BST1603MAH memory circuit

Product Brochure

V2.0

Revision History

Edition	Version Notes	Change order number	Change Person	date	Remark
1.0	Original version	-	Yu Gewei	2008-12-09	
1.1	Modify some information after the company name change	-	Yu Gewei	2009-12-20	
2.0	Updated the manual template and changed some parameters	-	Yu Gewei	2020-7-29	

Table of contents

I. Product Overview

It is a complete imitation of the foreign AMIC company's A29800B product.

The military-grade BST1603MAH is a 5.0V voltage.

8Mbit KGD Flash memory. Byte-width data appears on DQ15-DQ0; bit-width data appears on DQ7-DQ0. The chip is designed so that the internal system programming voltage is provided by the 5.0V VCC voltage. For writing and erasing, the 12V VPP voltage is not required. The chip has separate chip enable control (CE#), write control (WE#), and output enable control (OE#) to eliminate bus contention. The chip only needs a single 5V power supply to complete reading and writing. Internally generated and controlled voltages are provided for programming and erase operations. The chip is fully compatible with the JEDEC single-supply Flash specification. Commands are written to the instruction register using standard microprocessor write times. Reading data off the chip is similar to reading other Flash and EPROM chips.

Chip programming occurs by executing a sequence of programming commands. The partial erase architecture allows portions of memory to be erased and programmed without affecting the data content of other portions. The hardware data protection method includes a low-level VCC detector that automatically inhibits write operations during power transitions. The hardware data protection function disables the programming and erasing functions of any combined sector of the memory. The erase delay feature allows the user to set the erase to temporarily stop for a period of time to read data, or program data to any unselected erased sector. The hardware reset

#RESET pin aborts any previous reset operation to read array data. Resetting the #RESET pin relies on the system reset circuit. The system can put the chip into a standby mode, in which power consumption is very small.

II. Product Features

- Normal operating temperature range: -55°C to U+125°C
- Single power supply operation, 5V voltage is suitable for read, erase and program operation. Minimum system standard requirements.
- Manufactured with 0.18um process technology, compatible with 0.5um A29800B chip.
- High performance, 70ns access time.
- Low power consumption
  5mA Standby Mode Current
  10mA read current (byte mode)
  15mA read current (word mode)
  20mA Erase/Program Current
- Flexible sector structure
  One 16Kbyte, two 8Kbyte, one 32Kbyte and 15 64Kbyte sectors (byte mode)
  One 8Kword, two 4Kword, one 16Kword, and 15 32Kword sectors (word mode)
  Support full chip erase
  Sector protection features:
  Lock a sector in hardware to prevent any program or erase operations from occurring in this sector.
  Sectors can be locked by programming equipment.
  The temporary sector unprotect feature allows code to change previously locked sectors.
- Built-in algorithms
  The built-in erase algorithm automatically pre-programs and erases the entire chip or any specified group of sectors.
  The built-in programming algorithm automatically writes and verifies data at the specified address.
- Ensure that each sector has at least100,000 Write cycle.
- Compatible with JEDEC specifications.

- Data rotation detection

  Provides a software method to verify the completion of program and erase operations.

- Reserved/temporarily occupied feet (RY/BY#)

  Provides a hardware method to verify the completion of program and erase cycles.

- Erase delay/erase recovery

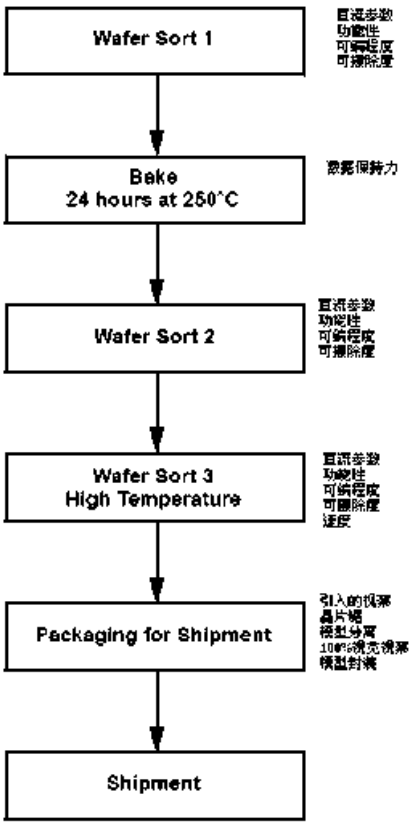
  Suspend the erase operation to read data from the unerased sector, or program data to this sector, and then continue the erase operation.

- Reset foot

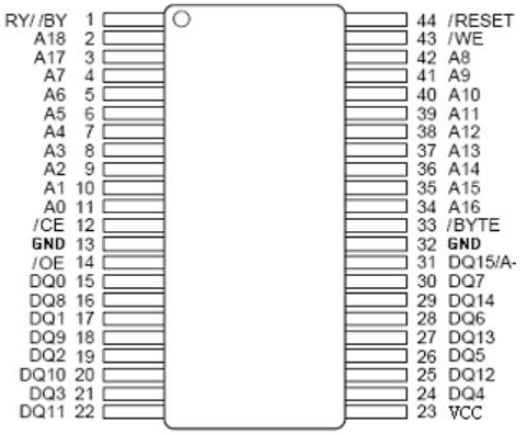
  The hardware method resets the chip to read the array data.

- Full temperature range: -55℃～125℃

III. Testing Process



IV. Pin information



Pin number	Function	Symbol
Control Signal	Chip Select	/CE
	Output Enable	/OE
	Write Enable	/WE
	Ready/Busy Output	RY //BY
	Hardware reset/temporary sectors unprotected	/RESET
	Select 8-bit or 16-bit mode	/BYTE
Power signal	power supply	VCC
	land	GND

V. Electrical properties

The absolute maximum ratings are as follows:

Supply voltage（%c）-0.5V~6V

Input voltage to ground (MN) -0.5 V—Vcc+0.5 V

Threestate output voltage to ground (man) -0.5V—Vcc+0.5V

Storage temperature（7%) 65,C~:150C

Maximum soldering temperature (Ih) 300c (10s)

Power consumption（PD) IUsQ

Junction temperature (knife) 175

Recommended operating conditions are as follows:

Supply voltage (Fee) 4.5V-5.5V

Low level input voltage (V) 0V-0.8V

High level shaft input voltage (%H) 3.5V~

Wuc+0.5V Output voltage (%) OV~removec work

Operating temperature (A) 55C~125C

The electrical characteristics are as specified in the following table and apply over the full temperature range.

Characteristic	Symbol	Condition Unless Otherwise Specified Vcc = 5v-55℃≤Ta≤125℃	Limit Value		Unit
			Minimum	Maximum	
Output high level voltage	VOH	IOH= -2.5mA	2.4		V
Output low level voltage	VOL	IOL=5.8mA		0.45	V
Input high level voltage	VIH		3.5		V
Input low level voltage	VIL			0.8	V
Input leakage current	IL	VIN= GND or VCC, VCC= Max	-50.0	+50.0	μA
Output leakage current	IOZ	VIN= GND or VCC, VCC= Max	-10.0	+10.0	μA
Supply Current	ICC	No load		20	mA
Power consumption	PD	No load		0.1	W
Write latency	tIE	/CE= VIL,/WE= VIL		70	ns
Readout delay time	tOE	/CE= VIL,/OE= VIL		70	ns
Read Cycle	tRC	/CE= VIL,/OE= VIL		70	ns
/CE is valid to output valid	tCE	/OE=VIL		70	ns
/CE invalid to output invalid	tCD	/OE=VIL		30	ns
Maximum operating frequency	fC		1.3		MHz

VI. Special operating instructions

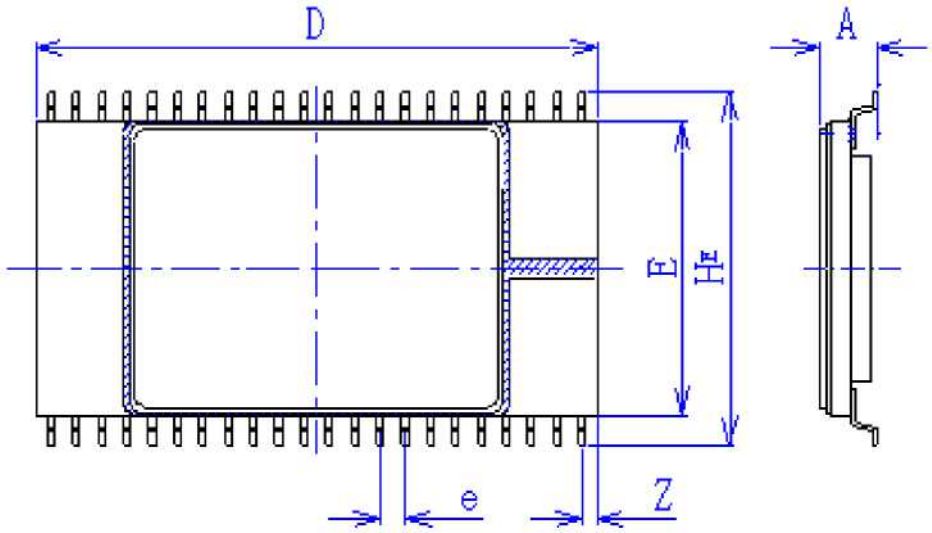
Store in sealed bags at a maximum temperature not exceeding 30 degrees Celsius.

Comply with all ESD regulations

Operating procedures.

VII. Package size

The device adopts CSOP44 package, and the shell appearance is shown in the figure below.



Dimension symbols	Numeric		
	Minimum	Nominal	maximum
A	2.00	--	3.58
D	27.90	--	29.50
e	--	1.27	--
E	13.10	--	13.50
HE	15.70	--	16.30
Z	--	--	1.27

VIII. Product ordering information

Product Ordering Information

model	Package	Quality Grade	Temperature range
BST1603MAH/K	Ceramic CSOP44	Class B	-55-125℃