

## PRODUCT DATA SHEET

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### I-DRIVE 5, 19.2 WATT LED DRIVER (40V, 8 Channels, 0-60mA per Channel)

#### GENERAL DESCRIPTION

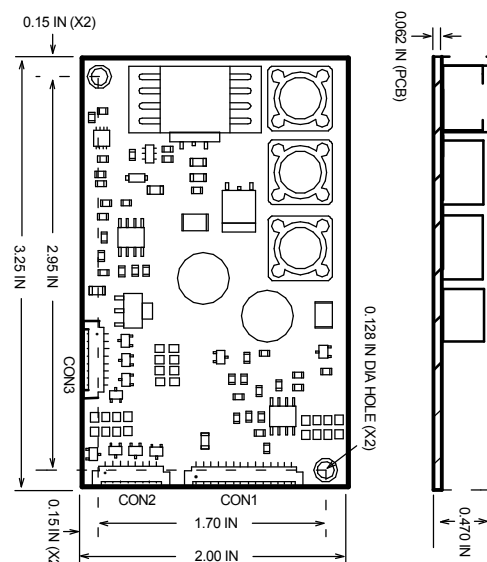
The ACI-E040480-2030 represents the 5<sup>th</sup> generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving up to 8 parallel banks of series connected LEDs with a forward voltage drop up to 40V. This driver provides a complete integrated solution that is regulated over an input voltage range from +10V to +18V.

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.



INPUT CONNECTOR  
CON1  
MOLEX 53261-1471

| PIN# | FUNCTION          |
|------|-------------------|
| 1    | +10 to +18V (PWR) |
| 2    | +10 to +18V (PWR) |
| 3    | +10 to +18V (PWR) |
| 4    | +10 to +18V (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)      |

OUTPUT CONNECTOR  
CON2  
MOLEX 53261-0871

| PIN# | FUNCTION                  |
|------|---------------------------|
| 1    | + LED (ANODE)             |
| 2    | + LED (ANODE)             |
| 3    | + LED (ANODE)             |
| 4    | + LED (ANODE)             |
| 5    | - LED (CATHODE 1) Master* |
| 6    | - LED (CATHODE 2)         |
| 7    | - LED (CATHODE 3)         |
| 8    | - LED (CATHODE 4)         |

\*The Master Channel must always be used.

OUTPUT CONNECTOR  
CON3  
MOLEX 53261-0871

| PIN# | FUNCTION          |
|------|-------------------|
| 1    | + LED (ANODE)     |
| 2    | + LED (ANODE)     |
| 3    | + LED (ANODE)     |
| 4    | + LED (ANODE)     |
| 5    | - LED (CATHODE 5) |
| 6    | - LED (CATHODE 6) |
| 7    | - LED (CATHODE 7) |
| 8    | - LED (CATHODE 8) |

#### 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 Connectors = CON2 and CON3

RoHS Compliant

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### 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)       | 25.5        | 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      | 18.0 | Vdc  |
| Vf     | Series Connected Cumulative LED Forward-Drop Voltage | **Vin + 1 | 40   | 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 = +12V, Vf = 40V per channel, # of channels = 8, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

| Symbol | Parameter                           | Test Conditions                    | Min  | Nom  | Max  | Unit |
|--------|-------------------------------------|------------------------------------|------|------|------|------|
| OCV    | Open Circuit Voltage                | No Load                            | 40   | 45   | 50   | Vdc  |
| Iout   | Output Current per Channel          |                                    | 57   | 60   | 63   | mAdc |
| Iadj   | Nominal Output Current Adjust Range | Icntl(Pin 10)=<br>+0.25V to +4.75V | 0    |      | 60   | 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<br>Ground (Pin 13)  | 4.75 | 5.0  | 5.25 | Vdc  |
| Iin    | Input Current Draw                  |                                    |      | 1.84 |      | Adc  |
| Iind   | Input Current Draw (Disabled)       | Enable (Pin 9) = 0V                |      |      | 0.06 | Adc  |
| Eff    | Electrical Efficiency               |                                    |      | 87   |      | %    |

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| Number of Channels Connected            | 1   | 2   | 3   | 4   | 5  | 6  | 7    | 8  |
|-----------------------------------------|-----|-----|-----|-----|----|----|------|----|
| Maximum Output Current per Channel (mA) | 480 | 240 | 160 | 120 | 96 | 80 | 68.6 | 60 |

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

Pin 5 of CON2 is the Master Channel and must always be used.

