



## L3080

Preliminary

CMOS IC

### 30V/800mA INTEGRATED POWER LED DRIVER

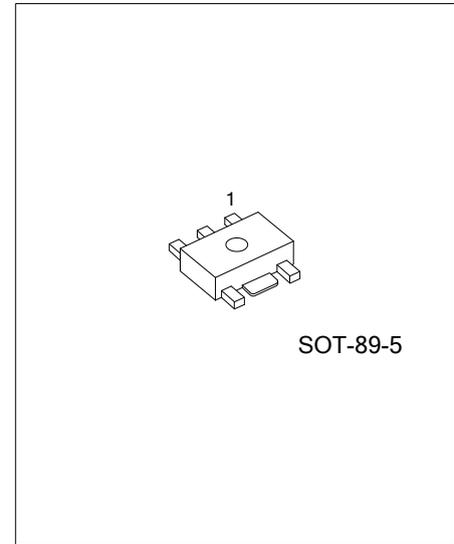
#### DESCRIPTION

The UTC **L3080** is a continuous conduction mode inductive step-down converter, designed for driving single or multiple series connected LEDs. Using a few external components.

The UTC **L3080** has a build-in power switch, based on different input voltage, The UTC **L3080** can drive several 1W or 3W LEDs. The device has the function of thermal shutdown protection and LED short-circuit/open-circuit protection.

#### FEATURES

- \* Up to 800mA output current
- \* High efficiency (up to 97%)
- \* Wide input voltage range: 5V~30V
- \* Typical ±5% output current accuracy
- \* Single DIM pin on/off and brightness control using DC voltage or PWM signal
- \* LED open-circuit protection
- \* LED short-circuit protection
- \* Internal thermal shutdown protection.
- \* Adjustable Constant LED Current

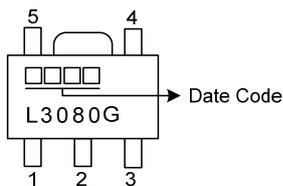


#### ORDERING INFORMATION

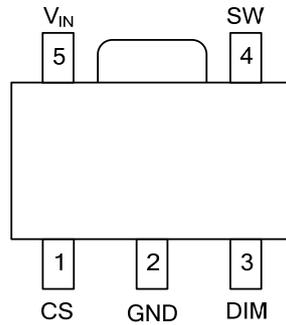
Ordering Number	Package	Packing
L4120G-AB5-R	SOT-89-5	Tape Reel

<p>L3080L-AB5-R</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) R: Tape Reel</li> <li>(2) AB5: SOT-89-5</li> <li>(3) G: Halogen Free and Lead Free</li> </ul>
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#### MARKING



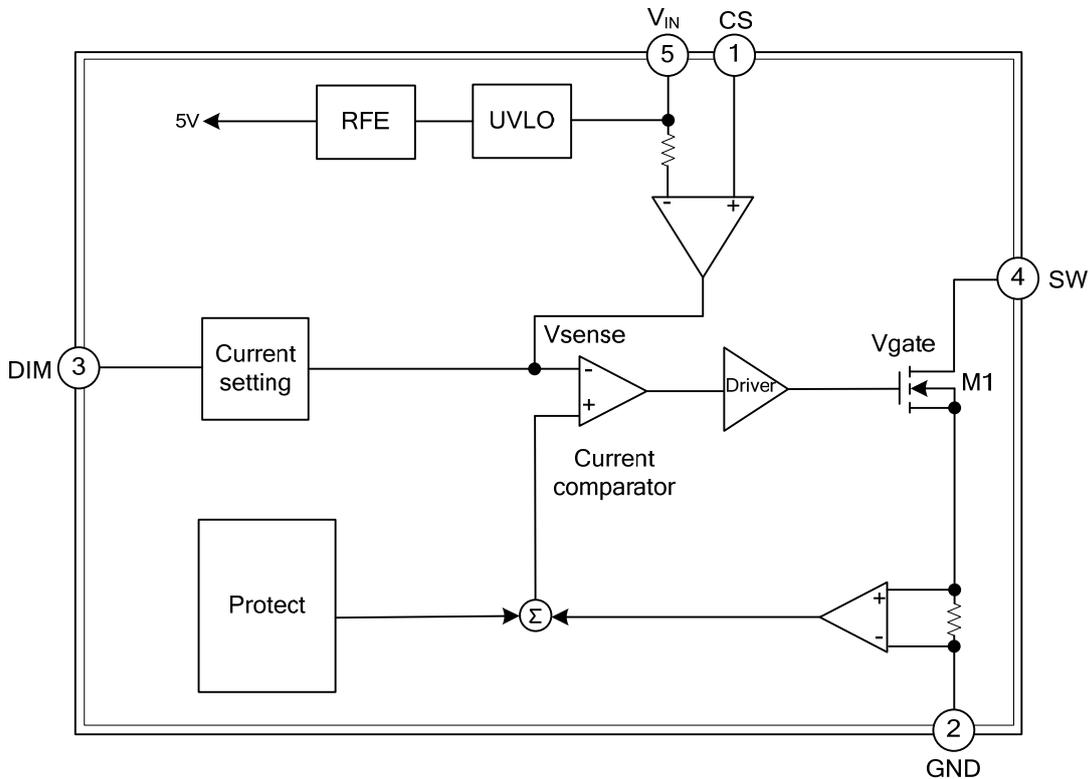
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	CS	Current sense input
2	GND	Signal and power ground
3	DIM	Enable switch, analog and PWM dimming input.
4	SW	Switch output.
5	$V_{IN}$	Input supply pin.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T<sub>A</sub>=25°C, unless specified otherwise)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V <sub>IN</sub>	40	V
Drain Voltage of the Internal Power Switch	SW	40	V
Current Sense Input (Respect to V <sub>IN</sub> )	CS	-6.0	V
Logic Level Dimming Input	DIM	-0.3 ~ 6	V
Switch Output Current	I <sub>SW</sub>	1	A
Power Dissipation	P <sub>D</sub>	0.8	W
Operation Junction Temperature Range	T <sub>J</sub>	-40 ~ +150	°C
Storage Temperature	T <sub>STG</sub>	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Human body model, 100pF capacitor discharged through a 1.5kΩ resistor.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ <sub>JA</sub>	160	°C/W

■ ELECTRICAL CHARACTERISTICS (Note 1, 2)

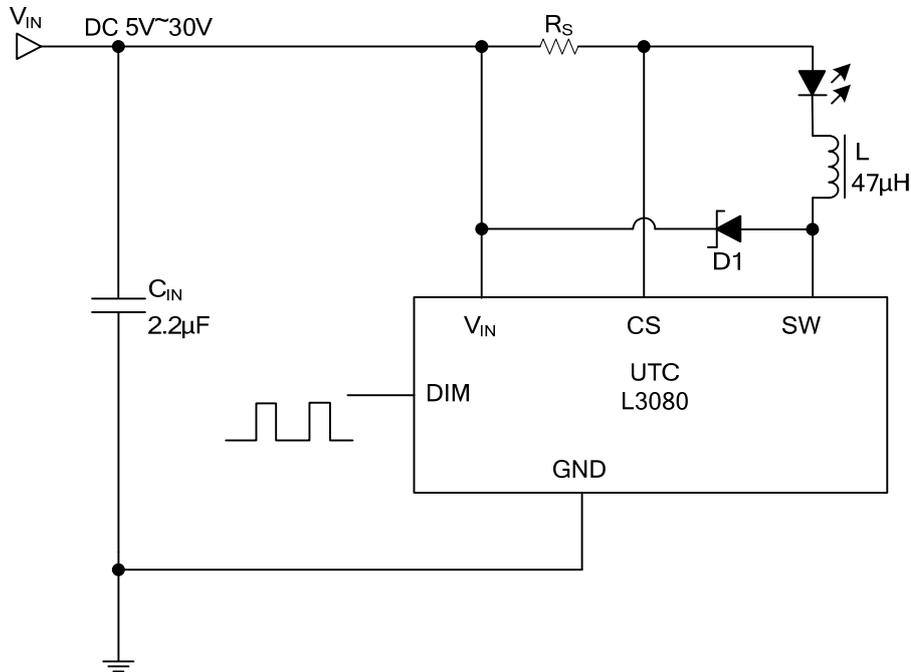
(The following specifications apply for V<sub>IN</sub>=12V, T<sub>A</sub>=25°C, unless specified otherwise.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V <sub>IN</sub>		5		30	V
Under Voltage Lock Out	V <sub>UVLO</sub>	V <sub>IN</sub> Falling		4.7		V
UVLO Hysteresis	V <sub>UVLO,HYS</sub>	V <sub>IN</sub> Rising		100		mV
<b>CURRENT SENSE</b>						
Mean Current Sense Threshold Voltage	V <sub>CS</sub>	V <sub>IN</sub> -V <sub>CS</sub>		100		mV
Sense Threshold Hysteresis	V <sub>CS,HYS</sub>			±15		%
<b>OPERATING FREQUENCY</b>						
Maximum Operation Frequency	F <sub>SW</sub>				1	MHz
<b>OPERATING CURRENT</b>						
Quiescent Supply Current with Output Off	I <sub>OFF</sub>	V <sub>DIM</sub> <0.3V		60		μA
<b>DIM INPUT</b>						
Internal Supply Voltage	V <sub>DIM</sub>	DIM Floating		5		V
DIM Input Voltage High	V <sub>DIM,H</sub>			2.5		V
DIM Input Voltage Low	V <sub>DIM,L</sub>			0.1		V
DIM Pull Up Resistor to Internal Supply Voltage	R <sub>DIM</sub>			150		KΩ
<b>DIM BRIGHTNESS DIMMER</b>						
DC Brightness Control Range	V <sub>DIM,DC</sub>		0.5		2.5	V
Duty Cycle Range of Low Frequency Dimming	D <sub>PWM,LF</sub>			3000:1		
Duty Cycle Range of High Frequency Dimming	D <sub>PWM,HF</sub>			10:1		
<b>OUTPUT POWER SWITCH</b>						
SW On Resistance	R <sub>SW</sub>			0.6		Ω
Continuous SW Current	I <sub>SW,mean</sub>				0.8	A
SW Leakage Current	I <sub>LEAK</sub>			0.5	5	μA
<b>THERMAL SHUTDOWN</b>						
Thermal Shutdown Threshold	T <sub>SD</sub>			150		°C
Thermal Shutdown hysteresis	T <sub>SD-hys</sub>			20		°C

Notes: 1. Typical parameters are measured at 25°C and represent the parametric norm.

2. Datasheet min/max specification limits are guaranteed by design, test, or statistical analysis.

■ TYPICAL APPLICATION CIRCUIT



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