

BSTCM24C256S 256K bit I2C Bus Serial EEPROM MANUAL

1. Product Overview

BSTCM24C256S Type 256K bit I2C Bus Serial EEPROM, is a CMOS The monolithic integrated circuits manufactured by the process mainly provide 256K bit Serial Electrically Erasable Programmable Read-Only Memory (EEPROM), I2C interface, the memory structure is 32768×8bit, internally divided into 512 pages per page 64 bytes.

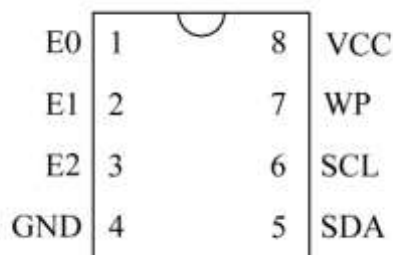
1.1. Features :

- Operating voltage (V_{CC}): 2.5V~5.5V
- Quiescent current (I_{SB}): ≤5.0μA
- Input leakage current (I_{LI}): ≤2.0 μA
- Output low level voltage (V_{OL}): ≤ 0.4V (@ I_{O-} =+3.0mA, V_{CC} = 5.0V)
- ≤0.2V (@ I_{O-} = +1.0mA, V_{CC} =2.5V)
- Working temperature (T_A): -55 °C ~ 105 °C
- Packaging type: plastic packaging SOP8

1.2. Application :

General purpose product, mainly used for ground equipment.

2. Package and pin description



Bonding area pin description and coordinates :

Table 1. Pin Description

Pin number	Symbol	I/O	Achievement able
1	E0	I	enter
2	E1	I	enter
3	E2	I	enter
4	GND	P	land
5	SDA	I	enter
6	SCL	I	enter
7	WP	I	enter
8	VCC	P	power supply
Note: Port type description, P : power ground, I : input, O : output.			

Port Description :

Typically, E2, E1 and E0 The pins are used for hardware addressing. A total of 8 If these pins are left floating, the E2, E1, and E0 pins will be internally pulled down to GND.

SDA pin is a bidirectional port for data transmission. This pin is open-drain driven and can perform wired-OR logic operations with any number of other open-drain or open-collector devices.

III. Absolute Maximum Ratings

Power supply voltage (V_{CC}) V~6.25V

Maximum power consumption (PD) 100mW

Storage temperature range (T_{stg}) - 65 °C ~ 150 °C

Maximum junction temperature (T_j) 175 °C

IV. Recommended operating conditions

Power supply voltage (V_{CC}) V~5.5V

Operating ambient temperature (TA) - 55 °C~ 105 °C

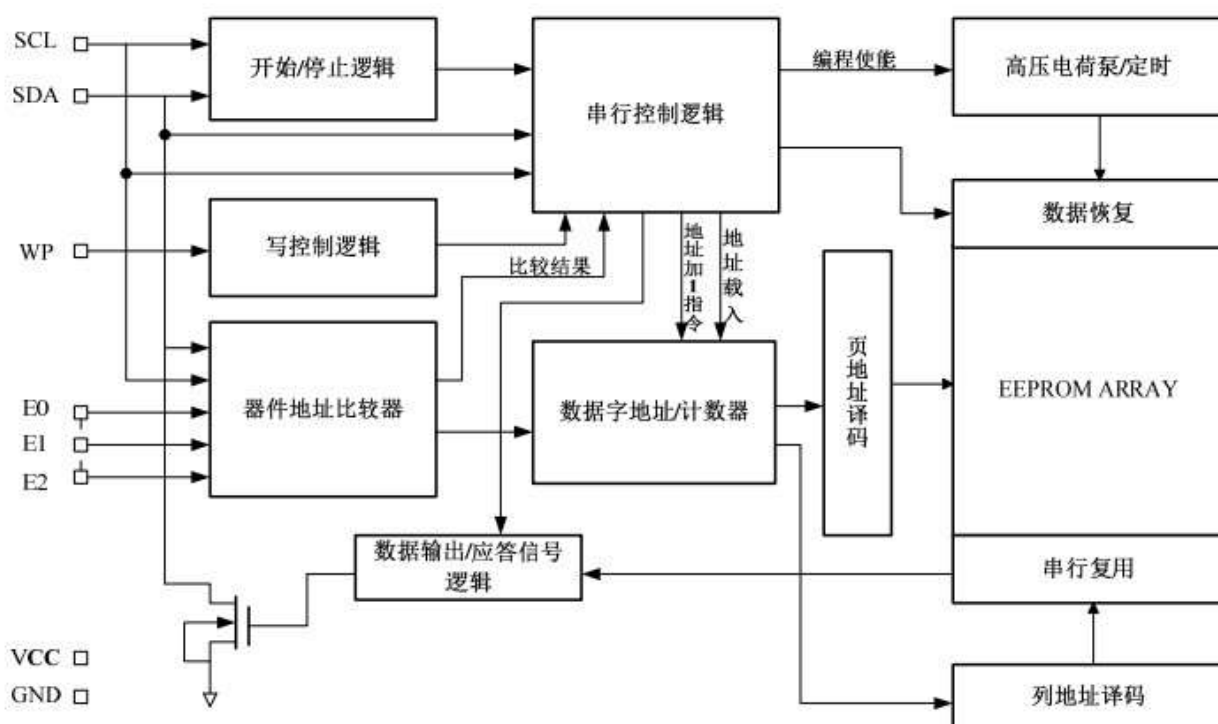
V. Technical indicators

Table 1. Electrical parameter characteristics (circuit)

Parameter name	Symbol	Condition Unless otherwise specified, - 55 °C ≤ T _A ≤ 125 °C		Limit value			Unit
				Minimum	Typical	Maximum	
Quiescent Current	I _{SB}	V _{CC} = 5.5V/3.3V, /E0/E1/E2=000, SCL=SDA=1, WP=0		—	<1	5.0	μA
Input high level voltage	V _I	V _{CC} = 5V		0.7 V _{CC}	—	—	V
Input low level voltage	V _{I L}	V _{CC} = 5V		—	—	0.3 V _{CC}	V
Input leakage current	I _{LI}	V _{CC} = 5.5V, V _{IN} = V _{CC} / GND SCL, SDA, WP		—	<0.1	2.0	μA
Output low level voltage	V _{OL}	I _{O-} = +3.0mA, V _{CC} = 5.0V		—	—	0.4	V
		I _{O-} = +1.0mA, V _{CC} = 2.5V		—	—	0.2	V
Working current	I _{CCR}	V _{CC} = 5.5V, f = 400kHz, SDA Connect 2KΩ pull - up resistor	Read Operation	—	—	0.6	mA
	Write Operation		—	—	2.0	mA	
Clock Pulse Width Low	t _{LOW}	V _{CC} = 2.5V/5.0V, see figure 3		0.6	—	—	μs
Clock Pulse Width High	t _{HIGH}			0.6	—	—	μs
Before transmitting the next value bus The time at which the bus must be released	t _{BUF}			0.6	—	—	μs
Start condition hold time	t _{HD.S T A}			0.3	—	—	μs
Start condition setup time	t _{SU.S T A}			0.3	—	—	μs
Data input hold time	t _{HD.DAT}			0.1	—	—	μs
Data input setup time	t _{SU.DAT}			0.2	—	—	μs
Stop condition setup time	t _{SU.STO}			0.4	—	—	μs
WP Build Time	t _{SU.WP}			V _{CC} = 2.5V/5.0V		1.0	—
WP Keep Time	t _{HD.WP}	1.0	—			—	μs

		$V_{CC} = 2.5V$, write the entire device 00~FF rolling code, FF~00 Rolling code, 00, FF	
Functional testing	—	And read out verification $V_{CC} = 5.5V$, write the entire device 00, FF And read out verification	—
Note: Voltage is based on GND As the benchmark, GND=0, the current into the chip terminal is flowi positive.			

VI. Functional Description



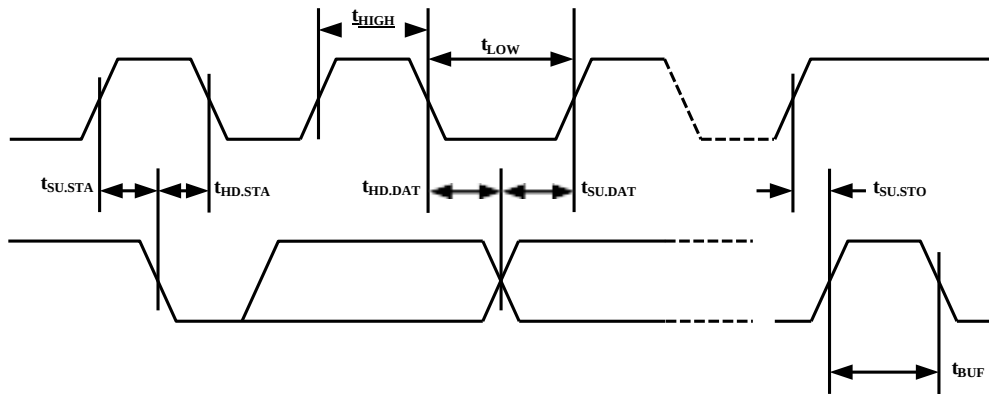
Picture 2. Functional Block Diagram

This circuit mainly provides 256K bit Serial electrically erasable programmable read-only memory (EEPROM), I²C interface, the memory structure is 32768 × 8bit, internally divided into 512 pages per page 64 bytes.

VII. Application Notes

Typical application diagram :

SCL



SDA input

SDA output



Picture 3. Switching timing diagram

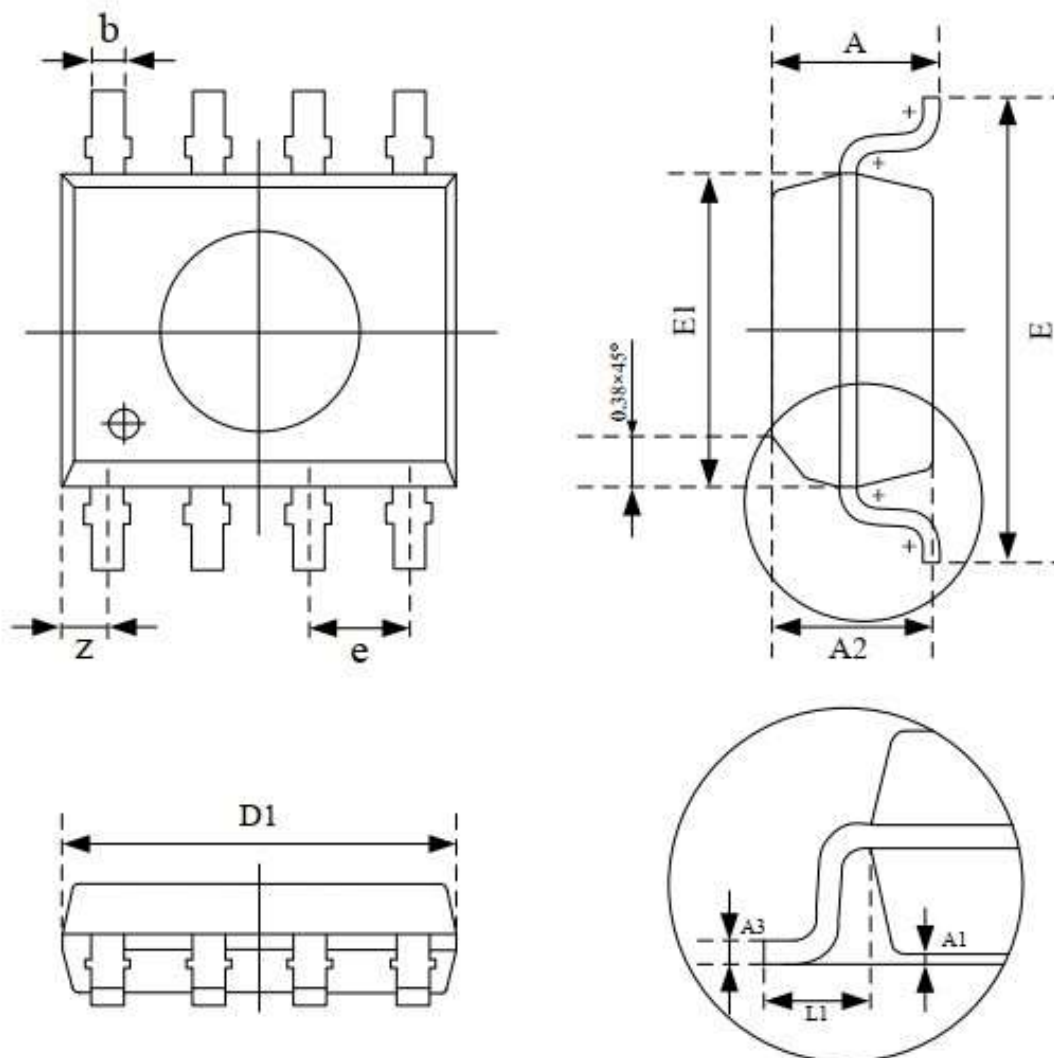
VIII. Precautions for use:

- This product is CMOS Circuits are electrostatically sensitive devices, so you should pay attention to anti- static when using and storing them. When welding, it is especially important to wear an anti-static wristband. Otherwise, it is very easy to cause damage to the device.
It is strictly forbidden to ground the output.
- Usually, E2, E1 and E0 The pins are used for hardware addressing. A total of If these pins are left floating, E2, E1 and E0 The pin will be internally pulled down to GND. SDA The pin is a bidirectional port for data transmission. This pin is opendrain driven and can perform wired-OR logic operations with any number of other open-drain or open-collector devices.
- When using, try to ensure that the circuit works under the recommended working conditions. If the circuit works above the absolute maximum rating, it is very easy to cause device damage and lead to device failure.

In order to reduce the interference on the power supply, it is recommended to add $0.1\mu\text{F}$ to VCC -GND near the chip. Capacitance.

IX. Dimensions

This circuit uses 8 Lead plastic package (SOP8) package, the dimensions are as shown in the figure 4 regulations.



Picture 4. Dimensions

Unit is mm

Dimension symbols	Numeric		
	Most Small	Male say	Most big
A	1.500	—	1.700
A1	0.100	—	0.200
A2 b	—	1.450	—
A3 b	—	0.223	—
b c	0.356	—	0.486
e b	—	1.270	—
D1 a	4.790	—	4.930
E	5.900	—	6.100
E1 a	3.810	—	3.960
L1 b	0.950	—	1.150
Z	—	0.535	—

X. Disclaimer

- Our institute is only responsible for the current validity of this product manual when it is issued, and no separate notice will be given for version updates.
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