



# P2551 A0

## 1.2A LED Driver with Internal Switch

July, 2008

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## 1. Introduction

### 1.1 Description

The P2551 A0 is a constant current LED driver. Specially design applications in high power LEDs. The P2551 A0 have high voltage range 9V~36V and output 1.2A constant current.

The output current can be adjusted by external resistor.

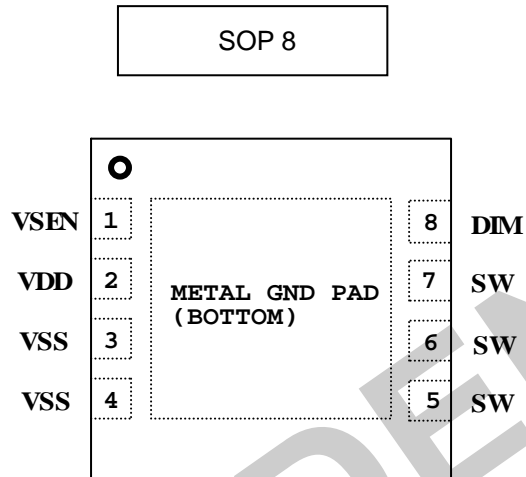
### 1.2 Features

- **1.2A Constant Output Current.**
- **Adjustable Output Current.**
- **9V~36V Input Voltage Range.**
- **Thermal/ UVLO/ LED Open and Short protection circuit**

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## 2. Pin Assignment and Description

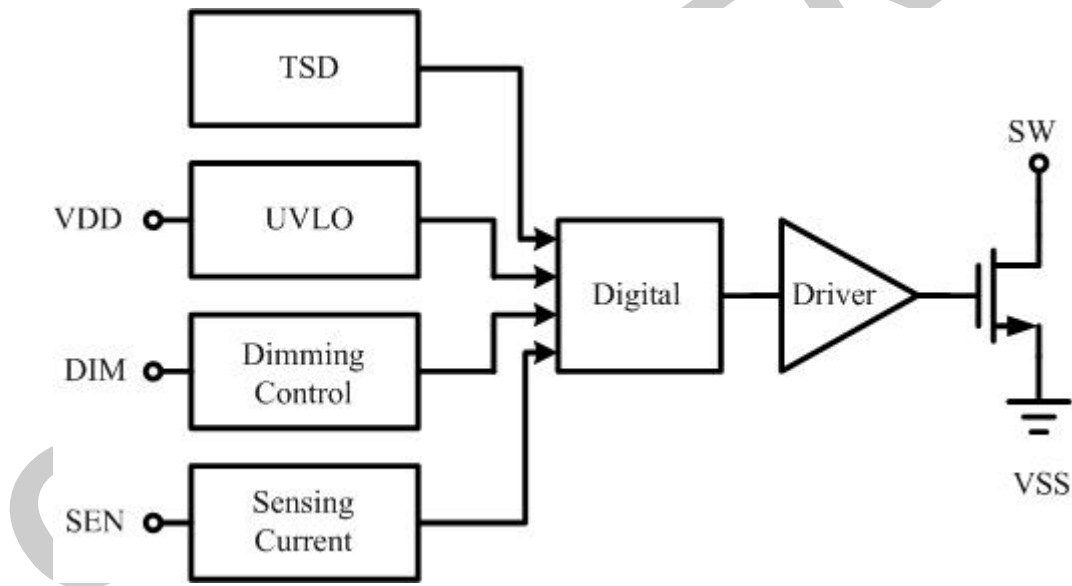
### 2.1 Pin Configuration



### 2.2 Pin Descriptions

PIN NO.	PIN NAME	DESCRIPTION
1	SW	Driver Output Pin.
2	DIM	Dimming Control Pin.
3	VSS	Ground.
4	SEN	Output Current Sensing.
5	VDD	Supply Voltage.

### 2.3 Functional Block Diagram



### 3. DC/AC Characteristics

#### 3.1 Absolute Maximum Rating

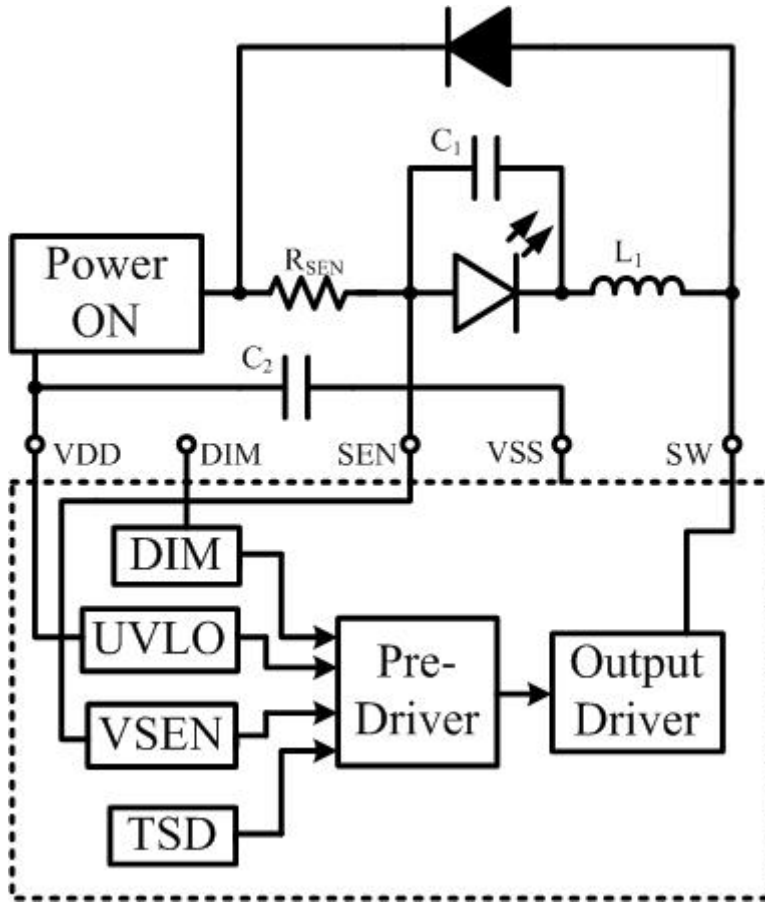
PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{DD}$	0~40	V
Output Current	$I_o$	1.2	A
Dimming voltage	$V_{DIM}$	--	V
$V_{SS}$ Current	$I_{VSS}$	1.2	A
Operating Temperature	Top	-40~ +85	°C
Storage Temperature	Tstg	-55 ~ +150	°C

#### 3.2 Electrical Characteristics ( $T_a=25^{\circ}\text{C}$ )

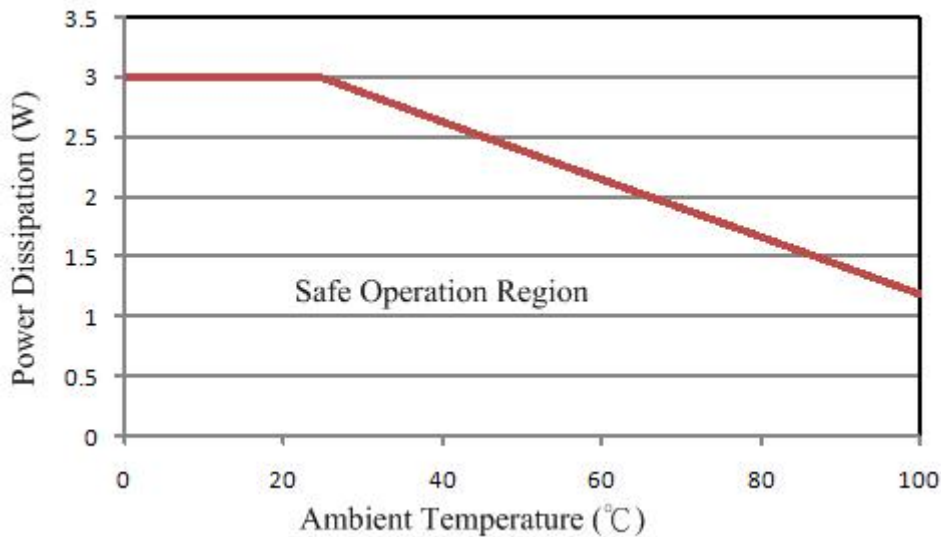
PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	$V_{DD}$		9	12	36	V
Supply Current	$I_{DD}$	$V_{DD}=9\sim 36\text{V}$	--	1	4	mA
Output Current	$I_{OUT}$	$V_{DD}=12\text{V}$		1		A
Output Current Accuracy	$dI_{OUT}/I_{OUT}$	$75\text{mA}<I_{OUT}<1200\text{mA}$ , $V_{DD}=12\text{V}$ , $L=10\mu\text{H}$	--	$\pm 5$	$\pm 10$	%
SW Dropout Voltage	$\Delta V_{SW}$	$I_{OUT}=1.2\text{A}$ , $V_{DD}=12\text{V}$		0.3	0.6	V
Line Regulation	$\%/\Delta V_{IN}$	$9\text{V}<V_{DD}<36$ , $V_{OUT}=2.5\text{V}$ , $L=10\mu\text{H}$ , $R_{SEN}=1\Omega$	--	$\pm 5$	$\pm 10$	%
Load Regulation	$\%/\Delta V$		--	$\pm 5$	$\pm 10$	%
Efficiency	$\eta$		80	88	--	%
Input Voltage	$V_{IH}$		3.5			V
	$V_{IL}$				1.5	
Switch ON Resistance	$R_{DSON}$	$V_{DD}=12\text{V}$	--	0.8	1.2	$\Omega$
Regulated $R_{SEN}$ Voltage	$V_{SEN}$			0.3		V
Thermal Shutdown Temperature	TSD		130	140	155	°C
Thermal Shutdown Hysteresis	$TSD_{HYS}$		15	20	25	°C
UVLO Voltage			7.25	7.4	7.5	V
UVLO Voltage Hysteresis				0.6		V
Start-up Voltage			7.85	8.0	8.1	V

## 4. Application

### 4.1 Application diagram:

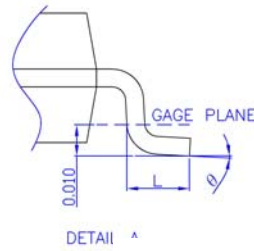
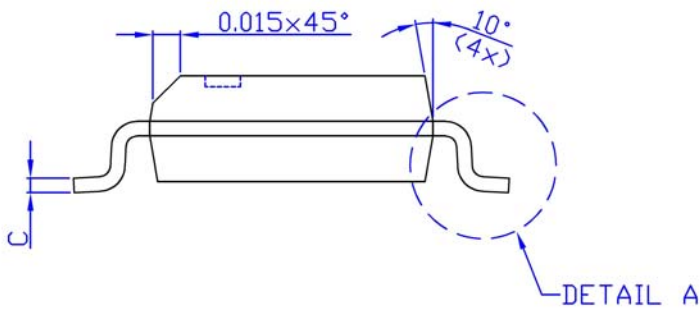
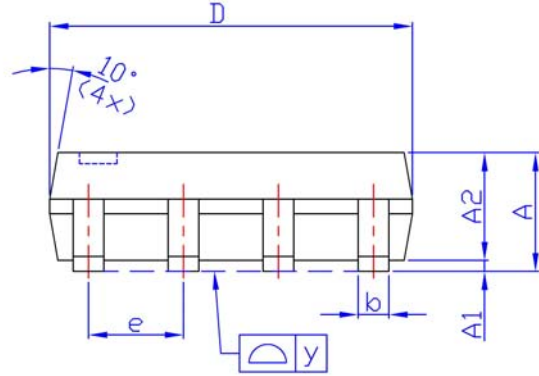
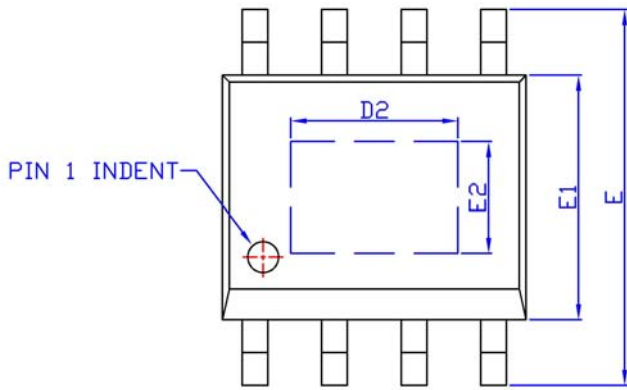


### 4.2 Package Power Dissipation



### 5.Package Outline

SOP 8



EXPOSED PAD DIMENSION (inch)						
PAD SIZE	D2			E2		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A.>95x130mil	0.105	—	—	0.070	—	—
B.>90x90mil	0.065	—	—	0.065	—	—

SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	1.47	1.60	1.73	0.058	0.063	0.068
A1	0.10	—	0.25	0.004	—	0.010
A2	—	1.45	—	—	0.057	—
b	0.33	0.41	0.51	0.013	0.016	0.020
C	0.19	0.20	0.25	0.0075	0.008	0.0098
D	4.80	4.85	4.95	0.189	0.191	0.195
E	5.80	6.00	6.20	0.228	0.236	0.244
E1	3.80	3.90	4.00	0.150	0.154	0.157
e	—	1.27	—	—	0.050	—
L	0.40	0.71	1.27	0.016	0.028	0.050
y	—	—	0.076	—	—	0.003
e	0°	—	8°	0°	—	8°



## 6.Revision History

Rev.	Preliminary/Changes	Date
000	• Initial Release	June ,2008
001	• Modify for package and DC parameter	July ,2008

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