations

Switch Setting (S1)	Number of LED Channels Connected					
	1	**2**	**3**	**4**	**5**	**6**
	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)
A	125	62.5	41.7	31.3	25	20.8
B	90	45	30	22.5	18	15
C	75	37.5	25	18.8	15	12.5
D	50	25	16.7	12.5	10	8.3

TABLE 1. – Output Current per Channel, based on Switch (S1) Setting and Number of Channels Connected.