

BST1060

1. Product Overview

BST 1060 is an ultra-low noise, high PSRR, quad-channel low dropout linear regulator. It can provide a total maximum drive current of 500 mA. The output voltage can be adjusted from 1.8V to 5.2V and has an enable control input.

2. Product Features

- Ultra-low noise:
3 nV/ $\sqrt{\text{Hz}}$ @10KHz.
7 nV/ $\sqrt{\text{Hz}}$ @ 1 KHz.
Integrated RMS noise : 1.5 μV rms@10~100KHz.
- Four channels with adjustable output voltage:
VR1 : 100mA@1.8V~5.5V.
VR2:50mA@1.8V~5.2V.
VR3:50mA@1.8V~5.2V.
VR4: 300mA@1.8V~5.2V.
- Thermal protection function.
- Low shutdown current : <5uA (typical: 1uA).
- PSRR:80dB@10KHz.
- Ceramic CQFN-16 package.
- Plastic QFN-16 package.

3. Functional Block Diagram

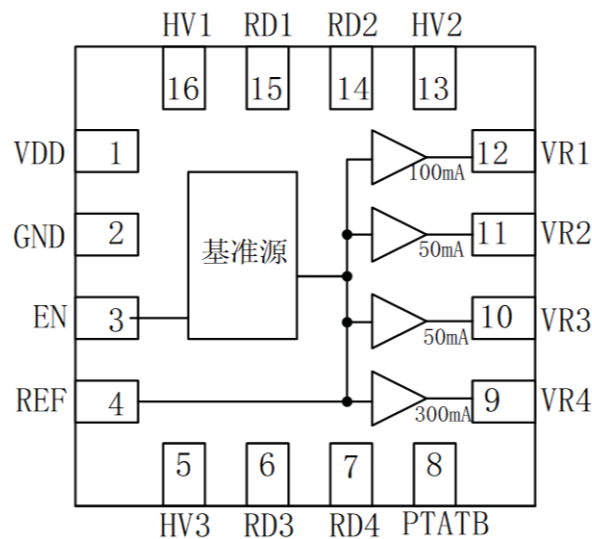


Figure 1. Functional Block Diagram

Pin Information

Pin Assignment Diagram

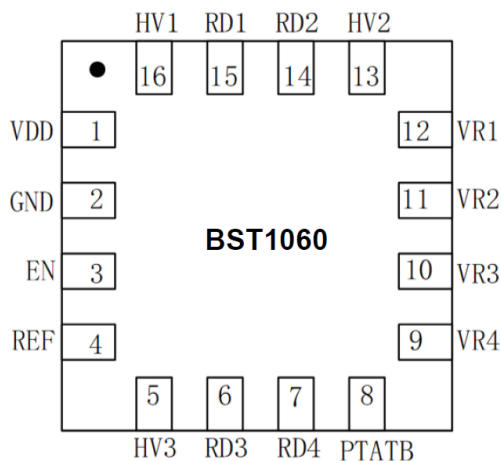


Figure 2. BST 1060 Pinout

Table 1. Pin Description

Pin number	symbol	Function
1	VDD	Input voltage
2	GND	Ground pin
3	EN	Enable terminal, high level is effective
4	REF	Reference voltage output
5	HV3	output voltage adjustment terminal of the third regulator
6	RD3	The feedback terminal of the third regulator
7	RD4	Feedback terminal of the fourth regulator
8	PTATB	Output voltage temperature coefficient adjustment terminal
9	VR4	Fourth regulator output
10	VR3	The third regulator output
11	VR2	Second regulator output
12	VR1	The first regulator output
13	HV2	The output voltage adjustment terminal of the second regulator
14	RD2	Feedback terminal of the second regulator
15	RD1	Feedback terminal of the first regulator
16	HV1	The output voltage adjustment terminal of the first regulator

4. Product appearance

Ceramic CQFN-16 package

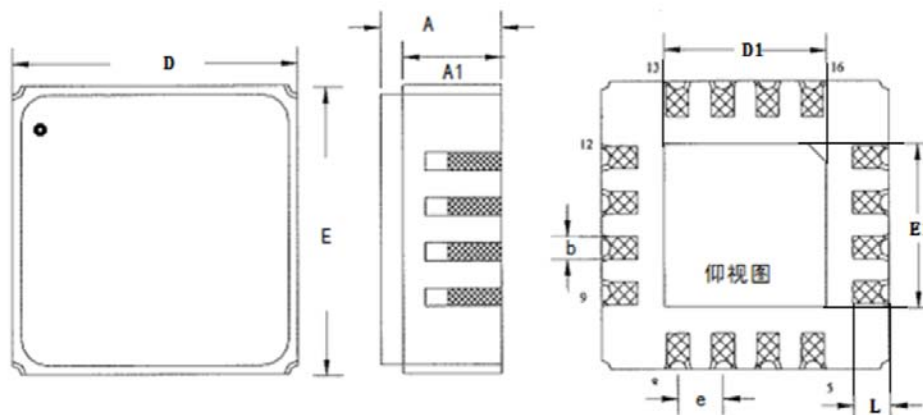


Figure 3. Ceramic CQFN-16 package dimensions

Dimension symbols	Numeric		
	Minimum	Nominal	maximum
A	—	—	1.65
A1	0.95	—	1.25
b	—	0.25	—
L	—	0.4	—
e	—	0.50	—
D	2.70	—	3.30
E	2.70	—	3.30
D1	—	1.8	—
E1	—	1.8	—

Plastic QFN-16 package

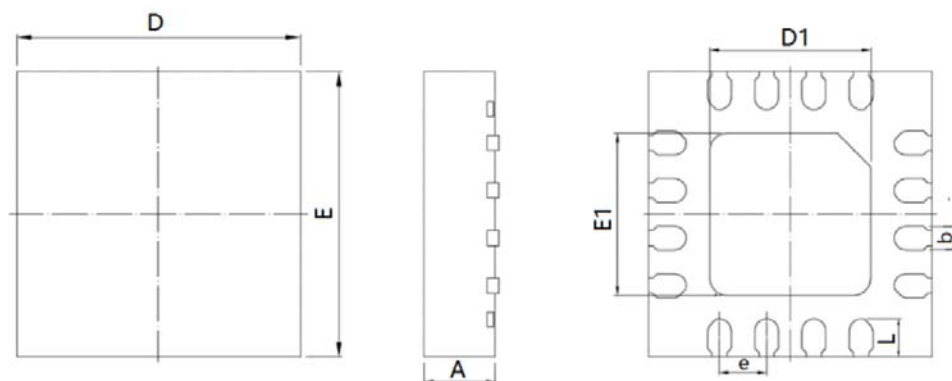


Figure 4. Plastic-encapsulated QFN-16 package dimensions

Dimension symbols	Numeric		
	Minimum	Nominal	maximum
D	2.80	—	3.20
E	2.80	—	3.20
D1	1.50	—	1.90
E1	1.50	—	1.90
e	—	0.50	—
b	0.12	—	0.32
L	0.20	—	0.40
A	0.60	—	0.90

5. Electrical parameters

Table 4. Electrical properties

characteristic	symbol	Strip Item Unless otherwise specified VDD = 5.6V -55 °C ≤ T A ≤125 °C PTAT Closed	Limit value			unit
			Minimum	typical	maximum	
All channel output voltage	V _{OUTA}		1.8	—	5.2	V
VR1 foot (first channel) output voltage	V _{OUT1}	I _{OUT1} = 100mA	3.201	3.3	3.399	V
VR2 pin (second path) output voltage	V _{OUT2}	I _{OUT2} = 50mA	3.201	3.3	3.399	V
VR3 pin (third channel) output voltage	V _{OUT3}	I _{OUT3} = 50mA	3.201	3.3	3.399	V
VR4 pin (fourth path) output voltage	V _{OUT4}	I _{OUT4} = 300mA	4.85	5	5.15	V
Input voltage range	V _{IN}		5.2.	—	5.6	V
VR1 pin (first channel) output current	I _{OUT1}		—	—	100	mA
VR2 pin (second path) output current	I _{OUT2}		—	—	50	mA
VR3 pin (third channel) output current	I _{OUT3}		—	—	50	mA
VR4 pin (fourth path) output current	I _{OUT4}		—	—	300	mA
Total output current	I _{OUT1-4}		—	—	500	mA
Shutdown current	I _p	VEN=0V	—	—	5	μA
		VDD = 5.2V ~ 5.6V				
Enable input high level voltage	V _I	VDD = 5.2V ~ 5.6V	2	—	—	V
Enable input low level voltage	V _{IL}	VDD = 5.2V ~ 5.6V	—	—	0.8	V
Current Regulation (VR4)	Δ V _{OUT} /Δ I _{OUT}	25 °C, 0 μA to 300mA	—	—	0.012	%/mA
		0 μA to 300mA	—	—	0.014	
VR1 PSRR		1KHz		75		dB
		10KHz		75		
		100KHz		65		
Output noise voltage density a	ONVD	10kHz, 25 °C	—	3	8	nV/√Hz
		1kHz, 25 °C	—	7	16	
		10kHz	—	—	10	
		1kHz	—	—	20	
Power consumption	P _D		—	—	1.6	W
Opening time (VR1)	t _{start}		—	50	100	ms
Enable turn-on delay time (VR1)	ET		—	30	60	ms

Note: a Only performed during initial qualification or when design or process changes are made, the sample size is 5 (0).