

## High Voltage, Low Noise, Inductorless EL Lamp Driver Demoboard

### General Description

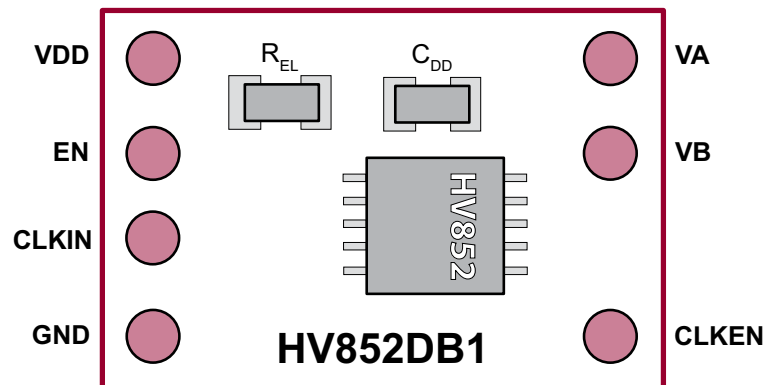
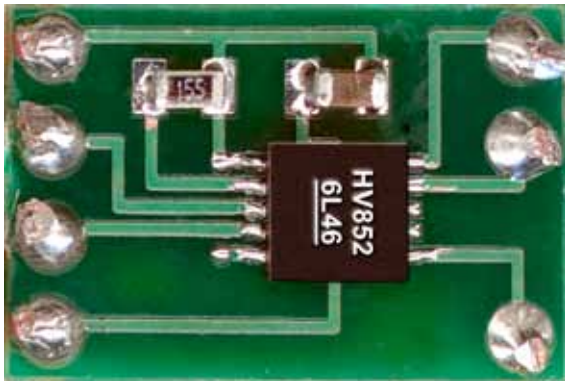
The Supertex HV852DB1 demoboard contains all necessary circuitry to demonstrate the features of the HV852 EL lamp driver.

Simply connect it to a power supply and a lamp, as shown below. For additional assistance in implementation of the HV852 circuit, please refer to the HV852 data sheet.

### Specifications

| Parameter               | Value              |
|-------------------------|--------------------|
| $V_{DD}$ input voltage: | 2.4 to 5.0V        |
| Supply current:         | 25mA               |
| Lamp size:              | 1.5in <sup>2</sup> |
| Lamp frequency:         | 245Hz              |

### Board Layout and Connection Diagram



Actual Dimensions: 13mm x 8.0mm

### Connections:

#### EN - Enable Input

Enables/Disables the lamp driver. Logic high ( $V_{DD}$ ), enables the driver, and a logic low (GND), disables the driver. This input may be connected to a mechanical switch, or to a logic circuit output.

#### $V_{DD}$ - IC Supply

Supplies the HV852 EL driver IC. The supplied circuit is optimized for 2.4 to 5.0V operation.

#### $V_A$ and $V_B$ - Lamp Connections

Connects to an EL lamp. Polarity is irrelevant.

#### GND - Circuit Ground

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

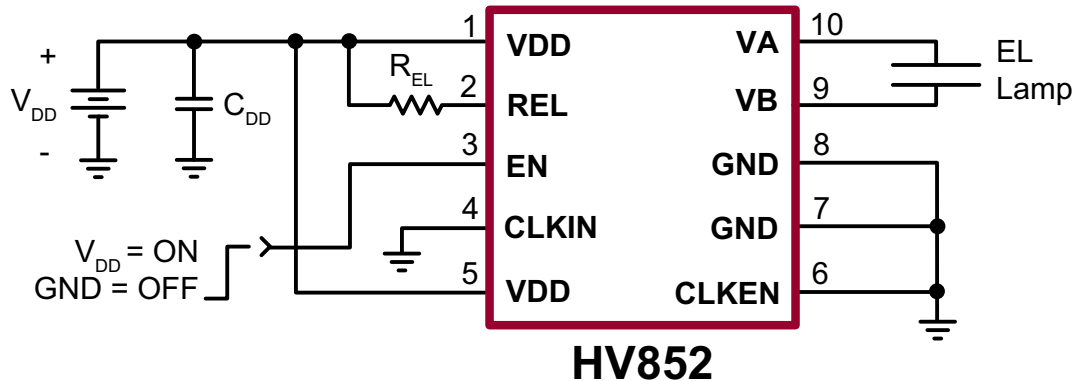
#### CLK<sub>EN</sub> - Clock Enable

To use external clock for setting the EL lamp frequency, this pin will need to be connected to  $V_{DD}$ . To set the lamp frequency via REL, this pin will need to be connected to GND.

#### CLK<sub>IN</sub> - Logic Input

An external logic clock applied to this pin can be used to set the EL lamp frequency. When using external clock signal, R<sub>EL</sub> will need to be removed, and R<sub>EL</sub> pin will need to be connected to GND. CLK<sub>EN</sub> will need to be connected to  $V_{DD}$  when an external clock signal is used. Connect both CLK<sub>EN</sub> and CLK<sub>IN</sub> to GND when not in use.

## Circuit Schematic



## Typical Performance

The specific external components used in the above circuit are:  $C_{DD} = 2.2\mu\text{F}$ , 6.3V ceramic capacitor and  $R_{EL} = 1.5\text{M}\Omega$ .

The following was observed when driving a 0.93in<sup>2</sup> green lamp and 1.5in<sup>2</sup> green lamp.

| Lamp Size<br>(in <sup>2</sup> ) | $V_{DD}$<br>(V) | $I_{DD}$<br>(mA) | $V_{PEAK}$<br>(V) | $f_{EL}$<br>(Hz) | Lamp Brightness |                      |
|---------------------------------|-----------------|------------------|-------------------|------------------|-----------------|----------------------|
|                                 |                 |                  |                   |                  | (ft-lm)         | (cd/m <sup>2</sup> ) |
| 0.93                            | 2.4             | 15.6             | 79                | 245              | 4.30            | 14.7                 |
| 0.93                            | 3.0             | 14.9             | 79                | 245              | 5.10            | 17.4                 |
| 0.93                            | 3.6             | 14.7             | 79                | 245              | 5.32            | 18.2                 |
| 0.93                            | 4.2             | 15.1             | 79                | 245              | 5.50            | 18.8                 |
| 0.93                            | 5.0             | 15.7             | 79                | 245              | 5.61            | 19.2                 |
| 1.50                            | 2.4             | 19.0             | 66                | 245              | 2.81            | 9.60                 |
| 1.50                            | 3.0             | 23.4             | 79                | 245              | 4.77            | 16.3                 |
| 1.50                            | 3.6             | 23.5             | 79                | 245              | 5.26            | 18.0                 |
| 1.50                            | 4.2             | 23.7             | 79                | 245              | 5.53            | 18.9                 |
| 1.50                            | 5.0             | 24.1             | 79                | 245              | 5.73            | 19.6                 |

## Bill of Materials

| Part     | Description                                      | Package     | Manufacturer | Part Number |
|----------|--------------------------------------------------|-------------|--------------|-------------|
| $R_{EL}$ | 1%, 1.5M $\Omega$ resistor                       | 0603        | Any          | ---         |
| $C_{DD}$ | 2.2 $\mu\text{F}$ , 6.3V, ceramic chip capacitor | 0603        | Any          | ---         |
| U1       | EL driver IC                                     | 10-Lead DFN | Supertex Inc | HV852K7-G   |

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

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