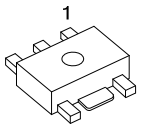
30V/800mA INTEGRATED POWER LED DRIVER



SOT-89-5

■ 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

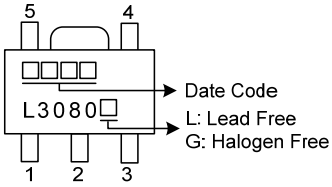
* Up to 800mA output current
* High efficiency (up to 97%)
* Wide input voltage range: 5V~30V
* Typical ±5% output current accuracy
* Single DIM pin on/off and brightness control using DC voltage or PWM signal
* LED open-circuit protection
* LED short-circuit protection
* Internal thermal shutdown protection.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

■ ORDERING INFORMATION

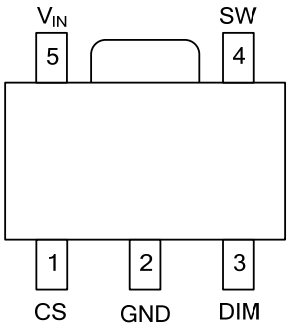
Ordering Number		Package	Packing
Lead Free	Halogen Free		
L3080L-AB5-R	L3080G-AB5-R	SOT-89-5	Tape Reel

L3080G-AB5-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) AB5: SOT-89-5 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING



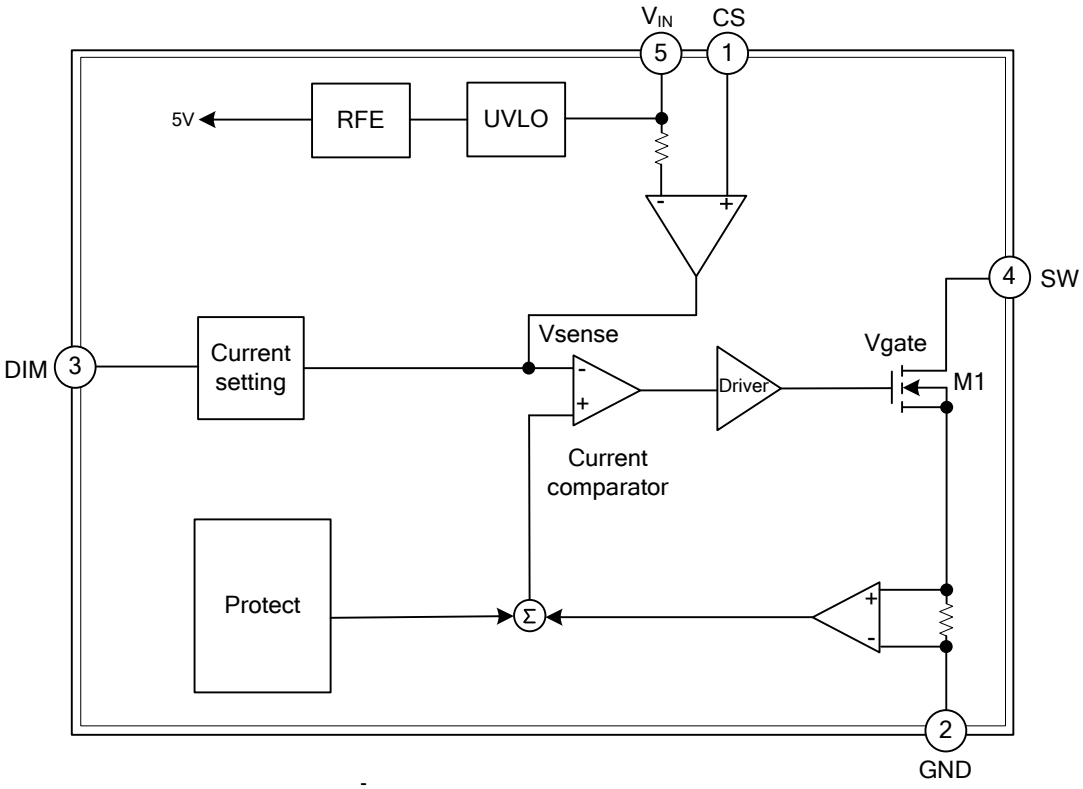
■ PIN CONFIGURATION



■ 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_A=25°C, unless specified otherwise)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{IN}	40	V
Drain Voltage of the Internal Power Switch	SW	40	V
Current Sense Input (Respect to V_{IN})	CS	-6.0	V
Logic Level Dimming Input	DIM	-0.3 ~ 6	V
Switch Output Current	I_{SW}	1	A
Power Dissipation	P_D	0.8	W
Operation Junction Temperature Range	T_J	-40 ~ +150	°C
Storage Temperature	T_{STG}	-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_{JA}	160	°C/W

■ ELECTRICAL CHARACTERISTICS (Note 1, 2)

(The following specifications apply for V_{IN}=12V, T_A=25°C, unless specified otherwise.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Voltage	V_{IN}		5		30	V
Under Voltage Lock Out	V_{UVLO}	V_{IN} Falling		4.7		V
UVLO Hysteresis	$V_{UVLO, HYS}$	V_{IN} Rising		100		mV
CURRENT SENSE						
Mean Current Sense Threshold Voltage	V_{CS}	V_{IN}-V_{CS}		100		mV
Sense Threshold Hysteresis	V_{CS_HYS}			±15		%
OPERATING FREQUENCY						
Maximum Operation Frequency	F_{SW}				1	MHz
OPERATING CURRENT						
Quiescent Supply Current with Output Off	I_{OFF}	V_{DIM}<0.3V		60		μA
DIM INPUT						
Internal Supply Voltage	V_{DIM}	DIM Floating		5		V
DIM Input Voltage High	V_{DIM_H}			2.5		V
DIM Input Voltage Low	V_{DIM_L}			0.1		V
DIM Pull Up Resistor to Internal Supply Voltage	R_{DIM}			150		KΩ
DIM BRIGHTNESS DIMMER						
DC Brightness Control Range	V_{DIM_DC}		0.5		2.5	V
Duty Cycle Range of Low Frequency Dimming	D_{PWM_LF}			3000:1		
Duty Cycle Range of High Frequency Dimming	D_{PWM_HF}			10:1		
OUTPUT POWER SWITCH						
SW On Resistance	R_{SW}			0.6		Ω
Continuous SW Current	I_{SWmean}				0.8	A
SW Leakage Current	I_{LEAK}			0.5	5	μA
THERMAL SHUTDOWN						
Thermal Shutdown Threshold	T_{SD}			150		°C
Thermal Shutdown hysteresis	T_{SD-hys}			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