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E1002

## Specifications and Applications Information

01/17/11

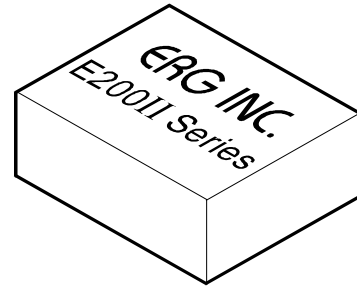
The E1002 (E200II Series) dc to ac inverter is specifically designed to power the Sharp LQ4NC01, LQ4NC03, LQ4RA01, and LQ4RA03 LCD displays to a moderate brightness level from a +12 volt dc source.

The E1002's small size, encapsulated package and low input power requirements (typically 2 Watts) make it the ideal power source for battery applications where small size, high efficiency and reliability are critical.

The E1002 inverter powers the internal hot cathode fluorescent lamp of the LQ4NC01/03 and LQ4RA01/03 displays in cold-cathode mode. The very high initial discharge output voltage of the E1002 inverter will insure reliable performance over the useful life of these display modules.

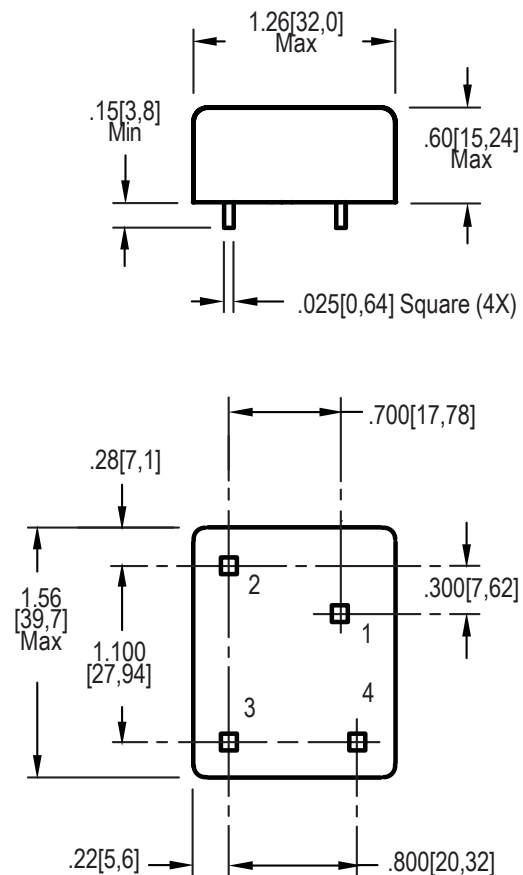
Made in U.S.A.

## Single Lamp DC to AC Inverter

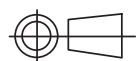


E200II Package

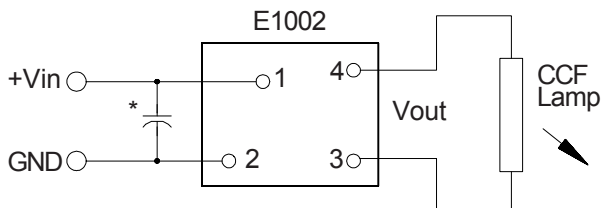
### Package Configuration



1. +Vin
2. GND
3. ACreturn
4. ACout



### Connection Diagram



\* Low ESR type input by-pass capacitor (22 uF - 100 uF) may be required to reduce reflected ripple.



### Absolute Maximum Ratings

| Rating              | Symbol    | Value         | Units |
|---------------------|-----------|---------------|-------|
| Input Voltage Range | $V_{in}$  | -0.3 to +13.2 | Vdc   |
| Storage Temperature | $T_{stg}$ | -40 to +85    | °C    |

### Operating Characteristics

With the referenced display and lamp warm-up of 5 minutes.  
 Unless otherwise noted  $V_{in} = 12.00$  Volts dc and  $T_a = 25^{\circ}C$ .

| Characteristic                         | Symbol          | Min   | Typ   | Max   | Units |
|--|-----------------|-------|-------|-------|-------|
| Input Voltage                          | $V_{in}$        | +10.8 | +12.0 | +12.6 | Vdc   |
| Component surface Temperature (note 1) | $T_s$           | -20   | -     | +80   | °C    |
| Input Current (note 2)                 | $I_{in}$        | -     | 0.17  | 0.20  | Adc   |
| Operating Frequency                    | $F_o$           | 23    | 28    | 33    | kHz   |
| Minimum Output Voltage (note 3)        | $V_{out}$ (min) | 950   | -     | -     | Vrms  |
| Efficiency                             | $\eta$          | -     | 54    | -     | %     |
| Output Current (per lamp)              | $I_{out}$       | -     | 10.0  | -     | mArms |
| Output Voltage                         | $V_{out}$       | -     | 110   | -     | Vrms  |

Specifications subject to change without notice.

- (Note 1) Surface temperature must not exceed 80 degrees C; thermal management actions may be required.
- (Note 2) Input current in excess of maximum may indicate a load/inverter mismatch condition, which can result in reduced reliability. Please contact ERG technical support.
- (Note 3) Provided data is not tested but guaranteed by design.

#### Application Notes:

- 1) Printed circuit boards to 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) ACreturn should be left floating, not grounded.
- 4) Contact ERG for possible exceptions.



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.