

Introduction

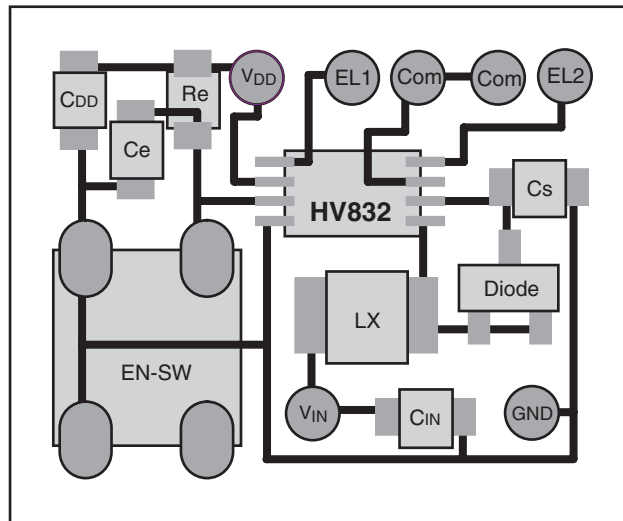
The Supertex HV832DB1 demo board contains all necessary circuitry to demonstrate the features of the HV832 dual EL lamp driver.

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 2.7in ² |
| 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/EN-SW. 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 20K Ω .

V_{DD} 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_{IN} Inductor Supply

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

GND Circuit Ground

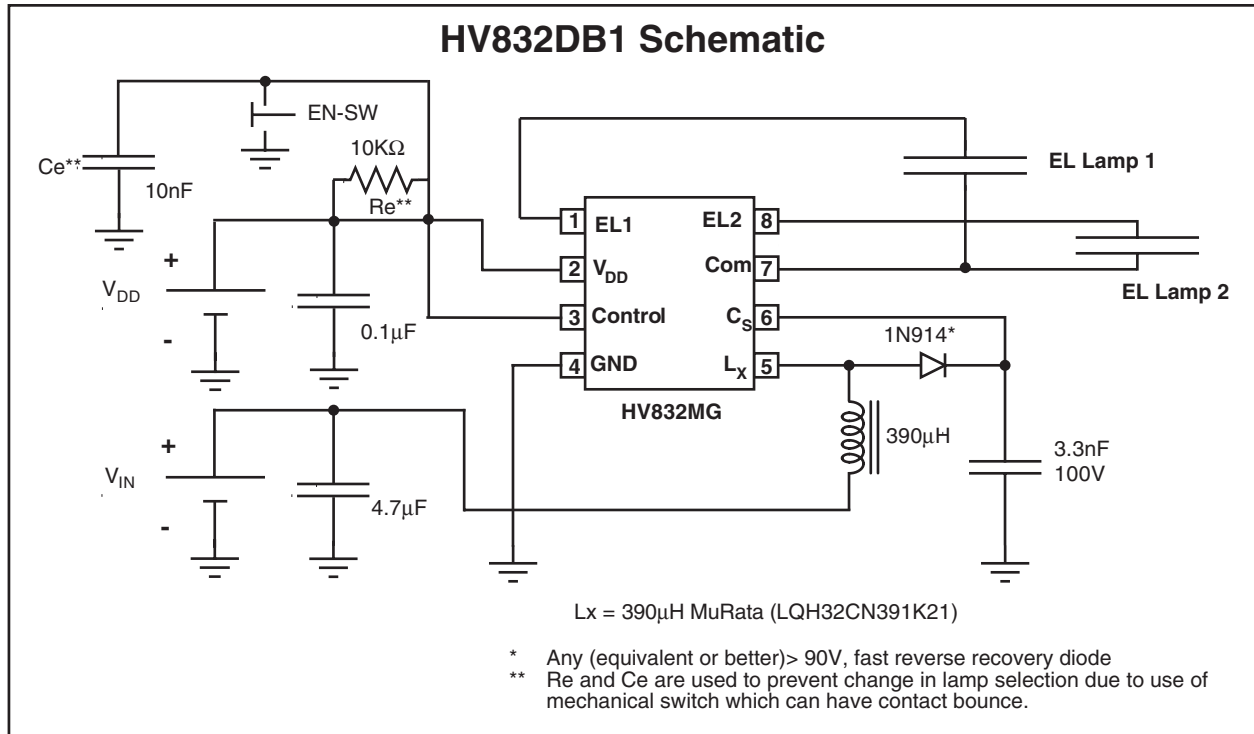
Connect to V_{DD} and V_{IN} negative terminals. Supply bypass capacitor for both V_{DD} and V_{IN} are provided on the demo board. External supply bypass capacitors are not necessary.

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_x=390μH Murata (LQH32CN391K21), C_s= 3.3nF 100V NPO. The following was observed when driving a 0.93in² Green lamp.

| V _{DD} (V) | V _{IN} (V) | Lamp Selection | I _{IN} (mA) | V _{CS} (V) | f _{EL} (Hz) | Brightness | |
|---------------------|---------------------|----------------|----------------------|---------------------|----------------------|------------|--------------------|
| | | | | | | ft-lm | cd/ m ² |
| 3.3 | 3.3 | Lamp 1 or 2 | 20.9 | 80.7 | 417 | 11.75 | 40.2 |
| | | Both lamps | 31.1 | 73.0 | | 10.64 | 36.4 |
| 3.0 | 3.0 | Lamp 1 or 2 | 21.9 | 78.4 | | 11.34 | 38.8 |
| | | Both lamps | 32.0 | 70.1 | | 9.82 | 33.6 |
| | 3.2 | Lamp 1 or 2 | 21.3 | 79.8 | | 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 _{DD} (V) | V _{IN} (V) | Lamp Selection | I _{IN} (mA) | V _{CS} (V) | f _{EL} (Hz) | Brightness | |
|---------------------|---------------------|----------------|----------------------|---------------------|----------------------|------------|--------------------|
| | | | | | | ft-lm | cd/ m ² |
| 3.3 | 3.3 | EL1 | 23.8 | 81.3 | 417 | 10.79 | 36.9 |
| | | EL2 | 20.9 | 80.7 | | 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.