BST150-3.0

1. Product Overview

BST150-3.0 is an ultra-low noise (9μVrms) low dropout linear regulator. The input voltage is 3.4V 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. BST150-3.0 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 1uF ceramic to ensure system stability. Overvolt-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. BST150-3.0 input and output are connected to at least 1uF ceramic capacitors. EN can be turned on after VIN is stable or powered on with VIN.

2. Product Features

- Input voltage range: 3.4V to 5.5V.
- Fixed output voltage: 3.0V.
- Output integrated RMS noise: 9μVrms@10-100KHZ.
- Input/output 1uF ceramic capacitors to ensure stability.
- No external noise bypass capacitors required.
- Operating current without load current: 12 uA.
- Quiescent current at 150 mA load current: 320uA.
- Maximum drivable load current: 150mA.
- Minimum input - output voltage difference: 1 20 mV.
- ±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

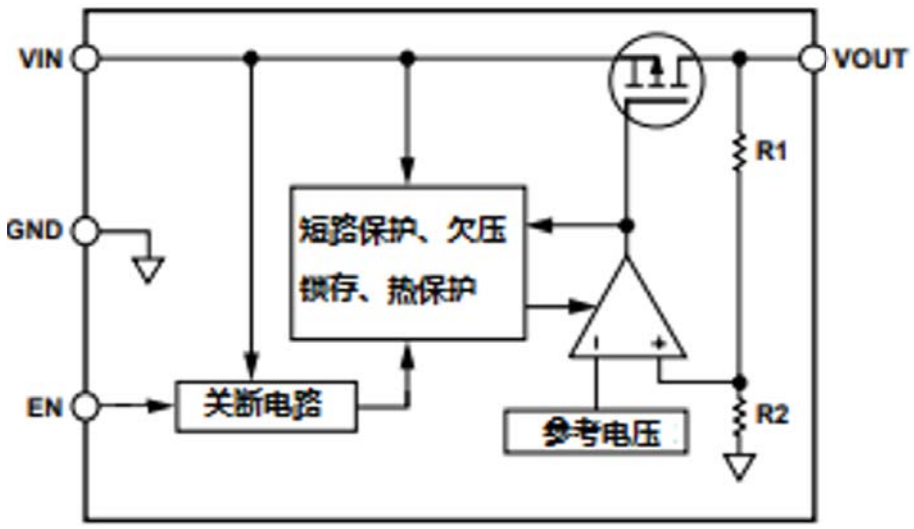


Figure 1. Functional block diagram

Pin Assignment Diagram

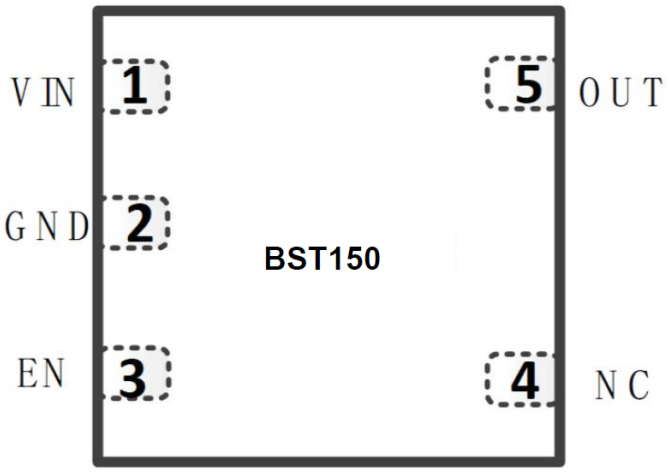


Figure 1. Functional block diagram

Pin Description

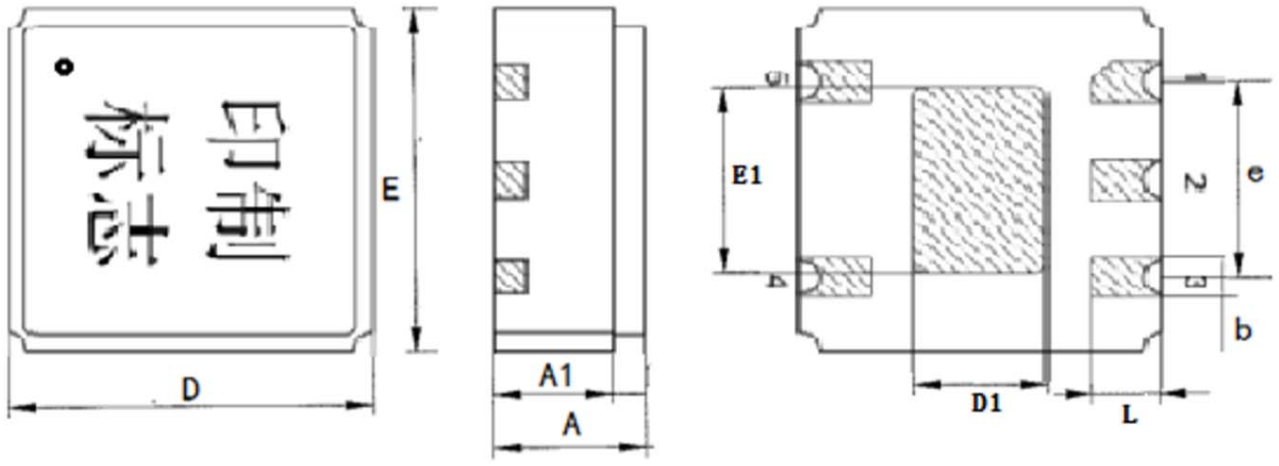
Table 1. Pin Description

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

4. Product appearance

Ceramic CLCC5 package



Dimension symbols	Value (mm)		
	Minimum	Nominal	maximum
A	0.70	—	0.90
b	—	0.40	—
L	—	0.45	—
e	—	0.95	—
D	2.70	2.80	2.90
E	2.80	2.90	3.00
D1	1.00	1. 10	1.20
E1	1.70	1.8 0	1.90

5. Electrical Parameters

Table 2. Electrical properties

characteristic	symbol	Condition Unless otherwise specified V_{IN} = (V_{OUT} +0.4V)~5.5V -55 °C ≤ T_A ≤12 5 °C	Limit value			unit
			Minimum	typical	maximum	
Input voltage range	V_{IN}		3.4.	—	5.5	V
Shutdown current	I_{GND-SD}	EN = GND V_{IN} =3.4V~5.5V	—	—	5	
Output voltage accuracy	VOUTA	I_{OUT} = 10mA	-2	—	2	%
Voltage Regulation	V_{OUT} /△V_{IN}	25 °C	-0.05	—	0.05	%/V
			-0.1	—	0.1	
Current Regulation	△V_{OUT} /△I_{OUT}	25 °C, I_{OUT} =100μ to 150mA	—	0.003	0.01	%/mA
		I_{OUT} = 100μ to 150mA	—	—	0.012	
Minimum input-output pressure difference	$V_{DROPOUT}$	25 °C, I_{OUT} = 150mA	—	0.12	0.18	V
		I_{OUT} = 150mA	—	—	0.2	
Limiting threshold current	I_{LIMIT}		160	—	400	mA
Undervoltage lockout input rising voltage	$UVLO_R$		—	—	1.96	V
Undervoltage lockout input falling voltage	$UVLO_F$		1.28	—	—	V
Undervoltage lockout hysteresis voltage	$UVLO_H$	25°C	—	120	300	mV
Output voltage	V_{OUT}		2.94		3.06	V
Enable input high level voltage	V_I	V_{IN} =3.4V~5.5V	1.2	—	—	V
Enable input low level voltage	V_{IL}	V_{IN} =3.4V~5.5V	—	—	0.4	V
Quiescent Current	Q	I_{OUT} = 0mA		12		μA
		I_{OUT} = 150mA	—	320	500	
Integrated RMS noise	OUT_{NOISE}	f_{IN} = 10Hz to 100kHz V_{IN} =5.0V		9	20	μVrsm
Power Supply Voltage Rejection Ratio (V_{IN} = V_{OUT} +1V)	PSRR	10kHz, V_{IN} =5V V_{OUT} = 3.0V I_{OUT} =10mV, 25°C	60	70		dB
Opening time	t star	V_{OUT} =3.0V, 25°C	—	150	240	μs