

BST150-1.8

1. Product Overview

BST150-1.8 is an ultra-low noise (9 μ Vrms) low dropout linear regulator. The input voltage is 2.2V to 5.5V, and it consumes 120mV voltage difference when driving a maximum load current of 150mA, which is suitable for low power and high efficiency applications. BST150-1.8 can obtain excellent noise performance without adding external noise bypass capacitors. It also has high PSRR and linear and load adjustment characteristics, and is used in noise-sensitive analog circuits and RF circuits. The input/output capacitors are 1 μ F ceramic to ensure system stability. Overvoltage-age, overcurrent and overheating protection functions are integrated. Two packaging forms are available: 5-pin ceramic CLCC5 and plastic DFN5 to meet various portable power applications. BST150-1.8 input and output are connected to at least 1 μ F ceramic capacitors. EN can be turned on after VIN is stable or powered on with VIN.

2. Product Features

- Input voltage range: 2.2V to 5.5V.
- Fixed output voltage: 1.8V.
- Output integrated RMS noise: 9 μ Vrms@10-100KHZ.
- Input/output 1 μ F ceramic capacitors to ensure stability.
- No external noise bypass capacitors required.
- Operating current without load current: 12 μ A.
- Quiescent current at 150 mA load current: 320 μ A.
- Maximum drivable load current: 150mA.
- Minimum input - output voltage difference: 120mV.
- $\pm 2\%$ Total Output Voltage Regulation Accuracy.
- Power supply rejection PSRR : 70dB@10KHZ.
- Overvoltage, overcurrent and overtemperature protection.
- 5-pin CLCC5 and DFN5 packages.

3. Functional Block Diagram

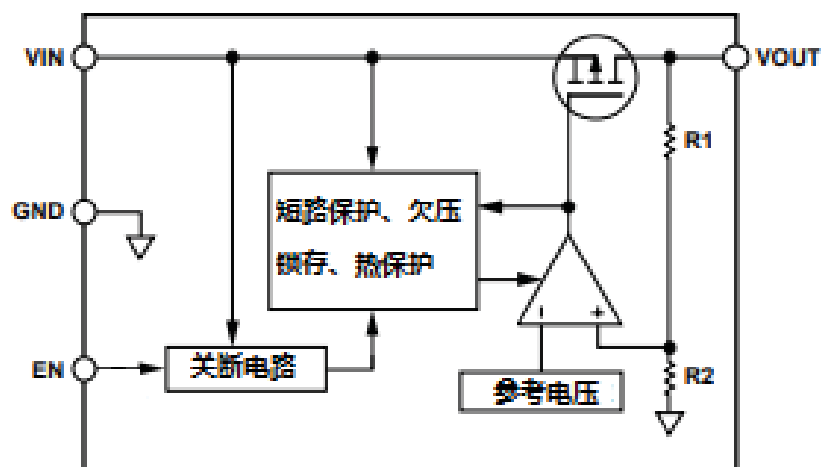
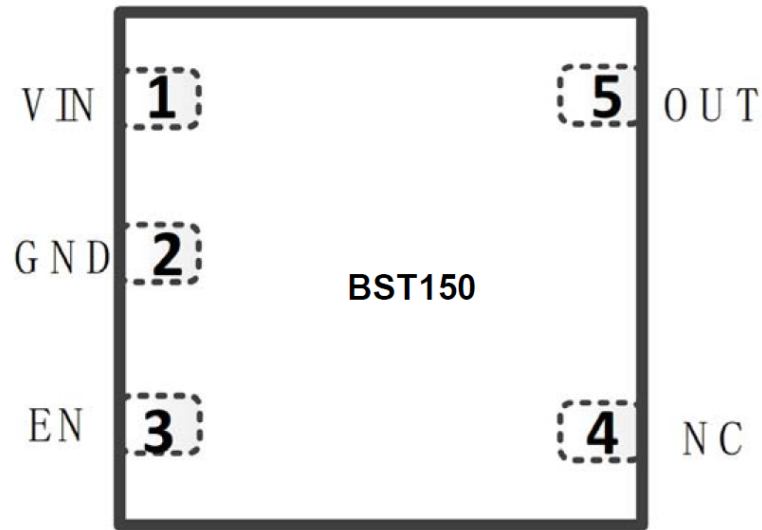


Figure 1. Functional block diagram

Pin Assignment Diagram



Pin Description

Table 1. Pin Description

Pin number	symbol	Function
1	VIN	Input voltage terminal, connect 1uF bypass capacitor to ground
2	GND	Ground pin
3	EN	Enable terminal, high level is effective
4	NC	Dangling
5	VOUT	Voltage output terminal, connect 1uF bypass capacitor to ground

Note: EN can be short-circuited with VIN and powered on together

Table 2. Electrical properties

characteristic	symbol	Condition Unless otherwise specified $V_{IN} = (V_{OUT} + 0.4V) \sim 5.5V$ $-55^{\circ}C \leq T_A \leq 125^{\circ}C$	Limit value			unit
			Minimum	typical	maximum	
Input voltage range	V_{IN}		2.2	—	5.5	V
Output Current	I_{OUT}		150	—	—	mA
Shutdown current	I_{GND-SD}	EN = GND $V_{IN} = 2.2V \sim 5.5V$	—	—	5	μA
Output voltage accuracy	V_{OUTA}	$I_{OUT} = 10mA$	- 2.5	—	+ 2.5	%
Voltage Regulation	$\Delta V_{OUT} / \Delta V_{IN}$		-0.1	—	+0.1	%/V
Current Regulation	$\Delta V_{OUT} / \Delta I_{OUT}$	$I_{OUT} = 100$ to 150 mA	—	—	0.012	%/mA
Limiting threshold current	I_{LIMIT}		160	—	400	mA
Undervoltage lockout input rising voltage	$U_{VLO R}$		—	—	1.96	V
Undervoltage lockout input falling voltage	$U_{VLO F}$		1.28	—	—	V
Output voltage	V_{OUT}		1.755	—	1.845	V
Enable input high level voltage	V_I	$V_{IN} = 2.2V \sim 5.5V$	1.2	—	—	V
Enable input low level voltage	V_{IL}	$V_{IN} = 2.2V \sim 5.5V$	—	—	0.4	V
Enable Input Leakage Current	I_{INEN}	EN = GND or V_{IN}	—	—	1	μA
Quiescent Current	Q	$I_{OUT} = 150mA$	—	—	500	μA
Power supply rejection	PSRR	1kHz, $25^{\circ}C$ $I_{OUT} = 10mA$, $V_{IN} = 2.8V$	60	70	—	dB
Integrated RMS noise	OUT _{NOISE}	$f_{IN} = 10Hz$ to 100kHz $V_{IN} = 5.0V$	—	9	20	μV_{rms}
Opening time	t star	$V_{OUT} = 1.8V$	—	150	240	μs