

## General Description

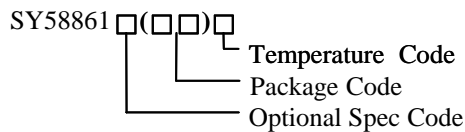
SY58861A is a single-stage Boost PFC driver for LED lighting applications. Good compatibility is achieved with Leading/Trailing edge dimmer and high PF is achieved without any dimmer.

SY58861A drives the converter in Quasi-Resonant mode to achieve high efficiency. Reliable Open LED protections are integrated.

SY58861A integrates high voltage power FET inside to save driver space further.

SY58861A is available in SOT23-5 package.

## Ordering Information



Ordering Number	Package type	Note
SY58861AAAC	SOT23-5	----

## Features

- Compatible with Leading Edge/Trailing Edge Dimmer
- High PF without Any Dimmer
- 500V MOSFET Integrated
- Quasi-Resonant Operation
- Reliable Open LED Protection
- Thermal Fold Back
- Low BOM Cost
- Compact Package: SOT23-5

## Applications

- LED Lighting
- Leading Edge Dimming
- Trailing Edge Dimming

## Typical Applications

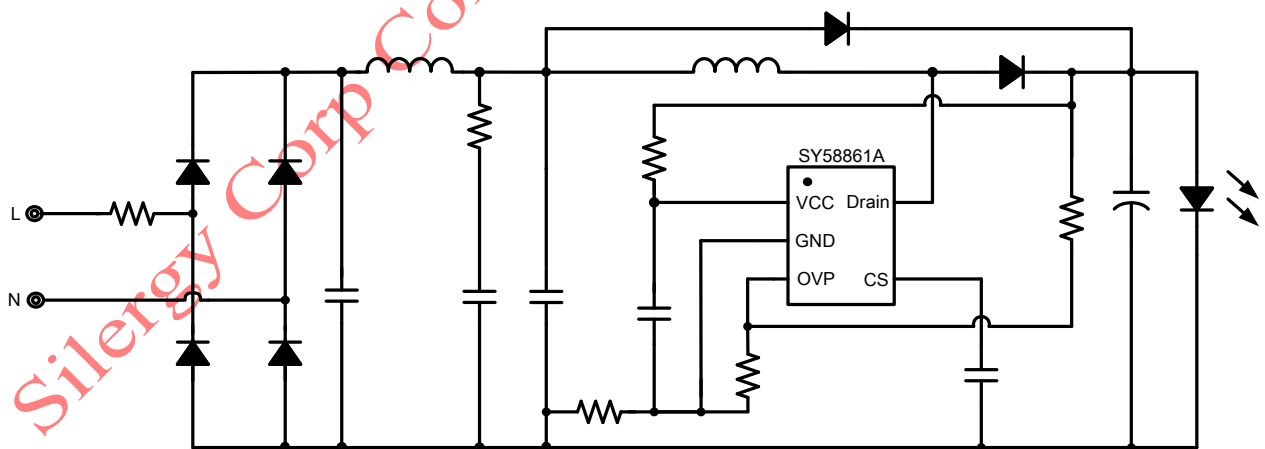
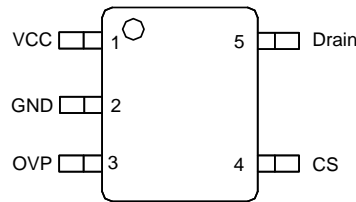


Figure 1. Typical application

**Pinout** (top view)

**(SOT23-5)**
**Top Mark: dYxyz** (device code: dY, x=year code, y=week code, z= lot number code)

Pin Name	PIN Number	Pin Description
VCC	1	Bias supply pin.
GND	2	Ground pin.
OVP	3	Voltage sense pin. Connect to a resistor divider of inductor or auxiliary winding to sense output voltage. $V_{OVP} = K \times V_{OVP,REF}$ , where K is the OVP resistor ratio coefficient.
CS	4	Current sense pin, connect a cap and sense res to GND pin. $R_{CS} = \frac{V_{REF}}{2I_O}$
Drain	5	Internal MOSFET drain node.

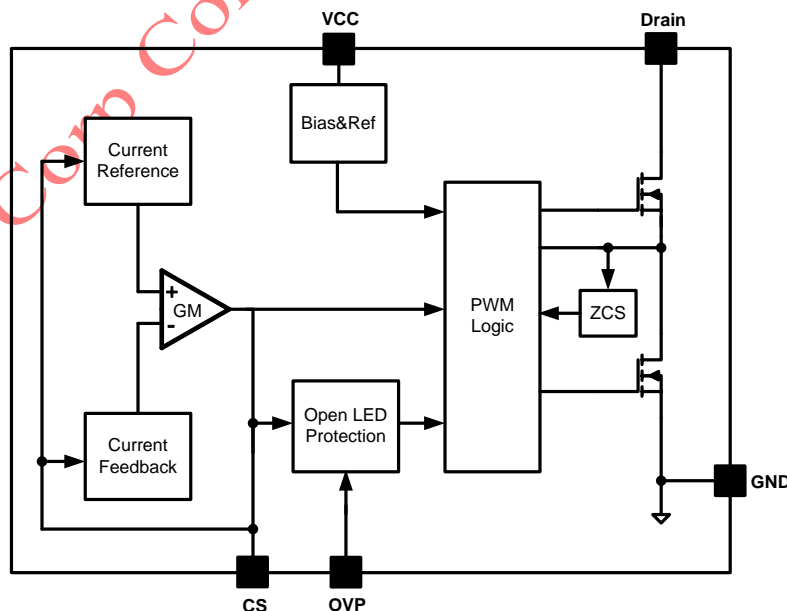
**Block Diagram**


Fig.2 Simplified block diagram

## Absolute Maximum Ratings (Note 1)

VCC	-----	-0.3V~20V
I <sub>VCC</sub>	-----	4mA
CS, OVP	-----	-0.3V~4V
Drain	-----	500V
Power Dissipation, @ TA = 25°C SOT23-5	-----	0.6W
Package Thermal Resistance (Note 2)		
SOT23-5, $\theta_{JA}$	-----	170°C/W
SOT23-5, $\theta_{JC}$	-----	130°C/W
Maximum Junction Temperature	-----	165°C
Lead Temperature (Soldering, 10 sec.)	-----	260°C
Storage Temperature Range	-----	-65°C to 165°C

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## Electrical Characteristics

( $V_{IN} = 12V$ ,  $T_A = 25^\circ C$  unless otherwise specified)

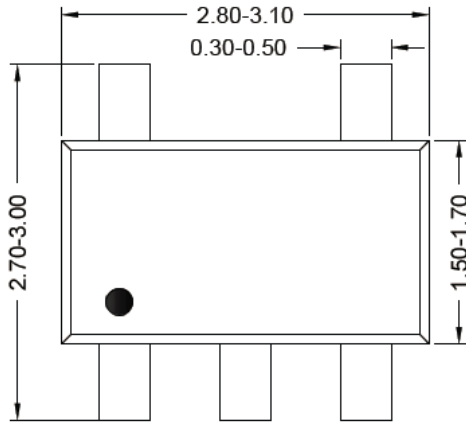
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Power Supply Section</b>						
VCC Turn-on Threshold	$V_{VCC\_ON}$			14.1		V
VCC Turn-off Threshold	$V_{VCC\_OFF}$			7.4		V
VCC Shunt Voltage	$V_{VCC\_Shunt}$			14.5		V
Start up Current	$I_{ST}$			45		$\mu A$
Quiescent Current	$I_Q$			213		$\mu A$
<b>CS Pin Section</b>						
Current Reference	$V_{REF}$			218		mV
CS Limit	$V_{CS\_MAX}$			1.7		V
<b>OVP Pin Section</b>						
OVP Voltage Reference	$V_{OVP\_REF}$			1.22		V
<b>Driver Section</b>						
Min ON Time	$T_{ON\_MIN}$			500		ns
Max ON Time	$T_{ON\_MAX}$			10.5		$\mu s$
Min OFF Time	$T_{OFF\_MIN}$			1.5		$\mu s$
Max OFF Time	$T_{OFF\_MAX}$			250		$\mu s$
<b>Integrated MOSFET Section</b>						
BV of HV MOSFET	$V_{BV}$		500			V
HV MOS Drain Source Resistance	$R_{DSON\_H}$			8		$\Omega$
<b>Thermal Section</b>						
Thermal Fold Back Temperature	$T_{FB}$			160		$^\circ C$
Thermal Shut Down Temperature	$T_{SD}$			$T_{FB} + 5$		$^\circ C$

**Note 1:** Stresses beyond the “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

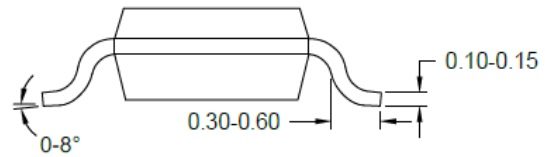
**Note 2:**  $\theta_{JA}$  is measured in the natural convection at  $T_A = 25^\circ C$  on a low effective single layer thermal conductivity test board of JEDEC 51-3 thermal measurement standard. Test condition: Device mounted on 2” x 2” FR-4 substrate PCB, 2oz copper, with minimum recommended pad on top layer and thermal vias to bottom layer ground plane

**Note 3:** The device is not guaranteed to function outside its operating conditions.

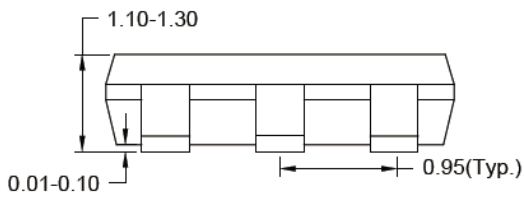
SOT23-5 Package outline & PCB layout design



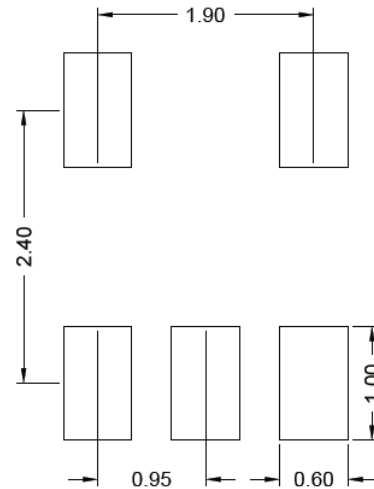
Top view



Side view



Front view



Recommended Pad Layout

Notes: All dimension in millimeter and exclude mold flash & metal burr.

单击下面可查看定价，库存，交付和生命周期等信息

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