8MB/4MB (2x1Mx32 / 1Mx32) MirrorBit™ 3.0V, Boot Sector Flash Memory Module

DESCRIPTION

The W7MG1M32SVx-BN and W7MG21M32SVx-BN are organized as one and two banks of 1Mx32 respectively. The modules are based on AMDs MirrorBit™ AM29LV160M - 1Mx16 or S29AL016M (optional) Flash device in TSOP packages which are mounted on an FR4 substrate.

Both modules offer access times between 70 and 120ns allowing for operation of high-speed microprocessors without wait states.

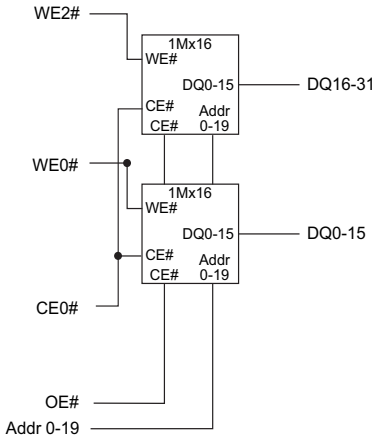
FEATURES

- 1Mx32 and 2x1Mx32 Densities
- Based on AMD - AM29LV160M Flash Device
- Spansion™ - S29AL016M (optional)
- High Performance
  - Access time as fast as 70ns
  - 0.7s typical sector erase time
- 3V for read, erase, and program operations
- Flexible, Sector Architecture
  - One 16Kbyte, two 8Kbyte, one 32Kbyte and thirty-one 64Kbyte sectors.
  - Any combination of sectors can be erased
  - Also supports full chip erase
- Top boot block configurations
  - Bottom boot block optional. Contact WEDC.
- Embedded Erase Algorithms
  - Automatically preprograms and erases the chip or any combination of sectors
- Embedded Program Algorithms
  - Automatically programs and verifies data at specified address
- Data Polling and Toggle Bit feature for detection of program or erase cycle completion
- Low Power Dissipation
  - 30mA per Device Active Current
  - 10µA per Device CMOS Standby Current
- Single 3.3V ±10% Supply
- CMOS and TTL Compatible Inputs and Outputs
- Commercial and industrial operating temperature range
  - BNC = 0°C to 70°C Commercial
  - BNI = -40°C to 85°C Industrial
- Package
  - 80 Pin SIMM (JEDEC) Standard

* This product is under development, is not qualified or characterized and is subject to change without notice.

FIG. 1 – BLOCK DIAGRAMS

W7MG1M32SVx-BN: 1Mx32 80 PIN SIMM



W7MG21M32SVx-BN: 2x1Mx32 80 PIN SIMM

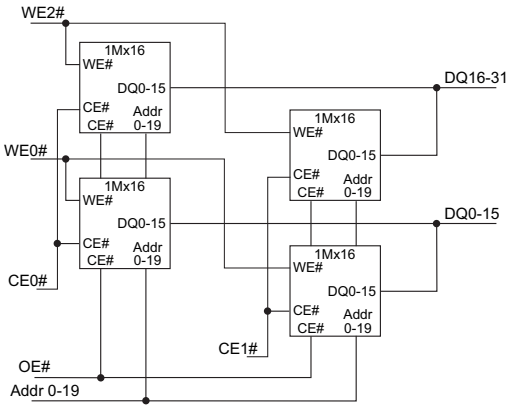
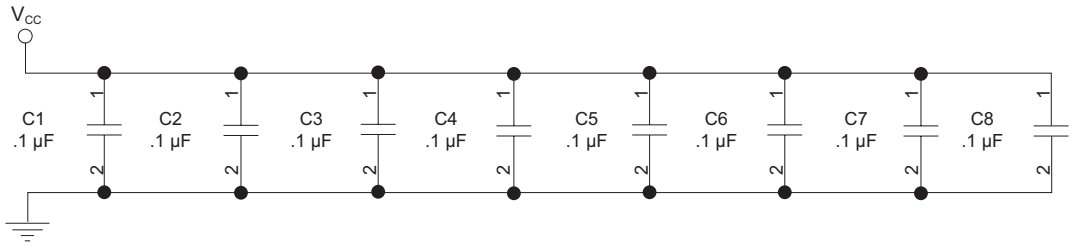


FIGURE 2 – DECOUPLING CAPACITORS ARE PROVIDED FOR IMPROVED NOISE IMMUNITY.



Notes:
Unless otherwise specified.

1. Population Configuration for 1M x 32 Version

Part Number	Configuration	Component
W7MG1M32SVxxxBNX	1M x 32	1M x 8

2. Population Configuration for 2 x 1M x 32 Version

Part Number	Configuration	Component
W7MG21M32SVxxxBNX	2 x 1M x 32	1M x 8

xx = Speed: 70, 90, 120ns
X = Temerature Range
Please refer to part number matrix pg. 8 or 9

FIGURE 3 – W7MG1M32SVxxxBNX & W7MG21M32SVxxxBNX PIN CONFIGURATION

Pin	Symbol	Pin	Symbol	Pin	Symbol	Pin	Symbol
1	GND	21	CE3	41	A11	61	DQ9
2	V_{CC}	22	CE2	42	A10	62	DQ8
3	NC	23	CE1	43	A9	63	DQ7
4	OE#	24	CE0	44	A8	64	DQ6
5	WE0#	25	GND	45	A7	65	DQ5
6	NC	26	DQ29	46	A6	66	DQ4
7	NC*	27	DQ30	47	A5	67	DQ3
8	DQ16	28	DQ31	48	A4	68	DQ2
9	DQ17	29	WE2#	49	A3	69	DQ1
10	DQ18	30	NC	50	A2	70	DQ0
11	DQ19	31	NC	51	A1	71	NC
12	DQ20	32	NC	52	A0	72	V_{CC}
13	DQ21	33	A19	53	NC	73	PD1
14	DQ22	34	A18	54	GND	74	PD2
15	DQ23	35	A17	55	DQ15	75	PD3
16	DQ24	36	A16	56	DQ14	76	PD4
17	DQ25	37	A15	57	DQ13	77	PD5
18	DQ26	38	A14	58	DQ12	78	PD6
19	DQ27	39	A13	59	DQ11	79	PD7
20	DQ28	40	A12	60	DQ10	80	GND

Notes:
Unless otherwise specified.
1. Population Configuration for 1M x 32 Version

Part Number	Configuration	Component
W7MG1M32SVxxxBNX	1M x 32	1M x 8

2. Population Configuration for 2 x 1M x 32 Version

Part Number	Configuration	Component
W7MG21M32SVxxxBNX	2 x 1M x 32	1M x 8

xx = Speed: 70, 90, 120ns
X = Temerature Range
Please refer to part number matrix pg. 8 or 9

NC* = Pin 7 can offer custom module options. For optional "Reset" or "Ready Busy." Contact WEDC.

PIN NAMES

A0 - A19	Address
DQ0 - DQ31	Data Input/Output
CE1#, CE2#	Chip Enable
WE0#, WE2#	Write Enable
OE#	Output Enable
V_{CC}	Power Supply
NC	No Connection
PD	Presence Detect
GND	Ground

PRESENCE DETECT TRUTH TABLE

Module Organization	PD1	PD2	PD3	PD4
1M x 32	1	0	1	0
2 x 1M x 32	0	1	0	0

MODULE SPEED IDENTIFICATION PRESENCE DETECT PIN

Speed	PD5	PD6	PD7
70 ns	0	0	1
90 ns	1	1	0
120 ns	0	1	0

LEGEND: 0 = Connected to GND
1 = Open circuit (no connection)

CAPACITANCE

$f = 1.0MHz$, $V_{IN} = V_{CC}$ or V_{SS}

Parameter	Symbol	1Meg	2x1Meg	Unit
		Max	Max	
Address Lines	CA	35	70	pF
Data lines	CDQ	15	30	pF
Chip & Write Enable Lines	CC	15	30	pF
Output Enable lines	CG	35	70	pF

ABSOLUTE MAXIMUM RATINGS

Storage Temperature
Plastic Packages ..... –65°C to +150°C

Ambient Temperature
with Power Applied ..... –65°C to +125°C

Voltage with Respect to Ground

V_{CC} (Note 1) ..... –0.5 V to +4.0 V

A9, OE#, and RESET# (Note 2)..... –0.5 V to +12.5 V

All other pins (Note 1) ..... –0.5 V to V_{CC}+0.5 V

Output Short Circuit Current (Note 3) ..... 200 mA

Notes:

1. Minimum DC voltage on input or I/O pins is –0.5 V. During voltage transitions, input or I/O pins may overshoot VSS to –2.0 V for periods of up to 20 ns. See Figure 7. Maximum DC voltage on input or I/O pins is VCC +0.5 V. During voltage transitions, input or I/O pins may overshoot to VCC +2.0 V for periods up to 20 ns. See Figure 8.
2. Minimum DC input voltage on pins A9, OE#, and RESET# is -0.5 V. During voltage transitions, A9, OE#, and RESET# may overshoot VSS to –2.0 V for periods of up to 20 ns. See Figure 7. Maximum DC input voltage on pin A9 is +12.5 V which may overshoot to 14.0 V for periods up to 20 ns.
3. No more than one output may be shorted to ground at a time. Duration of the short circuit should not be greater than one second.

Stresses above those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only; functional operation of the device at these or any other conditions above those indicated in the operational sections of this data sheet is not implied. Exposure of the device to absolute maximum rating conditions for extended periods may affect device reliability.

OPERATING RANGES

Commercial (C) Devices

Ambient Temperature (TA) ..... 0°C to +70°C

Industrial (I) Devices

Ambient Temperature (TA) ..... –40°C to +85°C

V_{CC} Supply Voltages

V_{CC} for all devices ..... 2.7 V to 3.6 V

Operating ranges define those limits between which the functionality of the device is guaranteed.

ORDERING INFORMATION FOR W7MG1M32SVx

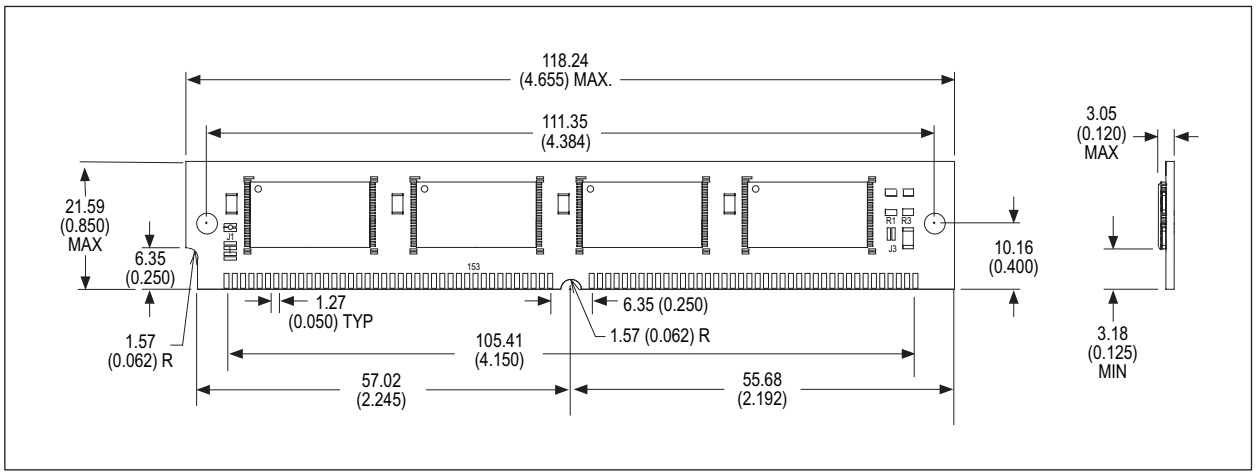
COMMERCIAL

Part Number	Speed (ns)	Package	T_A Commercial Range	Height*
W7MG1M32SVx70BNC	70	346	0°C to +70°C	21.59 (0.850")
W7MG1M32SVx90BNC	90	346	0°C to +70°C	21.59 (0.850")
W7MG1M32SVx120BNC	120	346	0°C to +70°C	21.59 (0.850")

INDUSTRIAL

Part Number	Speed (ns)	Package	T_A Industrial Range	Height*
W7MG1M32SVx70BNI	70	346	-40°C to +85°C	21.59 (0.850")
W7MG1M32SVx90BNI	90	346	-40°C to +85°C	21.59 (0.850")
W7MG1M32SVx120BNI	120	346	-40°C to +85°C	21.59 (0.850")

PACKAGE NO. 346: 80 PIN SIMM (JEDEC)



* ALL DIMENSIONS ARE IN MILLIMETERS AND (INCHES)

ORDERING INFORMATION FOR W7MG21M32SVx

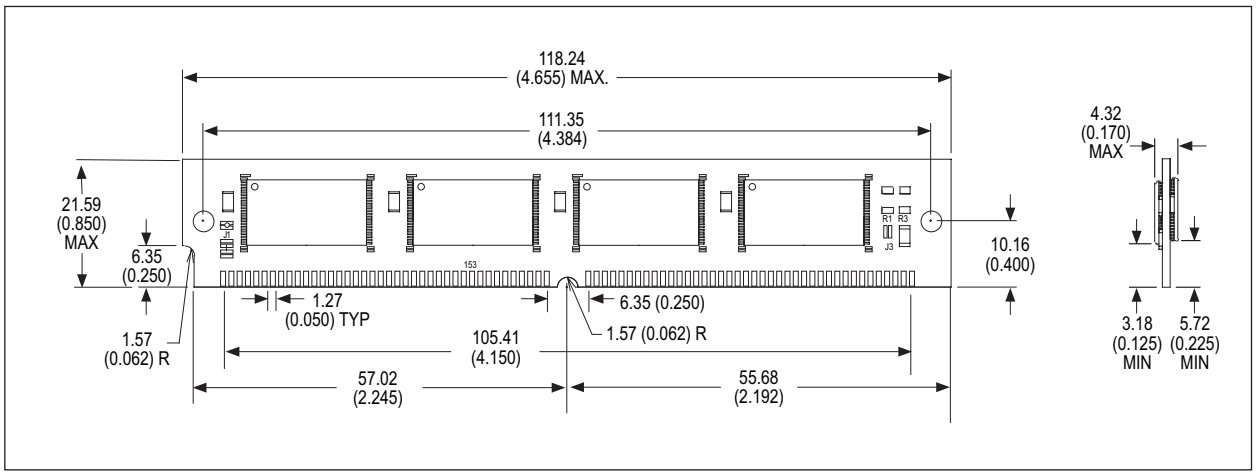
COMMERCIAL

Part Number	Speed (ns)	Package	T_A Commercial Range	Height*
W7MG21M32SVx70BNC	70	361	0°C to +70°C	21.59 (0.850")
W7MG21M32SVx90BNC	90	361	0°C to +70°C	21.59 (0.850")
W7MG21M32SVx120BNC	120	361	0°C to +70°C	21.59 (0.850")

INDUSTRIAL

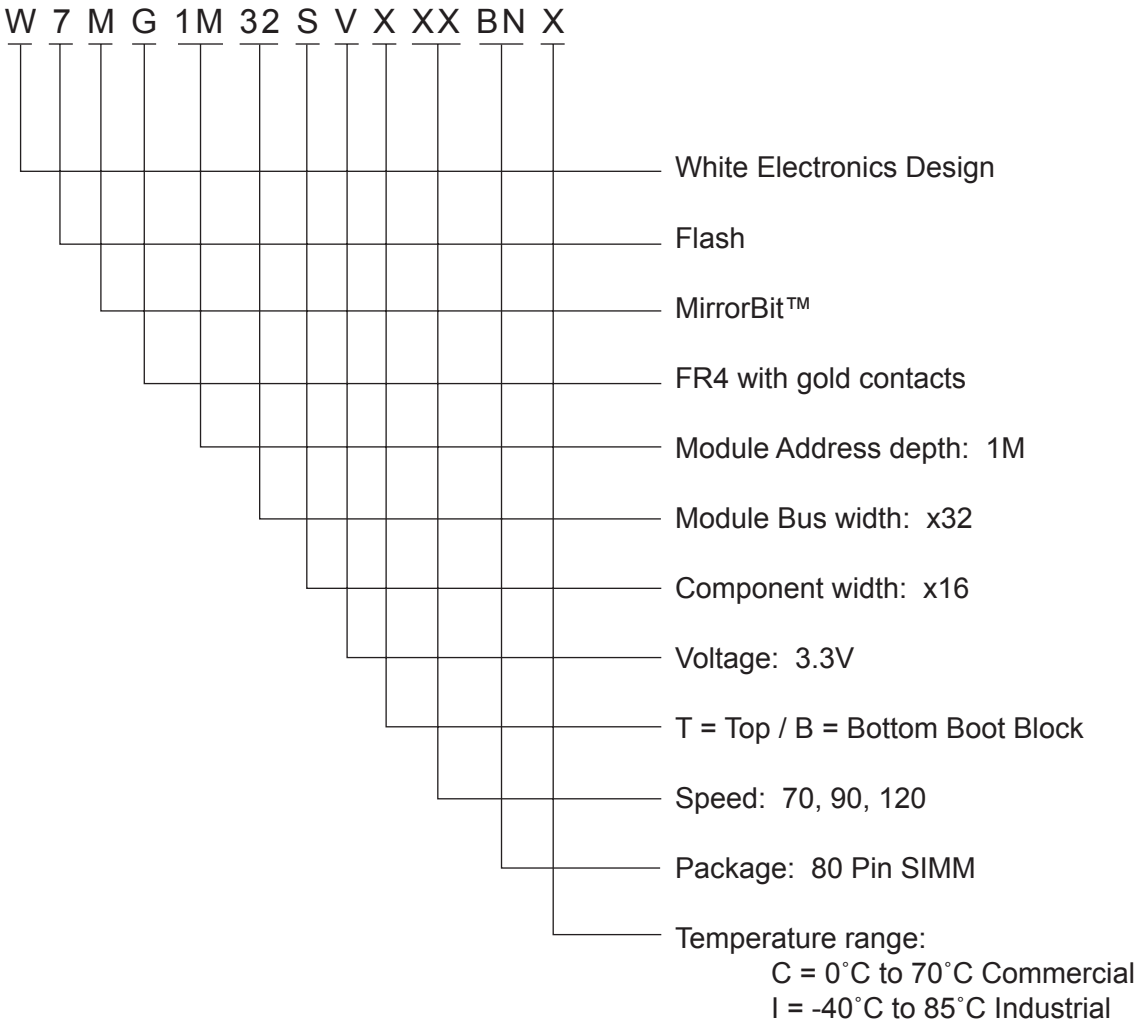
Part Number	Speed (ns)	Package	T_A Industrial Range	Height*
W7MG21M32SVx70BNI	70	361	-40°C to +85°C	21.59 (0.850")
W7MG21M32SVx90BNI	90	361	-40°C to +85°C	21.59 (0.850")
W7MG21M32SVx120BNI	120	361	-40°C to +85°C	21.59 (0.850")

PACKAGE NO. 361: 80 PIN SIMM (JEDEC)

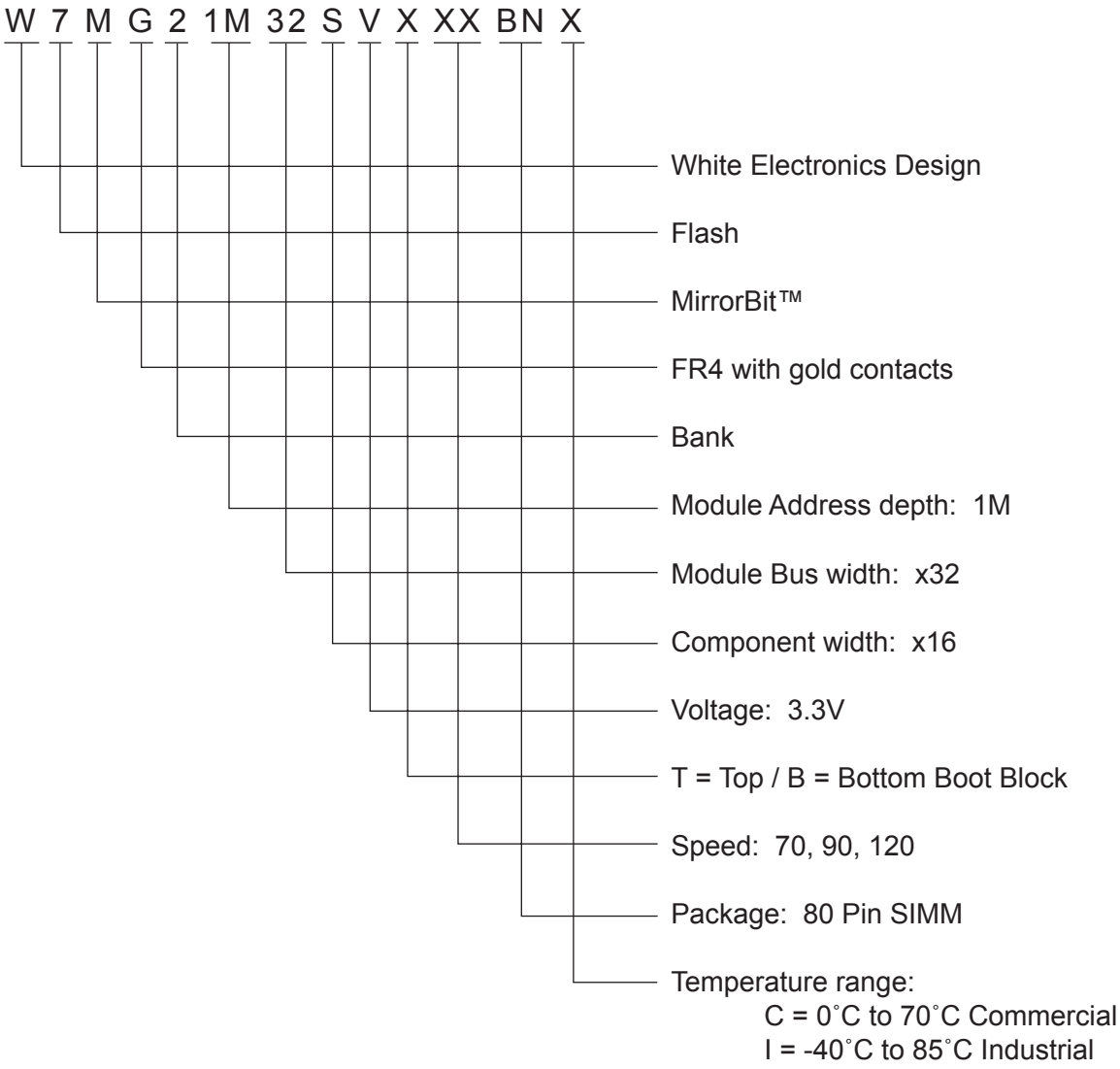


* ALL DIMENSIONS ARE IN MILLIMETERS AND (INCHES)

FLASH PART NUMBER MATRIX



FLASH PART NUMBER MATRIX



Document Title

8MB/4MB (2x1Mx32 / 1Mx32) CMOS, MirrorBit™ 3.0V, Boot Sector Flash Memory

Revision History

Rev #	History	Release Date	Status
Rev 0	Created	5-04	Advanced
Rev 1	Added T/B (top or bottom boot block option)	6-04	Advanced
Rev. 2	Changed status from advanced to preliminary	6-04	Preliminary