

BST75533

1. Product Overview

BST75533 is a radiation-resistant LDO voltage regulator with a low dropout voltage of 500mV, an output current of 5A, and an output voltage of 3.3V. It has a total dose resistance of $\geq 100 \text{ k rad(Si)}$ and a single-particle latch threshold of $\geq 75 \text{ Mev.cm}^2/\text{mg}$. It has undervoltage lockout, enable control and $\overline{\text{PG}}$ functions, low quiescent current, and fast transient response characteristics, and is mainly used to provide a stable 3.3V DC voltage for the subsequent load.

2. Product Features

- 3.3 V fixed output voltage.
- 5A output voltage drop 500mV.
- Typical static power consumption: 125 μ A.
- 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

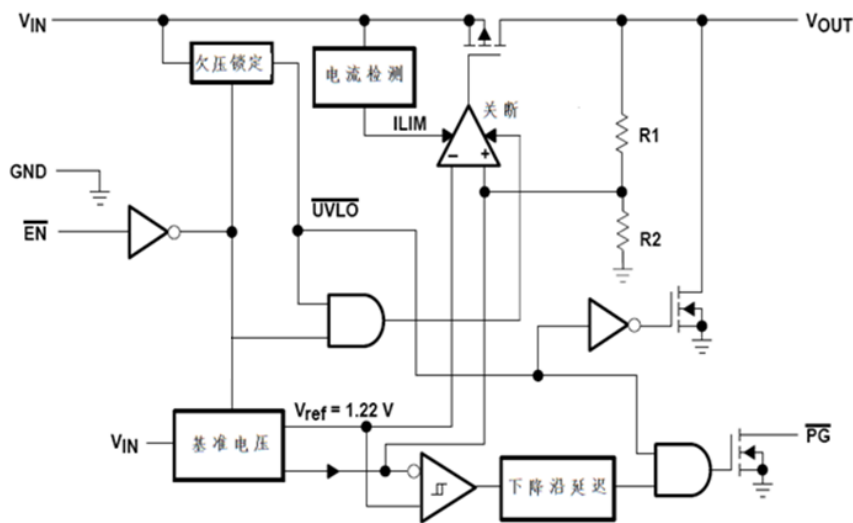


Figure 1. Functional Block Diagram

Pin Information

Pin Assignment Diagram

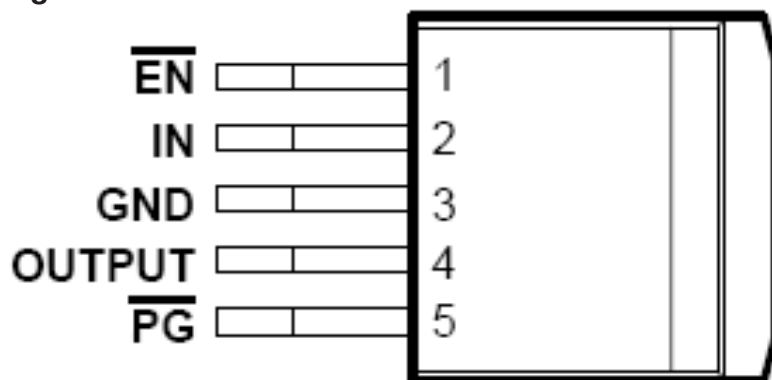


Figure 2. BST 75533 pinout diagram

Pin Description

Table 1. Pin Description

Pin number	Pin Symbols	Functional Description
1	$\overline{EN}$	Enable input
2	IN	Input voltage
3	GND	land
4	OUTPUT	Output voltage
5	$\overline{PG}$	$\overline{PG}$ output

4. Product appearance

Metal TO-263 package

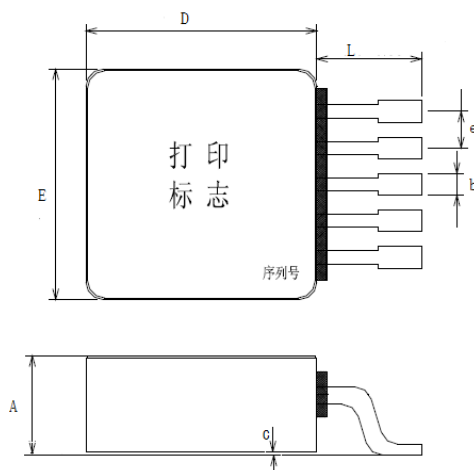


Figure 3. Metal TO-263 package dimensions

Table 2. Dimensions

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 $V_I = V_O + 1$, $I_O = 1\text{mA}$, $\overline{\text{EN}} = 0\text{V}$ $-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$	Limit value		unit
			Minimum	maximum	
Output voltage	V_O	$3.8\text{V} \leq V_I \leq 5.5\text{V}$	3.201	3.399	V
Output Current	I_O		5	—	A
Quiescent Current	I_q		—	0.2	mA
Output voltage linear regulation	R_v	$V_O + 1\text{V} \leq V_I \leq 5.5\text{V}$	—	0.1	%/V
Load Regulation	R	$1\text{mA} \leq I_O \leq 5\text{A}$	—	1	%/V
Output current limit	I_{Limite}		5.5	14	A
Standby current	I_S	$\overline{\text{EN}} = V_I$	—	10	uA
Input ripple rejection	PSRR		40	—	dB
$\overline{\text{PG}}$ minimum input voltage	$V_{\text{MIN(PG)}}$	$I_{\text{O(PG)}} = 300\mu\text{A}$, $V_{\text{(PG)}} \leq 0.8\text{V}$	0	—	V
$\overline{\text{PG}}$ trigger threshold voltage	V_{th}	V_O decreasing	89	93	% V_O
$\overline{\text{PG}}$ hysteresis voltage	$V_{\text{hysteresis}}$	Tested in V_O	—	1	% V_O
$\overline{\text{PG}}$ output low voltage	$V_{\text{L(PG)}}$	$V_I = 3.8\text{V}$, $I_{\text{O(PG)}} = 1\text{mA}$	—	0.4	V
$\overline{\text{PG}}$ leakage current	I_{PG}	$V_{\text{(PG)}} \leq 5.0\text{V}$	—	1	uA
$\overline{\text{EN}}$ Input Current	I_{EN}	$\overline{\text{EN}} = V_I$	-1	1	uA
		$\overline{\text{EN}} = 0\text{V}$	-1	1	
$\overline{\text{EN}}$ high level input voltage	V_I		2	—	V
$\overline{\text{EN}}$ low level input voltage	V_{IL}		—	0.7	V
Low dropout voltage	V_D	$I_O = 5\text{A}$, $V_I = 3.2\text{V}$	—	500	mV
Discharge current	I_{DIS}		10	—	mA
Undervoltage protection threshold	V_{UVLO}	V_I rises	2.2	—	V