# HV832DB1 Dual EL Lamp Driver

#### Introduction

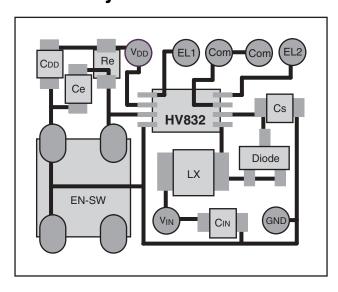
The Supertex HV832DB1 demo board contains all necessary circuitry to demonstrate the features of the HV832 dual EL lamp driver.

Simply connect it to a power supply and a lamp as shown below. For additional assistance in designing EL driver circuits, please refer to application notes AN-H33 (effect of external components on performance of Supertex EL drivers), application note AN-H44 (HV832 application circuits), and AN-H43 (EL lamp driver circuits to reduce lamp audible noise).

## **Specifications**

Input Voltage	3.0V to 4.2V
Supply Current	40mA Max.
Lamp Size Range	Up to 2.7in²
Lamp Frequency	417Hz
Converter Frequency	53.4KHz

# **Board Layout and Connections**



### **Demo Board Connections:**

#### Control lamp selection/Enable Input (EN-SW)

Various modes of the device are selected via the control pin/ENSW. Each logic pulse applied to the control pin/EN-SW will cause the device to change to the next mode. The sequence for the modes is: 1) EL1 on, 2) EL2 on, 3) both EL1 and EL2 on, and 4) device shuts down. This input may be connected to a mechanical switch, or to a logic circuit output that has a source impedance of less than  $20 \ensuremath{\mathrm{K}\Omega}$ .

#### V<sub>DD</sub> IC Supply

Supplies the HV832 EL driver IC. The supplied circuit is optimized for 3.0 to 4.2 volt operations. Connect to positive terminal of a power supply.

#### **V**<sub>IN</sub> Inductor Supply

Supplies the high voltage power converter. Connect to positive terminal of a power supply.

#### **GND** Circuit Ground

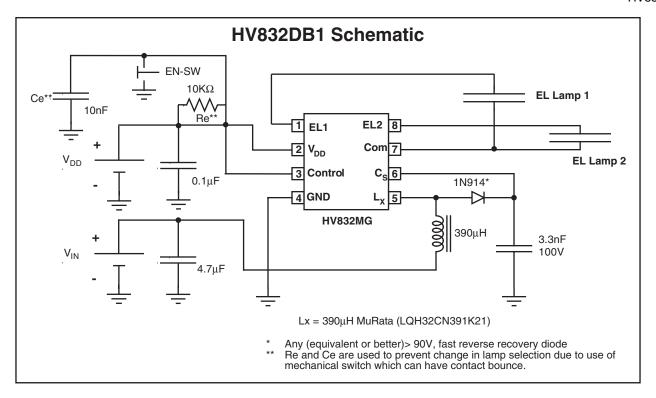
Connect to  $V_{DD}$  and  $V_{IN}$  negative terminals. Supply bypass capacitor for both  $V_{DD}$  and  $V_{IN}$  are provided on the demo board. External supply bypass capacitors are not necessary.

#### EL1 and EL2 Lamp Connections

Connects to lamps 1 and 2. Polarity is irrelevant.

#### **Com** Lamp Connections

Connects to the other side of lamps 1 and 2. Polarity is irrelevant.



## **Typical Performance**

The specific external components used in the above circuit are  $L_{\chi}$ =390 $\mu$ H Murata (LQH32CN391K21), Cs= 3.3nF 100V NPO. The following was observed when driving a 0.93in<sup>2</sup> Green lamp.

V <sub>DD</sub> (V)	V <sub>IN</sub> (V)	Lamp Selection	I (mA)	V <sub>cs</sub> (V)	f <sub>EL</sub> (Hz)	Brightness	
			I <sub>IN</sub> (mA)			ft-lm	cd/ m²
3.3 3.3	2.2	Lamp 1 or 2	20.9	80.7		11.75	40.2
	3.3	Both lamps	31.1	73.0		10.64	36.4
3.0 3.0 3.2 4.2	2.0	Lamp 1 or 2	21.9	78.4	417	11.34	38.8
	3.0	Both lamps	32.0	70.1		9.82	33.6
	Lamp 1 or 2	21.3	79.8	417	11.64	39.8	
		Both lamps	31.4	72.3		10.29	35.2
	4.2	Lamp 1 or 2	19.3	85.2		12.43	42.5
		Both lamps	28.3	81.0		11.58	39.6

The following was observed when driving EL1=1.3in² and EL2=0.93in² Green lamps.

V <sub>DD</sub> (V)	V <sub>IN</sub> (V)	Lamp Selection I <sub>IN</sub> (m	I (mA)	V (V)	f <sub>EL</sub> (Hz)	Brightness	
			I <sub>IN</sub> (IIIA)	A) V <sub>cs</sub> (V)		ft-lm	cd/ m²
	EL1	23.8	81.3		10.79	36.9	
3.3	3.3 3.3	EL2	20.9	80.7	417	11.75	40.2
		Both lamps	34.2	71.7		9.59	32.8

The above circuit may need to be optimized further based on specification of the lamp used.

