General Description

The SE3335 is an efficient linear voltage regulator with ultra-low-noise output, very low dropout voltage, and very low ground current. Designed specially for battery-powered devices, SE3335 includes an enable/shutdown control function. During shutdown, power consumption drops nearly to zero. Reversed leakage protection, current limiting, and over temperature protection are also included.

The SE3335 is available in an adjustable version in a SOT23-5 and PSOP-8 package, which can set the output voltage with only two external resistors.

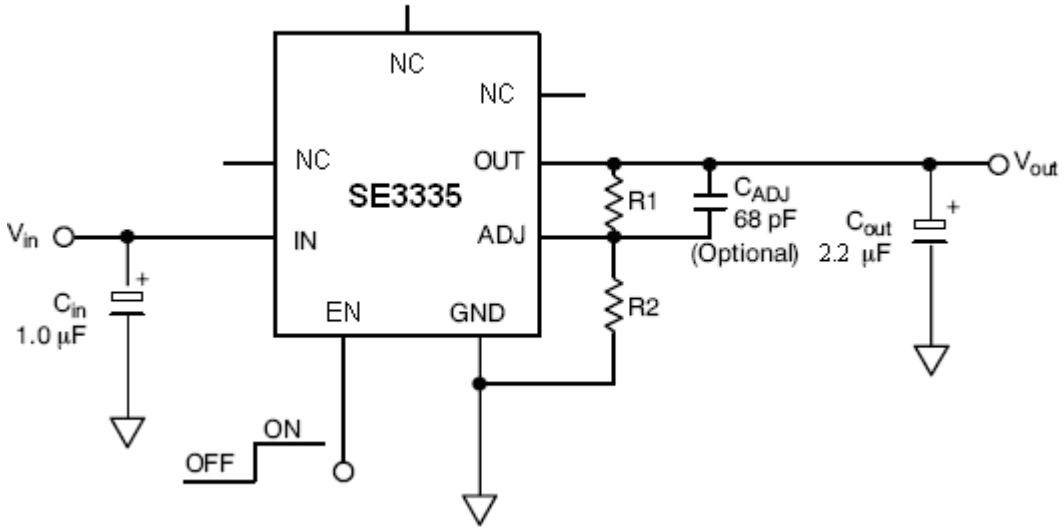
Features

- Output current up to 500mA
- Low dropout voltage 600mV(Typ) at 500mA
- Low ground current 65uA
- short-current protection
- Over-temperature protection
- 4 V to 18 V Supply Range
- Low Shutdown Current
- Requires Only 1uF Output Capacitance for Stability
- No external components are required
- 100% Lead (Pb)-Free

Applications

- PCMCIA Card
- Cellular Phones
- Camcorders and Cameras
- Networking Systems, DSL/Cable Modems
- Cable Set-Top Box
- MP3/CD Players
- DSP Supply
- Displays and Monitors

Application Circuit



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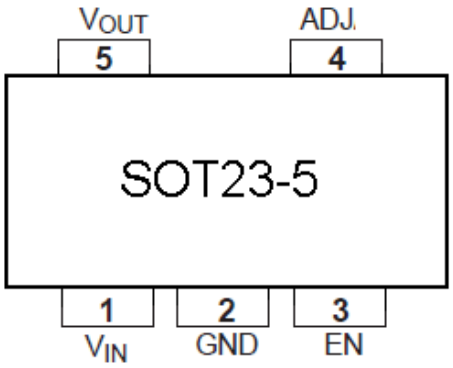
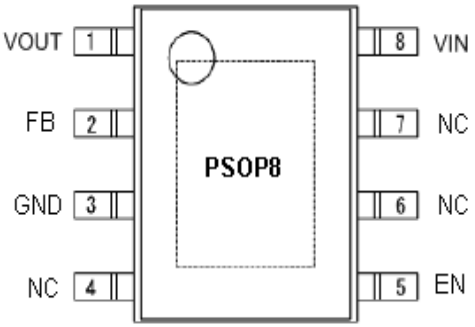
Pin Configuration





Pin name	Description
Vout	Regulated output voltage. Bypass to ground with Cout ≧1.0uF
Adj	Adjustable pin; reference voltage=1.25V
GND	Power Supply Ground
FB	Feedback pin
EN	Shutdown pin. When not in use, this pin should be connected to the input pin.
Vin	Power supply Input Voltage
NC	Not Connected

Absolute Maximum Rating

Parameter	Symbol	Maximum	Units
Input Voltage	V_{IN}	18	V
Operating Junction Temperature Range	T_J	-40 to +125	°C
Thermal Resistance	θ_{JA}	45(SOT23-5) 150(SOP8)	°C/W
Lead Temperature (Soldering) 10 seconds	T_{LEAD}	260	°C
Storage Temperature	T_{STG}	-65 to +150	°C
ESD (HBM) Susceptibility	V_{ESD}	2	KV

Electrical Characteristics

V_{OUT}(T)=7v,V_{in}=8v; T_J = 25°C; unless otherwise specified

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
Input Supple Voltage	Vin		4		18	V
Reference Voltage Accuracy	Vref	Iload=10mA	1.225	1.25	1.275	V
Linear Regulation	$\triangle V_{OUT}$/Vout	V_{IN} = 8v to 18v		0.01		%/V
Load Regulation	$\triangle V_{OUT}/V_{OUT}$	I_{OUT} = 10mA to 500 mA		0.002		%/mA
Dropout Voltage	V_{DIF1}	I_{OUT} = 50 mA		90		mV
	V_{DIF2}	I_{OUT} = 300 mA		300		
	V_{DIF3}	I_{OUT} = 500 mA		600		
Ground Current	I_{GND1}	I_{OUT} = 100uA		65		μA
	I_{GND2}	I_{OUT} = 500mA		160		μA
Shutdown Current	I_{GND}	V_{EN}<0.6V,V_{IN}=5.4V		0.05		μA
Peak Output Current	Ipk			670		mA
Short Circuit Current	I_{LIMIT}	V_{OUT}=0		325		mA
PSRR		Cnr=10nF Freq=100Hz I-load=50mA, Vout=2.5V Cout=10uF		63		dB
		Cnr=10nF Freq=1KHz I-load=50mA, Vout=2.5V Cout=10uF		60		
		Cnr=100nF, Freq=100Hz I-load=50mA, Vout=2.5V Cout=10uF		73		
		Cnr=100nF Freq=1KHz I-load=50mA ,Vout=2.5V Cout=10uF		71		
Output Noise	Vnoise	Cnr = 0, Vout=2.5V, Freq = 10 Hz to 100 kHz, Cout = 10 uF ,Iload=0mA		255		uVrms
		Cnr = 0, Vout=2.5V, Freq = 10 Hz to 100 kHz, Cout = 10 uF,Iload=300mA		330		
		Cnr =100 nF, Vout=2.5V, Freq = 10 Hz to 100 kHz, Cout = 10 uF, Iload=0mA		75		
		Cnr =100 nF, Vout=2.5V, Freq = 10 Hz to 100 kHz, Cout = 10 uF,Iload=300mA		95		

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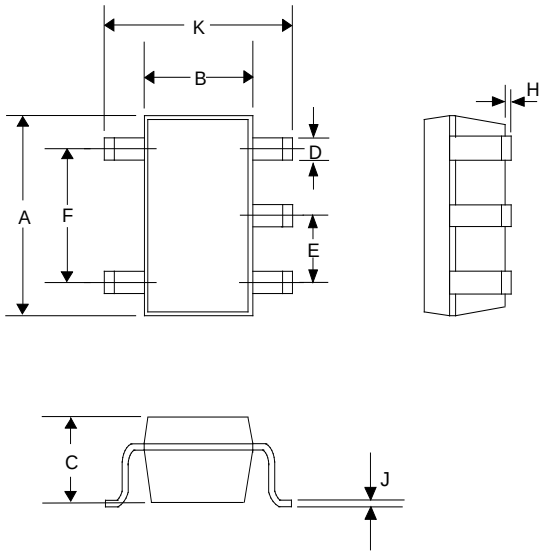
PARAMETER	SYMBOL	SIMULATION CONDITIONS	MIN	TYP	MAX	UNIT
Over Temperature Protection	T_J	Over Temperature Protection threshold		145		℃
		Over Temperature Protection Hysteresis		15		℃
Reverse Current	I_{RC}	V_{IN}=0,V_{OUT}=5V,V_{EN}=0		8		μA
	I_{RC}	V_{IN} Open, V_{OUT}=5V,V_{EN}=0		8		μA
Input Low Voltage	V_{IL}	Regulator OFF			0.6	V
Input High Voltage	V_{IH}	Regulator ON	2			V

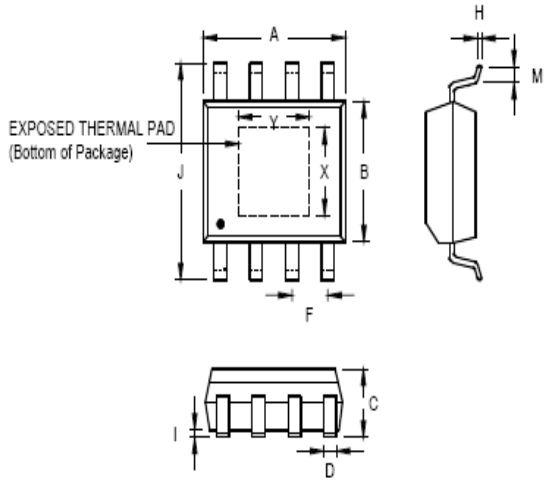
Outline Drawing

SOT23-5



DIMENSIONS				
DIM[N]	INCHES		MM	
	MIN	MAX	MIN	MAX
A	0.110	0.120	2.80	3.05
B	0.059	0.070	1.50	1.75
C	0.036	0.051	0.90	1.30
D	0.014	0.020	0.35	0.50
E	-	0.037	-	0.95
F	-	0.075	-	1.90
H	-	0.006	-	0.15
J	0.0035	0.008	0.090	0.20
K	0.102	0.118	2.60	3.00

PSOP8



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.801	5.004	0.189	0.197
B	3.810	3.988	0.150	0.157
C	1.346	1.753	0.053	0.069
D	0.330	0.508	0.013	0.020
F	1.194	1.346	0.047	0.053
H	0.191	0.254	0.008	0.010
I	0.000	0.152	0.000	0.006
J	5.791	6.198	0.228	0.244
M	0.406	1.270	0.016	0.050
X	2.057	2.515	0.081	0.099
Y	2.057	3.404	0.081	0.134

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