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ACI-2856

PRODUCT DATA SHEET

08/17/17

I-DRIVE 6, 39 WATT LED DRIVER (65V, 6 Channels¹, 0-100mA per Channel)

GENERAL DESCRIPTION

The ACI-2856 represents the 6th generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving up to 6 parallel banks of series connected LEDs with a forward voltage drop up to 65V. This driver provides a complete integrated solution that is regulated over an input voltage range from +10.8V to +15V DC.

¹ Please refer to Table 1 on page 3, for the maximum output current per channel, based on the number of channels connected.

Simple to connect and operate, this driver solution is capable of providing precise control to support dimming applications with a minimum of 3000:1.

This unit features enable and intensity control inputs.

MECHANICAL/ENVIRONMENTAL

Weight = 50.7 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 5.00 IN x 2.00 IN x 0.540 IN

PCB thickness = 0.062 IN

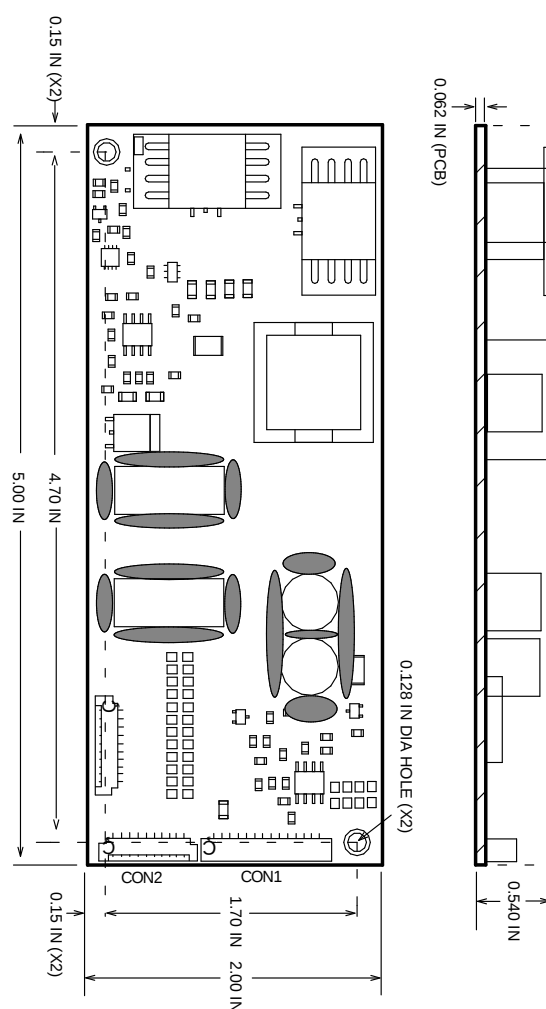
Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connectors = CON2 and CON3

Specified Components secured with 3M DP190 Gray Epoxy

RoHS Compliant



PLEASE REFER TO PAGE 3,
FOR INPUT AND OUTPUT CONNECTOR PIN ASSIGNMENTS

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)	49	W
Top	Operating Temperature (Still air ambient around Driver)	-30 to +70	°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)	10.8	15.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	**Vin + 1	65	Vdc
Icntl	LED Intensity Control Voltage	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 = +12.0V, Vf = 65V, # of Channels = 6, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	78	82	87	Vdc
Iout	Output Current per Channel		95	100	105	mAdc
Iadj	Nominal Output Current Adjust Range Per Channel	Icntl(Pin 10) <= 0.25V, or PWMcntl(Pin 10) = 0%	0			mAdc
		Icntl(Pin 10) >= 4.75V, or PWMcntl(Pin 10) = 100%			100	mAdc
PWMhi	PWM High Signal Level (V _{IH})		4.75			Vdc
PWMlo	PWM Low Signal Level (V _{IL})				0.25	Vdc
ENoff	Enable Control, Unit Off				0.5	Vdc
ENon	Enable Control, Unit ON		2.0			Vdc
+5Vref	+5V Output Reference Voltage	1K Ohm Load to Ground (Pin 13)	4.75	5.0	5.25	Vdc
Iin	Input Current Draw			3.7		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V			0.06	Adc
Eff	Electrical Efficiency			87		%

Number of Channels Connected	1*	2*	3*	4	5	6
Maximum Output Current per Channel (mA)	600	300	200	150	120	100

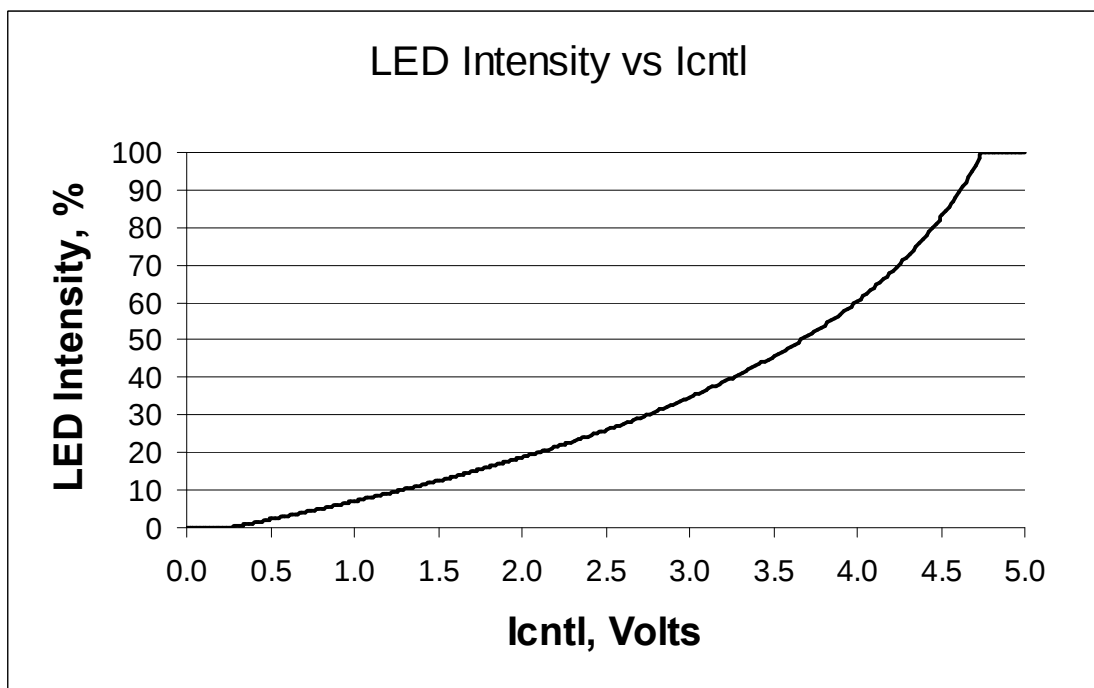
Table 1 - Maximum Output Current per Channel, based on the number of channels connected

Pin 6 of CON2 is the Master Channel and must always be used.



*When using 3 channels or less, use 2 output channels in parallel to lower the current on each pin

BRIGHTNESS CURVE



INPUT AND OUTPUT CONNETOR PIN ASSIGNMENTS

INPUT CONNECTOR CON1 MOLEX 87438-1443	OUTPUT CONNECTOR CON2 MOLEX 53261-1071	OUTPUT CONNECTOR CON3 MOLEX 53261-1071
PIN# FUNCTION 1 +10.8 to +15.0V (PWR) 2 +10.8 to +15.0V (PWR) 3 +10.8 to +15.0V (PWR) 4 +10.8 to +15.0V (PWR) 5 GND (PWR) 6 GND (PWR) 7 GND (PWR) 8 GND (PWR) 9 ENABLE 10 ICNTL 11 TBD 12 TBD 13 +5VDC REF OUT 14 GND (SIGNAL OUT)	PIN# FUNCTION 1 +LED (ANODE) 2 +LED (ANODE) 3 +LED (ANODE) 4 NC 5 NC 6 -LED (CATHODE #1) Master Channel* 7 -LED (CATHODE #2) 8 -LED (CATHODE #3) 9 NC 10 NC	PIN# FUNCTION 1 +LED (ANODE) 2 +LED (ANODE) 3 +LED (ANODE) 4 NC 5 NC 6 -LED (CATHODE #4) 7 -LED (CATHODE #5) 8 -LED (CATHODE #6) 9 NC 10 NC

* The Master Channel must always be used.