

ACI-2820A

PRODUCT DATA SHEET

08/14/17

I-DRIVE 5, 28.8 WATT LED DRIVER

(Four Channel 60V, 0-120mA per Channel)

GENERAL DESCRIPTION

The ACI-2820A represents the 5th generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving up to 4 banks of series connected LEDs with a forward voltage drop up to 60V. This driver provides a complete integrated solution that is regulated over an input voltage range from +23.0 to +28.8V.

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 = 35.7 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 3.25 IN x 2.00 IN x 0.47 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.128 IN diameter (X2)

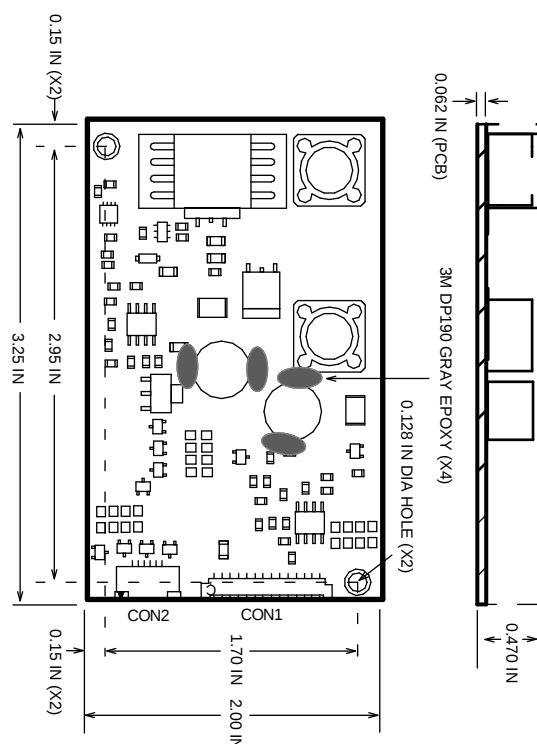
Input Power & Control Connector = CON1

LED Output Connector = CON2

Specified Components secured with 3M DP190 Gray Epoxy

Entire Assembly Conformally Coated with Humiseal 1B73

RoHS Compliant



INPUT CONNECTOR
CON1
MOLEX 53261-1471

OUTPUT CONNECTOR
CON2
MOLEX 52207-0685

PIN# FUNCTION

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1 +19.2 to +28.8V (PWR)
 2 +19.2 to +28.8V (PWR)
 3 +19.2 to +28.8V (PWR)
 4 +19.2 to +28.8V (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)

1 - LED (CATHODE1) Master*
 2 - LED (CATHODE2)
 3 + LED (ANODE)
 4 + LED (ANODE)
 5 - LED (CATHODE3)
 6 - LED (CATHODE4)

*The Master Channel must always be used

CON2 IS A FLEX FOIL CONNECTOR
WITH 1MM PITCH AND MAKES TOP
CONTACT WITH FLEX FOIL CABLE

FLEX FOIL OUTPUT CABLE P/N: 27-R0110
6 POS, 1MM PITCH, 10 INCH LENGTH

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.7 to 30	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)	37.8	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)	23.0	28.8	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	**Vin + 1	60	Vdc
Icntl	LED Intensity Control Voltage	0.25	4.75	Vdc

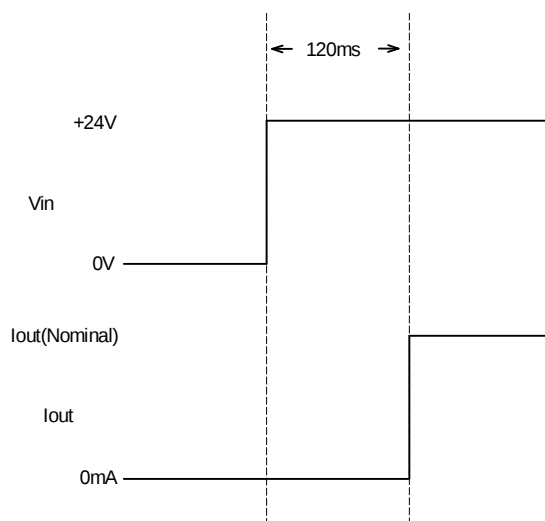
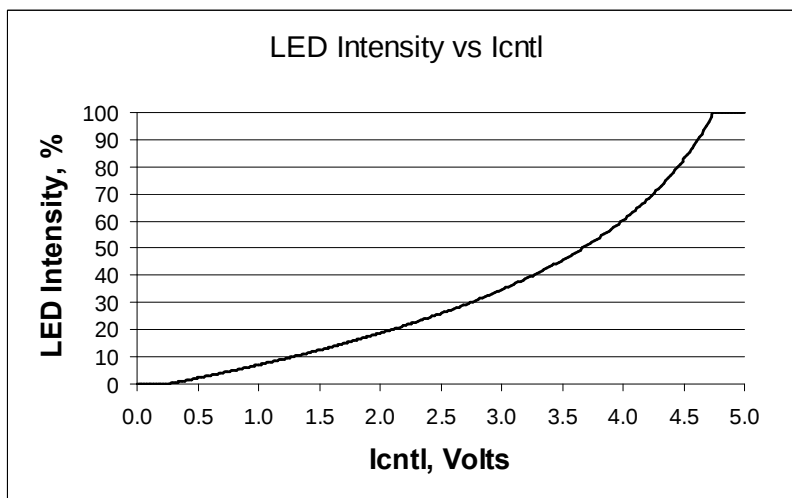
**Vin must be less than the minimum Forward-Drop Voltage (Vf).

ELECTRICAL CHARACTERISTICS

Vin = +24V, Vf = 60V 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	65	72	79	Vdc
Iout	Output Current per Channel		114	120	126	mAdc
Iadj	Nominal Output Current Adjust Range	Icntl(Pin 10)= +0.25V to +4.75V	0		120	mAdc
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			1.38		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V			0.06	Adc
tr	Recovery Time			120		ms
Eff	Electrical Efficiency			87		%

CAUTION: For proper LED Current, all four channels must be connected.



TIMING DIAGRAM – Recovery Time from the time +24V V_{in} is applied to the input of the LED Driver to the time nominal output current is achieved.