

I-LITE, 8.0 WATT LED DRIVER

(Common-Cathode, One to Six Channels)

GENERAL DESCRIPTION

The ACI-A038040-1855 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 +12V source.

This unit features enable and intensity control inputs.

Additional Support Documentation:

1. I-LITE LED DRIVER APPLICATION NOTE
2. DRIVING OPTREX PANELS WITH ACI-A038040-1855

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

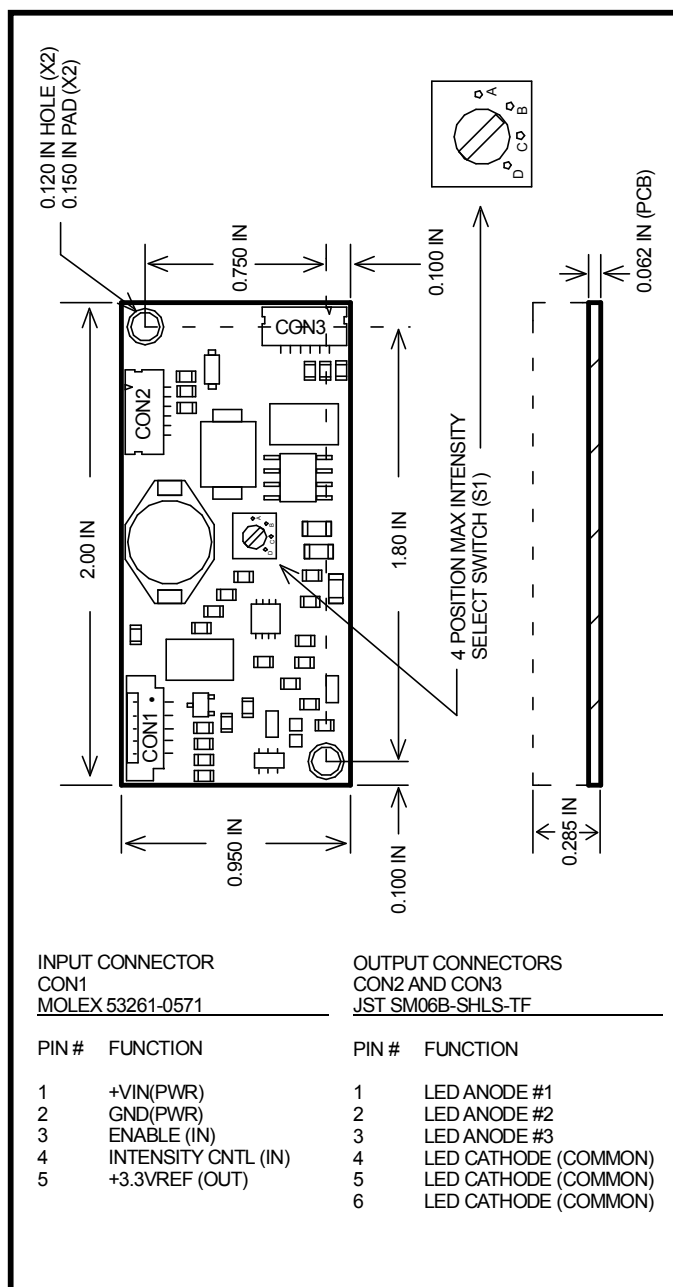
PCB thickness = 0.062 IN

Mounting Holes = 0.120 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connectors = CON2 and CON3

RoHS Compliant



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PRODUCT DATA SHEET

05/15/09

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.3 to 19	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)	10.1	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 LED driver may occur

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	8.0	18.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	**Vin + 1	38	Vdc
Icntl	LED Intensity Control Voltage	0.25	3.0	Vdc

**Vin must be less than the minimum Forward-Drop Voltage (Vf).

ELECTRICAL CHARACTERISTICS

Vin = +12V, Icntl = +3.0V, Enable = +3.0V, unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	45	50	55	Vdc
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
Iadj	Nominal output current adjust range	Icntl (Pin4) = +0.25V to 3.0V	0		Note1	
Iind	Input Current Draw (Disabled)	Enable (Pin 3) = 0V		0.001	0.06	Adc
Eff	Electrical Efficiency			90		%

Note1: Maximum current per configuration selected (refer to Table 1 on Page 3)

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Electrical Characteristics continued on Page 3.

PRODUCT DATA SHEET

05/15/09

ELECTRICAL CHARACTERISTICS (for popular configurations)

Vin = +12V, Ictrl = +3.0V, Enable = +3.0V, unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
Iout	Output Current per channel	Number of LED Channels Driven = 2 Vf = 32.8V S1 = A	114	120	126	mAdc
Iin	Input Current Draw		0.69	0.73	0.77	Adc
Iout	Output Current per channel	Number of LED Channels Driven = 2 Vf = 23.7V S1 = B	85.5	90	94.5	mAdc
Iin	Input Current Draw		0.38	0.40	0.42	Adc
Iout	Output Current per channel	Number of LED Channels Driven = 2 Vf = 38V S1 = C	66.5	70	73.5	mAdc
Iin	Input Current Draw		0.47	0.49	0.52	Adc
Iout	Output Current per channel	Number of LED Channels Driven = 3 Vf = 13.2V S1 = B	57	60	63	mAdc
Iin	Input Current Draw		0.21	0.22	0.23	Adc
Iout	Output Current per channel	Number of LED Channels Driven = 4 Vf = 32V S1 = C	33.3	35	36.8	mAdc
Iin	Input Current Draw		0.39	0.42	0.44	Adc

Possible Configurations

Switch Setting (S1)	Number of LED Channels Driven											
	1		2		3		4		5		6	
	Iout/ch (mA)	Vf max (V)	Iout/ch (mA)	Vf max (V)	Iout/ch (mA)	Vf max (V)	Iout/ch (mA)	Vf max (V)	Iout/ch (mA)	Vf max (V)	Iout/ch (mA)	Vf max (V)
A	240	33	120	33	80	33	60	33	48	33	40	33
B	180	38	90	38	60	38	45	38	36	38	30	38
C	140	38	70	38	46.7	38	35	38	28	38	23.3	38
D	Switch Setting D has been reserved for future configurations.											

TABLE1. – Output Current per Channel, based on Switch (S1) Setting and Number of Channels Driven

Caution: When selecting the number of channels to be driven and current per channel from one of the configurations in Table 1 above, you must ensure that the Forward-Drop Voltage (Vf) in your application does not exceed the Vf max value specified in Table 1.

The Nominal Input Current Draw, based on Vin, can be calculated from the following equation:

$$\text{Nominal Input Current Draw (A)} = \frac{\text{Iout per Channel (mA)} \times \text{Number of Channels} \times \text{Vf (V)} \times 0.0011}{\text{Vin (V)}}$$

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