



397 Route 281
Tully, New York 13159
Phone: 315 696-6676
Fax: 315 696 9923
Email: sales@acipower.com
www.acipower.com

I-DRIVE 5, 35 WATT LED DRIVER

(Single Channel 70V, 0-500mA
With Day and Night Brightness Control Range)

GENERAL DESCRIPTION

The ACI-2685 represents the 5th 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 70V. 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

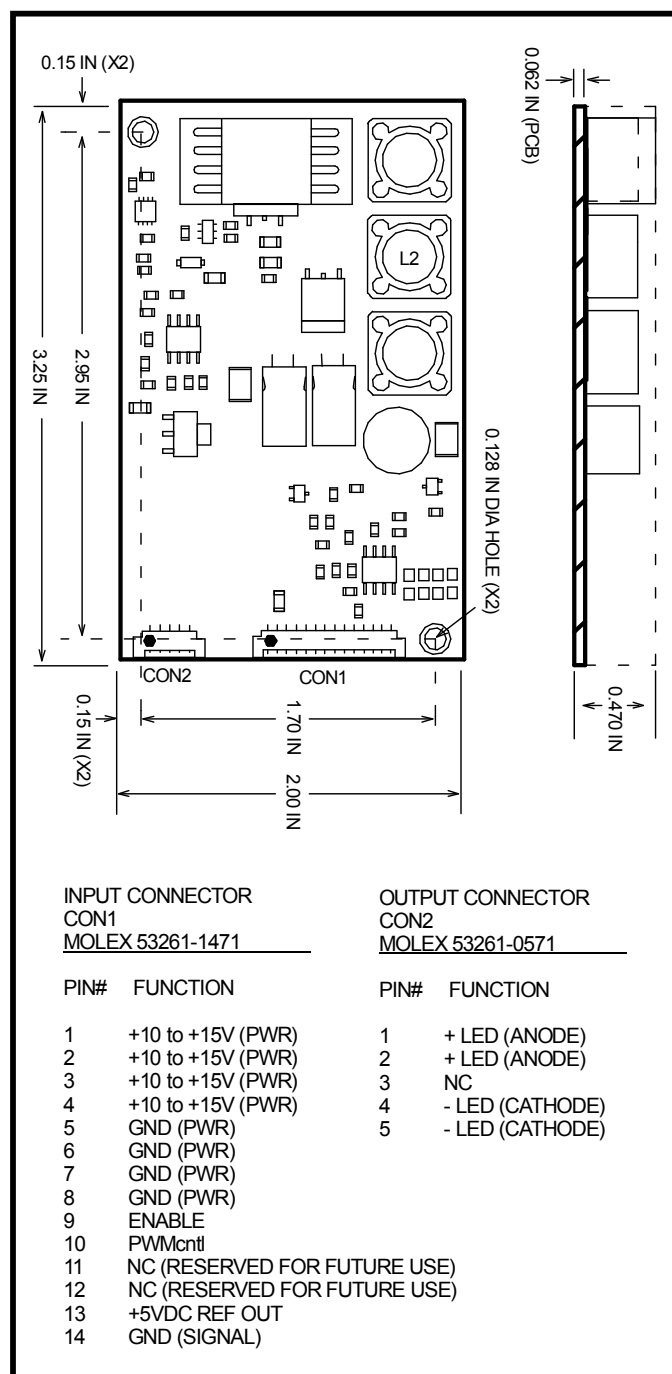
LED Output Connector = CON2

RoHS Compliant

ACI-2685

PRODUCT DATA SHEET

06/28/16



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)	45.4	W
Top ¹	Operating Temperature (Measured at Top of Inductor L2)	-30 to +85	°C
Tstg	Storage Temperature	-40 to +105	°C

*Maximum Ratings are those values beyond which damage to the driver may occur.

¹ Adequate thermal management of driver must be provided.

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	70	Vdc
PWMcntl	Intensity Control PWM Duty-Cycle Range (User Supplied Input)	0	100	%
PWMfreq	Intensity Control PWM Frequency Range (User Supplied Input)	238	262	Hz

**Vin must be less than the minimum Forward-Drop Voltage (Vf).

ELECTRICAL CHARACTERISTICS (Part 1 of 2)

Vin = +12V, Vf = 70V, PWMcntl = 100%, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	78	82	86	Vdc
PWMhi	PWM High Signal Level (V _{IH})		2.0			Vdc
PWMlo	PWM Low Signal Level (V _{IL})				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)	4.95	5.0	5.05	Vdc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V			0.06	Adc
Eff	Electrical Efficiency			85		%

Electricals continued on page3.

PRODUCT DATA SHEET

06/28/16

ELECTRICAL CHARACTERISTICS (Part 2 of 2)

Vin = +12V, Vf = 70V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
Day Brightness Control Range						
Iout	Output Current	PWMcntl (Pin 10) >= 46.7% and PWMcntl (Pin 10) <= 48.6%	475	500	525	mAdc
Iadj	Nominal Output Current Adjust Range	PWMcntl(Pin 10) <= 9.8%	0			mAdc
		PWMcntl (Pin 10) >= 46.7% and PWMcntl (Pin 10) <= 48.6%			500	mAdc
Iin	Input Current Draw	PWMcntl (Pin 10) >= 46.7% and PWMcntl (Pin 10) <= 48.6%		3.4		Adc
Night Brightness Control Range						
Iout	Output Current	PWMcntl (Pin 10) >= 67.9% and PWMcntl (Pin 10) <= 69.8%	9.1	9.6	10.1	mAdc
Iadj	Nominal Output Current Adjust Range	PWMcntl (Pin 10) >= 49.0% and PWMcntl (Pin 10) <= 49.8%	0			mAdc
		PWMcntl (Pin 10) >= 67.9% and PWMcntl (Pin 10) <= 69.8%			9.6	mAdc
Iin	Input Current Draw	PWMcntl (Pin 10) >= 67.9% and PWMcntl (Pin 10) <= 69.8%		0.07		Adc
Additional Control Values						
Iadj	Nominal Output Current Values	PWMcntl (Pin 10) >= 70.2% and PWMcntl (Pin 10) <= 93.7%		0		mAdc
		PWMcntl (Pin 10) >= 94.2%		500		mAdc

