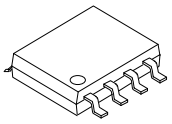
2A 150kHz 40V BUCK DC/DC CONVERTER WITH LED DRIVER AND BATTERY CHARGE



SOP-8

■ DESCRIPTION

The UTC **LD1596** is a 150KHz fixed frequency PWM buck (step-down) DC/DC converter, capable of driving a 2A load with high efficiency.

The PWM control circuit is able to adjust the duty ratio linearly from 0~100%. An enable function, an over current protection function is built inside. An internal compensation block is built in to minimize external component count.

■ FEATURES

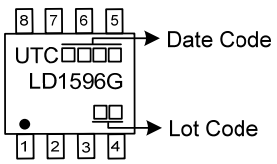
* Wide 4.5V~40V Input Voltage Range
* Output Adjustable from 1.235V~37V
* Minimum Drop Out 1.5V
* Fixed 150kHz Switching Frequency
* 2A Constant Output Current Capability
* Internal Optimize Power Transistor
* Excellent line and load regulation
* TTL shutdown capability
* ON/OFF pin with hysteresis function

■ ORDERING INFORMATION

Ordering Number	Package	Packing
LD1596G-S08-R	SOP-8	Tape Reel

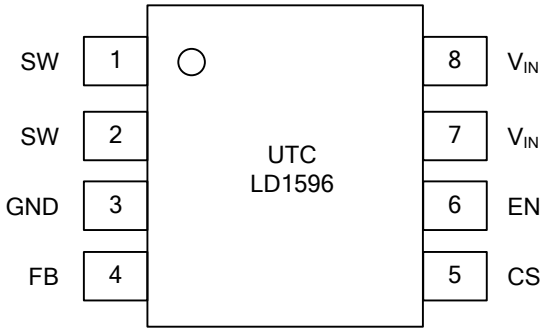
LD1596G-S08-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel (2) S08: SOP-8 (3) G: Halogen Free and Lead Free

■ MARKING



Copyright © 2015 Unisonic Technologies Co., Ltd

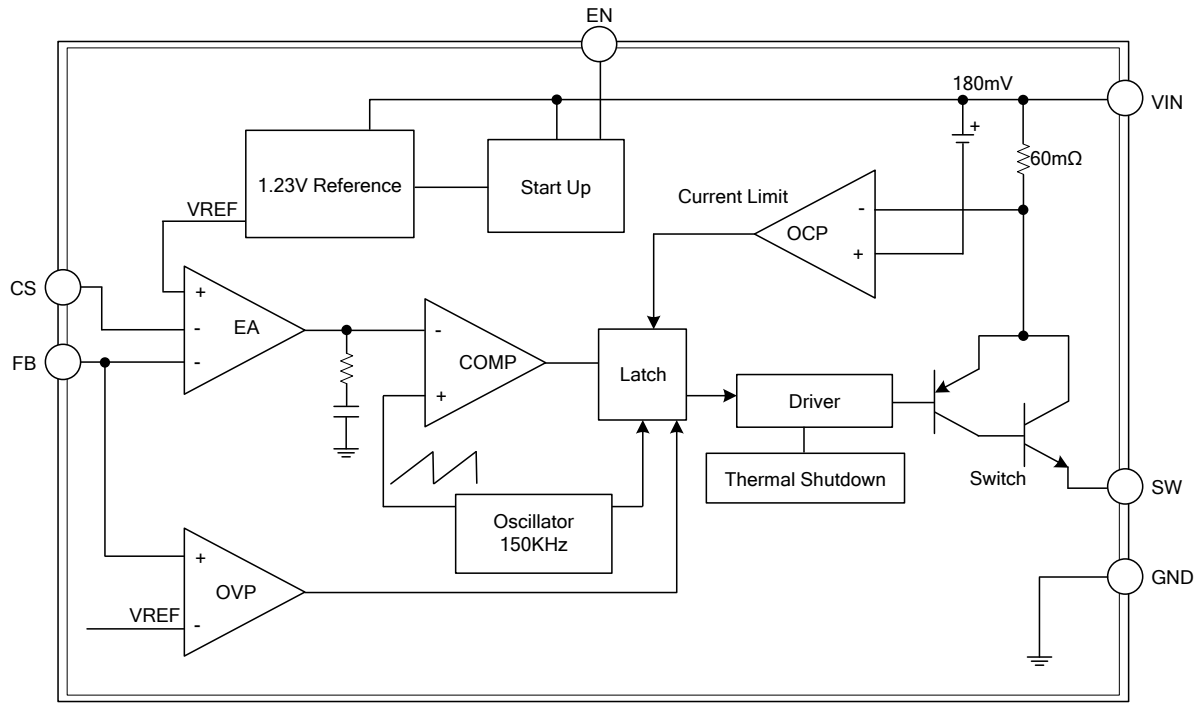
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1, 2	SW	Power Switch Pin (SW).
3	GND	Ground Pin.
4	FB	Output control Pin
5	CS	Output Current Sense Pin
6	EN	Enable Pin.
7, 8	V_{IN}	Supply Voltage Input Pin.

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Input Voltage	V_{IN}	-0.3~45	V
FB Pin Voltage	V_{FB}	-0.3~V_{IN}	V
EN Pin Voltage	V_{EN}	-0.3~V_{IN}	V
SW Pin Voltage	V_{SW}	-0.3~V_{IN}	V
Power Dissipation	P_D	Internally limited	mW
Thermal Resistance (Junction to Ambient, No Heatsink, Free Air)	R_{JA}	50	°C/W
Operating Junction Temperature	T_J	-40~125	°C
Storage Temperature	T_{STG}	-65~150	°C

Note: 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.

■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	θ_{JA}	150	°C/W

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
System Parameters Test Circuit Figure 1						
Feedback Voltage	V_{FB}	V_{IN}=8V~32V, V_{OUT}=5V, I_{LOAD}=0.2A~2A	1.21	1.235	1.26	V
Efficiency	η	V_{IN}=12V, V_{OUT}=5V, I_{OUT}=2A		81		%

■ ELECTRICAL CHARACTERISTICS (DC PARAMETERS)

V_{IN}=12V, GND=0V, V_{IN} & GND parallel connect a 220uf/50V capacitor; I_{OUT}=500mA, T_A=25°C, the others floating unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Operation Voltage	V_{IN}		4.5		40	V
Shutdown Supply Current	I_{STBY}	V_{EN}=5V		80	200	uA
Quiescent Supply Current	I_Q	V_{EN}=0V, V_{FB}=V_{IN}		2	5	mA
Oscillator Frequency	Fosc		127	150	172	Khz
Switch current Limit	I_L	V_{FB}=0		3		A
EN Pin Threshold	V_{EN}	High (Regulator OFF)		1.4		V
		Low (Regulator ON)		0.8		V
Output Saturation Voltage	V_{CE}	V_{FB}=0V, I_{SW}=2A		1.1	1.4	V
Constant Current Sense Voltage	V_{CS}		0.132	0.155	0.178	V

■ TYPICAL APPLICATION CIRCUIT

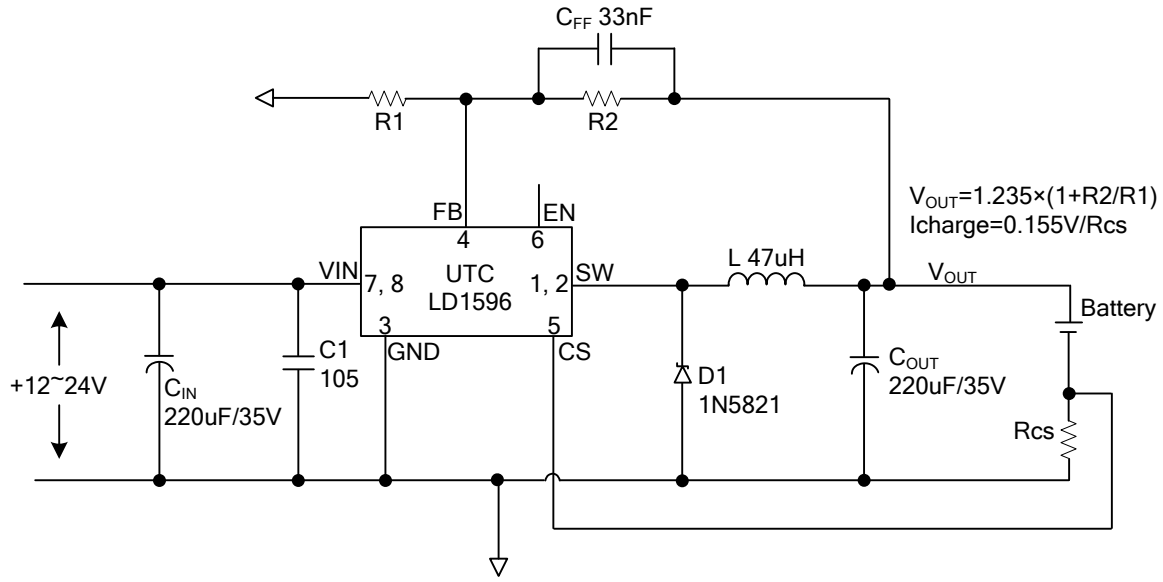


Figure 1. UTC **LD1596** Typical Application Circuit (Li Battery Charger)

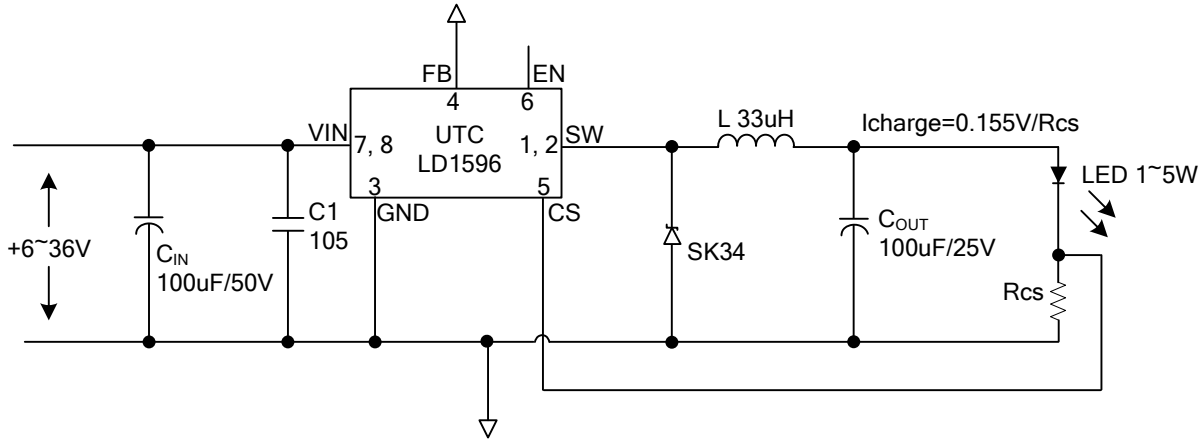


Figure 2. UTC **LD1596** Typical Application Circuit (LED Constant Current Driver)

UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.