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I-LITE, 10.8 WATT LED DRIVER

(Common-Cathode, One to Six Channels, 45V)

GENERAL DESCRIPTION

The ACI-2790 is designed to drive up to 6 parallel channels of series connected LEDs with a forward voltage drop up to 45V.

The number of channels and current per channel are configurable per Table 1 on Page 3, by setting a four-position on-board switch, enabling the driver to support a wide range of displays.

Operating as a true constant current source, this driver provides a complete integrated solution that operates over an input voltage range from +10V to +18V.

Simple to connect and operate, this driver is capable of providing precise control to support dimming applications with a minimum of 3000:1.

This unit features enable and intensity control inputs and is designed to work with the Digital View LCD Controller and Button Board (see page 3 for more information).

MECHANICAL/ENVIRONMENTAL

Weight = 8.4 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

Size (L x W x H) = 2.0 IN x 0.95 IN x 0.530 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.120 IN diameter (X2)

Input Power & Control Connector = CON1

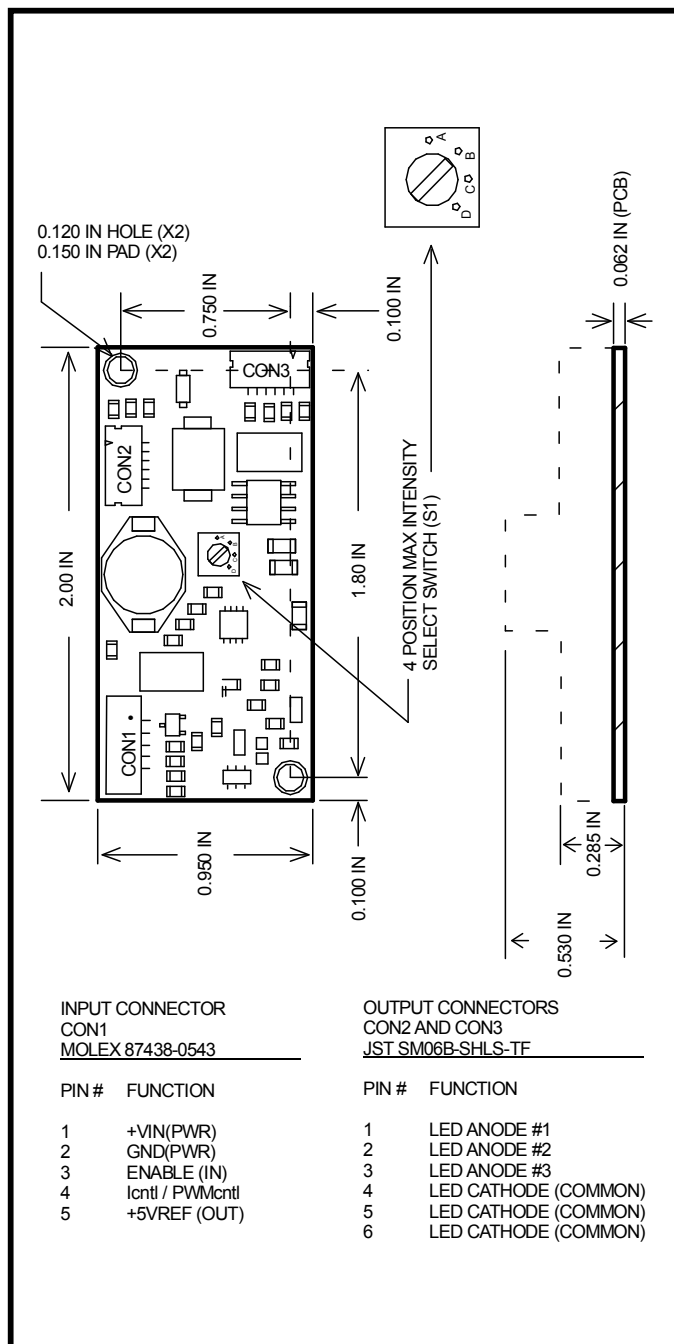
LED Output Connectors = CON2 and CON3

RoHS Compliant

ACI-2790

PRODUCT DATA SHEET

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MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Vin	Supply Voltage (Referenced to Ground)	-0.3 to 19	Vdc
Vip	Voltage applied to any Input Pin (Referenced to Ground)	-0.3 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)	14.2	W
Top	Operating Temperature (Still air ambient around Driver)	-30 to +70	°C
Tstg	Storage Temperature	-40 to +105	°C

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

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Test Condition	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)		10.0	18.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage		Vin+1	36	Vdc
		Switch S1 = D	Vin+1	45	Vdc
Icntl	LED Intensity Control Voltage		0.1	4.6	Vdc
PWMcntl	Intensity Control PWM Duty-Cycle Range (User Supplied Input)		0	100	%
PWMfreq	Intensity Control PWM Frequency Range (User Supplied Input)		100	3000	Hz

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

ELECTRICAL CHARACTERISTICS

Vin = +12V, Vf= 36V, Number of Channels = 6, Icntl = +0.1V, Enable = +5V, unless otherwise specified.

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	45	50	55	Vdc
Iout-a	Output Current per Channel, Setting A	Switch S1 = A	47.5	50	52.5	mAdc
Iout-b	Output Current per Channel, Setting B	Switch S1 = B	39.6	41.7	43.8	mAdc
Iout-c	Output Current per Channel, Setting C	Switch S1 = C	23.8	25	26.3	mAdc
Iout-d	Output Current per Channel, Setting D	Switch S1 = D	7.9	8.3	8.7	mAdc
Iadj	Brightness Intensity Adjustment Range	Icntl (Pin4) <= 0.1V			50	mAdc
		Icntl (Pin4) >= 4.6V	0			mAdc
PWMhi	PWM High Signal Level (V _{IH})		4.6			Vdc
PWMlo	PWM Low Signal Level (V _{IL})				0.1	Vdc

ELECTRICAL CHARACTERISTICS (Continued)

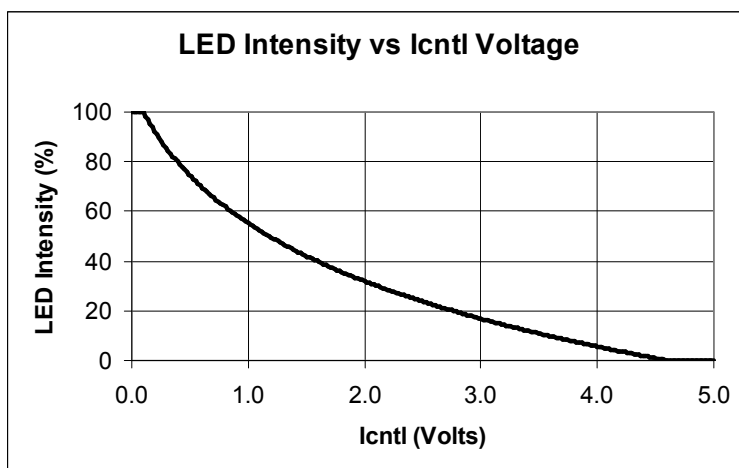
Vin = +12V, Vf = 36V, Number of Channels = 6, Ictrl = +0.1V, Enable = +5V, unless otherwise specified.

ENoff	Enable Control, Unit Off	Enable (Pin 3)			0.5	Vdc
ENon	Enable Control, Unit ON	Enable (Pin 3)	2.0			Vdc
+5Vref	+5V Output Reference Voltage	1K Ohm Load to Ground (Pin 5)	4.75	5.0	5.25	Vdc
Iin	Input Current Draw	Switch S1 = A		1.0		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 3) = 0V		0.001	0.06	Adc
Eff	Electrical Efficiency			87		%

Possible Configurations

Switch Setting (S1)	Number of LED Channels Connected					
	1	2	3	4	5	6
	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)	Iout/ch (mA)
A	300	150	100	75	60	50
B	250	125	83	62.5	50	41.7
C	150	75	50	37.5	30	25
D	50	25	16.7	12.5	10	8.3

TABLE1. – Output Current per Channel, based on Switch (S1) Setting and Number of Channels Connected.



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NOTE: The intensity response curve is designed to be compatible with the Digital View LCD Controller and Button Board.

Digital View LCD Controllers and Jumper Settings

LCD Controller	Jumper Settings
ALR-1400	(JB2 = 2-3) (JB3 = 1-2) (JP2 = 1-2)
ALR-1920	(JB1 = 2-3) (JB2 = 2-3) (JB3 = 1-2) (JB5 = 1-2)
DVS-1600	(JB1 = 2-3) (JB2 = 2-3) (JB3 = 1-2) (JB5 = 1-2)
SP-1600	(JB2 = 2-3) (JB3 = 1-2) (JP3 = 1-2)
SVH-1920	(JB2 = 2-3) (JB3 = 1-2) (JP3 = 1-2)

Driving NEC Panels with the ACI-2433 LED Driver

NEC Panel P/N	Size Inches	# of Channels	Vf(V) Min - Max	Current per Channel (mA) Typ.	ACI LED Driver	Switch Setting (S1)	Output Cable Assembly
NL10276BC30-34D	15.0	6	21.4 - 33.2	50	ACI-2433	A	27-R0156
NL10276BC24-21F	12.1	5	21.2 - 30.1	50	ACI-2433	B	27-R0175
NL8060BC31-47D	12.1	3	21.6 - 34.4	50	ACI-2433	C	27-R0176
NL6448BC20-30D	6.5	3	9.8 - 15.1	50	ACI-2433	D	27-R0177*

* Output cable assembly 27-R0177 connects the three channels in series.

DV Input Cable Assembly 27-R0157 is used to control the ACI-2433 with the DV LCD Controller.