

### I-DRIVE 5, 24.6 WATT LED DRIVER (Single Channel 120V, 0-205mA)

#### GENERAL DESCRIPTION

The ACI-E120205-2033 represents the 5<sup>th</sup> generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving one bank of series connected LEDs with a forward voltage drop up to 120V. This driver provides a complete integrated solution that is regulated over an input voltage range from +10V to +15V.

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

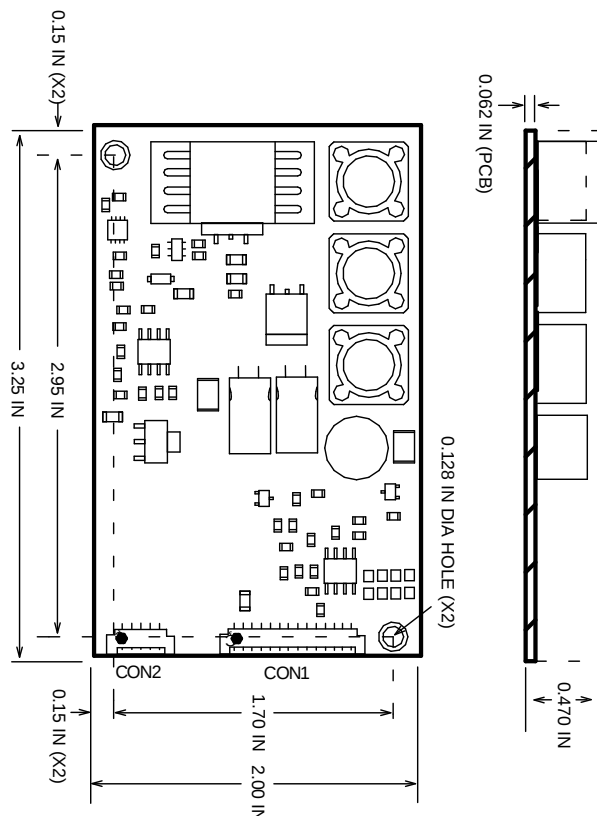
PCB thickness = 0.062 IN

Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

RoHS Compliant



#### INPUT CONNECTOR

CON1

MOLEX 53261-1471

#### OUTPUT CONNECTOR

CON2

MOLEX 53261-0571

#### PIN# FUNCTION

|    |                              |
|----|------------------------------|
| 1  | +10 to +15V (PWR)            |
| 2  | +10 to +15V (PWR)            |
| 3  | +10 to +15V (PWR)            |
| 4  | +10 to +15V (PWR)            |
| 5  | GND (PWR)                    |
| 6  | GND (PWR)                    |
| 7  | GND (PWR)                    |
| 8  | GND (PWR)                    |
| 9  | ENABLE                       |
| 10 | ICNTL / PWMcntl              |
| 11 | NC (RESERVED FOR FUTURE USE) |
| 12 | NC (RESERVED FOR FUTURE USE) |
| 13 | +5VDC REF OUT                |
| 14 | GND (SIGNAL)                 |

#### PIN# FUNCTION

|   |                 |
|---|-----------------|
| 1 | + LED (ANODE)   |
| 2 | + LED (ANODE)   |
| 3 | NC              |
| 4 | - LED (CATHODE) |
| 5 | - LED (CATHODE) |

### 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)       | 33          | 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  |
| VinShutDown | Supply Voltage Shut Down (Referenced to Ground)              | 9.3       | 9.7  | Vdc  |
| Vf          | Series Connected Cumulative LED Forward-Drop Voltage         | **Vin + 1 | 120  | Vdc  |
| Icntl       | LED Intensity Control Voltage Range (User Supplied Input)    | 0.5       | 4.5  | 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 = 120V, Icntl = +4.5V, Enable = +5V, +5Vref = +5.0V, unless otherwise specified.

| Symbol | Parameter                                | Test Conditions                                  | Min  | Nom | Max  | Unit |
|--------|------------------------------------------|--------------------------------------------------|------|-----|------|------|
| OCV    | Open Circuit Voltage                     | No Load                                          | 125  | 135 | 145  | Vdc  |
| Iout   | Output Current                           |                                                  | 195  | 205 | 215  | mAdc |
| Iadj   | Nominal Output Current Adjust Range      | Icntl(Pin 10) <= +0.5V or PWMcntl(Pin 10) = 0%   | 0    |     |      | mAdc |
|        |                                          | Icntl(Pin 10) >= +4.5V or PWMcntl(Pin 10) = 100% |      |     | 205  | mAdc |
| PWMhi  | PWM High Signal Level (V <sub>IH</sub> ) |                                                  | 4.5  |     |      | Vdc  |
| PWMlo  | PWM Low Signal Level (V <sub>IL</sub> )  |                                                  |      |     | 0.5  | 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                       |                                                  |      | 2.4 |      | Adc  |
| Iind   | Input Current Draw (Disabled)            | Enable (Pin 9) = 0V                              |      |     | 0.06 | Adc  |
| Eff    | Electrical Efficiency                    |                                                  |      | 85  |      | %    |

