

EL Driver Demoboard

General Description

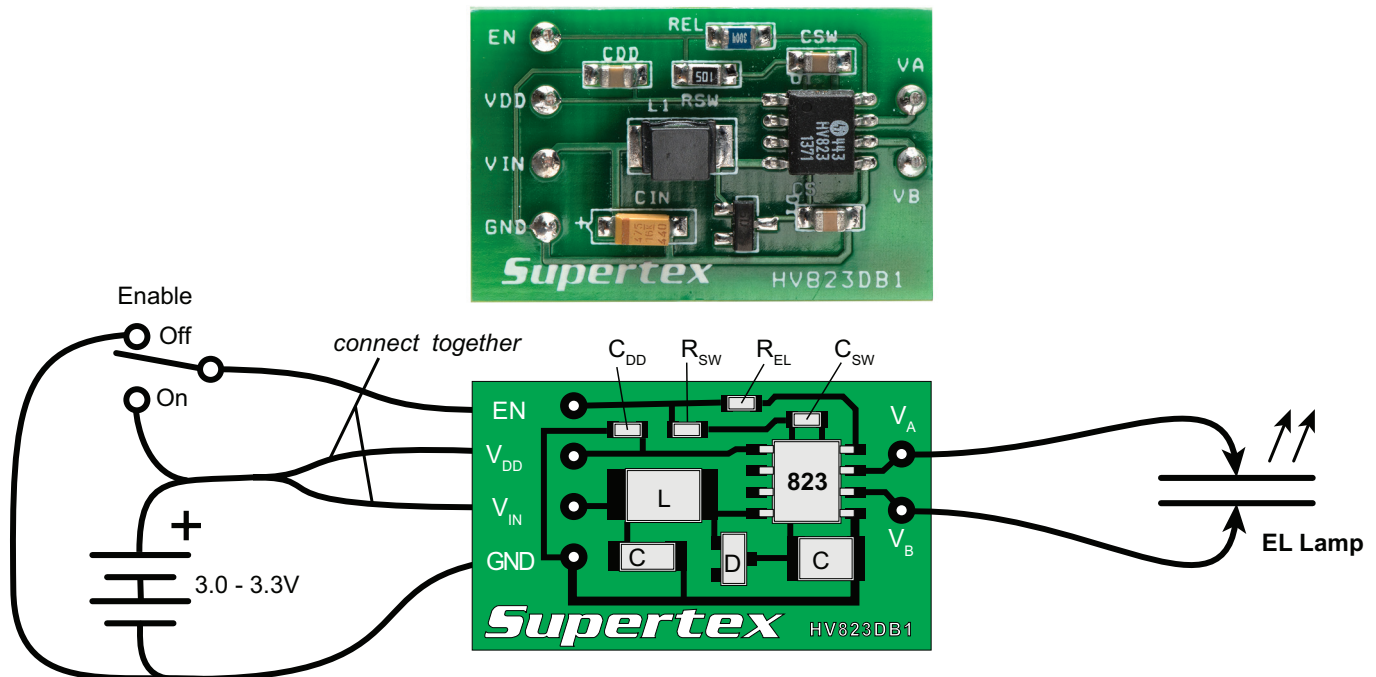
The HV823DB1 EL Driver demoboard contains all the circuitry necessary to drive an EL (Electroluminescent) lamp. Simply connect it to a power supply and a lamp as shown below.

The supplied circuit has been optimized to drive an 8.0in² lamp from a 3.0 to 3.3V supply. The circuit may be customized with different component values to suit a particular application. To assist in customization, various circuits optimized for a variety of applications are provided. For additional assistance in designing EL driver circuits, please refer to **AN-H34 (HV823 & HV825 EL Lamp Driver Circuits)**.

Specifications

Parameter	Value
Supply voltage	3.0 to 3.3V
Supply current	~50mA
Lamp size range	3.0 to 12in ²
Lamp frequency	~260Hz
Converter frequency	~50KHz

Board Layout and Connections



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 Ω .

V_{DD} - IC Supply

Supplies the HV823 EL driver IC. The supplied circuit is optimized for 3.0V to 3.3V operation. Current draw is typically 100 μ A when enabled and less than 1 μ A when disabled.

V_{IN} - Inductor Supply

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

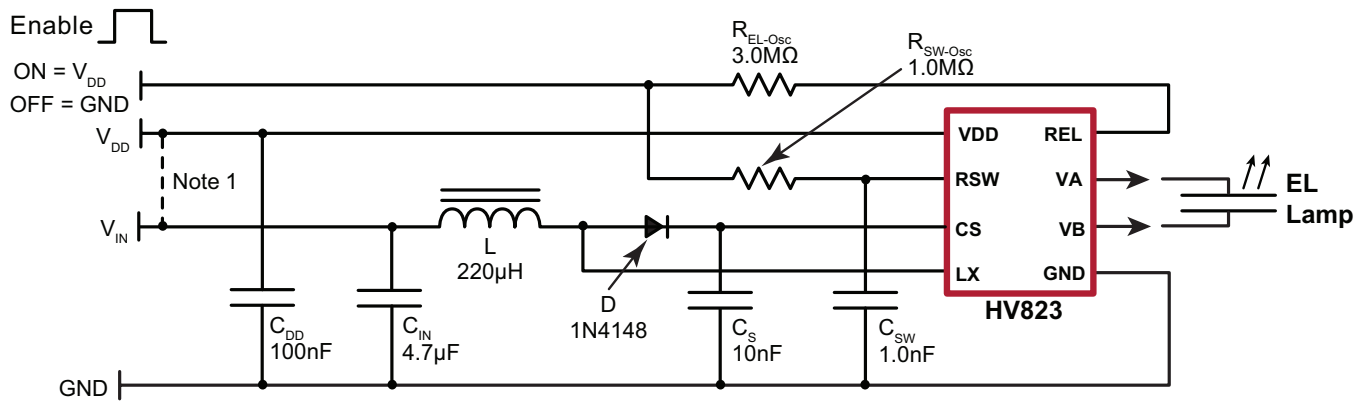
GND - Circuit Ground

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.

HV823DB1 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 8.0in² 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 ²)	Lamp ¹ Brightness (ft-lm)	Lamp Color	Lamp Freq (Hz)	V_{DD} (V)	V_{IN}^2 (V)	V_{IN} Current (mA)	Component Values				
							L^3 (μH)	R_{EL} (MΩ)	R_{SW} (KΩ)	C_S (nF)	C_{SW} (nF)
1.5	4.8	Green	260	3.0	same	10	1000	3.3	680	100	none
1.7	6.6	Green	400	3.0	1.0 - 1.5	35	220	2.0	1000	100	none
3.5	6.2	Green	400	3.3	same	25	560	2.0	750	100	none
6.0	3.0	Green	170	3.3	same	21	560	5.1	680	100	none
7.0	5.8	Green	400	5.0	same	30	560	2.0	680	10	1.0
7.0	7.8	Green	400	9.0	same	23	560	2.0	680	10	1.0
8.0	6.2	Green	400	5.0	same	30	560	2.0	820	10	1.0
9.0	4.7	White	800	5.0	12	12	560	1.0	330	100	1.0
10	4.1	Green	260	5.0	same	22	1000	3.3	680	10	1.0
12	5.2	Green	260	3.3	same	51	220	3.0	680	10	none
12	3.2	Green	260	5.0	same	19	560	3.0	330	10	1.0
13	3.1	White	400	5.0	same	34	560	2.0	680	10	1.0
13	6.6	White	400	9.0	same	35	560	2.0	680	10	1.0
23	2.1	Green	250	3.3	same	48	330	3.3	1000	10	1.0

Notes:

1. Lamp brightness can vary by type and manufacturer.
2. 'same' in the V_{IN} column indicates that V_{IN} and V_{DD} are connected together to the same power supply.
3. 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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