

**Bipolar step-up DC-DC converter/White LED driver IC**  
**バイポーラ昇圧型DC-DCコンバータ/白色LEDドライバIC**



**TK11855F**  
(SON3024-8)



**TK11859F**  
(SON3024-8)

**DESCRIPTION**

The TK11855F type and TK11859F type are step-up DC-DC converter .

It can drive two, three or four LEDs in series.

It designed for White LED driver applications, using constant frequency PWM architecture, with the following built in: a very high current switching transistor (0.35A peak), a high speed oscillator (570kHz), a switch over current detector, a low voltage reference (V<sub>Ref</sub>=0.267V), an error amplifier, a PWM comparator, a zener diode for open-circuit protection and ON/OFF control.

This IC works with a very wide operation supply range (2.65to 16V) and the adjustable output voltage can be set as high as 20V. The white LEDs are connected in series and driven at a constant current, resulting in uniform brightness and high efficiency. The reference voltage is a very low 0.267V, achieving high efficiency operation with the constant current output. The ON/OFF control is built-in and the circuit current can be decreased when the EN pin is low (shutdown mode). The white LEDs can be dimmed by applying a PWM signal to the EN (ON/OFF control) pin. With this method, the white LED brightness is still controlled by constant current, resulting in constant chromaticity.

This can also be used in other applications as a step-up DC-DC converter.

TK11855Fタイプ、TK11859FタイプはPWM方式昇圧型DC-DCコンバータICです。

直列に接続された2~4灯の白色LED駆動に最適です。

白色LED直列接続、定電流駆動構成で、輝度ムラが少なく、高効率で動作します。

基準電圧は0.5Vと低く、定電流出力で高効率です。

一般的な昇圧型DC-DCコンバータとしても使用可能です。

**FEATURES**

- High efficiency
- Very wide operating voltage range (2.65 to 16V)
- 570kHz operation
- Internal switching transistor
- Maximum duty cycle 90%
- Very small inductor available
- Very small package SON3024-8

- 高効率85%
- 動作電圧範囲 2.65V to 16V(TK11855L)  
2.30V to 16V(TK11859L)
- 動作周波数 570kHz(TK11855L)  
1.2MHz(TK11859L)
- スイッチングトランジスタ内蔵
- 最大デューティサイクル 90%
- 小型コイル使用可能
- 0.75mm薄型パッケージ SON3024-8

**SELECTION CHART**

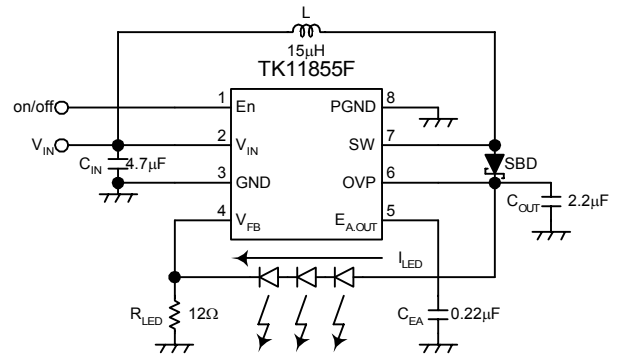
**機能一覧表**

Type	OSC system	DC-DC converter				White LED driver			V <sub>OP</sub>	T <sub>OP</sub>	P <sub>D</sub>	f <sub>OP</sub>
		Type	Switching Tr.	V <sub>OUT</sub>	Switching current	Num. of white LED	system	Efficiency				
TK11855F	PWM	Step-up	Internal	Adjustable	600mA	Series 2 to 4	Inductive External schottky	85%	2.65 to 10.0V	-30 to +85°C	600mW	570kHz
TK11859F	PWM	Step-up	Internal	Adjustable	360mA	Series 2 to 4	Inductive External schottky	83%	2.30 to 16.0V	-30 to +85°C	600mW	1.2MHz

## TK11855F 3 W-LED DRIVER APPLICATION

### ■ Designed Performance

Parameter	Value
Input Voltage	$V_{IN}=2.7$ to $6.5V$
LED Current	$I_{LED}=20mA$
Oscillation Frequency	$570kHz$
Inductor Peak Current	$220mA$
Coil (TOKO)	Type DB318C A997AS-150M



## TK11859F 3 W-LEDs DRIVER APPLICATION

### ■ Designed Performance

Parameter	Value
Input Voltage	$V_{IN}=2.65$ to $6.5V$
LED Current	$I_{LED}=20mA$
Oscillation Frequency	$1.2MHz$
Inductor Peak Current	$220mA$
Coil (TOKO)	Type D3010FB D3010FB-220M

