

### I-DRIVE 3, 14.7 WATT LED DRIVER

Dual Mode, 105V, (0-140mA Day), 105V, (0-20mA NVIS)

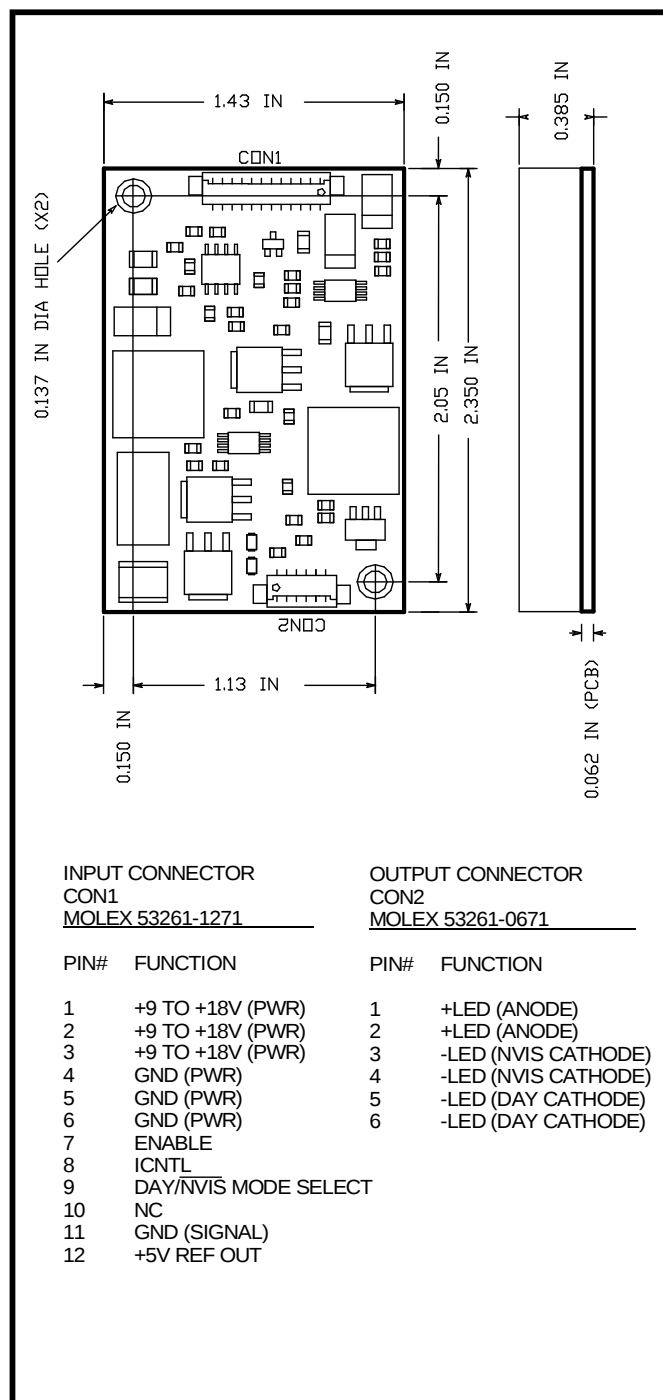
#### GENERAL DESCRIPTION

The ACI-3071 provides a single board LED Driver solution for the powering of a LED backlight consisting of two types of LEDs, High Bright "Day" LEDs, and IR filtered "NVIS" LEDs.

This driver operates as a Dual Mode constant current LED Driver. In "Day" mode, the driver supplies power out of the Day channel, and in the "NVIS" mode, out of the NVIS channel. Mode selection is accomplished via a signal provided by the user on pin 9 of CON1.

The driver is capable of driving series connected LEDs with a forward drop of up to 105V, and operates over an input voltage range of +10V to +18V.

This driver also features an enable and intensity control input with logarithmic output brightness response, yielding a combined dimming range of greater than 10,000 to 1.



#### MECHANICAL/ENVIRONMENTAL

Weight = 20.5 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 2.35 IN x 1.43 IN x 0.385 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.137 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2

PCB Conformally Coated with Humiseal 1B73

RoHS Compliant

### 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)       | 19.5        | 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 (Day or NVIS) | 36   | 105  | Vdc  |
| Icntl  | LED Intensity Control Voltage                                      | 0.1  | 4.6  | Vdc  |

### ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Icntl = +4.6V, Enable = +5V, unless otherwise specified.

| Symbol            | Parameter                               | Test Conditions                | Min  | Nom | Max  | Unit |
|-------------------|-----------------------------------------|--------------------------------|------|-----|------|------|
| OCV               | Open Circuit Voltage                    | No Load                        | 133  | 140 | 147  | Vdc  |
| ENoff             | Enable Control, Unit Off                | Pin 7 <= 0.5V                  |      |     | 0.5  | Vdc  |
| ENon              | Enable Control, Unit ON                 | Pin 7 >= 2.0V                  | 2.0  |     |      | Vdc  |
| Ms                | Mode Select, Day Mode                   | Pin 9 >= 2.0V                  | 2.0  |     |      | Vdc  |
| Ms                | Mode Select, NVIS Mode                  | Pin 9 <= 0.5V                  |      |     | 0.5  | Vdc  |
| +5Vref            | +5V Output Reference Voltage            | 1K Ohm Load to Ground (Pin 12) | 4.75 | 5.0 | 5.25 | Vdc  |
| Iind              | Input Current Draw (Disabled)           | Enable (Pin 7) = 0V            |      | 8   |      | mA   |
| Eff               | Electrical Efficiency                   |                                | 87   |     |      | %    |
| Day Mode, Ms = 5V |                                         |                                |      |     |      |      |
| Iout              | Output Current                          |                                | 133  | 140 | 147  | mA   |
| Iadj              | Nominal Output Current Adjustment Range | Icntl(Pin 8) = +0.1V to +4.6V  | 0    |     | 140  | mA   |
| Iin               | Input Current Draw                      | Vf = 105V                      |      | 1.4 |      | Adc  |

Electricals continued on page 3.

#### ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Icntl = +4.6V, Enable = +5V unless otherwise specified.

| Symbol             | Parameter                               | Test Conditions               | Min | Nom  | Max | Unit |
|--------------------|-----------------------------------------|-------------------------------|-----|------|-----|------|
| NVIS Mode, Ms = 0V |                                         |                               |     |      |     |      |
| Iout               | Output Current                          |                               | 19  | 20   | 21  | mA   |
| Iadj               | Nominal Output Current Adjustment Range | Icntl(Pin 8) = +0.1V to +4.6V | 0   |      | 20  | mA   |
| Iin                | Input Current Draw                      | Vf = 105V                     |     | 0.20 |     | Adc  |

