BST703xx

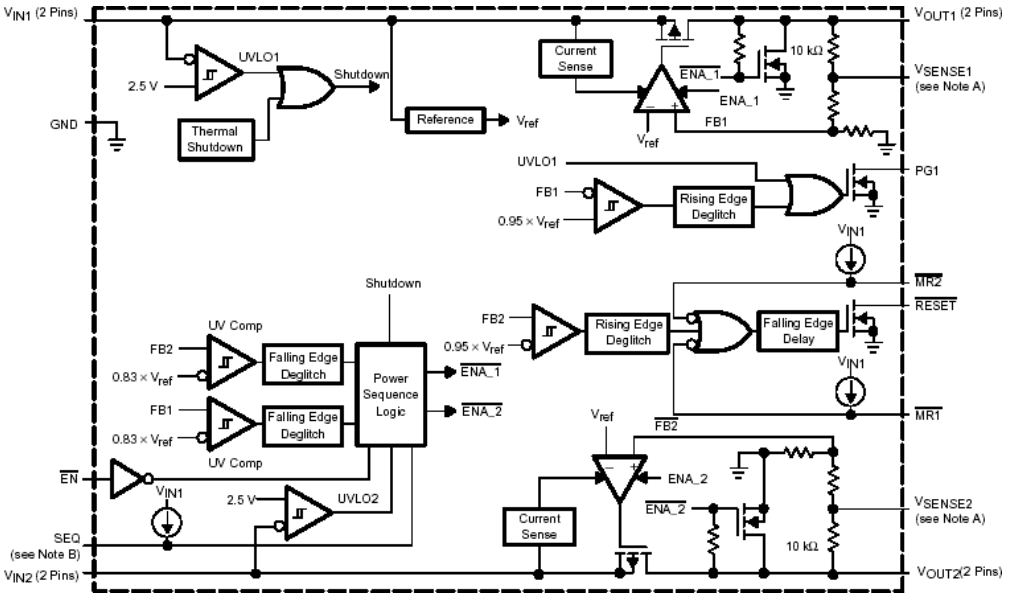
1. Product Overview

BST703xx series is a dual-terminal output linear voltage regulator for multi-voltage DSP system timing power-on. It is suitable for multi-power supply voltage system. Its two regulators have the maximum output current of 1A and 2A respectively. The two regulators can select the power-on timing through external pins. It has many features such as high precision, fast transient response, SVS management circuit (power-on reset), external reset input, enable control, 120mS delay open-drain output power - on reset function and POWERGOOD indication function, etc. It can provide a complete and reliable power supply solution for DSP, ASIC, FPGA, CPLD and digital application systems that require dual output voltages . There are 5 products in BST703xx series LD O : BST70345 (3.3V / 1.2V), BST70348 (3.3V / 1.5V), BST70351 (3.3V /1.8 V), BST70 3 5 8 (3.3 V /2 . 5 V) and BST 7 030 2 (A D J, A D J) ; with ceramic CSO P 24 And plastic package TSSOP24.

2. Features

- Provides dual output voltage for split power applications.
- Provides selectable power-up timing for DSP applications.
- Regulator 1 maximum load current 1A, regulator 2 maximum load current 2A.
- Fast transient response speed.
- The output voltage is 3.3V/1.2V, 3.3V/1.5V, 3.3V/1.8V, 3.3V/2.5V, dual adjustable output.
- Drain open circuit output 120ms delay power-on reset signal.
- Open drain output regulator 1 POWER GOOD signal.
- Low quiescent current, typically 250uA.
- The current in standby state is 2uA.
- Output capacitor fast discharge function.
- Two external RESET input ports.
- UVLO under-voltage lockout protection function.
- Overheat protection function.
- Ceramic CSOP24 package and plastic TSSOP24 Encapsulation.

3. Functional Block Diagram

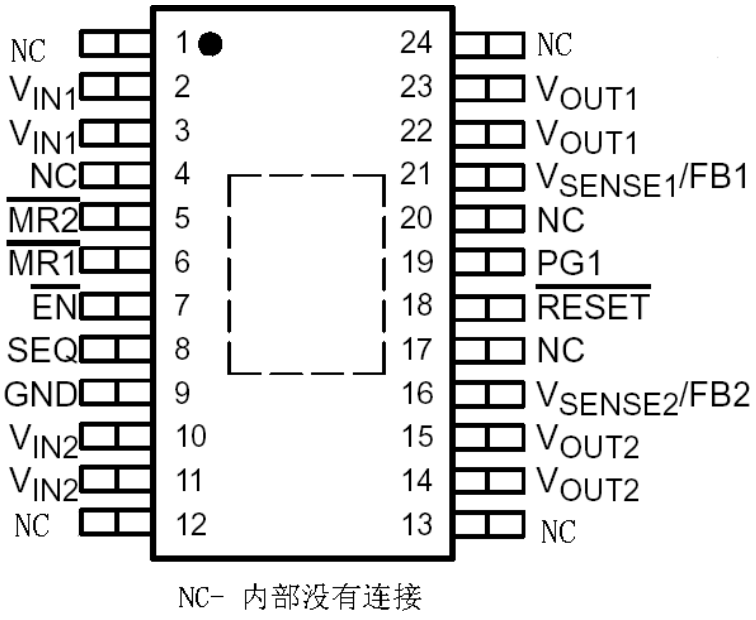


Picture 1. Functional Block Diagram

Note 1: In many applications, Vsense1 and Vsense2 are connected to Vout externally and should be connected as closely to the chip pins as possible. For other applications, they will be discussed in the sense connection application section.
Note 2: If the SEQ input is left floating, Vout2 will be powered on first.

Pin Information

Pin Assignment Diagram



NC- 内部没有连接

Picture 2. BST703xx Pin Assignment Diagram

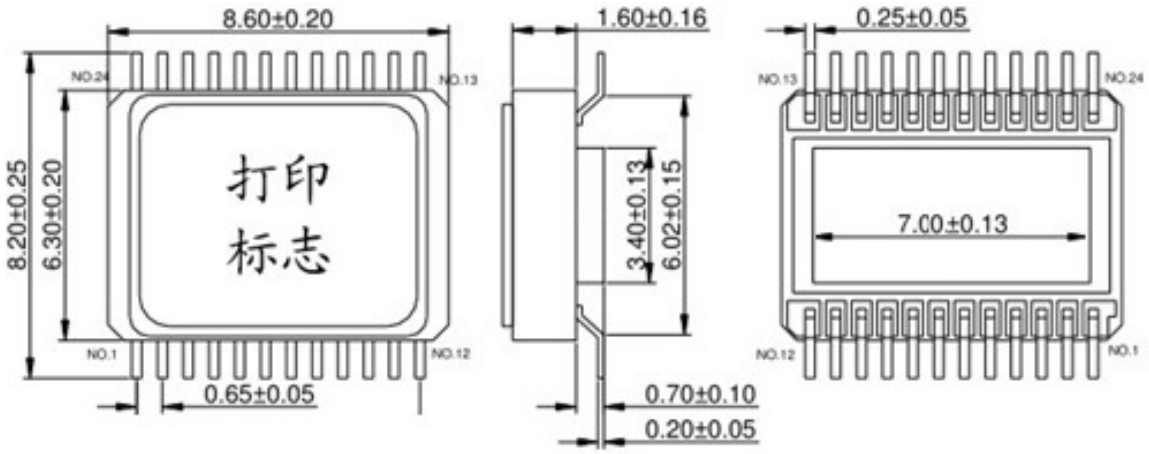
Pin Description

Pin Description

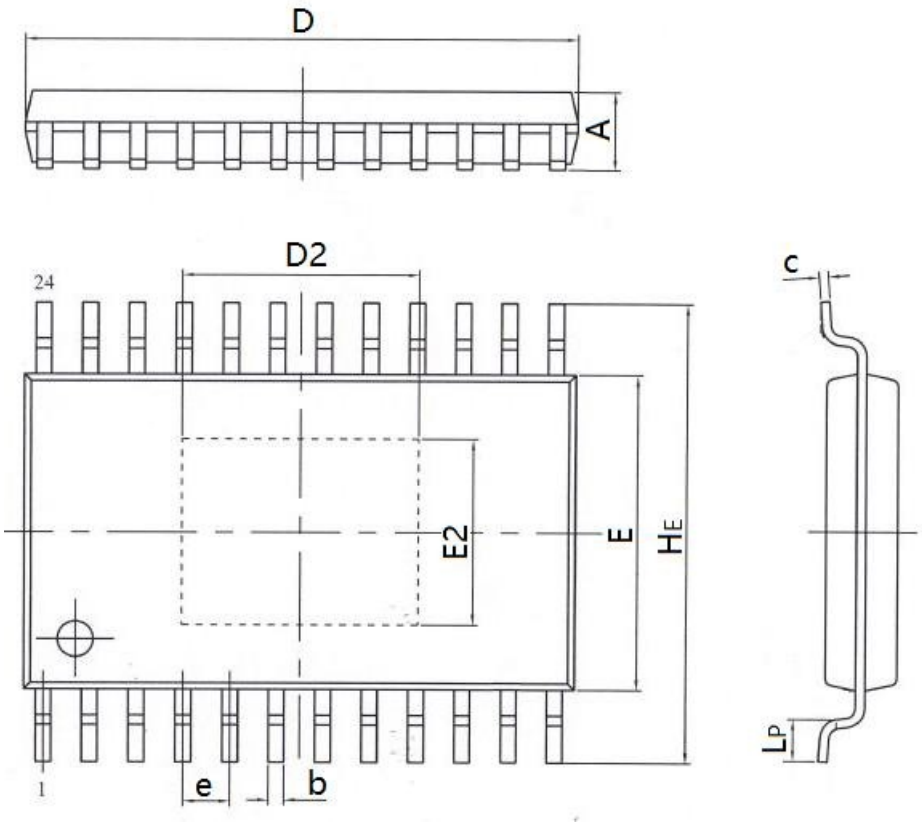
Pinout Number	symbol	Function
1	NC	No internal connection
2,3	VIN1	Regulator 1 input voltage
4	NC	No internal connection
5	$\overline{MR2}$	Manual reset input 2, low level valid, with internal pull-up
6	$\overline{MR1}$	Manual reset input 1, low level valid, with internal pull-up
7	$\overline{EN}$	Enable input, low level is effective
8	SEQ	Power-on timing control: SEQ is high, Vout2 is powered on first, SEQ is low, Vout1 is powered on first, SEQ has internal pull-up
9	GND	Regulator ground
10,11	VIN2	Regulator 2 input voltage
12	NC	No internal connection
13	NC	No internal connection
14,15	VOUT2	Regulator 2 output voltage
16	Vsense2/FB2	Regulator 2 Output feedback sampling terminal
17	NC	No internal connection
18	$\overline{RESET}$	Open drain output, power-on reset signal, low level valid
19	PG1	Open drain output, low when Vout1 is below 95% of the regulator typical output voltage
20	NC	No internal connection
twenty one	Vsense1/FB1	Regulator 1 Output feedback sampling terminal
22,23	VOUT1	Regulator 1 output voltage
twenty four	NC	No internal connection

4. Product appearance

Ceramic CSOP24 Encapsulation



Plastic package TSSOP24 Encapsulation



Unit is mm

Dimension symbols	Numeric		
	Minimum	Nominal	maximum
D	7.60	-	8.00
H_E	6.10	-	6.70
E	4.20	-	4.60
D2	3.85	-	4.25
E2	2.65	-	3.05
c	0.08	-	0.23
L_P	0.40	-	0.80
e	-	0.65	-
b	0.13	-	0.35
A	-	-	1.30

5. Electrical parameters

Table 1. Electrical properties

parameter		Test environment	Limit value			unit
			Minimum	typical	maximum	
V o Output Voltage	Reference voltage	2.7V<VI<6V, FB is connected to Vo, T=25 °C J		1.2		V
		2.7V<VI<6V, FB is connected to V	1.164		1.236	
	1.2V output	2.7V<VI<6V,TJ=25 °C		1.2		
	(Vout2)	2.7V<VI<6V	1.140		1.260	
	1.5V output (Vout2)	2.7V<VI<6V,TJ=25°C		1.5		
		2.7V<VI<6V	1.425		1.575	
	1.8V output (Vout2)	2.8V<VI<6V,TJ=25 °C		1.8		
		2.8V<VI<6V,TJ=25°C	1.71		1.89	
	2.5V output (Vout2)	3.5V<V1<6V,TJ=25°C		2.5		
		3.5V<VI<6V	2.375		2.625	
	3.3V output (Vout1)	4.3V<VI<6V,TJ=25°C		3.3		
		4.3V<VI<6V	3.135		3.465	
Quiescent current EN = 0V, see Note 1		See Note 3, TJ = 25°C		250		μA
		See Note 3			500	
Output Voltage Line Regulation (ΔVo/Vo) For Regulator 1 and 2, see Note 2		Vo+1V<VI<=6VTJ=25°C See Note 1			10	mV
		Vo+1V<VI<=6V Note 1			10	
Load Regulation of Vout1 and Vout2		TJ=25°C See Note 3			50	mV
Short circuit current	Regulator 1	Vo=0V		1.2	2	A
	Adjuster 2			2.2	3	
Thermal shutdown temperature				155		℃
I I (standby) Current when in standby state		EN =VI, TJ = 25°C		1	2	uA
		EN =VI			10	
RESET terminal						
Minimum input voltage for effective reset		I=300uA V<=0.8V		1.0	1.5	V
Voltage Error Threshold		VO decrease	92%	95%	98%	VO
Hysteresis voltage		Adjusting VO		0.5%		VO
t(Reset)		Reset pulse duration	80	120	160	mxD
tr(reset)		Rising edge deglitch		30		uS
Output low voltage		VI=3.5V,I(complex bit) = 1mA		0.15	0.4	V
Leakage Current		V(reset)=6V			1	uA
PG side						
Effective PG minimum input voltage		I(PG)=300uA V(PG1)<=0.8V		1.0	1.5	V
Voltage Error Threshold		VO decreases	92%	95%	98%	VO
Hysteresis voltage		Regulated by VO		0.5%		VO
Tr(PG1)		Rising edge deglitch		30		us
Output low voltage		VI=2.7V, I(PG)=1mA		0.15	0.4	V
Leakage Current		V(PG1)=6V			1	uA
EN terminal						
EN input voltage high level			2			V
EN input voltage low level					0.7	V
Input current (EN)			-1		1	uA
SEQ terminal						
SEQ input voltage high level			2			V
SEQ Input Voltage Low Level					0.7	V
SEQ pull-up current			3	6		uA
MR1 / MR2 Terminal						
Input voltage high level			2			V
Input voltage low level					0.7	V

parameter	Test environment	Limit value			unit
		Minimum	typical	maximum	
Pull-up current		3	6		uA
Vout2 terminal					
Vout2 low voltage comparison threshold voltage		80% VO	83% VO	86% VO	V
Vout2 Low Voltage Comparator - Hysteresis			3%VO		mV
Vout2 low voltage comparator-falling edge pulse	Vsense2 drops below the threshold		140		us
Output current peak	Pulse length 2ms		2.3		A
Discharge transistor current	Vout2=1.5V	3	10		mA
Vout1 port					
Vout1 low voltage comparison threshold voltage		80% VO	83% VO	86% VO	V
Vout1 Low Voltage Comparator - Hysteresis			3%VO		mV
Vout1 low voltage comparator-falling edge pulse	Vsense1 drops below the threshold		140		us
Dropout Voltage (See Note 4)	I O =1A Vin1=3.2V T=25°C J		300		mV
	IO=1A Vin1=3.2V			500	
Output current peak	Pulse width 2ms		1.2		A
Discharge transistor current	VOUT1=1.5V	3	10		mA
VIN1/VIN2 Port					
Low voltage lockout shutdown threshold		2.3		2.65	V
Low Voltage Latch Hysteresis		50	110		mV
FB1/FB2 Port					
Input Current - BST70302	FB=1.8		1		uA

Note 1 : The minimum input operating voltage is the maximum of 2.7V or VO (typical) + 1V . The maximum input voltage is 6V and the minimum output current is 1mA.

Note 2 : If VO is less than 1.8V, the maximum input voltage is 6V and the minimum input voltage is 2.7V