

Features

- 1.8V to 3.5V supply voltage
- DC to AC conversion
- Adjustable output frequency
- Adjustable switch frequency
- Output voltage regulation
- Enable/disable function

Applications

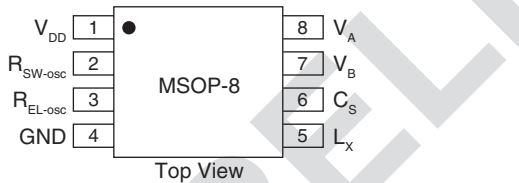
- Mobile cellular phones
- Pagers
- Portable Transceivers
- Remote Control Units
- Calculators

Ordering Information

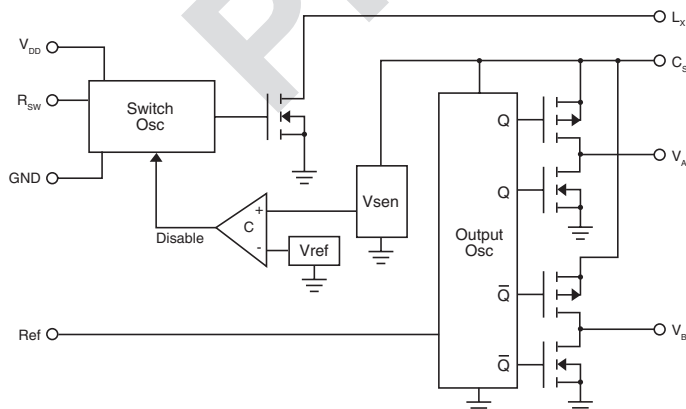
Part	Description
CPC6826	MSOP-8

Pin Configuration

CPC6826 Pinout



Block Diagram



Description

Clare's CPC6826 is an electroluminescent (EL) lamp driver designed for applications operating from an input supply voltage range of 1.8V to 3.5V. Typically, an EL lamp driver circuit converts a lower voltage supply to a voltage large enough to activate the electroluminescent material. The CPC6826 accomplishes this by integrating two oscillators and a low component count boost switching supply with an H bridge driver circuit to illuminate the EL lamp. To conserve supply power and extend battery life, the CPC6826 automatically shuts down the switcher circuit whenever switcher output power exceeds load requirements. Supply power can also be conserved manually by disabling the switching circuit. Disabling the switcher is realized by connecting the resistor on pin R_{SW-osc} to ground.

Only three passive components, an inductor, a capacitor and a diode are required to complete the boost switcher circuit. When turned on, the internal low impedance switching MOSFET causes current to flow through the external inductor. With current flowing through the inductor, the switching MOSFET is turned off causing a flyback voltage to develop across the inductor. As the inductor's flyback voltage increases to a level greater than a diode drop above the voltage across the capacitor on the C_S pin, charge stored in the inductor is transferred into the C_S capacitor. The nominal regulated output voltage at the C_S pin is 75V.

Frequency control of the switching oscillator is set by the external resistor connected to the R_{SW-osc} pin. Connecting the other side of this resistor to the supply pin V_{DD} enables the switcher.

Switching the polarity of the regulated output voltage by the internal high voltage H bridge provides a nominal $\pm 75\text{V}$ output between pins V_A and V_B . This alternating voltage generates a $150V_{PP}$ potential across the EL lamp. An external resistor connected between the R_{EL-osc} pin and the V_{DD} pin sets the frequency of the internal oscillator that steers the H bridge.

Absolute Maximum Ratings*

Parameter	Ratings	Units
Supply Voltage, V_{DD}	-0.5 to +4.5	V
Output Voltage, V_{CS}	-0.5 to +100	V
Operating Temperature Range	-25 to +85	°C
Storage Temperature Range	-65 to +150	°C
MSOP-8 Power Dissipation	250	mW

* All voltages are referenced to GND.

Absolute Maximum Ratings are stress ratings. Stresses in excess of these ratings can cause permanent damage to the device. Functional operation of the device at conditions beyond those indicated in the operational sections of this data sheet is not implied.

Recommended Operating Conditions

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Supply Voltage	-	V_{DD}	1.8	-	3.5	V
V_{A-B} output drive frequency	-	f_{EL}	60	-	1000	Hz
Operating temperature	-	T_A	-25	-	85	°C

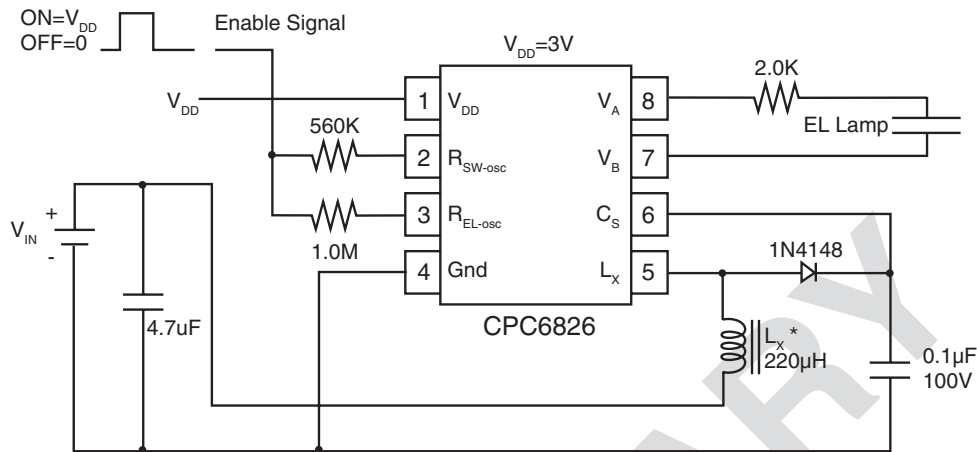
Electrical Characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Units
DC Characteristics (Over recommended operating conditions unless otherwise specified, $T_A=25^\circ\text{C}$)						
On-resistance of switching transistor	$I=100\text{mA}$	$R_{DS(on)}$	-	-	7.0	Ω
Max. output regulation voltage	$V_{DD}=1.8\text{V to }3.5\text{V}$	V_{CS}	70	75	80	V
Max. of differential output voltage across lamp	$V_{DD}=1.8\text{V to }3.5\text{V}$	V_{A-B}	-	150	-	V
Quiescent V_{DD} supply current	$R_{SW-osc} = \text{Low}$	I_{DDQ}	-	-	100	nA
Input current going into the V_{DD} pin	$V_{DD}=1.8\text{V to }3.5\text{V}$ (Figure 1)	I_{DD}	-	-	200	μA
Input current including inductor current	$V_{IN}=1.5\text{V}$ (Figure 1)	I_{IN}	-	35	45	mA
Output voltage on V_{CS}	$V_{IN}=1.5\text{V}$ (Figure 1)	V_{CS}	65	75	-	V
V_{A-B} output drive frequency	$V_{IN}=1.5\text{V}$ (Figure 1)	f_{EL}	300	375	450	Hz
Switching transistor frequency	$V_{IN}=1.5\text{V}$ (Figure 1)	f_{SW}	-	70	-	kHz
Switching transistor duty cycle	(Figure 1)	D	-	88	-	%

Enable/Disable Function Table

Parameter	Conditions	Symbol	Min	Typ	Max	Units
Logic input low voltage	$V_{DD}=1.8\text{V to }3.5\text{V}$	EN-L	0	-	0.5	V
Logic input high voltage	$V_{DD}=1.8\text{V to }3.5\text{V}$	EN-H	$V_{DD}-0.5$	-	V_{DD}	V

Figure 1: Typical Application



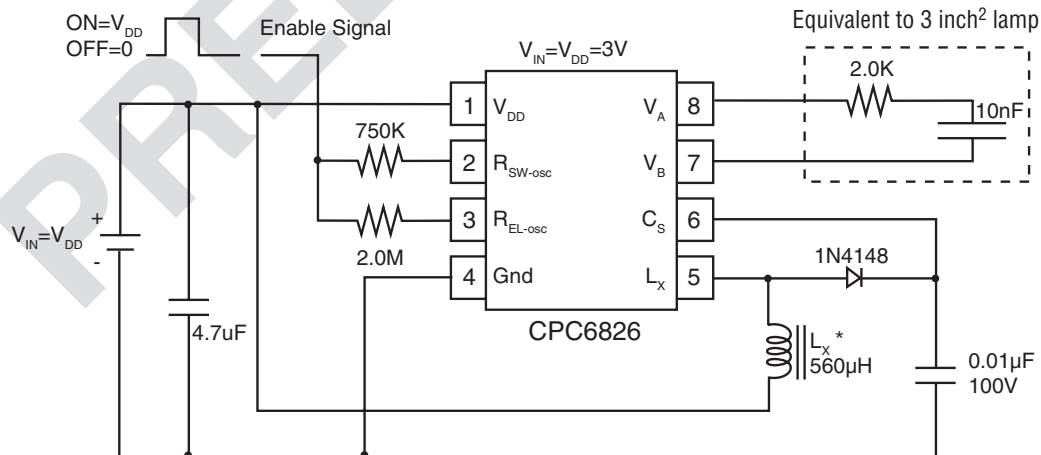
*L_x = Murata LQH43MN221K03

Operating V_{DD} voltage: 1.8V to 3.5V
EL lamp size: Up to 2.5 in²
Brightness: 3.0 to 5.0 ft-lm

Typical Performance

Device	Lamp Size	V _{IN}	I _{IN}	V _{CS}	f _{EL}	Brightness	T _A
CPC6826	1.6in ²	1.5V	35mA	66V	345Hz	5.0ft-lm	-25°C to +85°C

Figure 2: Typical Application



*L_x = Murata LQH43MN561K03K

Operating V_{DD} voltage: 1.8V to 3.5V
EL lamp size: Up to 4.5 in²
Brightness: 3.0 to 5.0 ft-lm

Typical Performance

Device	Lamp Size	V _{DD}	I _{DD}	V _{CS}	f _{EL}	Brightness	T _A
CPC6826	3.0in ²	3.0V	23mA	80V	195Hz	4.0ft-lm	-25°C to +85°C

Manufacturing Information

Soldering

Recommended soldering processes are limited to 245°C component body temperature for 10 seconds.

Washing

Clare does not recommend ultrasonic cleaning or the use of chlorinated solvents.

PRELIMINARY

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