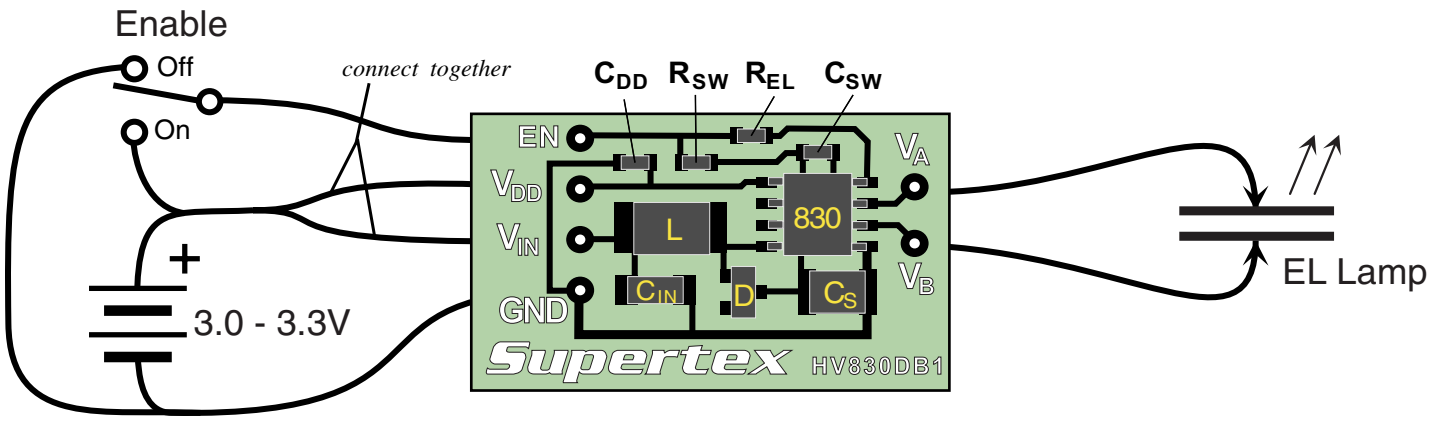
EL Driver Demoboard

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^2
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 impedence of less than 20kΩ.

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 100µA when enabled, and less than 1µA 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^2. Polarity is irrelevant.

Note: *The supplied circuit has been optimized to drive an 8in^2 lamp from a 3.0V to 3.3V supply. The circuit may be customized with different component values to suit a particular application. For assitance 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).*

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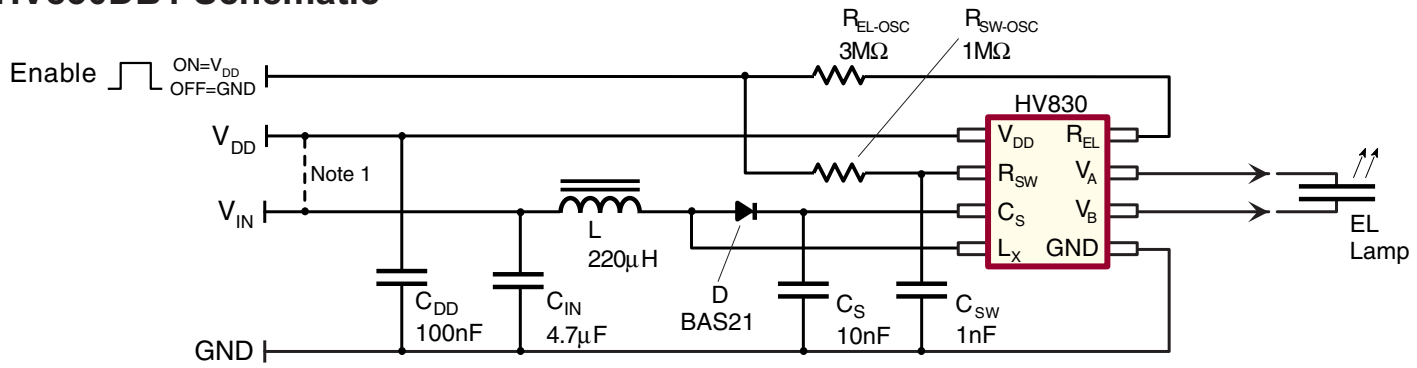
HV830DB1 Schematic



Note

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

Typical Performance

The circuit in Figure1 is optimized to drive a 8.0in^2 green lamp from a 3.0V to 3.3V power supply. The specific components used in Figure 1 are: Lx = 220µH Murata (LQH43CN221K01), and C_S = 3.3nF , 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[1]	
					ft-lm	cd/m^2
3.0	27.4	3.5in^2	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^2	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^2	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:

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.

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