# PFM DC-DC STEP-UP
## 1-3W WLED DRIVER W/CONSTANT CURRENT

**A8132**

## Description

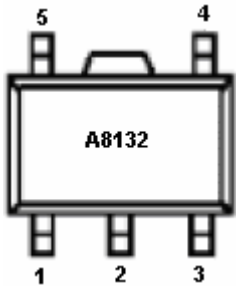
The A8132 is a PFM switching control IC, designed for LED driver application, driving current can be programmed by external resistor, ranging from 0mA to 500mA.

The A8132 provide SOT-89-5 package.

## Features

- 0.8V Low Start Up Voltage (Iout=1mA)
- 0~500mA adjustable output current range
- 2.5V~6V adjustable output voltage range
- ±10% output current accuracy
- ±100ppm/°C Output Current Drift Due to Temperature Change
- Few External Components
- High Efficiency: 80%
- SOT-89-5 Package

## Pin Description




Top View

SOT-89-5

| PIN # | PIN Name |
|---|---|
| 1 | $I_{FB}$ |
| 2 | $V_{OUT}$ |
| 3 | CE |
| 4 | Lx |
| 5 | GND |

## Application

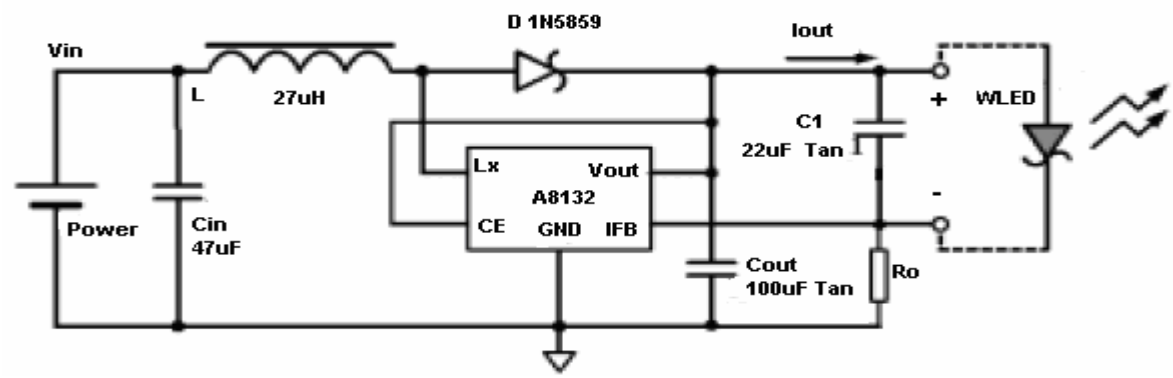
- High Power LED
- Constant Current Source Constant Voltage
- Constant Voltage Source can be used as Power Source with Single or Two Cells Input.

## Ordering Information

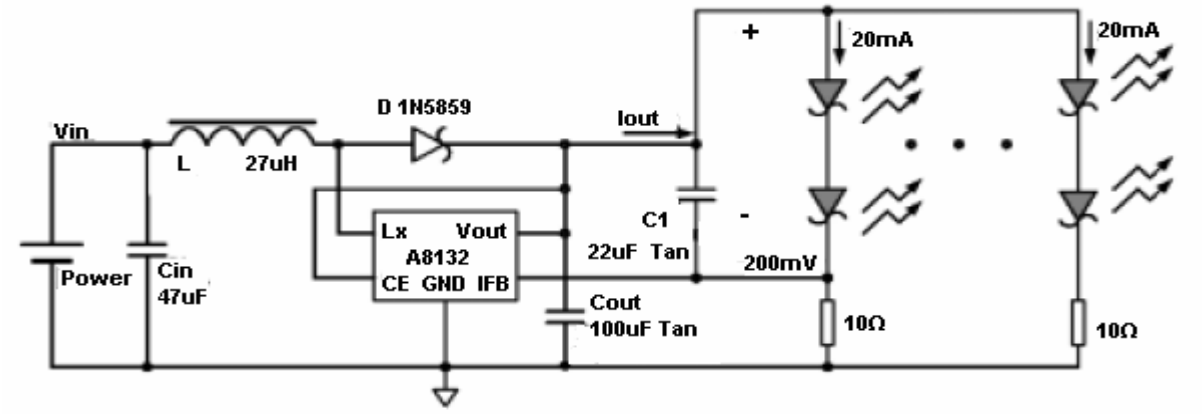
| | | |
|---|---|---|
| **K5** | SOT-89-5 | PN: A8132K5-XX |
| **XX** | 10=100mV, 20=200mV, 25=250mV, | |
| FB Voltage | 30=300mV, 35=350mV, 40=400mV… | |
| Note | AiT provides all Pb free parts | |

## Typical Application

1. Constant Current Application

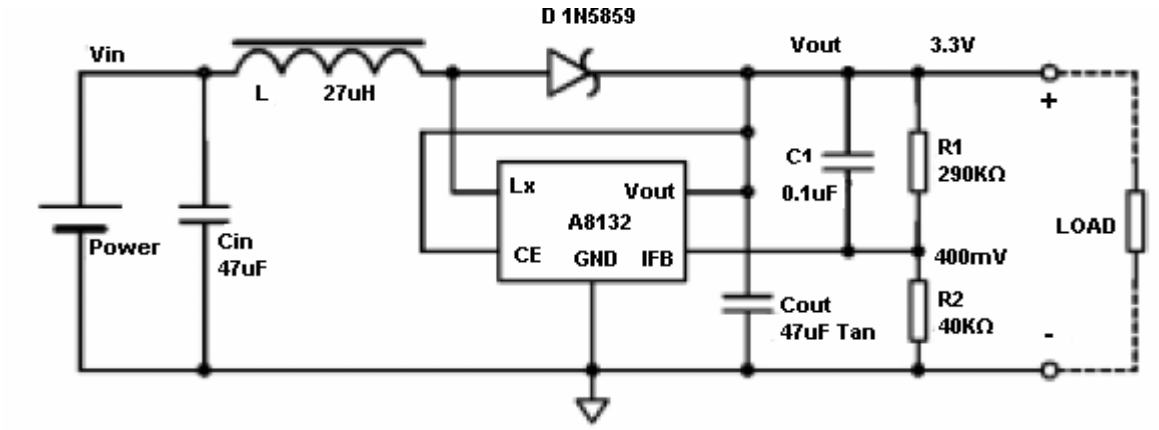



(A) Drive one 1W White LED




(B) Drive Multi-Series & Two Parallel White LED

2. Constant Voltage Application



## Absolute Maximum Ratings

| | |
|---|---|
| Input Voltage | 0.3V ~ 10.0V |
| Lx Switch Voltage | 0.3V ~ ($V_{OUT}$+0.3V) |
| CE Voltage | 0.3V ~ ($V_{OUT}$+0.3V) |
| $I_{FB}$ Input Voltage | 0.3V ~ ($V_{OUT}$+0.3V) |
| Lx Output Current | 1.5A |
| Max Power Dissipation, T=25°C , SOT-89-5 | 0.5W |
| Storage Temperature Range | -40~+125°C |
| Operating Temperature | -20~+85°C |
| Lead Temperature and Time | 260°C, 10S |
| Junction Temperature | 150°C |

## Electrical Characteristics

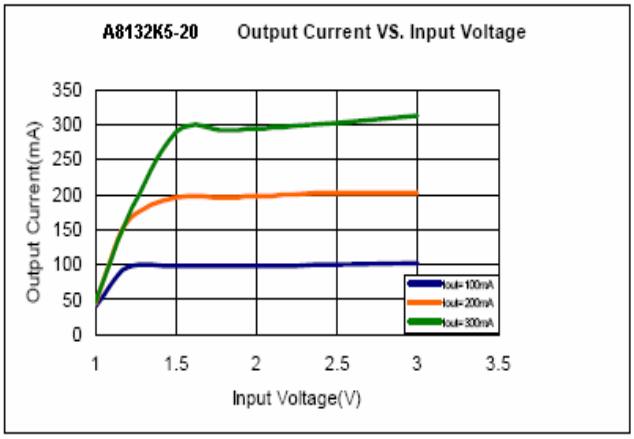
$V_{IN}$=2.5V, $V_{CE}$=$V_{OUT}$=3.3V, R=33Ω, $T_A$=25°C, unless otherwise noted.

| Parameter | Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|
| $V_{IFB}$ | $I_{OUT}$=100mA | 80 | 100 | 120 | mV |
| | | 180 | 200 | 220 | |
| | | 230 | 250 | 270 | |
| | | 280 | 300 | 320 | |
| | | 330 | 350 | 370 | |
| | | 380 | 400 | 420 | |
| $V_{START}$ | $I_{OUT}$=1mA, $V_{IN}$: 0 -> 2V | | 0.8 | 0.9 | V |
| $V_{HOLD}$ | $I_{OUT}$=1mA, $V_{IN}$: 2 -> 0V | 0.6 | 0.7 | | V |
| $I_{DD2}$ | Lx N/C, $V_{CE}$=$V_{IFB}$=$V_{OUT}$=3.3V, $V_{IN}$=2.5V | | 20 | 30 | uA |
| $I_{NOLOAD}$ | OUT & $I_{FB}$ No load, $V_{IFB}$=0 | | 100 | 150 | uA |
| $I_{LX}$ | $V_{LX}$=0.4V, $V_{IFB}$=0 | 700 | | | mA |
| $I_{LXLEAK}$ | $V_{OUT}$=$V_{LX}$=$V_{IFB}$=6V | | | 1 | uA |
| $I_{LEAK}$ | $V_{OUT}$=3.3V, $V_{CE}$=0, LX & IFB N/C | | <0.1 | 0.5 | uA |
| $F_{OSC}$ | $V_{IFB}$=0 | 300 | 350 | 400 | KHz |
| Max Duty | On ($V_{LX}$ "L") side | 70 | 75 | 80 | % |
| $\eta$ (Efficiency) | $I_{OUT}$=300mA | | 80 | | % |
| $V_{CEH}$ | $V_{CE}$: 0 -> 2 | 0.6 | 0.9 | | V |
| $V_{CEL}$ | $V_{CE}$: 2 -> 0 | | 0.3 | 0.6 | V |
| $V_{OM}$ (Max Output voltage) | OUT & IFB N/C, $V_{IN}$ < $V_{OUT}$ | 7.0 | 7.2 | 7.4 | V |
| $I_{OM}$ (Max Output Driving Current) | | | 500 | | mA |

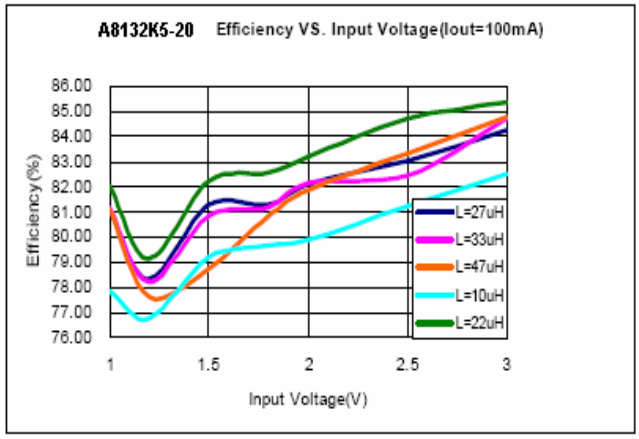
## Typical Characteristics

($C_{IN}$=47uF, C1=44uF, $C_{OUT}$=100uF, L=22uH, Topt=25°C, unless otherwise noted.)

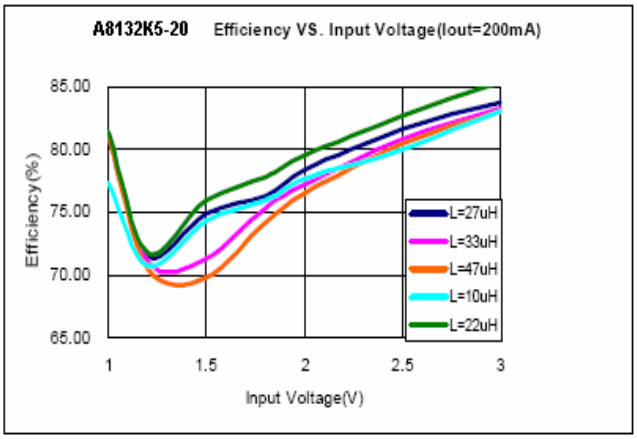
1.Output Current VS. Input Voltage



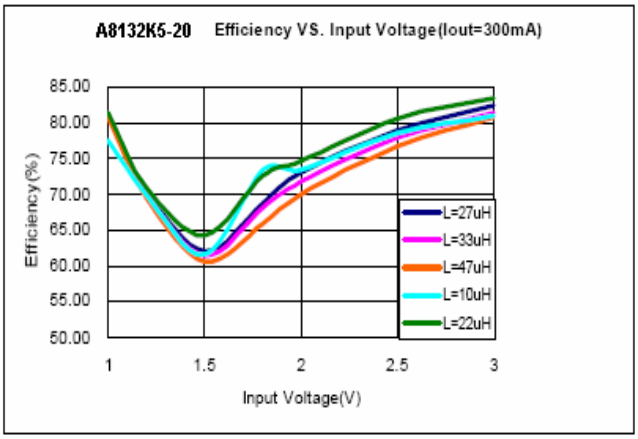

2.Efficiency VS. Input Voltage



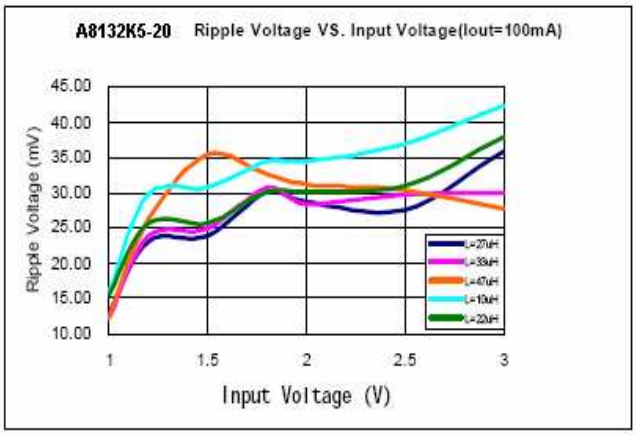

3.Efficiency VS. Input Voltage



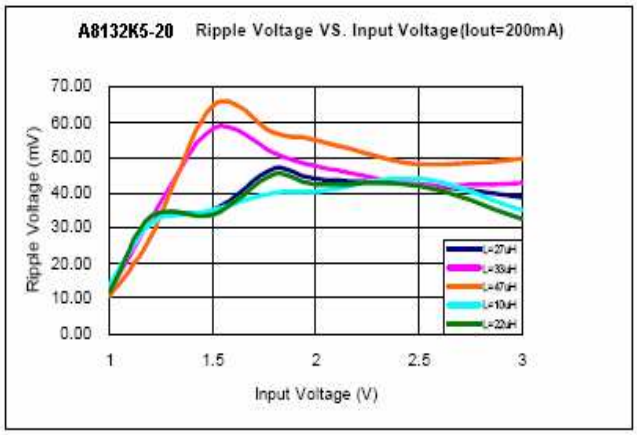

4.Efficiency VS. Input Voltage



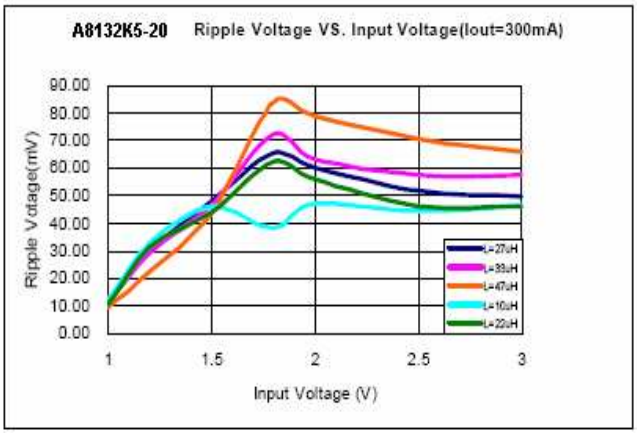
5.Ripple Voltage VS. Input Voltage



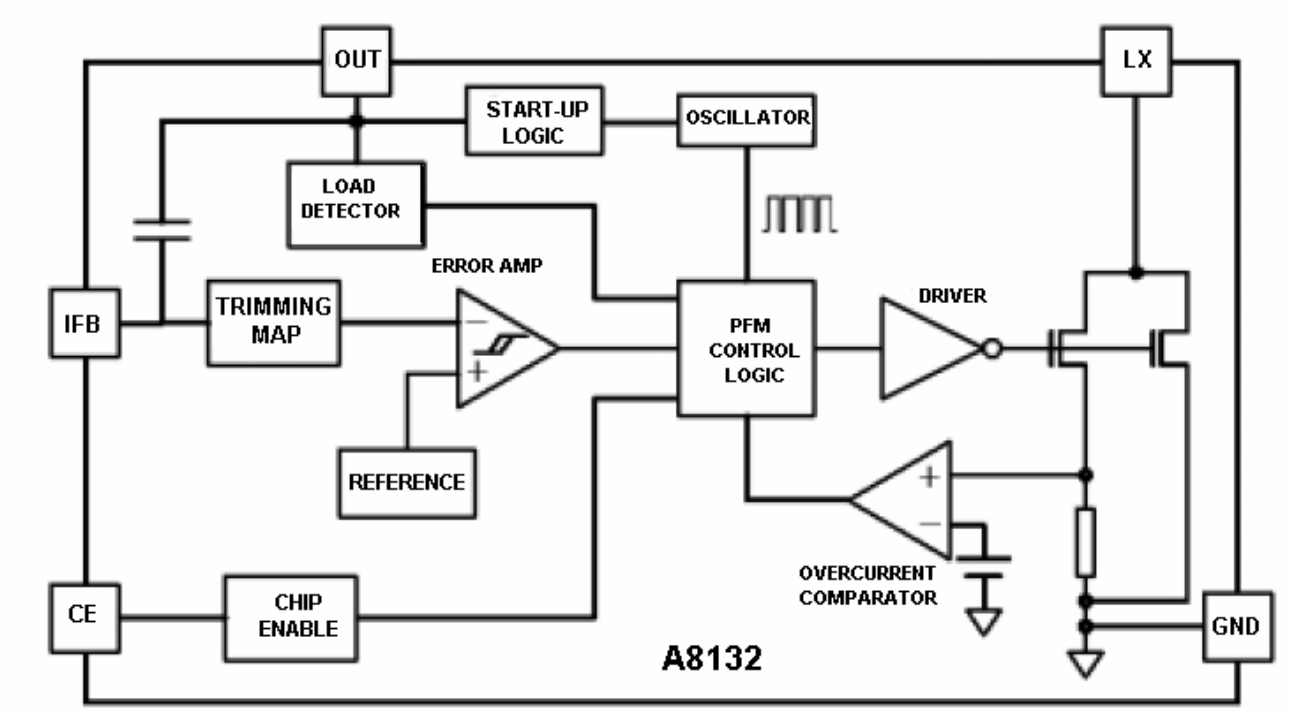

6.Ripple Voltage VS. Input Voltage




7.Ripple Voltage VS. Input Voltage

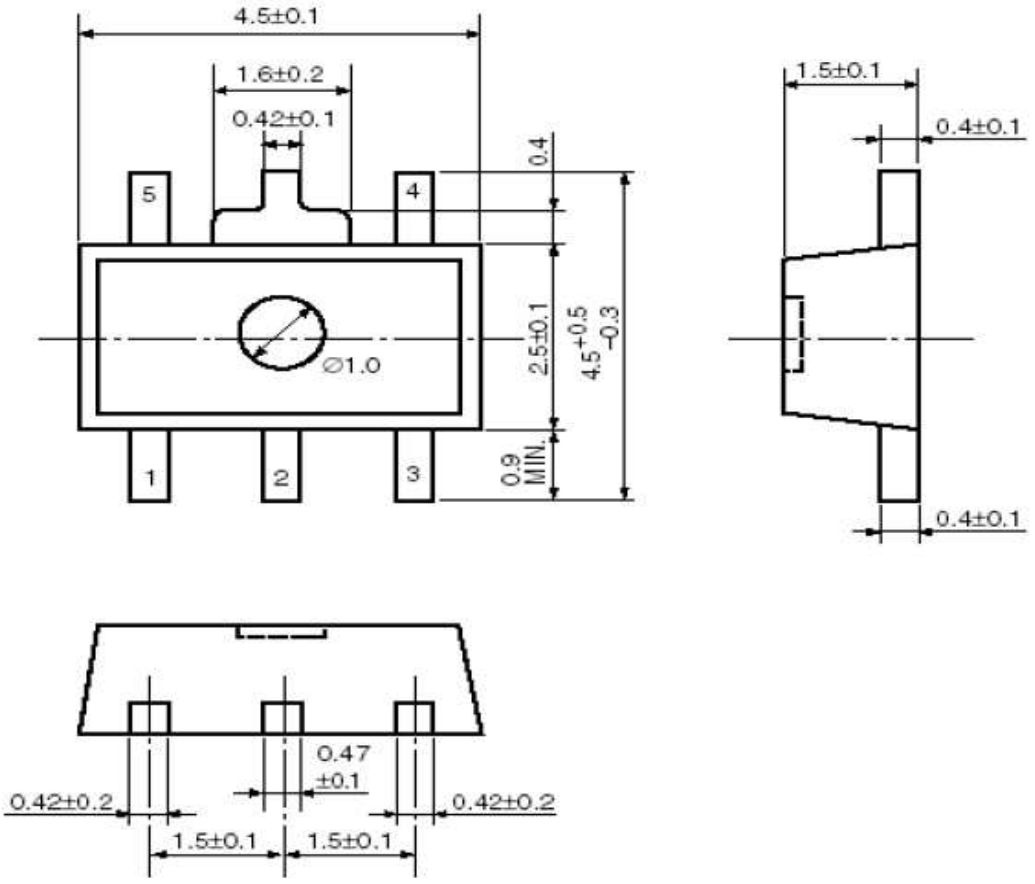


## Block Diagram

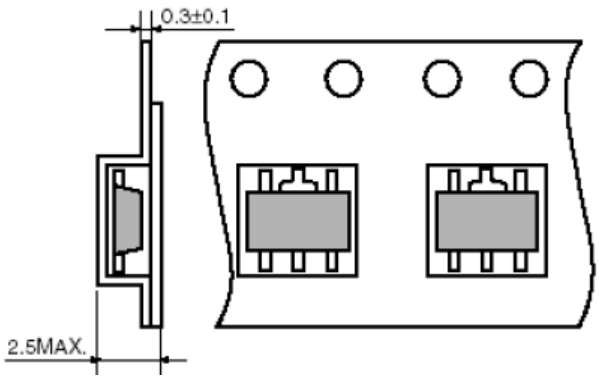


## Package Information

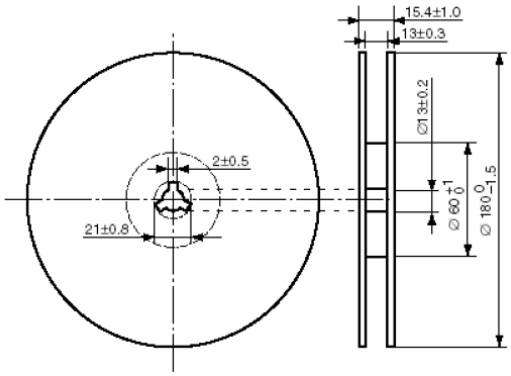
Dimension in SOT-89-5 (Unit: mm)




Tape Dimension




Tape & Reel Dimension



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