Applied Concepts
INNOVATION IN POWER CONVERSION TECHNOLOGY

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ACI-3088

PRODUCT DATA SHEET

09/03/20

I-DRIVE, 7 WATT LED DRIVER

(35V, 4 Channels, 0-50mA per channel)

GENERAL DESCRIPTION

The ACI-3088 represents the latest generation of I-Drive technology used for powering LED backlights.

The ACI-3088 operates as a true constant current source and is capable of driving up to four channels of series connected LEDs with a forward voltage drop up to 35V. This driver provides a complete integrated solution that is regulated over an input voltage range from +10 to +15VDC.

This unit features enable and intensity control inputs.

MECHANICAL/ENVIRONMENTAL

Weight = 7.3 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 77.5mm x 25.0mm x 6.4mm

Size (L x W x H) = 3.05 IN x 0.98 IN x 0.25 IN

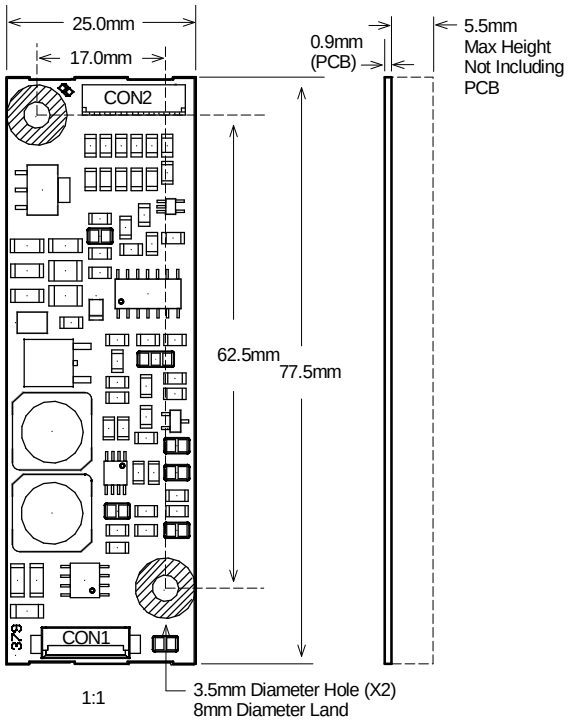
PCB thickness = 0.9 mm (0.035 IN)

Mounting Holes = 3.5mm diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

RoHS Compliant



INPUT CONNECTOR
CON1
MOLEX 53261-0871

PIN#	FUNCTION
1	+10 to +15V
2	+10 to +15V
3	GND (PWR)
4	GND (PWR)
5	ENABLE
6	ICNTL / PWMcntl
7	GND (SIGNAL)
8	TBD

OUTPUT CONNECTOR
CON2
JST SM12B-SRSS-TB

PIN#	FUNCTION
1	+ LED (ANODE)
2	- LED (CATHODE 1)
3	+ LED (ANODE)
4	- LED (CATHODE 2)
5	+ LED (ANODE)
6	- LED (CATHODE 3)
7	+ LED (ANODE)
8	- LED (CATHODE 4)
9	NC
10	NC
11	NC
12	NC

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MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.7 to 18	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)	9.3	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)	10.0	15.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	**Vin + 1	35	Vdc
Icntl	Intensity Control Voltage (User Supplied Input)	0.25	4.75	Vdc
PWMcntl	Intensity Control PWM Duty-Cycle Range (User Supplied Input)	0	100	%
PWMfreq	Intensity Control PWM Frequency Range (User Supplied Input)	100	1000	Hz

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

ELECTRICAL CHARACTERISTICS

Vin = +12V, Vf = 35V per channel, # of channels = 4, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	46	48	50	Vdc
Iout	Output Current per Channel		45	50	55	mAdc
Iadj	Nominal Output Current Adjust Range Per Channel	Icntl (Pin 6) = 0V or PWMcntl (Pin 6) = 0%	0			mAdc
		Icntl (Pin 6) >= +4.75V or PWMcntl (Pin 6) = 100%			50	mAdc
PWMcntl	PWM Control Input High Signal Level (V_{IH})		4.75			Vdc
PWMcntl	PWM Control Input Low Signal Level (V_{IL})				0.25	Vdc
ENoff	Enable Control, Unit Off				0.5	Vdc
ENon	Enable Control, Unit ON		2.0			Vdc
Iin	Input Current Draw			0.67		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 5) = 0V			0.06	Adc
Eff	Electrical Efficiency			87		%

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BRIGHTNESS CURVE