

## EL Driver Demoboard

### General Description

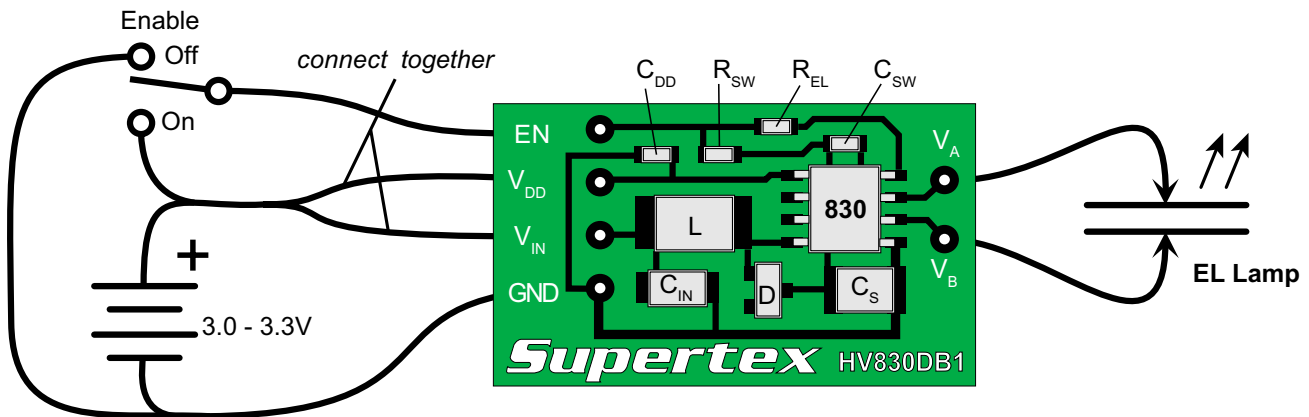
The HV830DB1 EL Driver demoboard contains all the circuitry necessary to drive an EL (Electroluminescent) lamp. Simply connect it to a power supply and a lamp as shown below.

The supplied circuit has been optimized to drive an 8.0in<sup>2</sup> lamp from a 3.0 to 3.3V supply. The circuit may be customized with different component values to suit a particular application. For assistance in designing EL driver circuits, please refer to *Application Notes AN-H33 (EL Lamp Driver Circuits)* and *AN-H34 (HV823 & HV825 EL Lamp Driver Circuits)*.

### Specifications

Parameter	Value
Supply voltage	3.0 to 3.3V
Supply current	70mA
Lamp size range	3.0 to 12in <sup>2</sup>
Lamp frequency	~290Hz
Converter frequency	~50KHz

### Board Layout and Connection Diagram



### Connections:

#### EN - Enable Input

Enables/disables the lamp driver. A logic high ( $V_{DD}$ ) enables the driver and a logic low (GND) disables the driver. This input may be connected to a mechanical switch as shown, or to a logic circuit output that has a source impedance of less than 20k $\Omega$ .

#### $V_{DD}$ - IC Supply

Supplies the HV830 EL driver IC. The supplied circuit is optimized for 3.0V to 3.3V operation. Current draw is typically 100 $\mu$ A when enabled and less than 1 $\mu$ A when disabled.

#### $V_{IN}$ - Inductor Supply

Supplies the high voltage power converter. Current draw is approximately 50mA.

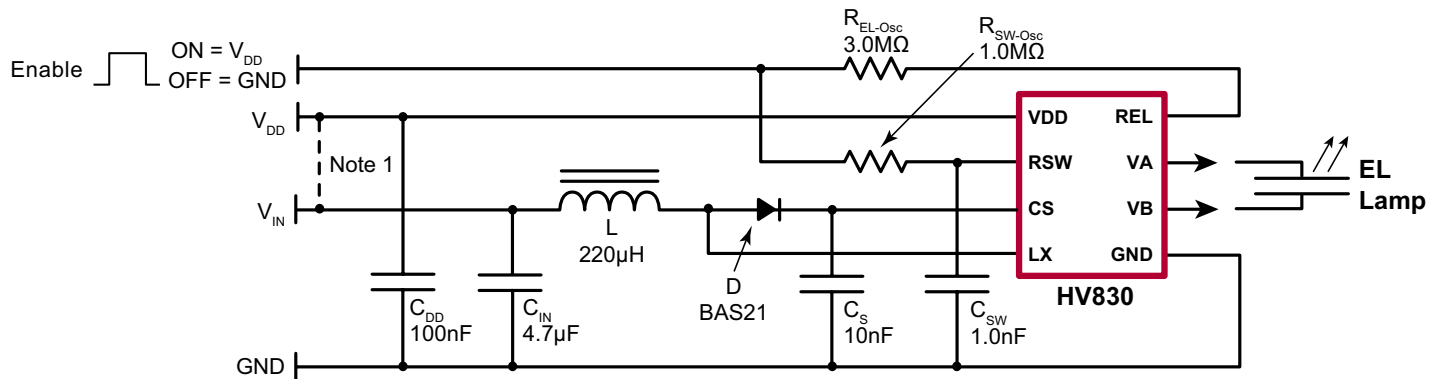
#### GND - Circuit Ground

Connect to  $V_{DD}$  negative terminal. Supply bypass capacitors for both  $V_{DD}$  and  $V_{IN}$  are provided on the demoboard. An external supply bypass capacitor is not necessary.

#### $V_A$ and $V_B$ - Lamp Connections

Connect to EL lamp of 3 to 12 square inches. Polarity is irrelevant.

## HV830DB1 Circuit Schematic



**Note:**

1. Tie  $V_{DD}$  and  $V_{IN}$  together if split supplies are not used.  $C_{DD}$  is not needed when a single supply is used.

### Modifying the Supplied Circuit

The supplied circuit is optimized to drive an 8.0in<sup>2</sup> green lamp from a 3.0 to 3.3V supply. To better suit other applications, the circuit may be modified by changing one or more of the components. The following table lists various applications in

order of lamp size, along with supply voltages and component values. Find the circuit that most closely matches the desired application and change components as needed. For component locations, refer to the board layout and connection diagram at the beginning of this note.

Lamp Size (in <sup>2</sup> )	Lamp <sup>1</sup> Brightness		Lamp Color	Lamp Freq (Hz)	$V_{DD} = V_{IN}$ (V)	$I_{IN}$ (mA)
	(ft-lm)	(cd/m <sup>2</sup> )				
3.5	6.52	22.3	Green	287	3.0	27.4
3.5	6.58	22.5	Green	287	3.1	26.3
3.5	6.61	22.6	Green	287	3.2	25.8
3.5	6.64	22.7	Green	287	3.3	25.3
5.0	6.75	23.1	Green	287	3.0	42.8
5.0	6.84	23.4	Green	287	3.1	41.7
5.0	6.90	23.6	Green	287	3.2	39.7
5.0	6.99	23.9	White	287	3.3	39.8
10.0	3.45	11.8	Pink	287	3.0	60.3
10.0	3.80	13.0	Pink	287	3.1	63.5
10.0	3.98	13.6	Pink	287	3.2	65.8
10.0	4.15	14.2	Pink	287	3.3	67.7

**Notes:**

1. Lamp brightness can vary by type and manufacturer.
2. The recommended inductor is a Murata LQH4N series. Other inductors may be used, however, different inductor characteristics (especially series resistance) may result in overall circuit performance different from that listed. Please refer to **Application Note AN-H33** for more information.

**Supertex inc.** does not recommend the use of its products in life support applications, and will not knowingly sell them for use in such applications unless it receives an adequate "product liability indemnification insurance agreement." **Supertex inc.** does not assume responsibility for use of devices described, and limits its liability to the replacement of the devices determined defective due to workmanship. No responsibility is assumed for possible omissions and inaccuracies. Circuitry and specifications are subject to change without notice. For the latest product specifications refer to the **Supertex inc.** (website: <http://www.supertex.com>)