ST1937

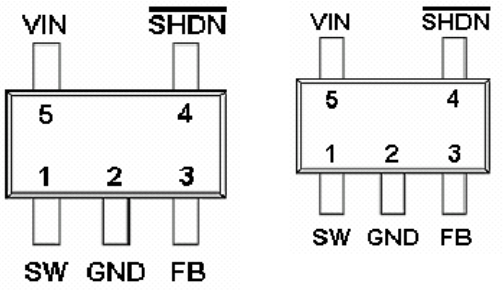
DC-DC Step-Up Converter for White LED Driver

DESCRIPTION

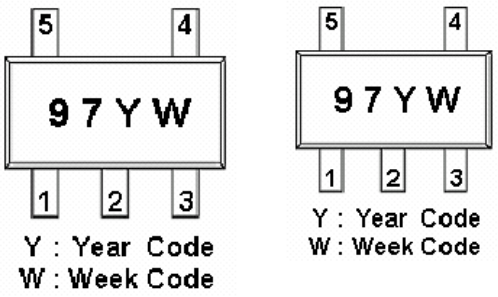
ST1937 is a step-up DC/DC converter for white LED driver with constant current. The device can driver one to four LEDs in series from a single cell Lithium ion battery. Internal functions include current limiting; thermal shutdown and soft-start to prevent damage operate status. ST1937 DC/DC converter operates at 1.2MHz and low output capacitor as small as 0.22uF; apply to Lithium-Ion powered systems. A low 100mV reference voltage minimizes power loss in the current setting resistor for better efficiency.

PIN CONFIGURATION

SOT23-5L **SOT-353 (SC-70-5L)**



PART MARKING



APPLICATIONS

- Battery Powered Devices
- Digital Camera
- PDA
- GPS
- Hand Held Communication Equipment
- MP3/4

FEATURES

- Fast 1.2MHz Switching Frequency
- High Efficiency up to 85%
- Drives up to Four LEDs From 3.2V Supply
- Low Quiescent Current
- Internal Over Temperature and Current Limiting Shutdown Function
- Internal Soft-Start Circuit
- Available in a Small SOT-23-5L & SOT-353 Package

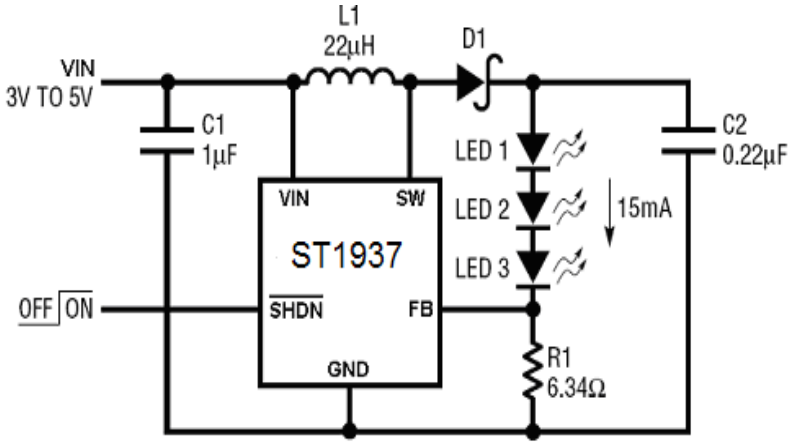
ORDERING INFORMATION

Part Number	Package	Part Marking
ST1937S25RG	SOT-23-5L	37YW
ST1937S35RG	SOT-353 (SC-70-5L)	37YW

※ Week Code : A ~ Z(1 ~ 26) ; a ~ z(27 ~ 52)
※ ST1937S25RG : S25 : SOT-23-5 ; R : Tape Reel ; G : Pb – Free
※ ST1937S35RG : S35 : SOT-353 ; R : Tape Reel ; G : Pb – Free

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TYPICAL APPLCATION CIRCUIT



PIN DESCRIPTION

ST1937S25RG

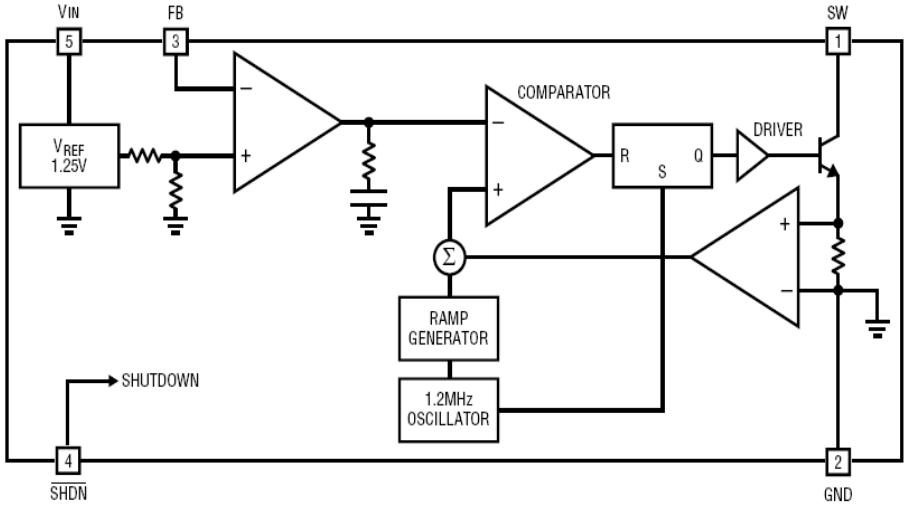
Pin	Symbol	Description
1	SW	Switch Pin.
2	GND	Ground Pin
3	FB	Feedback Pin.
4	SHDN	Shutdown Pin. Active-low enable
5	VIN	Supply Voltage Input

ST1937S35G

Pin	Symbol	Description
1	SW	Switch Pin.
2	GND	Ground Pin
3	FB	Feedback Pin.
4	SHDN	Shutdown Pin. Active-low enable
5	GND	Ground Pin
6	VIN	Supply Voltage Input

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BLOCK DIAGRAM



ABSOULTE MAXIMUM RATINGS (TA=25℃ unless otherwise specified)

Symbol	Parameter	Value	Unit
VIN	DC Supply Voltage	12	V
VSW	SW Voltage	36	V
VFB	FB Voltage	10	V
VSHDN	SHDN Voltage	10	V
TOPR	Operating Temperature	-40～85	℃
TJ(Max)	Maximum Junction Temperature	125	℃
TS	Storage Temperature	-65～150	℃

The IC has a protection circuit against static electricity. Do not apply high static electricity or high voltage that exceeds the performance of the protection circuit to the IC.

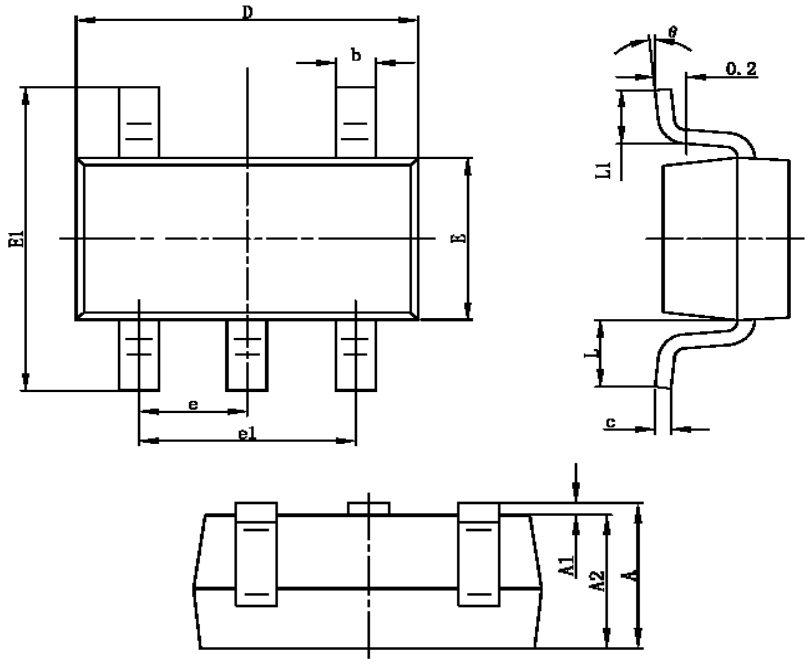
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ELECTRICAL CHARACTERISTICS (Ta=25℃, VIN=3.6V, unless otherwise specified.)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
VIN	Operating Voltage		2.4		12	V
IFB	Feedback Voltage	ISW=100mA, Duty Cycle = 66%		100		mV
UVLO	FB Pin Bias Current	Rin=10MΩ		100		nA
IS	Supply Current	VSHDN > 0V		2.8	3.5	mA
		VSHDN = 0V		0.1	1.0	μA
Fosc	Switching Frequency		0.8	1.2	1.6	MHz
D	Maximum Duty Cycle			85		%
Iout	Switch Current Limit			320		mA
ILEAKAGE	Switch Leakage Current	VSW= 5V		0.01	5	μA
Vcesat	Switch Vcesat	ISW = 50mA		150		mV
ISHDN	SHDN Pin Current			1		nA
SHDNH	SHDN Voltage High		1.5			V
SHDNL	SHDN Voltage Low				0.4	V

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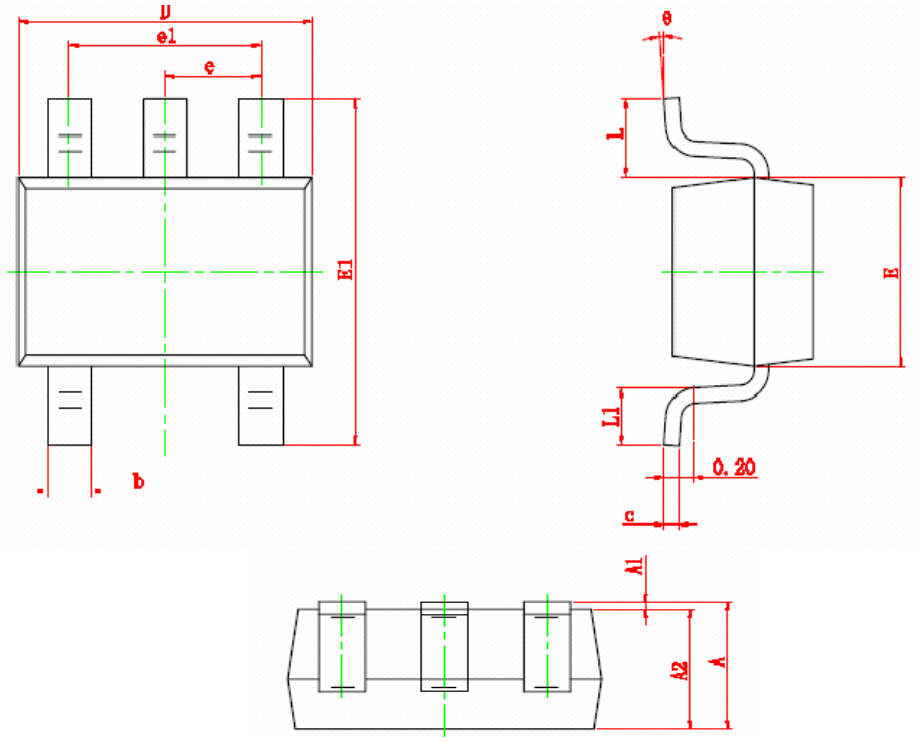
SOT-23-5L PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In 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	0.400	0.012	0.016
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	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.700REF		0.028REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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SOT-353 PACKAGE OUTLINE



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.080	0.150	0.003	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

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