



### Description

The HY2821 is a Power LED Current Detector. It can let a normal PWMIC transfer to be a LED Driver, and adjust constant current level more easy. It can let your constant current tolerance reduce less than 1%. And it can be fixed the Rsen at 0.1 ohm. When you want adjust current leave, you just change a X K ohm resistance. HY2821 have patent to approve by China & Taiwan & Japan & America.

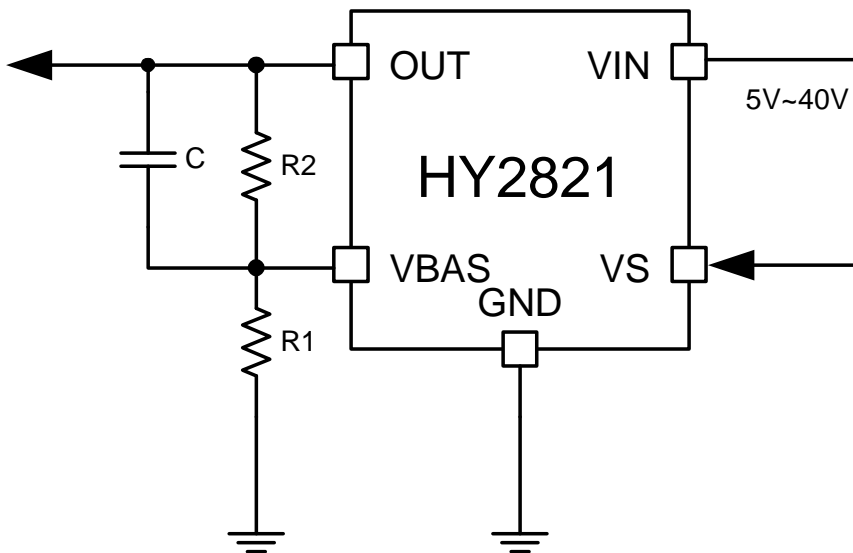
### Features

- n Operation from 5V to 40V.
- n Minimum sense current 200nA
- n Minimum sense voltage 10mV.
- n SOT23 5-pin small package.
- n Automotive qualified according AEC-Q100

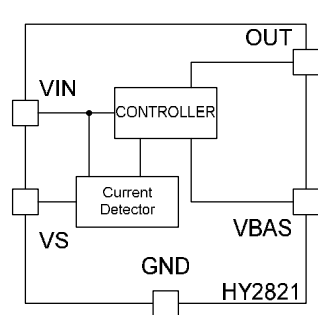
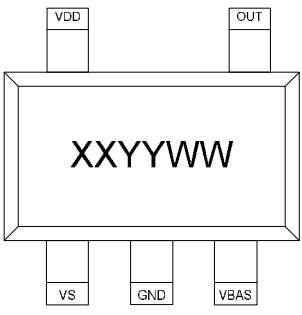
### Applications

- n LED Lighting Applications.

### Typical Applications Circuit



### SCHEMATIC DIAGRAM AND PIN DESCRIPTION

	<b>1</b>	<b>VS</b>	Current sensor	 <p style="text-align: center;"><b>SOT23-5L</b>          XX = Device Code          (21=HY2821)          YY=Year          WW=Weekly</p>
	<b>2</b>	<b>GND</b>	Ground	
	<b>3</b>	<b>VBAS</b>	Voltage Base connected with a low R	
	<b>4</b>	<b>OUT</b>	Output to Regulator Feedback	
	<b>5</b>	<b>VIN</b>	Power supply	

### ABSOLUTE MAXIMUM RATINGS

SYMBOL	PARAMETER	VALUE	UNIT
VIN	Supply Voltage	5 to 40	<b>V</b>
I <sub>OUT</sub>	Output Current	5	<b>mA</b>
I <sub>IN MIN</sub>	Minimum Input Current	200	<b>nA</b>
V <sub>IN MIN</sub>	Minimum Input Voltage	10	<b>mV</b>
T <sub>S</sub>	Storage Temperature	-55 to 150	<b>°C</b>
P <sub>D</sub>	Power Dissipation	Internally limited	<b>W</b>
ESD	ESD Protection HBM	2000	<b>V</b>

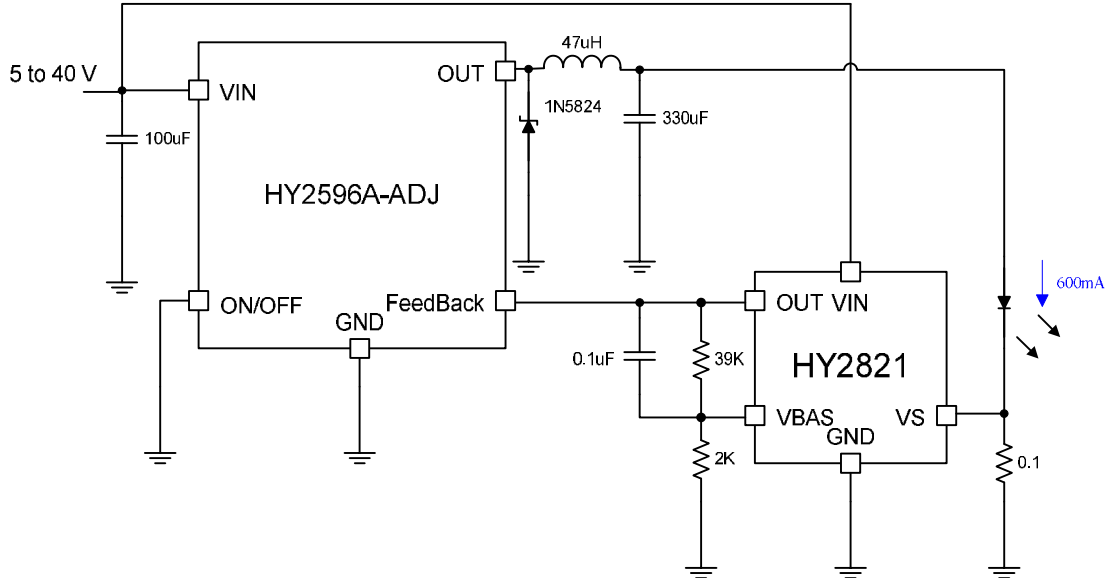
**ELECTRICAL CHARACTERISTICS**

(VIN = 5V, TA = 25°C, UNLESS OTHERWISE SPECIFIED)

PARAMETER	SYMBOL	CONDITION	MIN	TYP	MAX	UNIT
Supply Current	I <sub>CC</sub>	V <sub>IN</sub> =5V~40V			2	mA
Maximum Input Current	I <sub>IO</sub>	V <sub>IN</sub> =5V			200	nA
Maximum Output Drop Voltage	V <sub>DP</sub>	V <sub>IN</sub> = 30V, R <sub>L</sub> = 2KΩ V <sub>IN</sub> = 30V, R <sub>L</sub> = 10KΩ			4 3	V
Output Level Low Swing	V <sub>S</sub>	V <sub>IN</sub> = 5V, R <sub>L</sub> = 10KΩ			20	mV
Minimum Input Voltage	V <sub>IN MIN</sub>	V <sub>IN</sub> = 5V	10			mV

### APPLICATION CIRCUIT

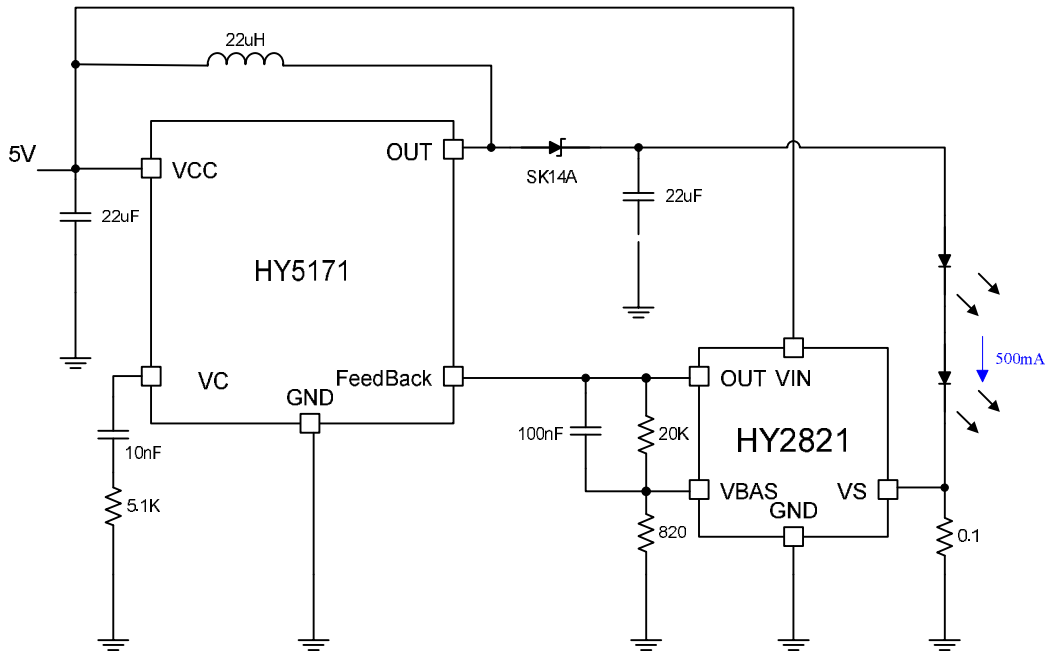
#### STEP DOWN (BUCK) Application



#### I Normal Current Setting List. (Fixed RSENSE = 0.1 Ω)

OUTPUT CURRENT (mA)	R2 (ohm)	R1 (Ohm)	C2 (uF)
330	36K	1K	0.1
350	51K	1.5K	0.1
500	47K	2K	0.1
600	39K	2K	0.1
750	51K	3.3K	0.1
1000	27K	2.4K	0.22

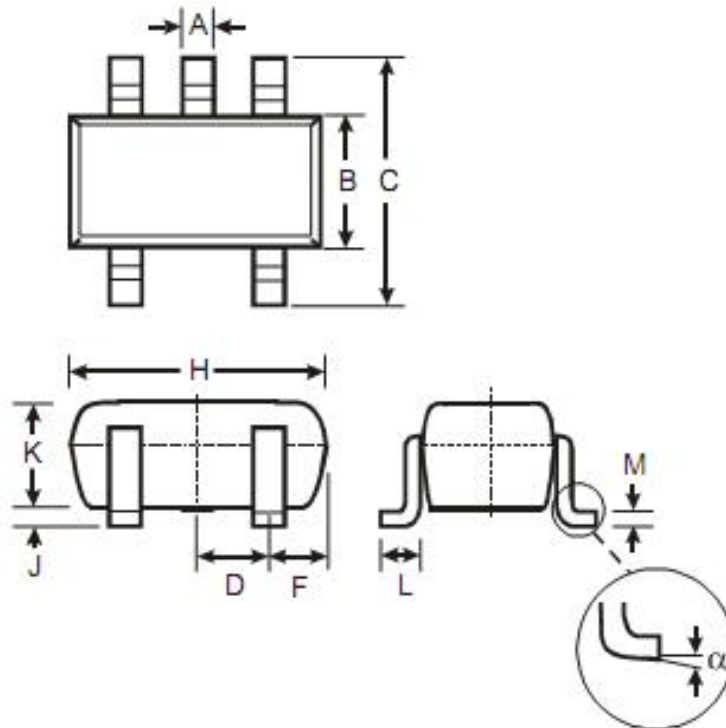
### STEP UP (BOOST) Application



#### I Normal Current Setting List. (Fixed RSENSE = 0.1 Ω)

OUTPUT CURRENT (mA)	R2 (ohm)	R1 (Ohm)	C2 (uF)
330	75K	2K	0.1
350	36K	1K	0.1
500	20K	820	0.1
600	20K	1K	0.1

## Package Outline Dimensions



<b>SOT-25</b>			
<b>Dim</b>	<b>Min</b>	<b>Max</b>	<b>Typ</b>
<b>A</b>	0.35	0.50	0.38
<b>B</b>	1.50	1.70	1.60
<b>C</b>	2.70	3.00	2.80
<b>D</b>	—	—	0.95
<b>F</b>	—	—	—
<b>H</b>	2.90	3.10	3.00
<b>J</b>	0.013	0.10	0.05
<b>K</b>	1.00	1.30	1.10
<b>L</b>	0.35	0.55	0.40
<b>M</b>	0.10	0.20	0.15
<b>α</b>	0°	8°	—
<b>All Dimensions in mm</b>			



**HY2821**

*Power LED Current Detector*

**ORDERING INFORMATION**

HY2821 ST25 R

Circuit Type ←

Package Type  
SOT25 : SOT23-5L ←

Shipping  
R: Tape & Reel →

ORDER NUMBER	PACKAGE	SHIPPING
HY2821-ST25R	SOT23-5L	3,000 UNITS/ TAPE & REEL