RoHS COMPLIANT

HF BFRs/CFRs/VC-Free

DW8506A

Low Power High Accuracy LED Driver

CONTENTS

1. General Description

DW8506A is suitable for low-power LED drivers. The output current is 60mA is fixed, and the input voltage of up to 36V driving is possible. PKG is a very small WLCSP, can be applied to small LED lights. Build-in thermal protection to prevent the IC over heat damage. You can find further details in our application notes.

DW8506A small parts, low cost, small size, and many are the perfect solution for low-power applications.
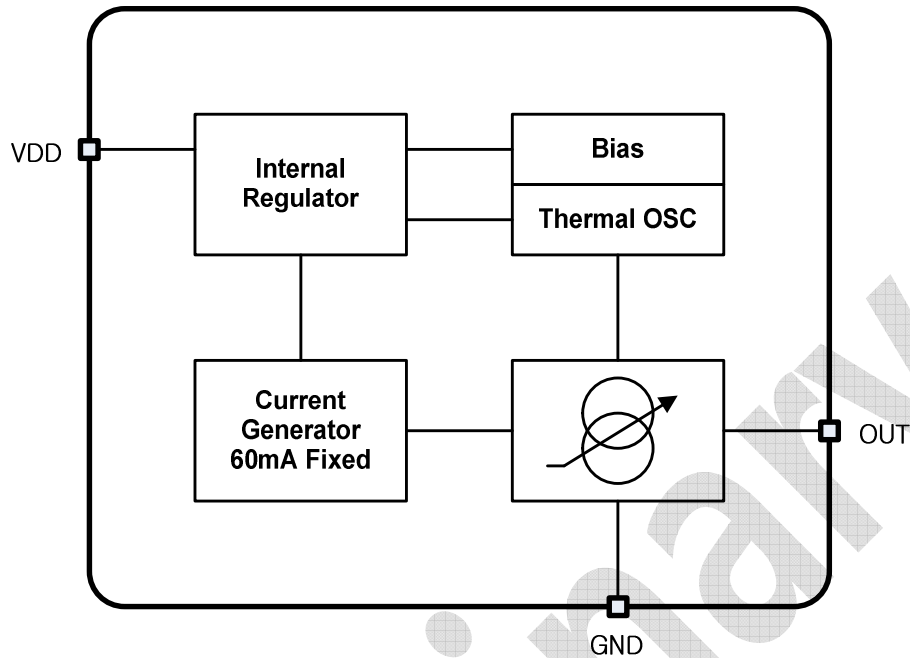
■ **Features**

- Constant output current invariant to supply and load voltage change
- 6.5V to 36V supply voltage
- 60mA fixed regulated output current
- Max. 0.5V output drop-out Voltage
- Built-in thermal derating circuit
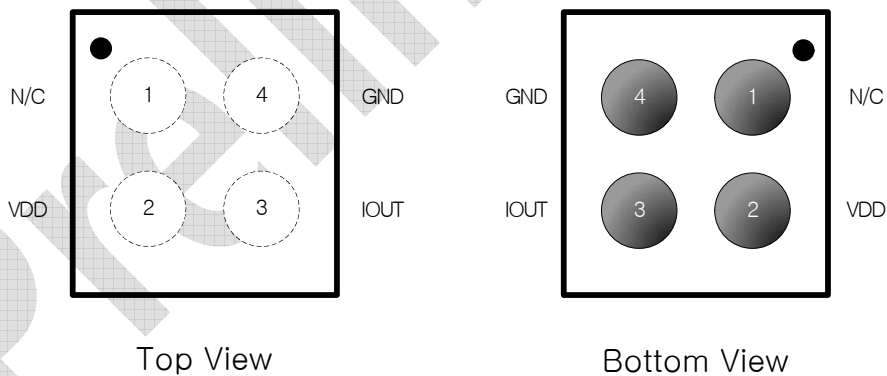- Package : 4pin WLCSP

■ **Applications**

- LED light bulbs
- Signage and decorative LED lighting
- General lighting of flat panel displays
- RGB backlighting LED driver
- Current stabilizer with DC/DC or AC/DC
- General purpose constant current source

2. Block Diagram

3. Pin Information

■ Pin placement and IC dimension

Top View

Bottom View

■ Pin Description

No.	Pin Name	Description	Note
1	N/C	No connection	
2	VDD	Supply voltage input	
3	IOUT	Output pin, To sink a constant 60mA current	
4	GND	Ground	

4. Absolute Maximum Ratings

Symbol	Parameter	Ratings
VDD	Supply voltage	38V
V_{OUT}	Output voltage	18V
T_J	Junction operating temperature	150℃
T_{STG}	Storage temperature	-55 ~ +150℃
P_d	Power dissipation	TBD

■ **Absolute Maximum Ratings**

Use of the IC in excess of absolute maximum ratings such as the applied voltage or operating temperature range (T_J) may result in IC damage. Assumptions should not be made regarding the state of the IC (short mode or open mode) when such damage is suffered. The implementation of a physical safety measure such as a fuse should be considered when use of the IC in a special mode when the absolute maximum ratings may be exceeded is anticipated.

5. Recommended Operating Condition

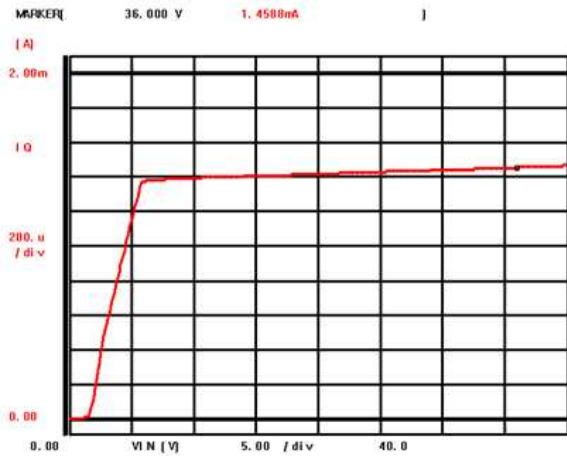| Symbol	Parameter	Min.	Typ.	Max.	Unit
VDD	Supply voltage	6.5		36	V

6. Electrical Specification

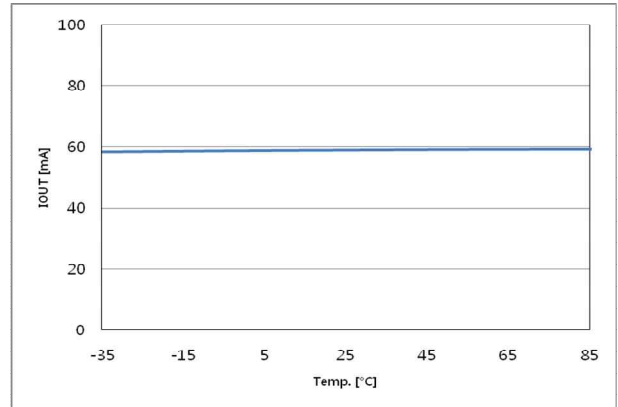(VDD = 24V, T_A = -35℃~+85℃, unless otherwise specified. Typical values are at T_A=+25℃)

Characteristic	Symbol	Condition	Min	Typ	Max	Unit
Input supply voltage	V_{DD}		6.5	-	36	V
Output linearity voltage	V_{OUT_LINE}		-	-	3	V
Quiescent current	IQ		1.2	-	1.8	mA
LED output drop-out voltage	V_{DROP}		-	-	500	mV
Output current	I_{OUT}	V_{LED} = 21V	57	60	63	mA
Thermal derating	T_D		-	140	-	℃
Thermal derating hysteresis	T_{DHYS}		-	20	-	℃

7. Typical Operating Characteristics

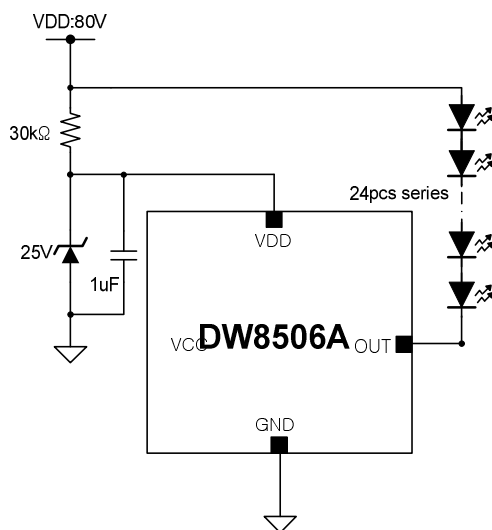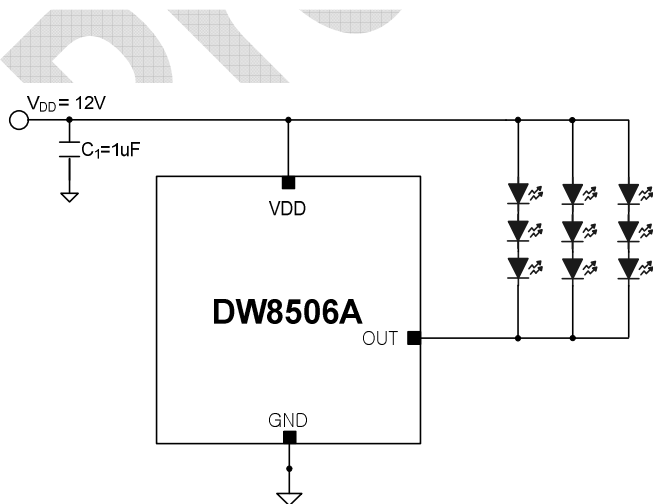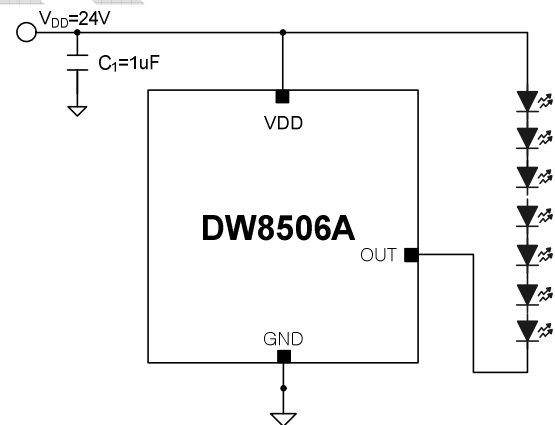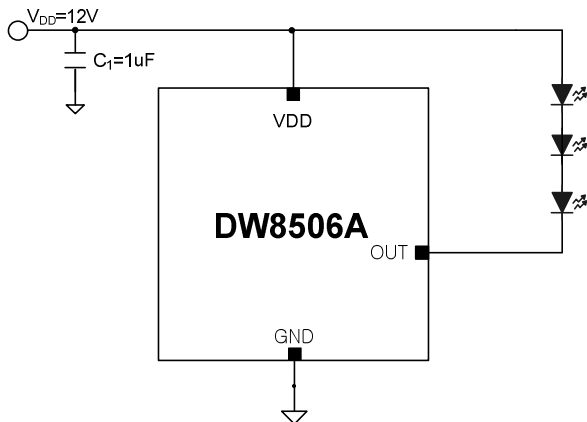(VDD = 24V, T_A = -35℃~+85℃, unless otherwise specified. Typical values are at T_A=+25℃)

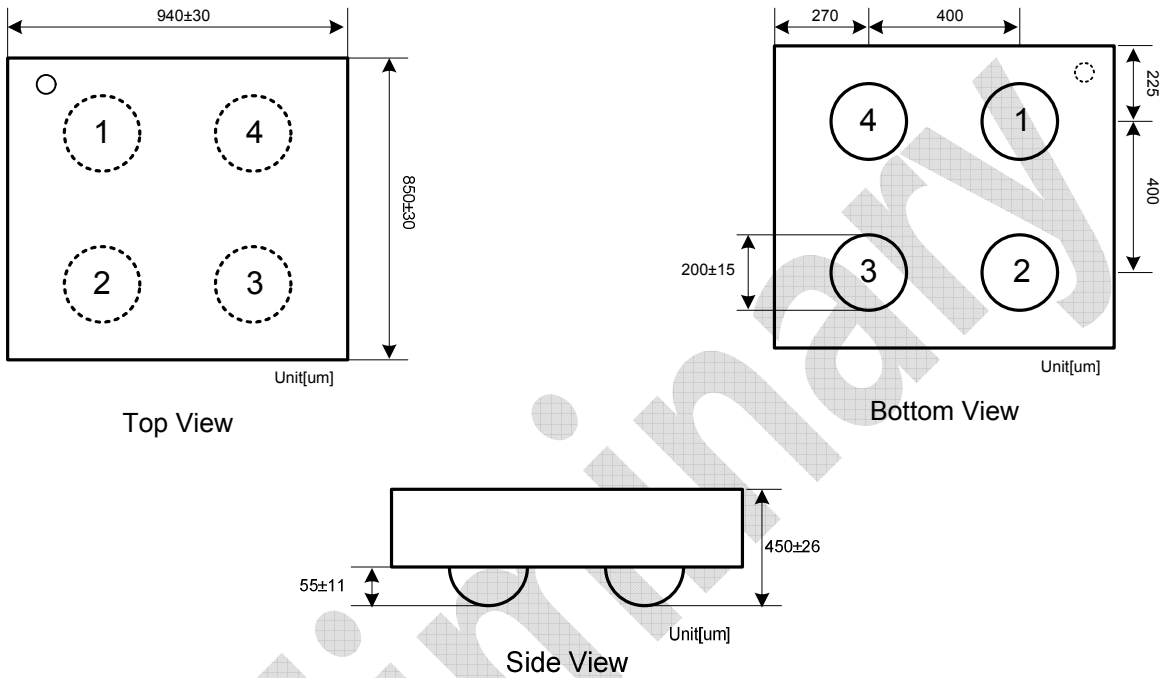**Quiescent vs. VIN**

I_{OUT} vs. Temperature
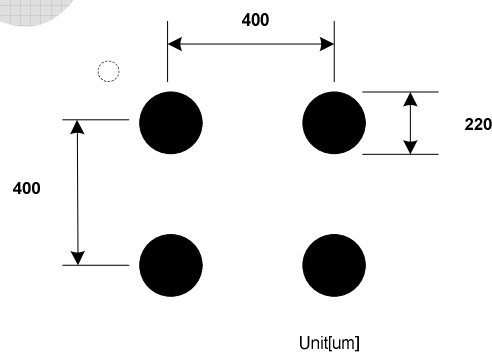
8. Typical Applications

9. Package Dimension

Package Dimension (0.94mm X 0.85mm X 0.45mm)

- Package Name : WLCSP
- Package Size : 940um * 850um, Thickness : 450um
- Ball Pitch : 200um

Top View

Bottom View

Side View

10. Foot-Print

Revision History

Version	Date	Comment	Note