

BST78601

1. Product Overview

BST78601 is a radiation-resistant LDO voltage regulator with a low dropout voltage of 510mV, an output current of 1.5A, and an output voltage of 1.22V~5V. It has a total dose resistance of ≥ 100 k rad(Si) and a single-particle latch threshold of ≥ 75 Mev.cm²/mg. It has undervoltage lockout, enable control functions, low quiescent current, and fast transient response characteristics, and is mainly used to provide a stable DC voltage for the subsequent load.

2. Product Features

- Adjustable output voltage 1.22V~5V.
- 1.5A output voltage dropout 510mV.
- Typical static power consumption: 125μA.
- Fast transient response.
- Undervoltage lockout function.
- Output voltage accuracy $\pm 3\%$.
- Total dose resistance 100K rad(Si).
- Single event latch-up resistance 75Mev.c m²/mg.

3. Functional Block Diagram

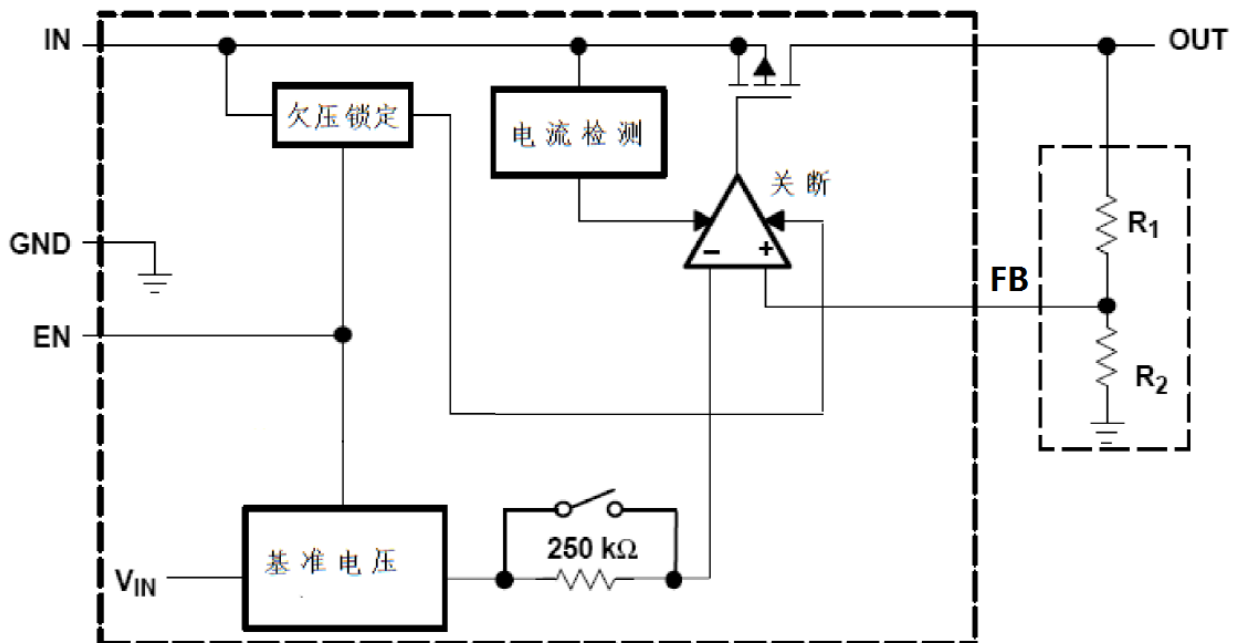


Figure 1. Functional Block Diagram

Pin Information

Pin Assignment Diagram

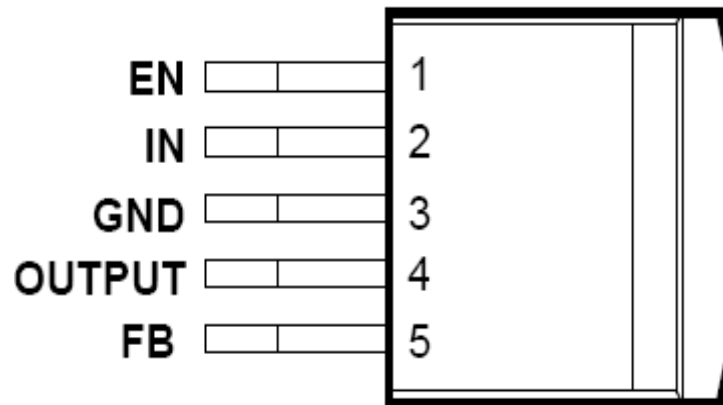


Figure 2. BST 78601 pinout diagram

Pin Description

Table 1. Pin Description

Pin number	Pin Symbols	Functional Description
1	EN	Enable input
2	IN	Input voltage
3	GND	land
4	OUTPUT	Output voltage
5	FB	Feedback input voltage

4. Product appearance

Metal TO-263 package

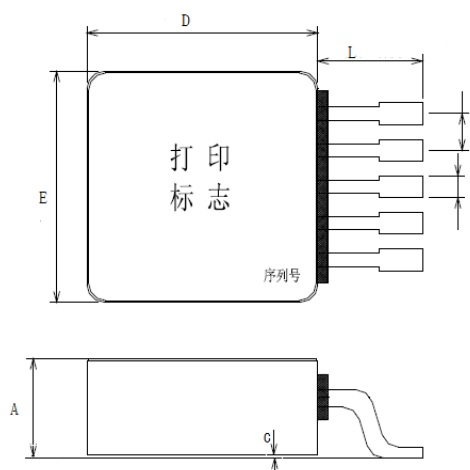


Figure 3. Metal TO-263 package dimensions

Table 2. Dimensional parameters

Unit is mm

Dimension symbols	Numeric		
	Minimum	Nominal	maximum
D	10.40	—	10.80
E	10.40	—	10.80
A	3.80	—	5.06
L	4.45	—	5.15
e	—	1.68	—
b	0.85	—	1.15
c	0.05	—	0.30

5. Electrical parameters

Table 3. Electrical properties

characteristic	symbol	condition Unless otherwise specified $V_I = 2.7V$ or $V_I = V_O + 1$, $I_O = 1mA$, $EN = V_I$ $-55^{\circ}C \leq T_A \leq 125^{\circ}C$	Limit value		unit
			Minimum	maximum	
Output voltage	$V_{O_{ut}}$	$1.26V \leq V_O \leq 4.8V$, $V_I = 5.5V$	1.22	5.0	V
Output Current	I_O		1.5	—	A
Quiescent Current	I_q		—	0.385	mA
Output voltage linear regulation	R_v	$2.7V \leq V_I \leq 5.5V$	—	1.2	%/V
Load Regulation	R	$0\mu A < I_O \leq 1.5A$	—	25	mV
Output current limit	I_{Limite}		2.4	4.2	A
Shutdown current	I_{Shut}	$V_{EN} = 0$, $2.7V \leq V_I \leq 5.5V$	—	10	μA
FB input current	I_{FB}	$FB = 1.8V$	—	1	μA
EN Input Current	I_{EN}	$EN = 0V$	-1	1	μA
Low dropout voltage	V_D	$I_O = 1.5A$, $V_I = 3.2V$	—	510	mV
EN high level input voltage	V_H		2.0	V_I	V
EN low level input voltage	V_L	—	0	0.7	V
UVLO Threshold Voltage	V_{UVLO}	V_I rises	2.25	—	V