



Endicott Research Group, Inc.

2601 Wayne St., Endicott, NY 13760

607-754-9187 Fax 607-754-9255

http://www.ergpower.com

# 8mA23405F



## Specifications and Applications Information

03/25/10

Preliminary

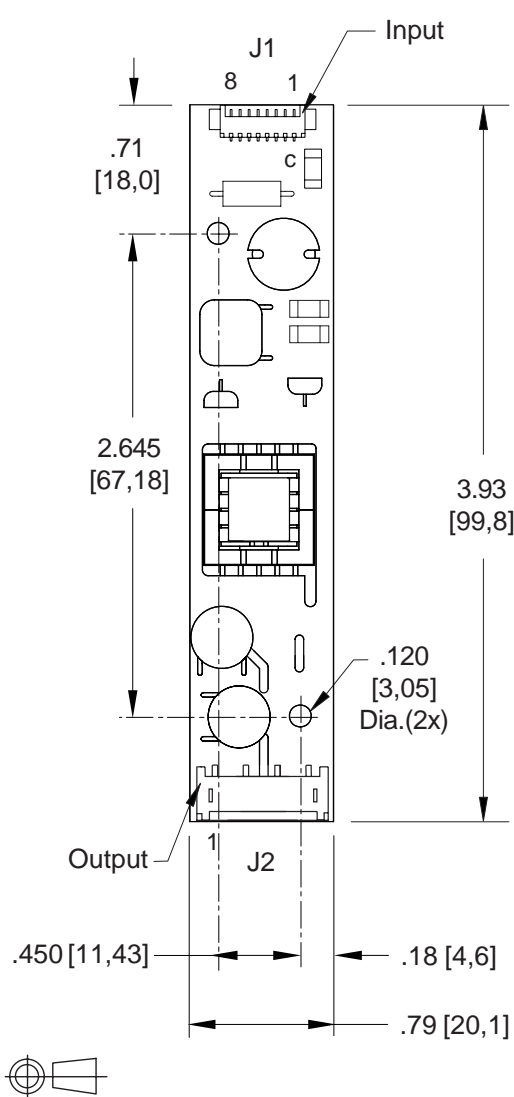
Two Lamp  
DC to AC Inverter

The ERG 8mA23405F (*8m Class*) low profile dc to ac inverter is specifically designed to power the NEC NL8060BC21-02 and NL6448BC26-08D display modules to a moderate brightness level from a +5 volt dc source.

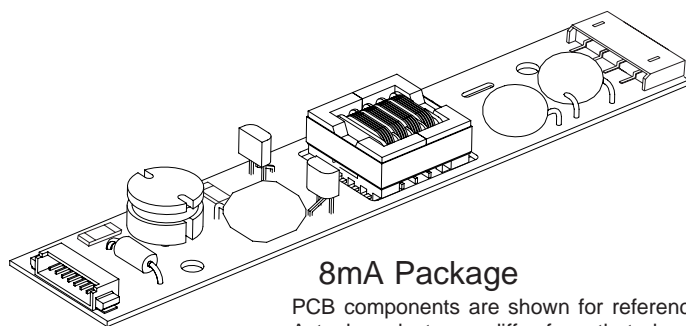
This low profile inverter features:

- ✓ Less Than 8 mm in Height
- ✓ LCD Module Specific
- ✓ Display Compatible Output Connector
- ✓ Firm Specifications
- ✓ Application Information
- ✓ Designed, Manufactured and Supported in the USA
- ✓ Custom Input and Output Voltages
- ✓ Flexible System Interface
- ✓ Notebook Display Head Compatible

### Package Configuration



PCB components are shown for reference only. Actual product may differ from that shown.



**8mA Package**

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Actual product may differ from that shown.

#### Connectors

Input J1  
Molex  
53261-0871

Output J2  
JST  
SM04(4.0)B-BHS-1-TB

#### Pin Descriptions

J1-1 +Vin	J2-1 ACout
J1-2 +Vin	J2-2 ACout
J1-3 GND	J2-3 ACreturn
J1-4 GND	J2-4 ACreturn
J1-5 Enable *	
J1-6 N/C	
J1-7 N/C	
J1-8 GND	

\* Valid only with the "C" jumper (JP1) removed

## Absolute Maximum Ratings

Rating	Symbol	Value	Units
Input Voltage Range	$V_{in}$	-0.3 to +5.50	Vdc
Storage Temperature	$T_{stg}$	-40 to +85	°C

## Operating Characteristics

With a load simulating the referenced display and lamp warm-up of 5 minutes.  
Unless otherwise noted  $V_{in} = 5.00$  Volts dc and  $T_a = 25^\circ\text{C}$ .

Characteristic	Symbol	Min	Typ	Max	Units
Input Voltage	$V_{in}$	+4.75	+5.00	+5.25	Vdc
Component Surface Temperature <sup>(note 1)</sup>	$T_s$	-20	-	+80	°C
Input Current <sup>(note 2)</sup>	$I_{in}$	-	1.14	1.31	Adc
Operating Frequency	$F_o$	34	39	44	kHz
Minimum Output Voltage <sup>(note 3)</sup>	$V_{out} \text{ (min)}$	1400	-	-	Vrms
Efficiency	$\eta$	-	76	-	%
Output Current (per lamp)	$I_{out}$	-	5.1	-	mArms
Output Voltage	$V_{out}$	-	425	-	Vrms
Enable Pin Input Current Requirement <sup>(notes 4,5,6)</sup>	$I_{enable}$	-	9.3	-	mAdc

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.

(Note 4) Required User Enable/Disable Interface Circuit is shown on page 3.

(Note 5) Valid only with "C" jumper (JP1) removed.

(Note 6) With the inverter powered and JP1 is in place, a ground applied to the enable pin J1-5 will open the inverter fuse.

### Application Notes:

- 1) The minimum distance from high voltage areas of the inverter to any conductive material should be .12 inches per kilovolt of starting voltage.
- 2) Mounting hardware to be non-conductive.
- 3) Open framed inverters should not be used in applications at altitudes over 10,000 feet.
- 4) ACreturn should be left floating, not grounded.
- 5) Contact ERG for possible exceptions.



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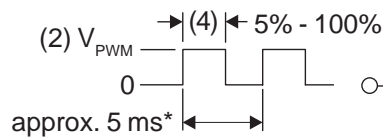
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## PWM Dimming

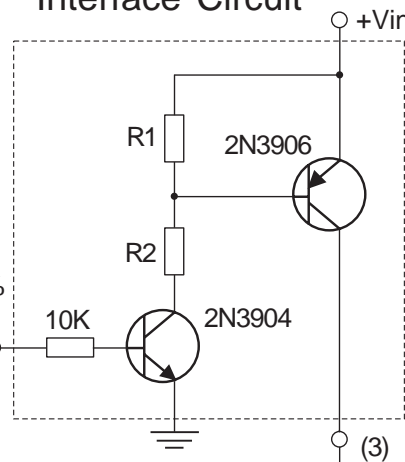
(Valid only with the "C" jumper (JP1) removed)

### Required User Enable/Disable Interface Circuit

Circuit or equivalent required with the "C" jumper removed for proper inverter turnoff.

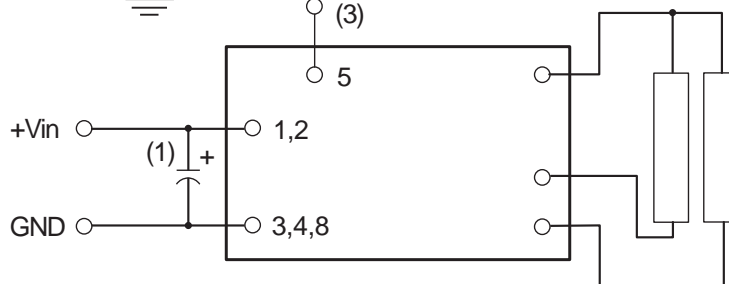


\* should be selected to be compatible with LCD and display driver



With the "C" jumper (JP1) in place, a ground applied to the enable pin J1-5 will open the inverter fuse.

V <sub>in</sub>	R1	R2
5V	3.3K	1.5K
8V	3.3K	1.8K
12V	3.3K	2.2K
24V	10.0K	8.2K



- (1) Low ESR type input by-pass capacitor (22 uF - 100 uF) may be required to reduce reflected ripple.
- (2) V<sub>PWM</sub> from 2.4V to less than or equal to +V<sub>in</sub>.
- (3) Full brightness without PWM control requires that pin 5 be tied to +V<sub>in</sub>. Pin 5 must be at 0V to turn off.
- (4) Duty Cycle 5% - 100%.