EL Lamp Driver Demoboard

General Description

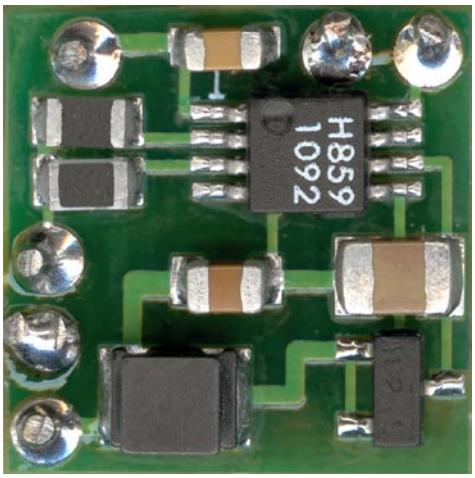
The Supertex HV859DB1 demoboard contains all the necessary circuitry needed to demonstrate the features of the HV859 EL lamp driver.

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

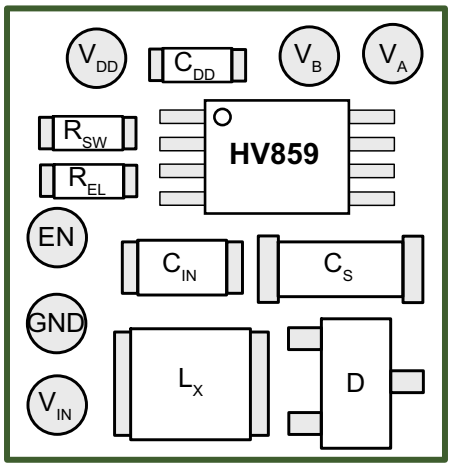
Specifications

Parameter	Value
Input voltage:	1.8 to 5.0V
Typical supply current:	25mA
Lamp size range:	up to 5.0in^2
Lamp frequency:	204Hz
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 20kΩ.

V_{DD} - IC Supply

Supplies the HV859 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 the positive terminal of a power supply.

V_{IN} - Inductor Supply

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

GND - Circuit Ground

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

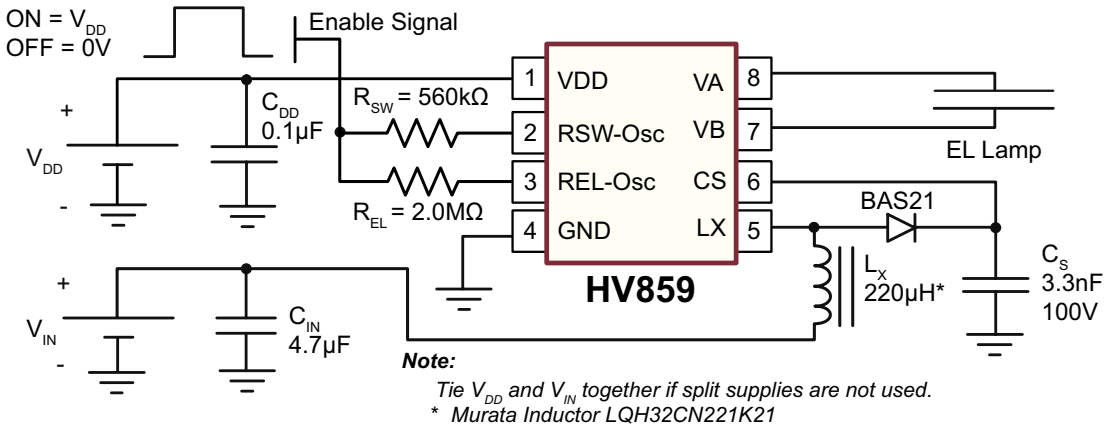
V_A and V_B - Lamp Connections

Connect to an EL lamp. Polarity is irrelevant.

Note:

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

Circuit Schematic



Note:

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

** Murata Inductor LQH32CN221K21*

Typical Performance

The specific external components used in the above circuit are L_x = 220µH Murata (LQH32CN221K21), C_S = 3.3nF 200V NPO.

Lamp Size (in^2)	$V_{DD} = V_{IN}$ (V)	I_{IN} (mA)	V_{CS} (V_{PEAK})	f_{EL} (Hz)	Brightness	
					ft-lm	cd/m2
3.0	1.8	25.4	102	204	3.74	12.8
3.0	2.0	25.5	104	204	4.70	16.1
3.0	3.0	26.1	106	204	7.57	25.9
3.0	4.0	20.6	109	204	8.45	28.9
3.0	5.0	17.0	112	204	8.87	30.3

Bill of Materials

	Description	Package	Manufacturer	Part #
L_X	220µH inductor	---	Murata	LQH32CN221K21
C_S	3.3nF, 200V, NPO chip capacitor	1206	Tecate Industries	CMC-200/332JN1206T
R_{SW}	1%, 562kΩ resistor	0603	Any	---
R_{EL}	1%, 2MΩ resistor	0603	Any	---
C_{IN}	4.7µF, 10V ceramic chip capacitor	0805	Any	---
C_{DD}	0.1µF, 16V ceramic chip capacitor	0603	Any	---
Diode	250V fast recovery diode	SOT-23	Diodes Inc	BAS21
U1	EL driver IC	8-Lead MSOP	Supertex Inc	HV859MG

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

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