

# ACI-2533

## PRODUCT DATA SHEET

07/07/14

### I-DRIVE 5, 19.8 WATT LED DRIVER (Three Channel 55V, 0-120mA per Channel)

#### GENERAL DESCRIPTION

The ACI-2533 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 3 banks of series connected LEDs with a forward voltage drop up to 55V. This driver provides a complete integrated solution that is regulated over an input voltage range from +19.2 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 0.38 IN

PCB thickness = 0.062 IN

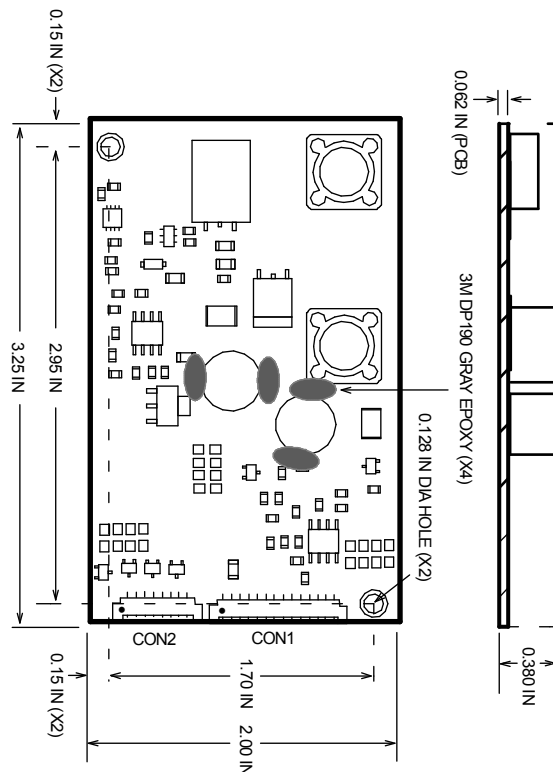
Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

Specified Components secured with 3M DP190 Gray Epoxy

RoHS Compliant



#### INPUT CONNECTOR

CON1

MOLEX 53261-1471

#### PIN# FUNCTION

|    |                       |
|----|-----------------------|
| 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)          |

#### OUTPUT CONNECTOR

CON2

MOLEX 53261-0871

#### PIN# FUNCTION

|   |                         |
|---|-------------------------|
| 1 | + LED (ANODE)           |
| 2 | + LED (ANODE)           |
| 3 | + LED (ANODE)           |
| 4 | + LED (ANODE)           |
| 5 | - LED (CATHODE1)*Master |
| 6 | - LED (CATHODE2)        |
| 7 | - LED (CATHODE3)        |
| 8 | NC                      |

\*The Master channel must always be used.

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### 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)       | 26          | 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)                | 19.2      | 28.8 | Vdc  |
| Vf     | Series Connected Cumulative LED Forward-Drop Voltage | **Vin + 1 | 55   | 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 = 55V per channel, # of channels = 3, Icntl = +4.75V, Enable = +5V, unless otherwise specified.

| Symbol | Parameter                                       | Test Conditions                | Min  | Nom  | Max  | Unit |
|--------|-------------------------------------------------|--------------------------------|------|------|------|------|
| OCV    | Open Circuit Voltage                            | No Load                        | 57   | 62   | 67   | Vdc  |
| Iout   | Output Current per Channel                      |                                | 114  | 120  | 126  | mAdc |
| Iadj   | Nominal Output Current Adjust Range Per Channel | Icntl(Pin 10) <= 0.25V         | 0    |      |      | mAdc |
|        |                                                 | Icntl(Pin 10) >= 4.75V         |      |      | 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                              |                                |      | 0.92 |      | Adc  |
| Iind   | Input Current Draw (Disabled)                   | Enable (Pin 9) = 0V            |      |      | 0.03 | Adc  |
| Eff    | Electrical Efficiency                           |                                |      | 90   |      | %    |

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

