DESCRIPTION

The A8501 Series is a fixed frequency, constant current step-up DC/DC converter ideal for driving OLED. Output voltage of up to 22V can be derived, and from a li-ion battery supply, the output voltage can be 12V drive OLED. A 2Ω resistance of NMOS is integrated in the circuit , withstand voltage can support 22V, with a small SOT-25 package saves PCB space and BOM cost.

The A8501 is available in SOT-25 package.

ORDERING INFORMATION

Package Type	Part Number	
SOT-25 SPQ: 3,000pcs / Reel	E5	A8501E5R
		A8501E5VR
Note	V: Halogen free Package R: Tape & Reel	
AiT provides all RoHS products		

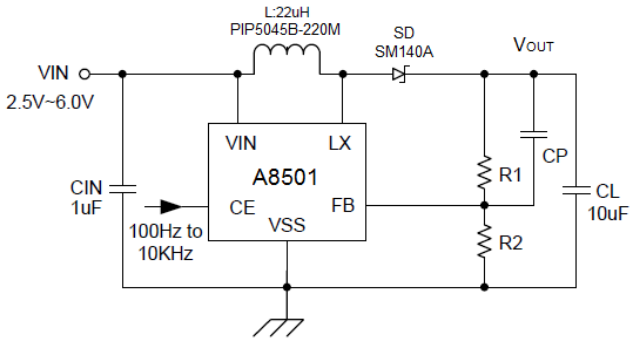
FEATURES

- Input voltage range 2.7V~5.5V
- Output voltage range up to 22V
- Oscillation frequency 1MHz±20%
- Efficiency 88%
- Control PWM control
- Stand-by Current I_{STB}=1.0uA(MAX)
- Load capacitor 10uF,ceramic
- LX limit Current 600mA
- Available in SOT-25 Package

APPLICATION

- Mobil phones, PHS
- PDAs
- Digital still cameras

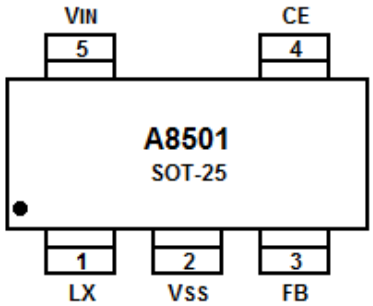
TYPICAL APPLICATION



$$\frac{V_{OUT}}{V_{FB}} = \frac{R1+R2}{R2}$$

Note: R1 and R2 can be adjusted by the voltage of V_{OUT} and FB Pin; (when V_{OUT} is equal to 12V, recommended resistor R1 =875k, R2 =100k, CP=100pF)

PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	LX	Switch
2	V_{SS}	Ground
3	FB	Voltage Feedback
4	CE	Chip Enable, “High” Active.
5	V_{IN}	Power Input

ABSOLUTE MAXIMUM RATINGS

V_{IN}, V_{IN} Pin Voltage	V_{SS}-0.3V ~ V_{SS}+7V
V_{LX}, LX Pin Voltage	V_{SS}-0.3V ~ V_{SS}+22V
V_{FB}, FB Pin Voltage	V_{SS}-0.3V ~ V_{SS}+7V
V_{CE}, CE Pin Voltage	V_{SS}-0.3V ~ V_{SS}+7V
I_{LX}, LX Pin Current	600mA
P_D, Power Dissipation	250mW
T_{OPR}, Operating Temperature range	-40°C ~ + 85°C
T_{STG}, Storage Temperature range	-55°C ~ + 125°C

Stress beyond above listed “Absolute Maximum Ratings” may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

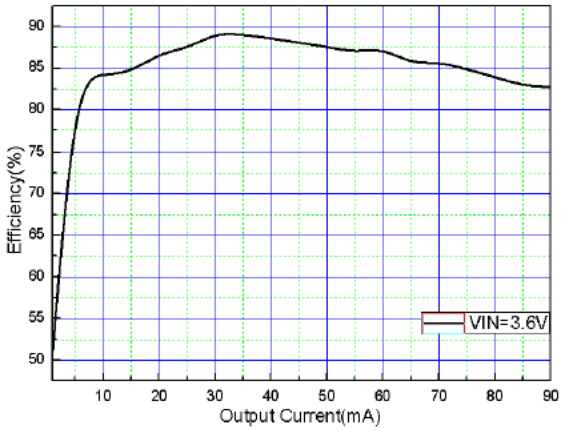
ELECTRICAL CHARACTERISTICS

T_A=25℃, unless otherwise noted

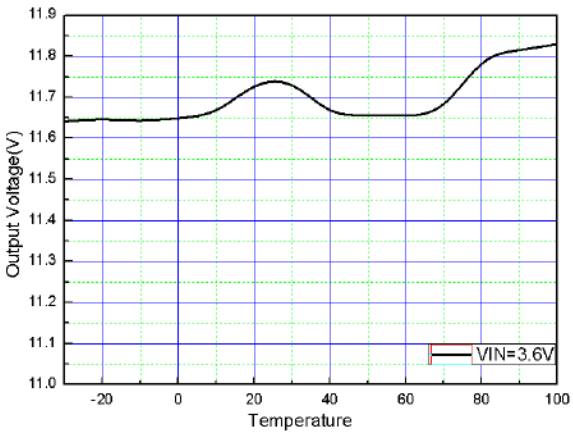
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit	Circuits
FB Control Voltage	V_{FB}		1.205	1.23	1.255	V	1
Output Voltage Range	V_{OUT}		V_{IN}		22	V	
Lx Operating Voltage Range	V_{LX}				22	V	
Operating Voltage Range	V_{IN}		2.5		6	V	
Stand-by Current	I_{STB}	V_{CE}=0V, V_{LX}=5V			1	μA	3
Supply Current 1	I_{DD1}		500	1200	1500	μA	2
Supply Current 2	I_{DD2}	V_{IN}=V_{LX},V_{FB}=2V		90		μA	3
Oscillation Frequency	f_{OSC}		0.8	1.0	1.2	MHz	2
Maximum Duty Cycle	MAXDTY	VCONT=0.4V		75		%	2
Efficiency	EFFI	V_{IN}=3.6V;R_{LED}=20Ω		88		%	1
Current Limit	I_{LIM}	V_{IN}=3.6V		600		mA	4
LX On Resistance		V_{IN}=3.6V, V_{LX}=0.4V		2.0		Ω	2
LX Leak Current	I_{LXL}			0	1	uA	3
CE ‘H’ Voltage	V_{CEH}		1.1			V	2
CE ‘L’ Voltage	V_{CEL}				0.6	V	2
CE ‘H’ Current	I_{CEH}	V_{IN}=V_{LX}, V_{FB}=0.4V			0.1	uA	3
CE ‘L’ Current	I_{CEL}	V_{CE}=0V, V_{LX}=5V			-0.1	uA	3
FB ’H’ Current	I_{FBH}	V_{IN}=V_{LX}, V_{FB}=0.4V			0.1	uA	3
FB ’L’ Current	I_{FBL}	V_{CE}=0V, V_{LX}=5V			-0.1	uA	3

TYPICAL PERFORMANCE CHARACTERISTICS

1. Efficiency vs. Output Current

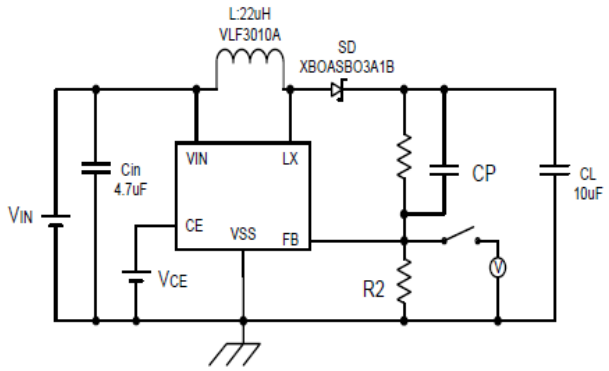


2. Output Voltage vs. Temperature

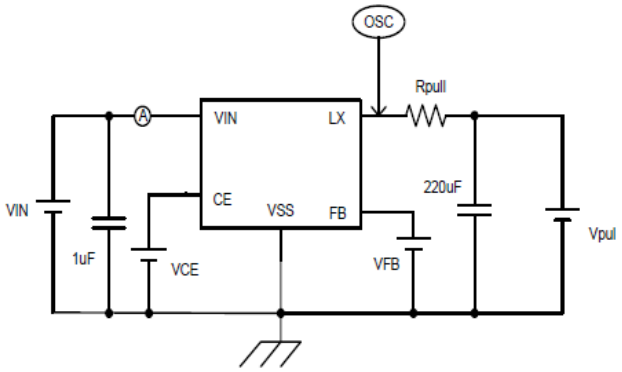


TEST CIRCUIT

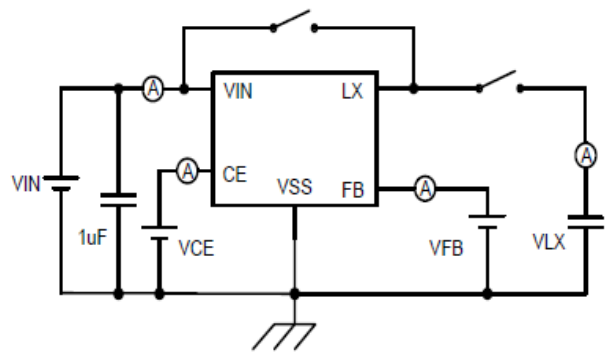
1.



2.



3.



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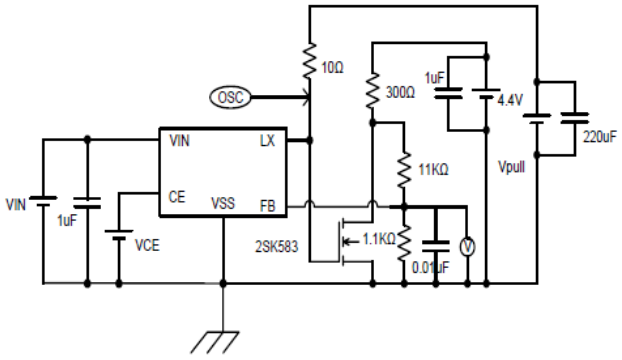
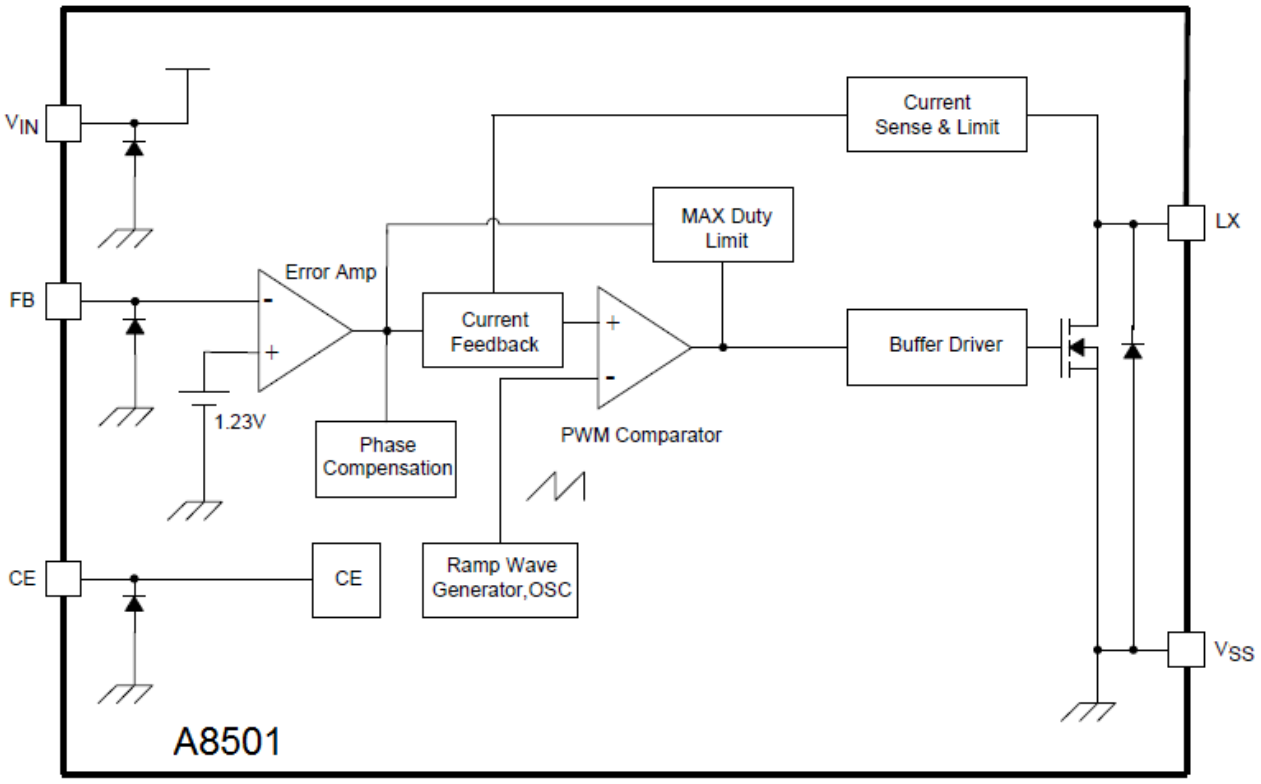
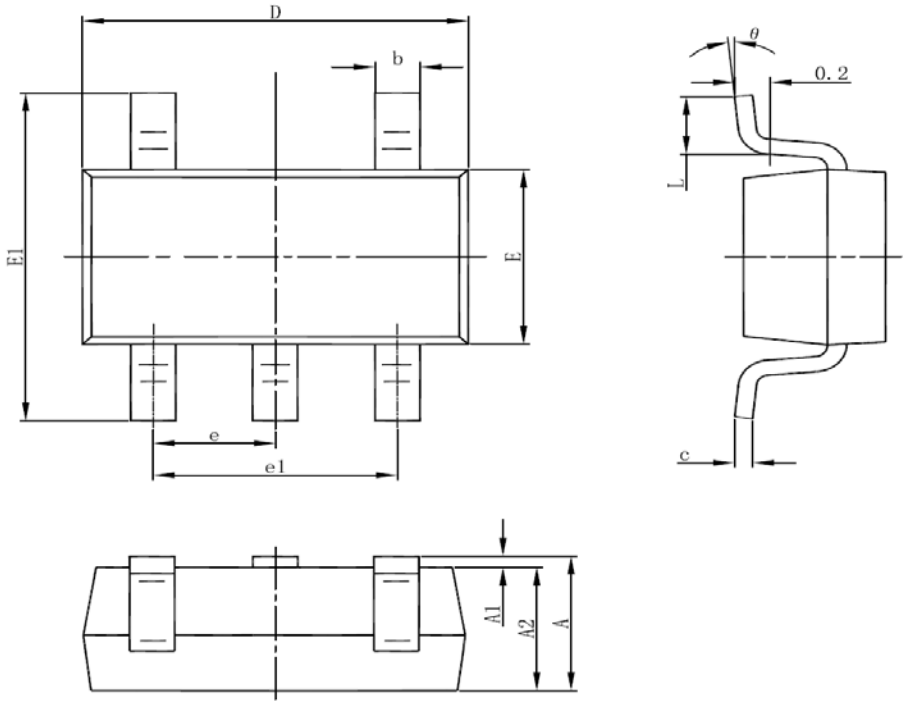


BLOCK DIAGRAM



PACKAGE INFORMATION

Dimension in SOT-25 (Unit: mm)



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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