

**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**



**TK11880F**  
**(SON3024-8)**

**DESCRIPTION**

The TK11880F type is a step-up DC-DC converter designed for White LED driver applications, using constant frequency PWM architecture, with the following built in: a very high current switching transistor (0.6A peak), a high speed oscillator (1.0MHz), a switch over current detector, a low voltage reference ( $V_{Ref}=0.495V$ ), an error amplifier, a PWM comparator, a zener diode for open-circuit protection and ON/OFF control.

TK11880FTL-G can drive up to six White LEDs in series. This IC works with a very wide operation supply range (2.65V~10V) and the adjustable output voltage can be set as high as 24.5V. 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 0.495V, 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 built-in zener diode can be used for open-circuit protection in case the output load is disconnected, such as the string of LEDs opened. The internal zener diode reduces the external component count.

The TK11880FTL-G can also be used in other applications as a step-up DC-DC converter.

The TK11880FTL-G is available in the SON3024-8 surface mount package.

TK11880Fタイプは白色LEDをドライブするために開発した、PWM方式昇圧型DC-DCコンバータICです。直列に接続された最大6個の白色LEDをドライブ出来ます。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。その他、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**

- Very wide operating voltage range (2.65 to 10V)
- 1.0MHz operation
- Internal switching transistor
- Maximum duty cycle 93%
- 24.5V<sub>MAX</sub> output
- Very small inductor available
- Very small package SON3024-8
- 動作電圧範囲 2.65 to 10V
- 動作周波数 1MHz
- 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 93%
- 最大出力電圧24.5V
- 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				
TK11880F	PWM	Step-up	Internal	Adjustable	1.3A	Series 2 to 6	Inductive External schottky	80%	2.65 to 10.0V	-30 to +85°C	600mW	1MHz

## 6 W-LEDs DRIVER APPLICATION

## アプリケーション例

### ■ Designed Performance

Parameter	Value
Input Voltage	$V_{IN}=3.0$ to $9.0V$
LED Current	$I_{LED}=20mA$
Oscillation Frequency	$1.0MHz$
Inductor Peak Current	$300mA$

