

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

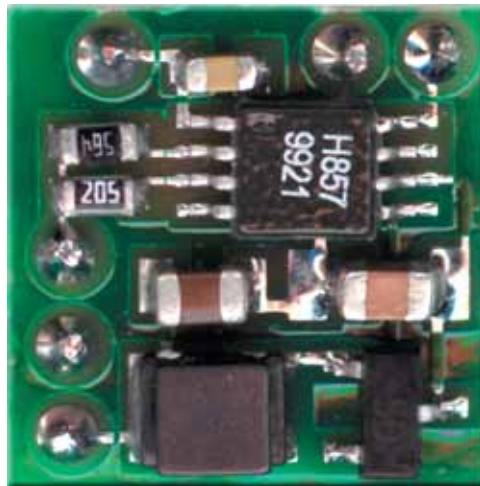
### General Description

The Supertex HV857DB1 demo board contains all necessary circuitry to demonstrate the features of the HV857 EL lamp driver.

Simply connect it to a power supply and a lamp. 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) and AN-H43 (EL lamp driver circuits to reduce audible noise).

Specifications	
Input voltage:	1.8V to 5.0V
Typical supply current:	26mA
Lamp size:	2.6in <sup>2</sup>
Lamp frequency:	206Hz
Converter frequency:	80kHz

### Board Layout and Connection Diagram



Actual Dimensions: 12mm x 12mm

### Connections:

#### EN Enable Input

Enables/Disables the lamp driver. A logic high (connect to  $V_{DD}$ ) enables the driver, and a logic low (connect to GND) disables the driver. This input can be connected to a mechanical switch or to a logic circuit output that has a source impedance of less than 20k $\Omega$ .

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

Supplies the HV857 EL driver IC. The supplied circuit is optimized for 3.0V operation. The operating range can be from 1.8V to 5.0V. 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 required.

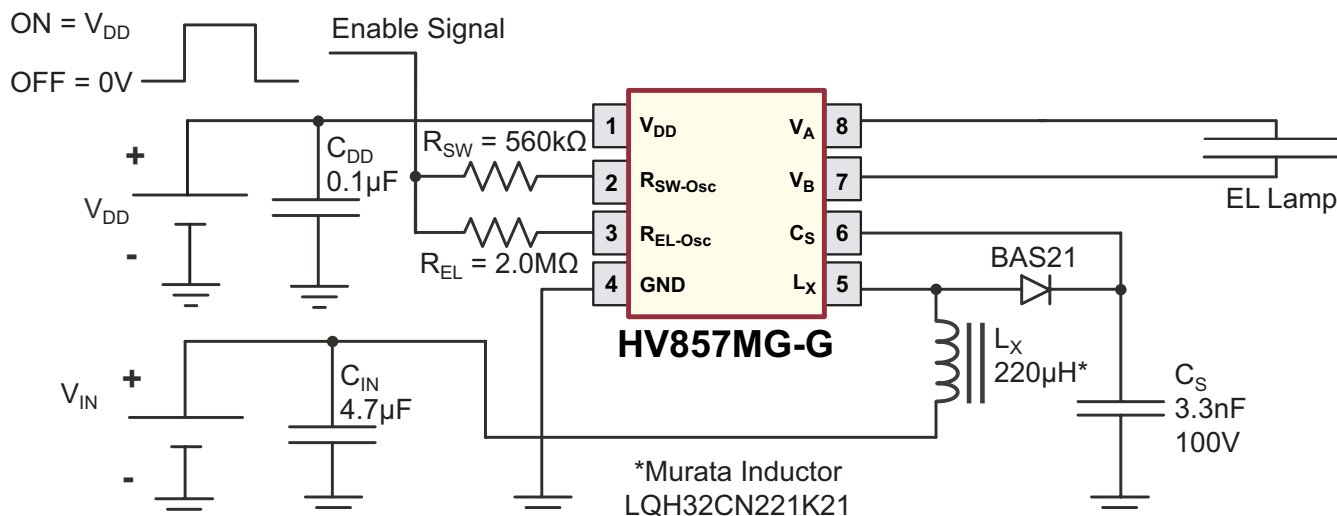
#### $V_A$ and $V_B$ Lamp Connections

Connect to an EL lamp. Polarity is irrelevant.

#### Note:

**Make sure all the above connections are made before powering up the supply voltages.**

## HV857DB1 Schematic



**Note:**

Tie  $V_{DD}$  and  $V_{IN}$  together if split supplies are not used.

## Typical Performance (when driving a 2.6in<sup>2</sup> green lamp)

$V_{DD} = V_{IN}$ (V)	$I_{IN}$ (mA)	$V_{CS}$ (V)	$f_{EL}$ (Hz)	Brightness	
				ft-lm	cd/m <sup>2</sup>
1.8	24.6	76.4	206	3.65	12.5
2.0	25.2	82.8	206	4.24	14.5
3.0	23.6	86.4	206	5.41	18.5
4.0	19.2	88.0	206	5.88	20.1
5.0	15.4	90.0	206	6.23	21.3

## Typical Performance (when driving a 1.8in<sup>2</sup> green lamp)

$V_{DD} = V_{IN}$ (V)	$I_{IN}$ (mA)	$V_{CS}$ (V)	$f_{EL}$ (Hz)	Brightness	
				ft-lm	cd/m <sup>2</sup>
1.8	20.8	84.0	206	4.56	15.6
2.0	17.3	84.8	206	4.91	16.8
3.0	13.9	86.8	206	5.53	18.9
4.0	9.6	88.0	206	5.94	20.3
5.0	7.2	90.0	206	6.20	21.2

## HV857DB1 Bill of Materials

Component	Description	Package	Manufacturer	Part #
$L_X$	220 $\mu$ H Inductor	-	Murata	LQH32CN221K21
$C_S$	3.3nF, 100V, NPO chip capacitor	0805	Novacap	0805N332K101NT
$R_{SW}$	5%, 560k $\Omega$ resistor	0805	Any	---
$R_{EL}$	5%, 2M $\Omega$ resistor	0805	Any	---
$C_{IN}$	4.7 $\mu$ F, 10V ceramic chip capacitor	0805	Any	---
$C_{DD}$	0.1 $\mu$ F, 16V ceramic chip capacitor	0603	Any	---
Diode	250V fast recovery diode	SOT-23	Diodes Inc	BAS21
Clip	Micro alligator clip	-	Mueller	BU-34
Boot	Flexible vinly insulation	-	Mueller	BU-36-0
U1	EL driver IC	MSOP-8	Supertex Inc	HV857MG-G

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