



Endicott Research Group, Inc.

2601 Wayne St., Endicott, NY 13760  
607-754-9187 Fax 607-754-9255  
<http://www.ergpower.com>

## Specifications and Applications Information

03/25/05

Preliminary

The ERG P443298 inverter was specifically designed to power the Sharp LQ080Y5DR02 display from a regulated +12 volt DC source.

The P443298 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  
 J1-4 ACout  
 J1-5 ACout  
 J1-8 ACcommon

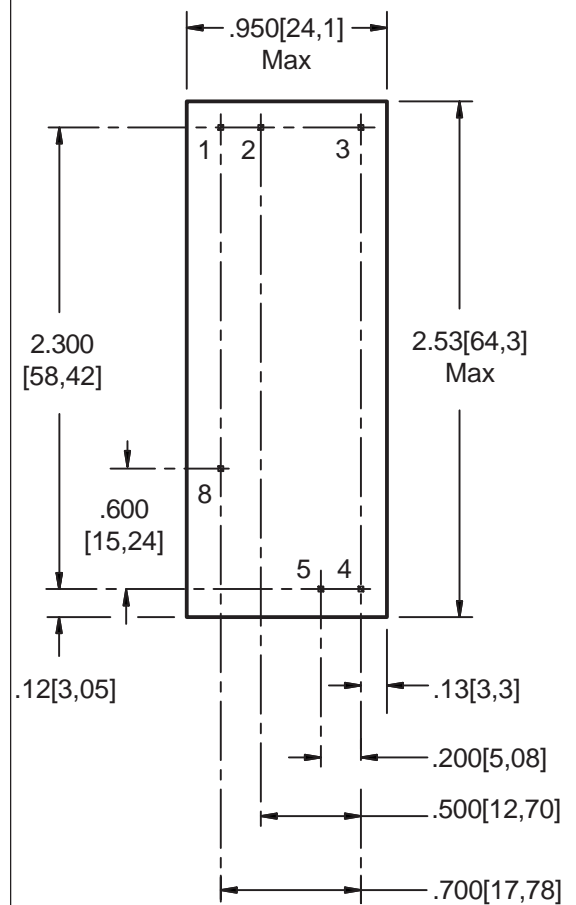
# P443298

## Two Lamp DC to AC Inverter

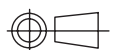


P44 Package

### Package Configuration



Inverter shown with pins pointing up.



# P443298

## Absolute Maximum Ratings (Note 1)

Rating	Symbol	Value	Units
Input Voltage Range	Vin	-0.3 to +13.2	Vdc
Operating Temperature <small>(Note 2)</small>	To	-30 to +70	°C
Storage Temperature	Tstg	-40 to +85	°C

## Absolute Maximum Ratings

Rating	Symbol	Value	Units
Input Voltage	Vin	+6 to 13.2	Vdc

## Electrical Characteristics

Unless otherwise noted Vin = 12.00 Volts dc and Ta = 25°C

Characteristic	Symbol	Min	Typ	Max	Units
Input Current	Iin	-	.58	.66	Adc
Operating Frequency	Fo	29	34	39	KHz
Minimum Output Voltage <small>(Note 3)</small>	Vout (min)	1800	-	-	Vrms
Efficiency	-	-	73	-	%
Output Current per CCFT	Iout	-	5.4	-	marms
Output Voltage (When powering a load simulating the referenced display)	Vout	-	470	-	Vrms
<b>Enable (pin J1-3)</b>					
Turn-Off Threshold	V thoff	-	-	0.7	V
Turn-On Threshold	V thon	2.0	-	-	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.

**(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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# P443298

## Application Notes

The P44 series is designed to power one to four cold cathode fluorescent lamps. 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. Pushing the Enable Pin high enables the inverter. Pulling the Enable Pin low disables the inverter.

**High Current Control For Lamp Warm-up:** If the output current per tube 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 warranty on the LDB and/or inverter.

**Contact ERG for any application questions**



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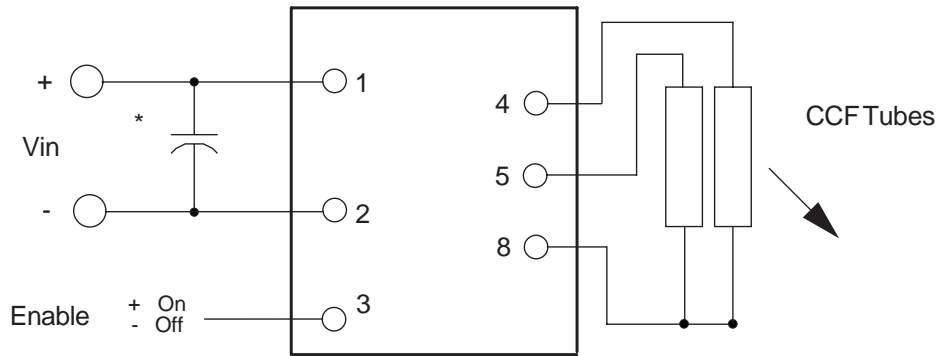
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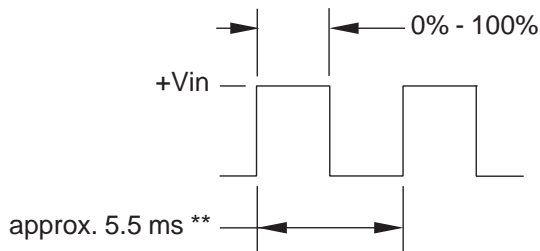
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### Connection Diagram



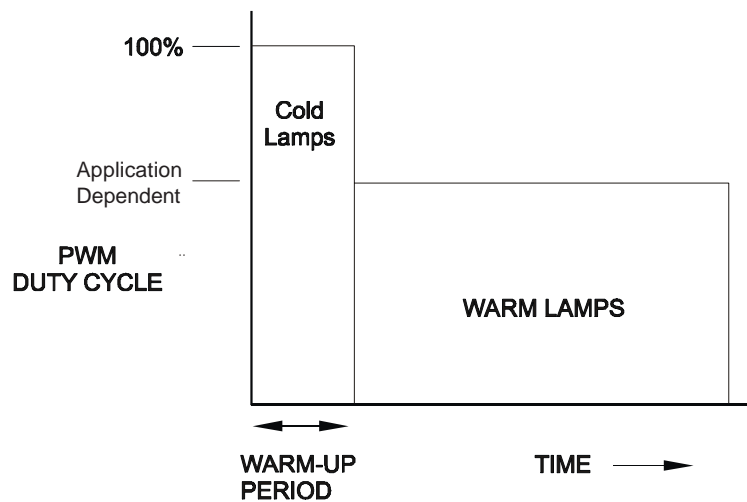
or PWM Source



\* 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



Endicott Research Group, Inc. (ERG) reserves the right to make changes in circuit design and/or specifications at any time without notice. Accordingly, the reader is cautioned to verify that data sheets are current before placing orders. Information furnished by ERG is believed to be accurate and reliable. However, no responsibility is assumed by ERG for its use.