

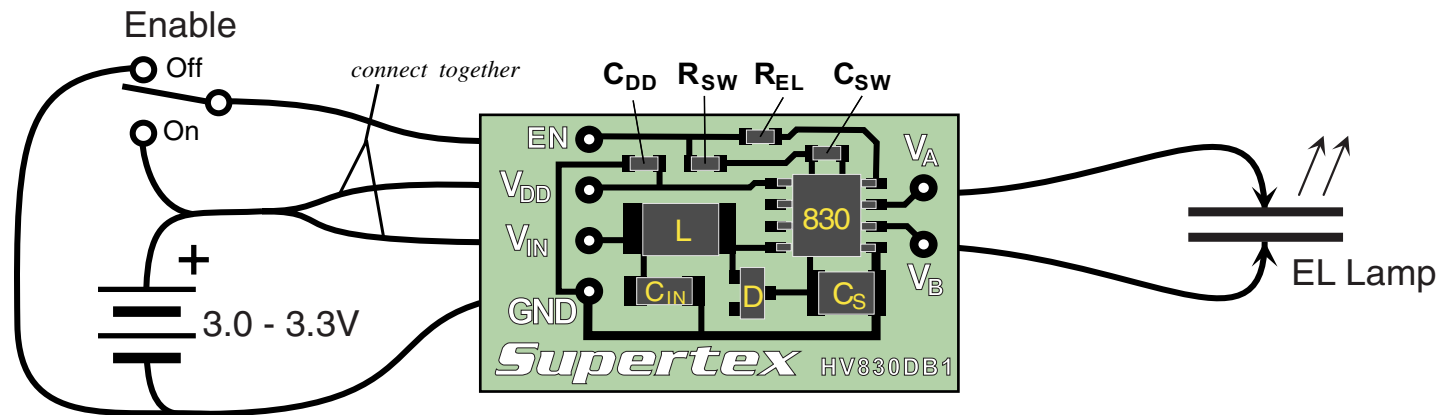
## EL Driver Demoboard

### General Description

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

Specifications	
Supply Voltage	3.0V - 3.3V
Supply current	70mA
Lamp Size Range	3 - 12 in <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 a 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.

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

Supplies the high-voltage converter. Current draw is approximately 70mA.

#### GND - Ground Circuit

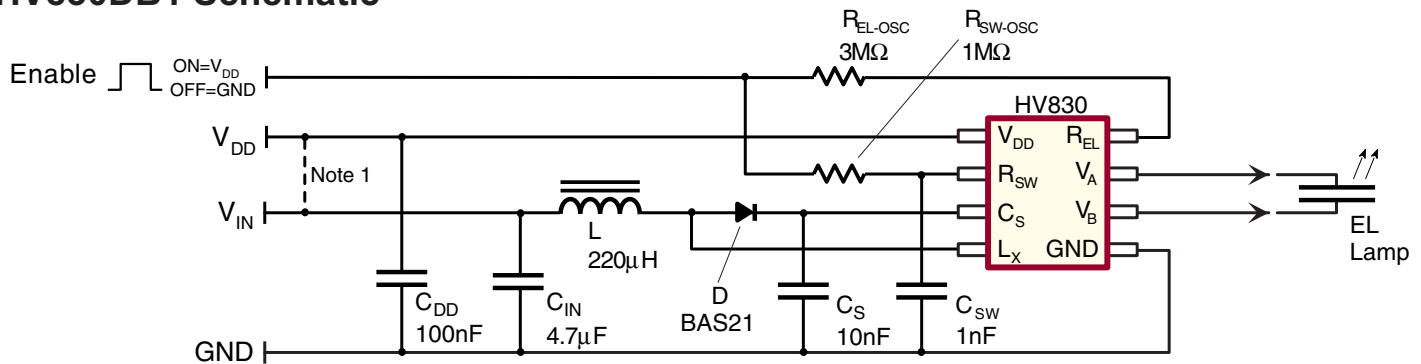
Connect to  $V_{DD}$  negative terminal. Supply bypass capacitors for both  $V_{DD}$  and  $V_{IN}$  are provided on the demo board. An external supply bypass capacitor is not necessary.

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

Connect to EL lamp of 3-12in<sup>2</sup>. Polarity is irrelevant.

**Note:** The supplied circuit has been optimized to drive an 8in<sup>2</sup> lamp from a 3.0V 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).

## HV830DB1 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.

## Typical Performance

The circuit in Figure 1 is optimized to drive a 8.0in<sup>2</sup> green lamp from a 3.0V to 3.3V power supply. The specific components used in Figure 1 are:  $L_x = 220\mu\text{H}$  Murata (LQH43CN221K01), and  $C_s = 3.3\text{nF}$ , 100V, Ceramic X7R.

The following table is the performance observed with different lamp size and lamp color. To better suit other applications, the circuit may be modified by changing one or more of the components.

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

### Notes:

- Lamp brightness can vary by type and manufacturer.
- 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.

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