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# ACI-2584

## PRODUCT DATA SHEET

07/07/16

### I-DRIVE 6, 41.6 WATT LED DRIVER

Dual Range, Eight Channel, 40V  
0-100mA per Channel (Low Range)  
0-130mA per Channel (High Range)

#### GENERAL DESCRIPTION

The ACI-2584 represents the 6<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 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 DC.

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 dual range, enable and intensity control inputs.

#### MECHANICAL/ENVIRONMENTAL

Weight = 50.7 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 5.00 IN x 2.00 IN x 0.540 IN

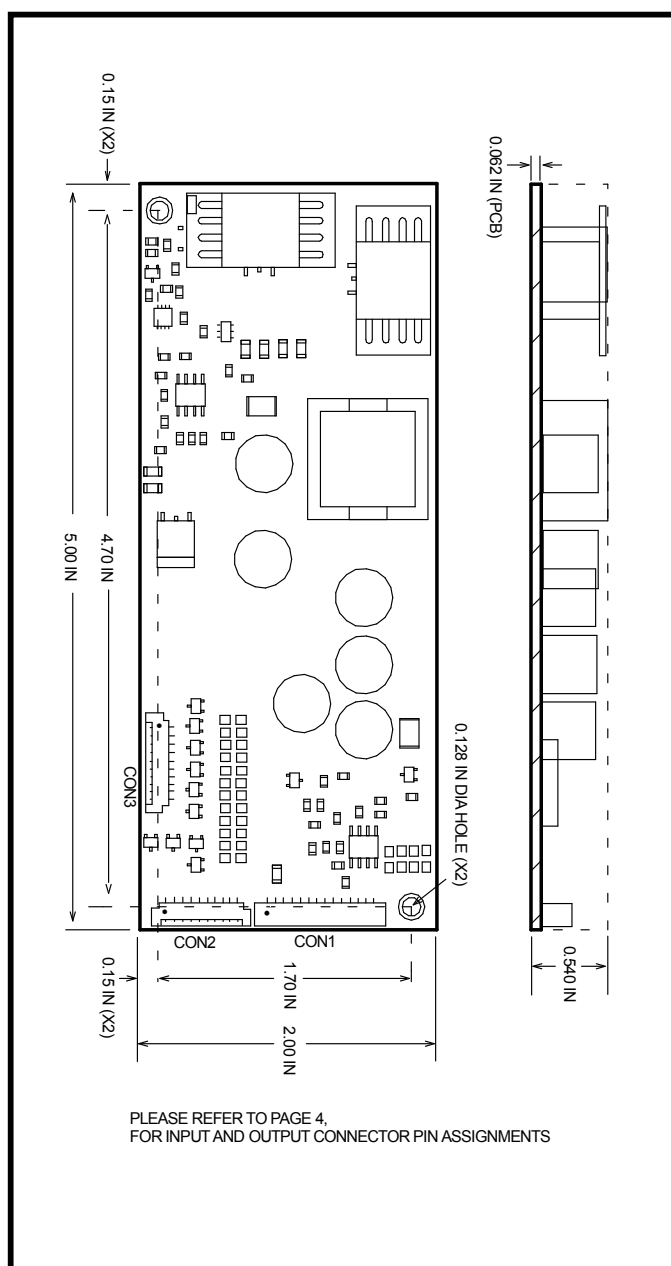
PCB thickness = 0.062 IN

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)       | 54.0        | 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  |
| ENoff  | Enable Control, Unit Off      | Pin 9                          |      |     | 0.5  | Vdc  |
| ENon   | Enable Control, Unit ON       | Pin 9                          | 2.0  |     |      | Vdc  |
| Rs     | Range Select, Hi Range        | Pin 11                         | 2.0  |     |      | Vdc  |
|        | Range Select, Low Range       | Pin 11                         |      |     | 0.5  | Vdc  |
| +5Vref | +5V Output Reference Voltage  | 1K Ohm Load to Ground (Pin 13) | 4.75 | 5.0 | 5.25 | Vdc  |
| Iind   | Input Current Draw (Disabled) | Enable (Pin 9) = 0V            |      |     | 0.06 | Adc  |
| Eff    | Electrical Efficiency         |                                |      | 89  |      | %    |

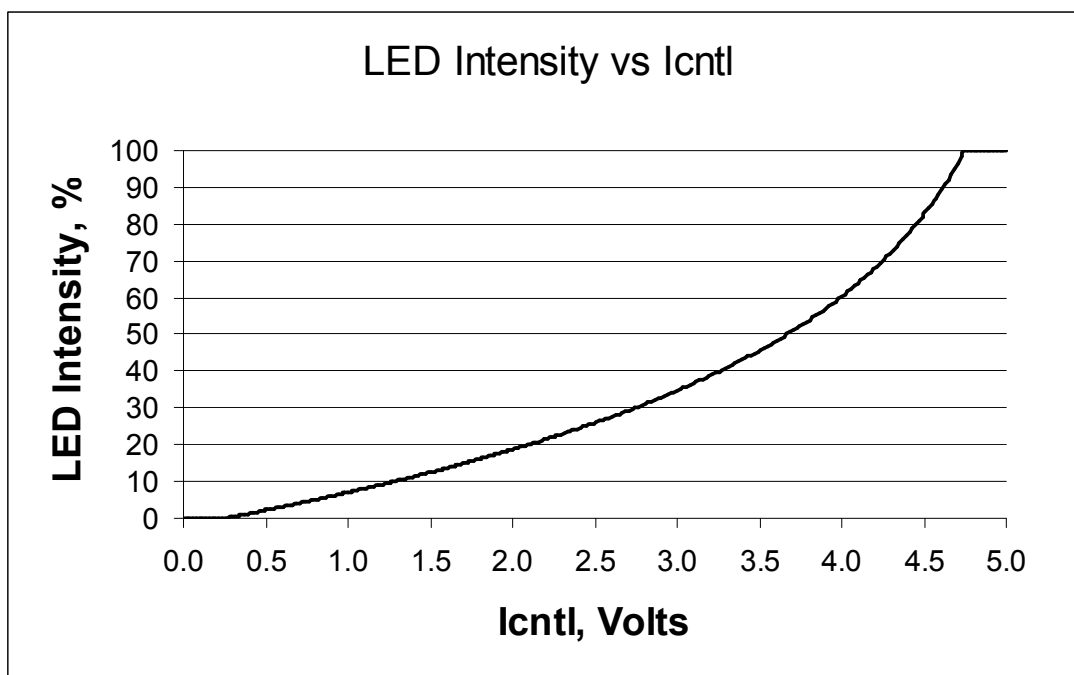
Electricals continued on page 3.

### ELECTRICAL CHARACTERISTICS (Part 2 of 2)

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 |
|------------------------------------------------|-----------------------------------------------------|-------------------------|-----|-----|-----|------|
| <b>Hi Range, Range Select Rs (Pin 11) = 5V</b> |                                                     |                         |     |     |     |      |
| Iout                                           | Output Current per Channel                          |                         | 123 | 130 | 137 | mAdc |
| Iadj                                           | Nominal Output Current Adjustment Range per Channel | Icntl(Pin 10) >= +4.75V |     |     | 130 | mAdc |
|                                                |                                                     | Icntl(Pin 10) <= +0.25V | 0   |     |     | mAdc |
| Iin                                            | Input Current Draw                                  |                         |     | 3.9 |     | Adc  |
| <b>Low Range, Range Select Rs (Pin 11)= 0V</b> |                                                     |                         |     |     |     |      |
| Iout                                           | Output Current per Channel                          |                         | 95  | 100 | 105 | mAdc |
| Iadj                                           | Nominal Output Current Adjustment Range per Channel | Icntl(Pin 10) >= +4.75V |     |     | 100 | mAdc |
|                                                |                                                     | Icntl(Pin 10) <= +0.25V | 0   |     |     | mAdc |
| Iin                                            | Input Current Draw                                  |                         |     | 3.0 |     | Adc  |

### BRIGHTNESS CURVE



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### INPUT AND OUTPUT CONNETOR PIN ASSIGNMENTS

| INPUT CONNECTOR<br>CON1<br>MOLEX 87438-1443 | OUTPUT CONNECTOR<br>CON2<br>MOLEX 53261-1071 | OUTPUT CONNECTOR<br>CON3<br>MOLEX 53261-1071 |
|---------------------------------------------|----------------------------------------------|----------------------------------------------|
| PIN# FUNCTION                               | PIN# FUNCTION                                | PIN# FUNCTION                                |
| 1 +10 to +18V (PWR)                         | 1 NC                                         | 1 NC                                         |
| 2 +10 to +18V (PWR)                         | 2 +LED (ANODE)                               | 2 +LED (ANODE)                               |
| 3 +10 to +18V (PWR)                         | 3 +LED (ANODE)                               | 3 +LED (ANODE)                               |
| 4 +10 to +18V (PWR)                         | 4 +LED (ANODE)                               | 4 +LED (ANODE)                               |
| 5 GND (PWR)                                 | 5 +LED (ANODE)                               | 5 +LED (ANODE)                               |
| 6 GND (PWR)                                 | 6* -LED (CATHODE #1) (MASTER*)               | 6 -LED (CATHODE #5)                          |
| 7 GND (PWR)                                 | 7 NC                                         | 7 NC                                         |
| 8 GND (PWR)                                 | 8 -LED (CATHODE #2)                          | 8 -LED (CATHODE #6)                          |
| 9 ENABLE                                    | 9 -LED (CATHODE #3)                          | 9 -LED (CATHODE #7)                          |
| 10 ICNTL                                    | 10 -LED (CATHODE #4)                         | 10 -LED (CATHODE #8)                         |
| 11 HI/LOW RANGE SELECT                      |                                              |                                              |
| 12 TBD                                      |                                              |                                              |
| 13 +5VDC REF OUT                            |                                              |                                              |
| 14 GND (SIGNAL OUT)                         |                                              |                                              |



\*Pin 6 of CON2 is the Master Channel and must always be used.



Due to high output current per channel, all eight channels must be used.

Output Cable Assembly P/N 27-R0118  
(2 per Display)

Displays:  
Mitsubishi AA190EA01 19" (MODE SELECT = 5V)  
Mitsubishi AA150XT11 15" (MODE SELECT = 0V)

