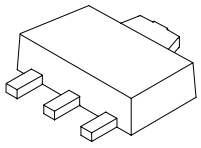
350MA WHITE SINGLE LED DRIVER

DESCRIPTION

The SD42351 is a low dropout current regulator rated for constant LED sink current. The low quiescent current and low dropout voltage is achieved by advanced Bi-CMOS process.



SOT-89-3

FEATURES

* No external component required.
* Fixed 110mA, 150 mA, 170 mA, 215 mA, 245mA, 270mA, 305mA, 335mA sink current.
* Output short / open circuit protection.
* Low dropout voltage.
* Low quiescent current
* Build-in thermal protection
* Supply voltage range 3V ~ 6V
* 2KV HBM ESD protection
* Advanced Bi-CMOS process.

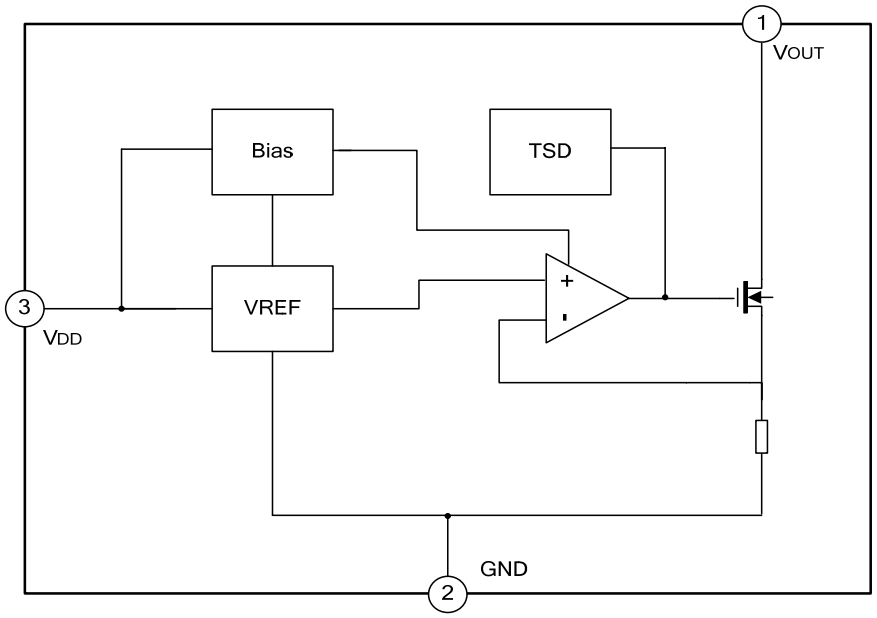
APPLICATIONS

* 1W Power LED driver

ORDERING INFORMATION

Package	Type	Seal	Current Value (Typical) (mA)
SOT-89-3	SD42351NA	351A	335
	SD42351NB	351B	305
	SD42351NC	351C	270
	SD42351ND	351D	245
	SD42351NE	351E	215
	SD42351NG	351G	170
	SD42351NH	351H	150
	SD42351NL	351L	110

BLOCK DIAGRAM



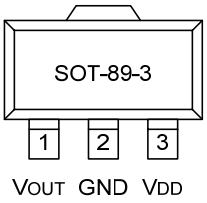
ABSOLUTE MAXIMUM RATINGS (Tamb=25°C)

Characteristics	Symbol	Rating	Unit
Max Supply Voltage	$V_{DD(max)}$	6	V
Min Supply Voltage	$V_{DD(min)}$	3	V
Operating Temperature	Tamb	0 ~ + 70	°C
Storage Temperature	Tst	-40 ~ +150	°C

ELECTRICAL CHARACTERISTICS (Unless otherwise specified, Tamb=25°C, I_{OUT}=335mA)

Characteristics	Symbol	Test condition	Min.	Typ.	Max.	Unit
Supply Voltage Range	V_{DD}	--	3	--	6	V
Quiescent Current	I_Q	--	--	160	200	uA
Output Current	I_{OUT}	$3V \le V_{IN} \le 6V$	320	335	350	mA
Current Line Regulation	$\frac{\Delta I_{OUT}}{\Delta V_{IN} * I_{OUT}}$	$3V \le V_{IN} \le 6V$	--	2.08	--	%/V
Dropout Voltage	$V_{dropout}$	I=335mA,Measured at V_{OUT}	--	120	--	mV
Power NMOS Leakage	Ileak	V_{OUT}=5V	--	0.1	1	μA
Thermal Shut-down Temp	$T_{j(sd)}$	--	--	140	--	°C
Shut-down Temp Hysteresis	T_{hyst}	--	--	20	--	°C

PIN CONFIGURATION



PIN DESCRIPTION

Pin No.	Pin Name	I/O	Pin Description
1	VOUT	O	LED Current Output.
2	GND	--	Ground .
3	VDD	I	Power Supply.

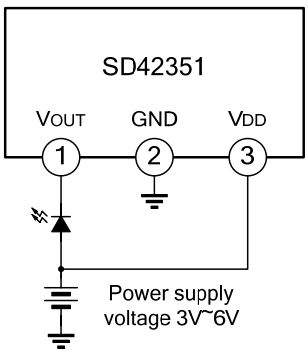
FUNCTION DESCRIPTION

The SD42351 is a low dropout current regulator rated for constant LED sink current. The low quiescent current and low dropout voltage is achieved by advanced Bi-CMOS process. Its main function is to stabilize the current passing, other than the LED voltage. Traditional LED drivers are Voltage regulator IC, which will affect the brightness because of different forward voltages, although the LEDs are in the same structure. SD42351 controls the brightness of the LED by controlling the current passing by the LED, which eliminates the limitation of traditional voltage regulator IC.

The device consists of Voltage Reference, Error Amplifier, Power NMOS, Current Sense Resistance, LOGIC Enable and Over Temperature Protection Circuit. The resistance senses the output current and transform to the voltage, which compared with the reference voltage. The error is amplified, controls the Power NMOS, so that the output current is regulated.

Inrush current (over 1 A) in traditional LED drivers is eliminated by the initial current limit circuit, thus constant sink current in the LED is maintained.

TYPICAL APPLICATION CIRCUIT



Note:The circuit and parameters are reference only, please set the parameters of the real application circuit based on the real test .

PACKAGE OUTLINE

SOT-89-3 UNIT: mm

