## 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 ANH44 (HV832 application circuits), and AN-H43 (EL lamp driver circuits to reduce lamp audible noise).

## Specifications

| Input Voltage | 3.0 V to 4.2 V |
| :--- | ---: |
| Supply Current | $40 \mathrm{~mA} \mathrm{Max}$. |
| Lamp Size Range | Up to $2.7 \mathrm{in}^{2}$ |
| Lamp Frequency | 417 Hz |
| Converter Frequency | 53.4 KHz |

## 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 $20 \mathrm{~K} \Omega$.

## $\mathbf{V}_{\mathrm{DD}}$ 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.

## $\mathbf{V}_{\text {IN }}$ Inductor Supply

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

## GND Circuit Ground

Connect to $\mathrm{V}_{\mathrm{DD}}$ and $\mathrm{V}_{\mathrm{IN}}$ negative terminals. Supply bypass capacitor for both $\mathrm{V}_{\mathrm{DD}}$ and $\mathrm{V}_{\text {IN }}$ 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.

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## Typical Performance

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

| $\mathrm{V}_{\mathrm{DD}}(\mathrm{V})$ | $\mathrm{V}_{\text {IN }}(\mathrm{V})$ | Lamp Selection | $\mathrm{I}_{\text {IN }}(\mathrm{mA})$ | $\mathrm{V}_{\mathrm{cs}}(\mathrm{V})$ | $\mathrm{f}_{\mathrm{EL}}(\mathrm{Hz})$ | Brightness |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | ft-Im | 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 $E L 1=1.3 i^{2}$ and $E L 2=0.93 i^{2}$ Green lamps.

| $\mathrm{V}_{\mathrm{DD}}(\mathrm{V})$ | $\mathrm{V}_{\text {IN }}(\mathrm{V})$ | Lamp Selection | $\mathrm{I}_{1 \times}(\mathrm{mA})$ | $\mathrm{V}_{\mathrm{cs}}(\mathrm{V})$ | $\mathrm{f}_{\mathrm{EL}}(\mathrm{Hz})$ | Brightness |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  |  | ft-Im | 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.


[^0]:    12/14/01

