



Endicott Research Group, Inc.

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Specifications and Applications Information

10/11/05

Preliminary

The ERG P443254 inverter was specifically designed to power the Sharp LQ080V3DG01 display from a regulated +5 volt DC source.

This inverter may be dimmed using an external pulse width modulated control signal.

- √ PCB Mountable
- √ High Efficiency
- √ Fully Encapsulated
- √ External Control and PWM Dimming
- √ Designed, Manufactured and Supported in the USA
- √ One Year Warranty

Pin Descriptions

J1-1 Vin
 J1-2 GND
 J1-3 Enable (GND = ON)
 J1-4 ACout
 J1-8 ACcommon

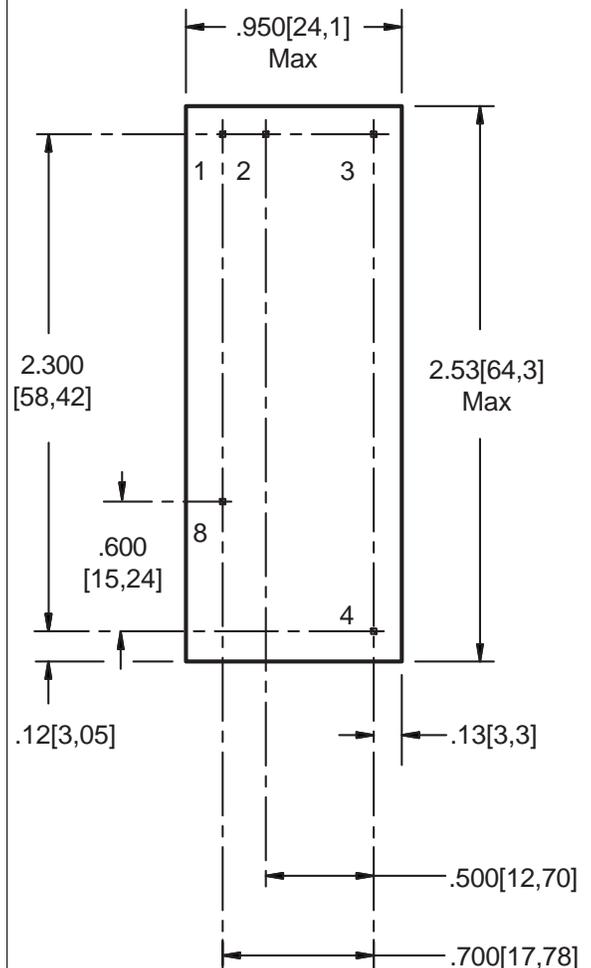
P443254

One Lamp
DC to AC Inverter



P44 Package

Package Configuration



Inverter shown with pins pointing up.



P443254

Absolute Maximum Ratings (Note 1)

Rating	Symbol	Value	Units
Input Voltage Range	Vin	-0.3 to +5.5	Vdc
Operating Temperature <small>(Note 2)</small>	To	-30 to +70	°C
Storage Temperature	Tstg	-40 to +85	°C

Recommended Operating Conditions

Rating	Symbol	Value	Units
Input Voltage	Vin	+4.50 to 5.25	Vdc

Electrical Characteristics

Unless otherwise noted Vin = 5.00 Volts dc and Ta = 25°C

Characteristic	Symbol	Min	Typ	Max	Units
Input Current	Iin	-	1.44	1.70	Adc
Operating Frequency	Fo	24	29	34	KHz
Minimum Output Voltage <small>(Note 3)</small>	Vout (min)	2300	-	-	Vrms
Efficiency	-	-	76	-	%
Output Current per CCFL	Iout	-	6.6	-	marms
Output Voltage (When powering a load simulating the referenced display)	Vout	-	860	-	Vrms
Enable (pin J1-3)					
Turn-Off Threshold	V thoff	2.0	-	5.5	V
Turn-On Threshold	V thon	GND	-	0.8	V
Input Impedance	Renable	3.14	3.3	3.46	Kohm

(Note 1) Reliable and predictable operation of the device are not guaranteed with applied stresses at or beyond those listed in "Absolute Maximum Ratings". Operation at these limits may reduce device reliability and is therefore not recommended. Please refer to "Recommended Operating Conditions" for reliable operation of the device.

(Note 2) Operation above 50°C is possible if airflow is provided. This application exceeds the maximum output power rating for this package.

(Note 3) Provided data is not tested but guaranteed by design.

(Note 4) An external fuse 1.5 times max. input current should be added.



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Application Notes

The P44 series is designed to power one to four cold cathode fluorescent lamps with a maximum output power up to 15 Watts. External shutdown and dimming are accomplished with the enable pin.

External PWM Dimming: If external PWM dimming control is required, an external PWM signal is interfaced to the inverter through the Enable Pin. The external PWM signal should be 160-250Hz with duty cycle variable from 0% to 100%.

Enable: If no dimming is required, the inverter is turned on/off through the Enable Pin. The inverter is turned on when the enable pin is at ground. Pulling the Enable Pin up to +5V will turn the inverter off.

High Current Control For Lamp Warm-up: If the output current per lamp shown on page two of this datasheet is greater than that in the display specification then the inverter has been designed for a higher than specified current to enhance lamp warm-up. After lamp warm-up, the PWM duty cycle must be reduced to provide input power consistent with the CCFL rating as shown in Figure 2. Determination of warm-up time and duty cycle reduction is the responsibility of the end user. Failure to follow this application note may void the warranty on the LCD and/or inverter.

Contact ERG for any application questions

PCB Notes:

- 1) Printed circuit boards should be free of traces beneath the inverter.
- 2) The minimum distance from high voltage areas of the inverter to any conductive material should be .12 inches per kilovolt of starting voltage.
- 3) Contact ERG for possible exceptions.

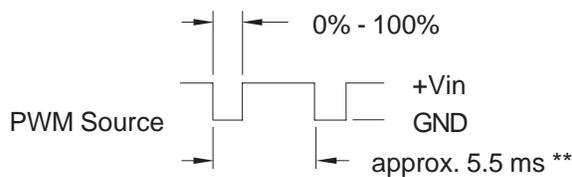
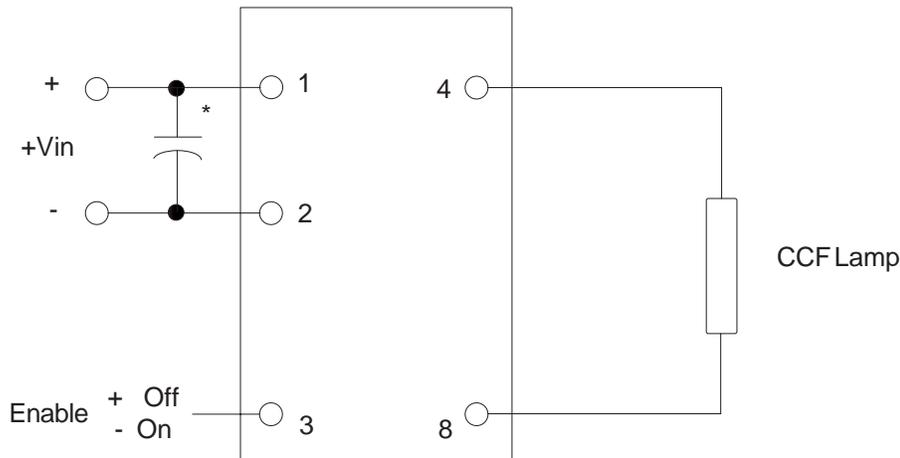


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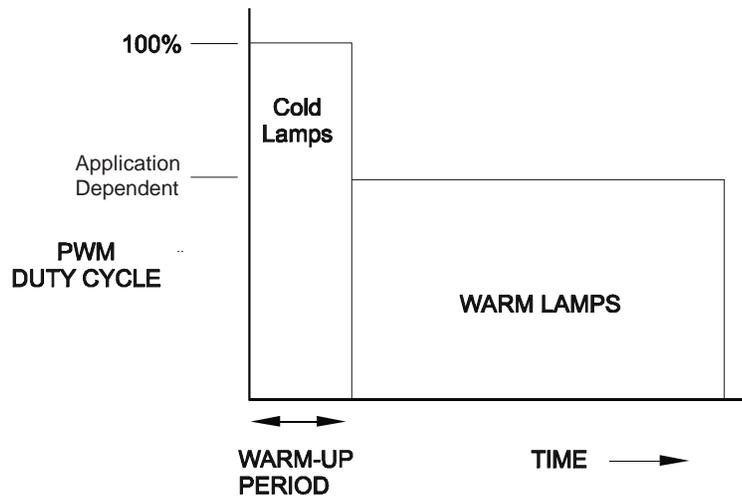
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* Low ESR type input bypass capacitor may be required (10uf - 100uf)

** Should be selected to be compatible with LCD and display driver

Figure 2: High Current Control



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