RADIANCE™
SUNLIGHT READABLE LED DISPLAYS

RAD-150CHXG1

04/22/10

15.0" XGA LED BACKLIT TFT DISPLAY SOLUTION

SOLUTION OVERVIEW:

The **RAD-150CHXG1 Display** consists of the 15.0" Chi Mei CMO G150X1-L03 XGA TFT LCD Display complete with a high performance LED backlight.

Display Features:

- Sunlight readable LCD panel with high efficiency solid state LED backlight
- **1700 cd/m^2 with 23W**, Sunlight Readable
- Ideal for demanding Industrial, Military and Marine applications, as well as Outdoor Kiosks, POS, and Gas Pumps
- Highly reliable LED backlight configuration provides light-source redundancy
- Includes LED driver with ultra-wide dimming range
- Exceeds performance of comparable CCFL backlight by 1.5 to 1
- RoHS Compliant

Sunlight Readability/Cool Operation

SOLUTION INCLUDES:

QTY	P/N	DESCRIPTION
1	ACD-CH150-1904	15.0" XGA TFT LCD Display with High-Performance LED Backlight
1	ACI-E120250-1918	LED Driver
1	27-R0061	Input Cable Assembly

Also available: LCD Controller, LVDS Cable, OSD and Cable.

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Applied Concepts
INNOVATION IN POWER CONVERSION TECHNOLOGY
ISO 9001:2000
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DISPLAY SPECIFICATIONS

Panel Manufacturer	Chi Mei
Manufacturer's Part Number	G150X1-L03
Size	15.0"
Resolution	XGA 1,024 x RGB x 768
Contrast Ratio	700:1 (typical)
Pixel Pitch	0.297 (H) x 0.297 (V) mm
Operating Temperature Range	-30 to +80° C
Response Time	17ms (typical)
Viewing Angle	160° (Horizontal), 160° (Vertical)
Panel Power (not including backlight)	2.06W
Interface	LVDS 1port
Display Colors	16.2M colors
Surface Treatment, Polarizer surface	AntiGlare
Surface Treatment, Polarizer pencil-hardness	3H
Display Mode	Positive

For complete LCD specifications (standard panel), refer to Chi Mei CMO G150X1-L03 datasheet dated 2008-11-12.

BACKLIGHT SPECIFICATIONS

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
Top	Operating temperature of display (center of panel surface)	-30 to +80	°C
Tled	Operating temperature of LED edge light (light rail contact)	-30 to +80	°C
Tstg	Display storage temperature	-40 to +85	°C
Ifwd	LED forward current	125	mADC

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

PANEL/BACKLIGHT OPTICAL CHARACTERISTICS

Ifwd = 62.5mA per bank (Dual Rail Set ACR-0924-1920, 2 banks per rail, 2 rails per Dual Rail Set, 1 Dual Rail Set per Display), Ta = +25° C, LCD un-powered

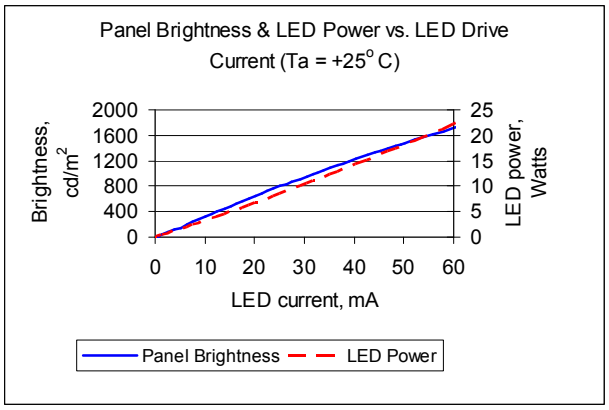
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Bp	Panel Brightness		1530	1700	1870	cd/m^2
X	White X coordinate			0.329		-
Y	White Y coordinate			0.378		-

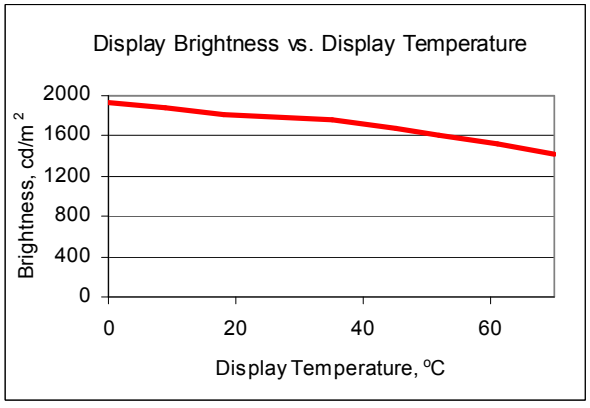
LED EDGE-LIGHT ELECTRICAL CHARACTERISTICS

Ifwd = 62.5mA per bank (Dual Rail Set ACR-0924-1920, 2 banks per rail, 2 rails per Dual Rail Set, 1 Dual Rail Set per Display, Top = +25° C

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Vfwd	LED rail forward voltage drop		82	92	102	Vdc

TYPICAL LCD/LED BACKLIGHT PERFORMANCE GRAPHS





LED DRIVER SPECIFICATIONS

I-DRIVE, 30 WATT LED DRIVER

(Dual Channel 120V, 0-125mA)

GENERAL DESCRIPTION

The ACI-E120250-1918 represents the 5th generation of I-Drive technology used for powering LED backlights.

Operating as a true constant current source and capable of driving up to 40 LEDs in series. This driver provides a complete integrated solution that is regulated over an input range of +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 = 33.2 grams

Altitude = 35,000 ft max.

Humidity < 95% non-condensing

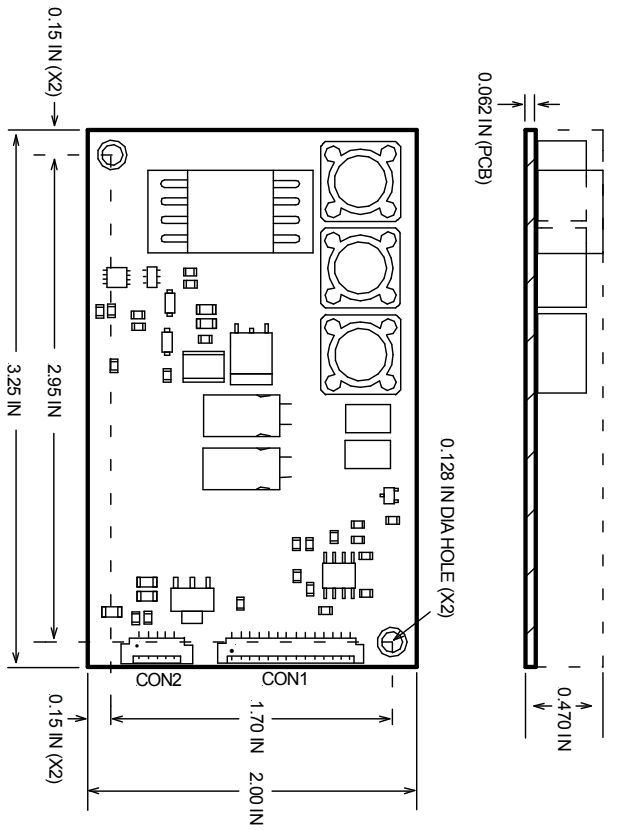
Size (L x W x H) = 3.25 IN x 2.00 IN x 0.47 IN

PCB thickness = 0.062 IN

Mounting Holes = 0.128 IN diameter (X2)

Input Power & Control Connector = CON1

LED Output Connector = CON2



INPUT CONNECTOR
CON1
MOLEX 53261-1471

PIN#	FUNCTION
1	+10 to +15V (PWR)
2	+10 to +15V (PWR)
3	+10 to +15V (PWR)
4	+10 to +15V (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 53261-0571

PIN#	FUNCTION
1	+ LED (ANODE)
2	+ LED (ANODE)
3	NC
4	- LED (CATHODE)
5	- LED (CATHODE)

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LED DRIVER SPECIFICATIONS

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)	35	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

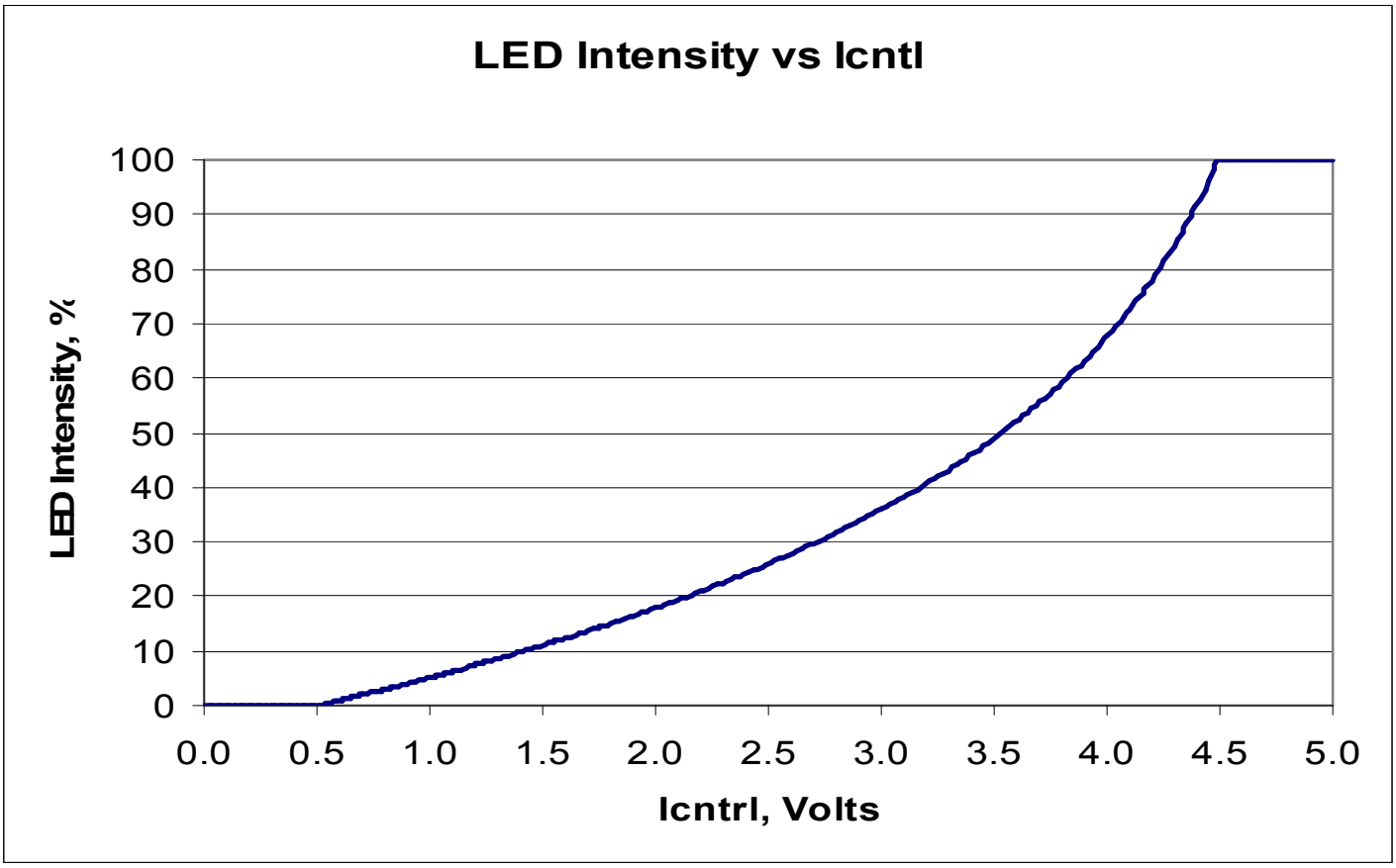
Symbol	Parameter	Min	Max	Unit
Vin	Supply Voltage (Referenced to Ground)	10.0	15.0	Vdc
Vf	Series Connected Cumulative LED Forward-Drop Voltage	36	110	Vdc
Icntl	LED Intensity Control Voltage	0.5	4.5	Vdc

ELECTRICAL CHARACTERISTICS

Vin = +12V, Vf = 110Vdc, Icntl = +4.5V, Enable = +5V unless otherwise specified

Symbol	Parameter	Test Conditions	Min	Nom	Max	Unit
OCV	Open Circuit Voltage	No Load	133	140	147	Vdc
Iout	Output Current (Per Channel)		118.7	125	131.2	mAdc
Iadj	Nominal Output Current Adjust Range (Per Channel)	Icntl(Pin 10)= +0.5V to +4.5V	0		125	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			2.6		Adc
Iind	Input Current Draw (Disabled)	Enable (Pin 9) = 0V			0.06	Adc
Eff	Electrical Efficiency		88			%

LED DRIVER SPECIFICATIONS



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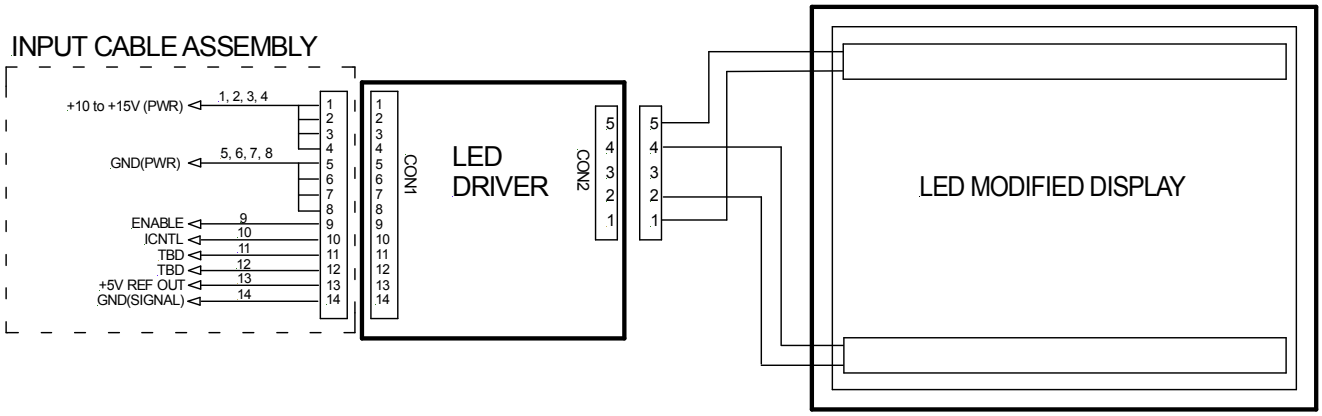
APPLICATION NOTES

Connection Diagram:



1. If Enable (PIN 9) is not used, it can be left electrically floating.

2. If no dimming is required, connect Icntl (PIN 10) to +5V REF OUT (PIN 13).

3. If dimming is required, the +5V REF OUT (PIN 13) may be used for high-side of Intensity Control Potentiometer. A 10K Ohm Potentiometer is recommended.

Connecting 10K Ohm Potentiometer used for Dimming