AN 309009
Migration Guide

How to Migrate to Numonyx M29W640G from Spansion* S29GL064N Flash Memory

Introduction

The objective of this application note is to explain how to migrate an application based on the S29GL064N Flash memory to an M29W640G Flash memory. The purpose of this document is not to provide detailed information on the devices, but to highlight the similarities and differences between them. The comparison takes into consideration the signal descriptions, packages, architecture, software command set, performance, and block protections.

The Numonyx M29W640G memory, manufactured on the mature 110nm technology, is ideal for all applications needing a reliable (min 100,000 cycles, 20 years data retention), fast, parallel NOR device (available in 70ns). More than 360 million devices[1] shipped worldwide on this technology between 2005 and the founding of Numonyx in 2008. Customers can rely on Numonyx to continue delivering highly reliable and mature products on this technology.

M29W640G is offered in both boot and uniform sector with key features like double & quadruple word (fast program), write to buffer x16 words, Page Read x4 words to improve the flash throughput.

M29W640G is available in Industrial Temperature Range and also offered with a special secure version (M29W640GS). A similar memory M29W064F from M29W family is available in automotive temperature range and/or automotive qualification, please enquiry your sales contact for availability of your desired combination

The compatibility with Spansion S29GL064N in most of the cases should be searched with the M29W640G.

In this document, the S29GL064N models 01, 02, 03, and 04, will be referred to as S29GL064N. The M29W640GH (highest block protected), M29W640GL (lowest block protected), M29W640GT (top boot), and M29W640GB (bottom boot) will be referred to as M29W640G unless otherwise specified.

Please refer to the S29GL064N and M29W640G datasheets for additional information on devices.

1. Includes all densities.

Contents

Memory architecture and protection groups

The S29GL064N and the M29W640G memory arrays both come in uniform and boot block architectures. The uniform versions have 128 blocks of 32 Kwords (64 Kbytes) each. The boot block versions have 127 main blocks of 32 Kwords (64 Kbytes) each, and 8 boot blocks of 4 Kwords (8 Kbytes) each.

Both devices have an extended memory block of 128 words in x 16 mode or of 256 bytes in x 8 mode.

On the S29GL064N all blocks are protected individually. The protection granularity is the same as the block size. On the M29W640G, blocks are protected in groups of 4. On the H and L models, the first and last 4 blocks are protected individually. On the boot block models, T and B, the 8 boot/param blocks are protected individually.

Hardware migration

This section provides a detailed comparison between S29GL064N and M29W640G signals and package pin-out.

Table 1: Signal description for the S29GL064N and M29W640G devices

Name		Description	Direction
S29GL064N	**M29W640G**		
A0-A21		Address inputs	Inputs
DQ0-DQ7		Data inputs/outputs	I/O
DQ8-DQ14		Data inputs/outputs	I/O
DQ15A–1 (or DQ15)		Data input/output or address input (or data input/output)	I/O
CE	E	Chip Enable	Input
OE	G	Output Enable	Input
WE	W	Write Enable	Input
RESET	RP	Reset/Block Temporary Unprotect	Input
RY/BY	RB	Ready/Busy output	Output
BYTE		Byte/word organization select	Input
V_{CC}		Supply voltage	Supply
WP/ACC	V_{PP}/WP	Supply voltage for fast program (optional) or write protect	Input
V_{SS}		Ground	–

Note: the V_{PP}/WP (WP/ACC) pin can be left floating or unconnected due to an internal pull-up.

Packages

The S29GL064N and M29W640G are delivered in TSOP48 – 12 x 20 mm, TSOP56 - 14 x 20 mm, TFBGA48 – 6 x 8 mm, 0.8 mm pitch, and TBGA64 - 10 x 13 mm, 1 mm pitch packages. Compared with S29GL064N, the package size of M29W640G TBGA64 is smaller than that of S29GL064N BGA64 - 11 x 13mm. In addition, M29W640G holds a different BGA ball size from what S29GL064N does. The BGA ball size of M29W640G ranges from 0.35mm to 0.5mm while the BGA ball size of S29GL064N ranges from 0.5mm to 0.7mm.

The M29W640G is fully pin-to-pin compatible with the S29GL064N. See ***Figure 1*** and ***Figure 2***, in conjunction with ***Table 1***.

Refer to the S29GL064N and M29W640G datasheets for details on the packages.

Figure 1 S29GL064N TSOP48 connections

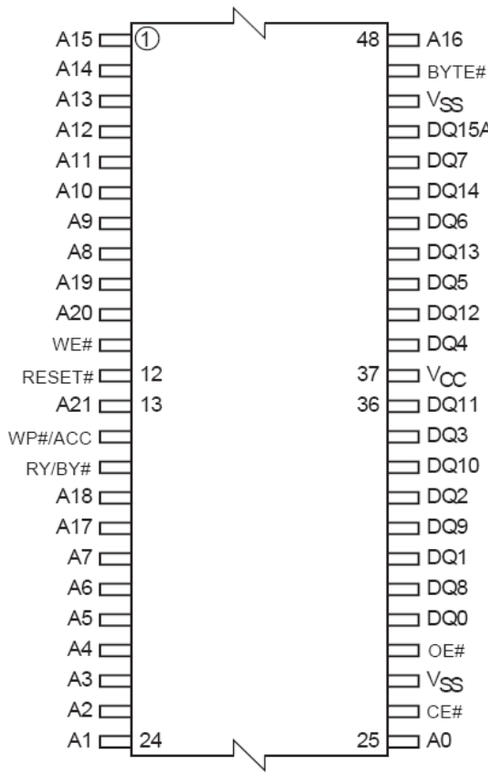


Figure 2 M29W640G TSOP48 connections

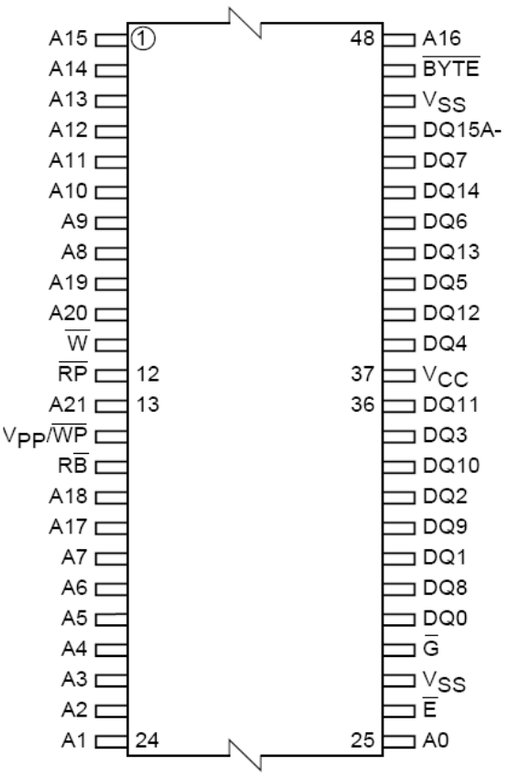


Figure 3 S29GL064N TSOP56 connections

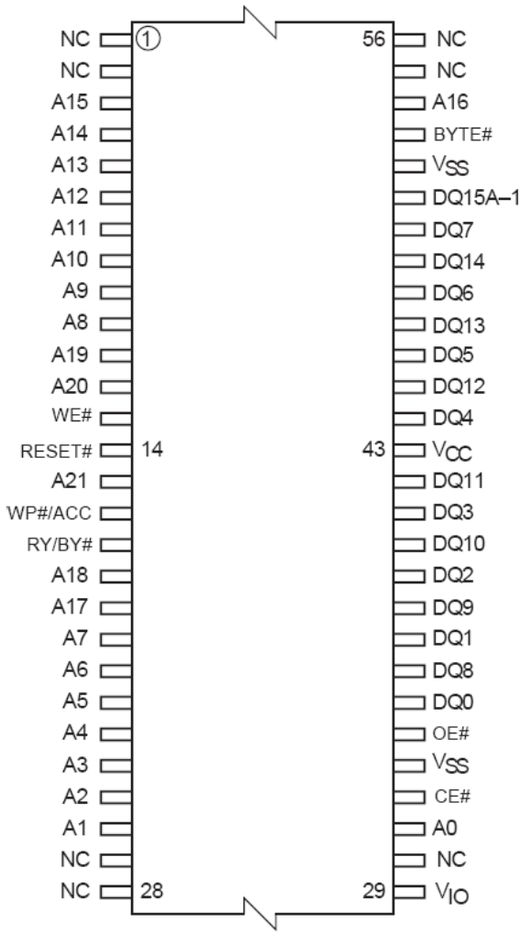


Figure 4 M29W640G TSOP56 connections

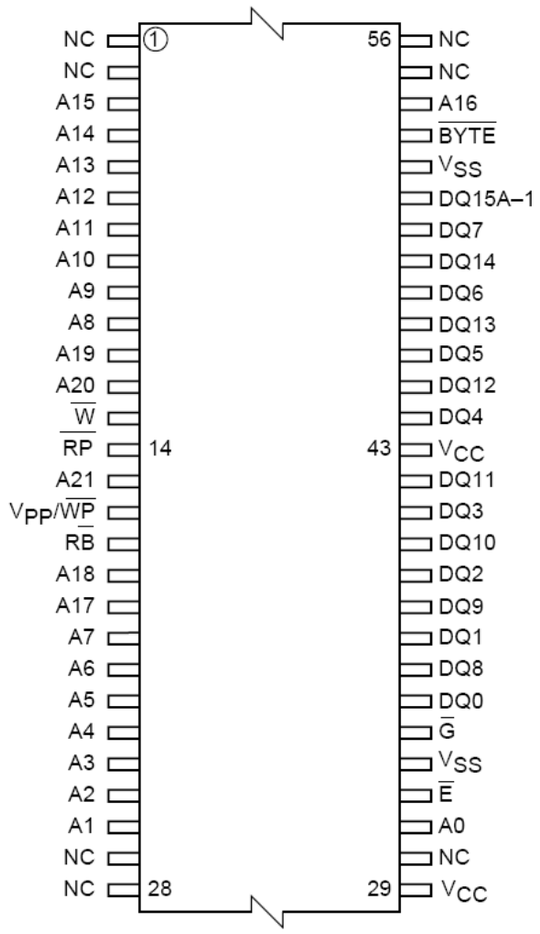
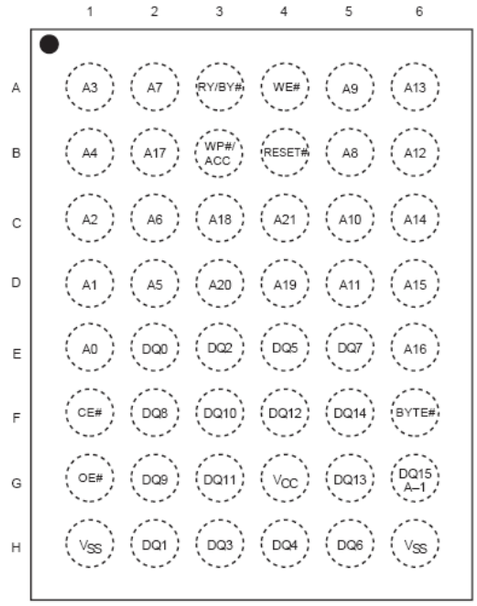
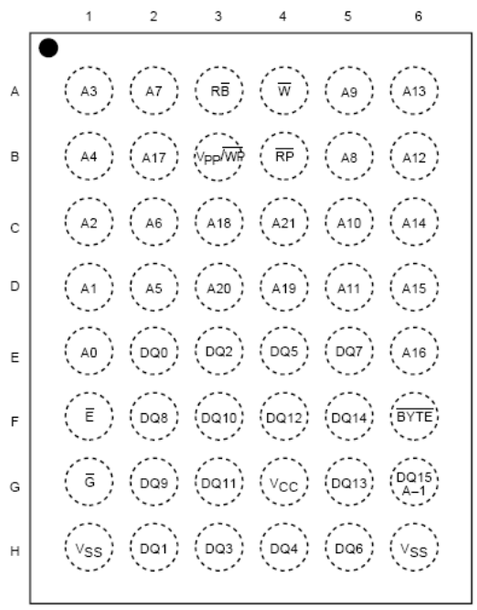


Figure 5 S29GL064N VBK048 connections



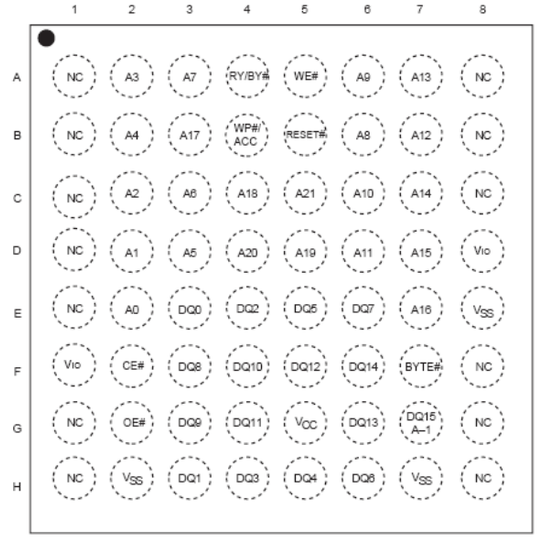
VBK048 dimensions are 6.15 mm x 8.15 mm

Figure 6 M29W640G TFBGA48 connections



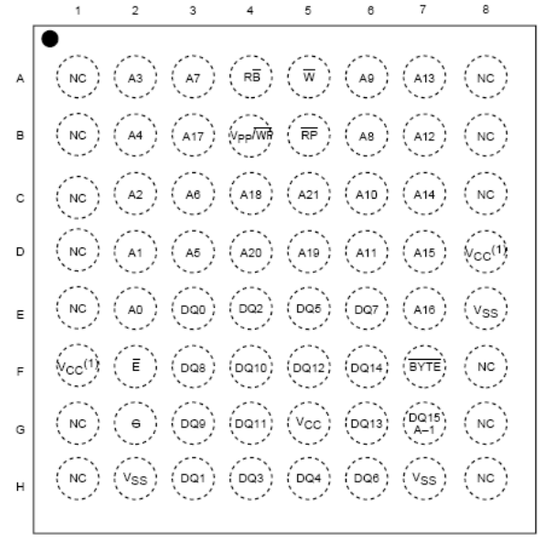
TFBGA48 dimensions are 6 mm x 8 mm

Figure 7 S29GL064N LAA064 connections



LAA064 dimensions are 11 mm x 13 mm

Figure 8 M29W640G TBGA64 connections



TBGA64 available in 10 mm x 13 mm

Software command set

The S29GL064N and M29W640G feature an identical set of standard commands. The commands are compliant with the JEDEC standard.

Table 2: Command set

Command	S29GL064N	M29W640G
Read/Reset	X	X
Auto Select	X	X
Program	X	X
Write Buffer	X	X
Unlock Bypass	X	X
Unlock Bypass Program	X	X
Unlock Bypass Reset	X	X
Chip Erase	X	X
Block Erase	X	X
Program/Erase Suspend	X	X
Program/Erase Resume	X	X
Read CFI Query	X	X
Enter Extended Block	X	X
Exit Extended Block	X	X
Double Word Program	-	X
Quadruple Byte Program	-	X
Quadruple Word Program	-	X
Octuple Byte Program	-	X

Fast program commands

The S29GL064N and the M29W640G devices both feature fast program commands. Since the write to buffer program is available on both devices, it is recommended to use this command if a minimum number of changes are required for the migration. M29W640G has the capability to program 2 or 4 words at once, improving throughput.

Table 3: M29W640G fast program and Write to buffer commands (16-bit mode)

Command	Length	Bus write operations(1)											
		1st		2nd		3rd		4th		5th		6th	
		Add	Data	Add	Data	Add	Data	Add	Data	Add	Data	Add	Data
Write to Buffer Program	N+5	555	AA	2AA	55	BAd	25	BAd	N(2)	PA(2)	PD	WBL(2)	PD
Double Word Program Confirm	3	555	50	PA0	PD0	PA1	PD1						
Quadruple Word Program	5	555	56	PA0	PD0	PA1	PD1	PA2	PD2	PA3	PD3		

1. X Don't care, PA Program Address, PD Program Data, BAd Any address in the Block, WBL Write Buffer Location. All values in the table are in hexadecimal.
2. The maximum number of cycles in the command sequence is 20. N+1 is the number of words to be programmed during the write to buffer program operation. PA Program Address, PD Program Data, WBL Write Buffer Location (address must be within the same write buffer page as PA).

Table 4 S29GL064N Write to Buffer command (16-bit mode)

Command	Cycles	Bus write cycles											
		1st		2nd		3rd		4th		5th		6th	
		Add	Data	Add	Data	Add	Data	Add	Data	Add	Data	Add	Data
Write to Buffer(1)	WC + 5	555	AA	2AA	55	BA(2)	25	BA(2)	WC(2)	PA(2)	PD(2)	WBL(2)	PD(2)

1. The total number of cycles in the command sequence is determined by the number of words to be written to the write buffer. The maximum number of cycles is 20.
2. BA Block Address, WC Number of words to be programmed - 1, PA Program Address, PD Program Data, WBL Write Buffer Location (address must be within the same write buffer page as PA).

Table 5 M29W640G fast program and Write to Buffer commands (8-bit mode)

Command	Length	Bus write operations(1)											
		1st		2nd		3rd		4th		5th		9th	
		Add	Data	Add	Data	Add	Data	Add	Data	Add	Data	Add	Data
Write to Buffer Program	N+5	AAA	AA	555	55	BAd	25	BAd	N(2)	PA(2)	PD	WBL(2)	PD
Double Byte Program Confirm	3	AAA	50	PA0	PD0	PA1	PD1						
Quadruple Byte Program Abort and Reset	5	AAA	56	PA0	PD0	PA1	PD1	PA2	PD2	PA3	PD3		
Octuple Byte Program	9	AAA	8B	PA0	PD0	PA1	PD1	PA2	PD2	PA3	PD3	PA7	PD7

1. X Don't care, PA Program Address, PD Program Data, BAd Any address in the Block, WBL Write Buffer Location. All values in the table are in hexadecimal.
2. The maximum number of cycles in the command sequence is 36. N+1 is the number of bytes to be programmed during the Write to Buffer Program operation. PA Program Address, PD Program Data, WBL Write Buffer Location (address must be within the same write buffer page as PA).

Table 6 S29GL064N Write to Buffer command (8-bit mode)

Command	Length	Bus write cycles											
		1st		2nd		3rd		4th		5th		6th	
		Add	Data	Add	Data	Add	Data	Add	Data	Add	Data	Add	Data
Write to Buffer(1)	BC+5	AAA	AA	555	55	BA(2)	25	BA	BC(2)	PA(2)	PD(2)	WBL(2)	PD

1. The total number of cycles in the command sequence is determined by the number of bytes to be written to the write buffer. The maximum number of cycles is 36.
2. BA Block Address, WC Number of bytes to be programmed - 1, PA Program Address, PD Program Data, WBL Write Buffer Location (address must be within the same write buffer page as PA).

Program operation fails detection

In M29W640G devices, it is possible to detect program operation fails, even during a write to buffer or enhanced buffered program, when changing programmed data from ‘0’ to ‘1’, that is when reprogramming data in a portion of memory already programmed. The resulting data will be the logical OR between the previous value and the current value.

In S29GL064N devices, this functionality is not available.

Device codes and auto select codes

The auto select codes are composed of the manufacturer code, the device code, the block protection status, and the extended memory block verify code.

The S29GL064N and M29W640G devices have different manufacturer code, device code, and extended memory block verify code.

The S29GL064N and M29W640G devices use identical commands and address inputs to read the auto select codes. Two methods are available to access the auto select codes:

- In the first method, an Auto Select command is issued to place the device in auto select mode. The auto select codes can then be read by using a bus read operation with addresses and control signals set as shown in ***Table 7 Bus operations for accessing the auto select codes***.
- In the high voltage method, the same sequence of bus read operations as in the first method is issued, except that A9 is set at V_{ID}.

Table 7 Bus operations for accessing the auto select codes

Operation	E	G	W	Address inputs		Data inputs/outputs		
				x 8 mode	x 16 mode	x 8 mode		x 16 mode
				DQ15A-1, A0-A21	A0-A21	DQ14-DQ8	DQ7-DQ0	DQ15A-1, DQ14-DQ0
Read manufacturer code	V_{IL}	V_{IL}	V_{IH}	A0-A3 = V_{IL}, A6 = V_{IL}, A9 = V_{ID}, others V_{IL} or V_{IH}		Hi-Z	see *Table 8 and table 9*	
Read device code	V_{IL}	V_{IL}	V_{IH}	A0 = V_{IH}, A1-A3 = V_{IL}, A6 = V_{IL}, A9 = V_{ID}, others V_{IL} or V_{IH}		Hi-Z		
Block protection status	V_{IL}	V_{IL}	V_{IH}	A0,A2,A3, A6= V_{IL}, A1= V_{IH}, A9 = V_{ID}, A12-A21 = Block address, others V_{IL} or V_{IH}		Hi-Z		
Extended memory block verify code	V_{IL}	V_{IL}	V_{IH}	A0-A1 = V_{IH}, A2-A3 = V_{IL}, A6 = V_{IL}, A9 = V_{ID}, others V_{IL} or V_{IH}		Hi-Z		

Table 8: Auto select codes Uniform Block

Auto select code	Spansion		Numonyx		Spansion		Numonyx	
	S29GL064N (01 model)[1]	**S29GL064N (02 model)[2]**	**M29W640GH**	**M29W640GL**	**S29GL064N (01 model)[1]**	**S29GL064N (02 model)[2]**	**M29W640GH**	**M29W640GL**
	x 16 mode				**x 8 mode**			
Manufacturer code	0001h		0020h	0020h	01h		20h	
Device code	227Eh 220Ch 2201h		227Eh 220Ch 2201h	227Eh 220Ch 2200h	7Eh+0Ch+01h		7Eh+0Ch+01h	7Eh+0Ch+00h
Block protection status	01h (protected) 00h (unprotected)[3]		0001h (protected) 0000h (unprotected)		01h (protected) 00h (unprotected)			
Extended memory block verify indicator	XX9Ah (factory locked) XX1Ah (not factory locked)(3)	XX8Ah (factory locked) XX0Ah (not factory locked)(3)	2298h (factory locked) 2218h (not factory locked)	2288h (factory locked) 2208h (not factory locked)	9Ah (factory locked) 1Ah (not factory locked)[3]	8Ah (factory locked) 0Ah (not factory locked)[3]	98h (factory locked) 18h (not factory locked)	88h (factor y locked) 08h (not factory locked)

1. Highest block protected by driving V_{PP}/WP High.
2. Lowest block protected by driving V_{PP}/WP High.
3. DQ8 to DQ15 are ‘don’t care’.

Table 9 Auto select codes Boot Block

Auto select code	Spansion		Numonyx		Spansion		Numonyx	
	S29GL064N (03 model)[1]	**S29GL064N (04 model)[2]**	**M29W640GT**	**M29W640GB**	**S29GL064N (03 model)[1]**	**S29GL064N (04 model)[2]**	**M29W640GT**	**M29W640GB**
	x 16 mode				**x 8 mode**			
Manufacturer code	0001h		0020h	0020h	01h		20h	
Device code	227Eh 2210h 2201h	227Eh 2210h 2200h	227Eh 2210h 2201h	227Eh 2210h 2200h	7Eh+10h+01h	7Eh+10h+00h	7Eh+10h+01h	7Eh+10h+00h
Block protection status	01h (protected) 00h (unprotected)[3]		0001h (protected) 0000h (unprotected)		01h (protected) 00h (unprotected)			
Extended memory block verify indicator	XX9Ah (factory locked) XX1Ah (not factory locked)(3)	XX8Ah (factory locked) XX0Ah (not factory locked)(3)	2288h (factory locked) 2208h (not factory locked)	2288h (factory locked) 2208h (not factory locked)	9Ah (factory locked) 1Ah (not factory locked)[3]	8Ah (factory locked) 0Ah (not factory locked)[3]	88h (factory locked) 08h (not factory locked)	88h (factor y locked) 08h (not factory locked)

1. Top boot model.
2. Bottom boot model.
3. DQ8 to DQ15 are ‘don’t care’.

Difference in CFI operation

When exiting CFI mode on M29W640G device, Read/Reset command (0xF0h) is used to return the device to the previous mode (Main Array Read or Auto Select Mode). S29GL064N will enter main array read mode when it is issued Read/Reset command (0xF0h).

Table 10 CFI exit sequence shows the detail exiting command sequence difference.

Table 10: CFI exit sequence

Entering CFI Sequence	Exiting from CFI to main array read command sequence	
	S29GL064N	M29W640G
Main Array Read --> CFI	0xF0h	0xF0h
Main Array Read --> Auto Select Mode --> CFI	0xF0h	0xF0h --> 0xF0h (twice cmd)

M29W640G reads out different Query Unique ASCII string in byte mode comparing with S29GL064N.

Table 10 CFI difference comparison (byte mode only)

Address (x8)	S29GL064N		M29W640G	
	Data	Description	Data	Description
20h	51h	Query Unique ASCII string "Q"	51h	Query Unique ASCII string "Q"
21h	51h	Query Unique ASCII string "Q"	00h	
22h	52h	Query Unique ASCII string "R"	52h	Query Unique ASCII string "R"
23h	52h	Query Unique ASCII string "R"	00h	
24h	53h	Query Unique ASCII string "Y"	53h	Query Unique ASCII string "Y"
21h	53h	Query Unique ASCII string "Y"	00h	

Table 11 CFI difference comparison

Address (x16)	Address (x8)	S29GL064N		M29W640G	
		Data	Description	Data	Description
1Dh	3Ah	0000h	V_{PP} Min = N/A	00B5h	V_{PP} Min = 11.5 V
1Eh	3Ch	0000h	V_{PP} Max = N/A	00C5h	V_{PP} Max = 12.5 V
1Fh	3Eh	0007h	RFU	0004h	Typical timeout per single Byte/Word Program = 2^n µs= 16uS
20h	40h	0007h	Typical timeout for Min. size buffer write 2^N µs= 128uS	0004h	16 µS
23h	46h	0003h	Max. timeout for byte/word program 2^N times typical. Max time=typ*8	0004h	Maximum timeout for Byte/Word Program = 2^n times typical. Max time=Typ*16
24h	48h	0005h	Max. timeout for buffer write 2N times typical	0004h	256 µS
25h	4Ah	0004h	Max. timeout per individual block erase 2^N times typical	0003h	Maximum timeout per individual Block Erase = 2^n times typical
28h	50h	000Xh	Flash Device Interface description (refer to CFI publication 100) 0001h = x16-only bus devices 0002h = x8/x16 bus devices	0002h	Flash device interface code description 0002=GH,GL,GT,GB
2Dh	5Ah	00XXh	Erase Block Region 1 Information	00XXh	Erase Block Region 1 Information
2Eh	5Ch	000Xh	007Fh, 0000h, 0000h, 0001h = 64 Mb (01,	000Xh	007Fh, 0000h, 0000h, 0001h = 64 Mb
2Fh	5Eh	00X0h	02, V1, V2)	00X0h	(640GH,GL)
30h	60h	000Xh	0007h, 0000h, 0020h, 0000h = 64 Mb (03,	000Xh	0007h, 0000h, 0020h, 0000h = 64 Mb
31h	62h	00XXh	Erase Block Region 2 Information (refer to CFI publication 100) 0000h, 0000h, 0000h, 0000h = 64 Mb (01, 02, 06, 07, V1, V2, V6, V7) 007Eh, 0000h, 0000h, 0001h = 64 Mb (03, 04)	00XXh	Erase Block Region 2 Information 0000h, 0000h, 0000h, 0000h = 64 Mb (GH,GL) 007Eh, 0000h, 0000h, 0001h = 64 Mb (GT,GB)
45h	8Ah	00XXh	Address Sensitive Unlock (Bits 1-0) 0 = Required, 1 = Not Required Process Technology (Bits 7-2) 0100b = 110 nm MirrorBit 0011h = x8-only bus devices 0010h = all other devices	0000h	Address sensitive unlock (bits 1 to 0) 00h = required, 01h = not required Silicon revision number (bits 7 to 2)
47h	8Eh	0001h	Sector Protect 0 = Not Supported, X = Number of sectors in smallest sector	0004h	Block Protection 00h = not supported, x = number of blocks per protection group
48h	90h	0000h	Sector Temporary Unprotect 00 = Not Supported, 01 = Supported	0001h	Temporary Block Unprotect 00h = not supported, 01h = supported
49h	92h	0008h	Sector Protect/Unprotect scheme 0008h = Advanced sector Protection	0004h	Block Protect /Unprotect
4Ch	98h	0002h	Page Mode Type 02 = 8 Word Page	0001h	Page mode: 00h = not supported, 01h = 4 page word, 02h = 8 page word
4Fh	9Eh	00XXh	Top/Bottom Boot Sector Flag 02h = Bottom Boot Device, 03h = Top Boot Device, 04h = Uniform sectors bottom WP# protect, 05h = Uniform sectors top WP# protect	00XXh	Top/bottom boot block flag 02h = bottom boot device(640GB) 03h = top boot device(640GT) 04h = uniform blocks bottom VPP/WP protect(640GL) 05h = uniform blocks top VPP/WP protect(640GH)

Performance and characteristics

The S29GL064N and the M29W640G have almost compatible DC and AC characteristics (see the respective datasheets for details). The M29W640G memories offer better performance in terms of access and programming times than the S29GL064N devices.

Access time

The M29W640G has a random access time of 60 ns, 70 ns or 90 ns, whereas the S29GL064N has an access time of 90 ns, or 110 ns.

Page read mode

The page mode is available on the S29GL064N and M29W640G to speed up read operations. On M29W640G, the data is internally read and stored in a 4-word (or 8-byte) page buffer. For S29GL064N, the page width is 8 words.

Using page read in both devices, the access time for subsequent read operations is reduced to 25 ns, while it is reduced to 30 ns when V_{CCQ} = 1.65 V in the S29GL064N, or when using the 70 ns or 90 ns access time models of the M29W640G.

Program and erase times

The time required to program or erase the whole memory is lower on the M29W640G compared to the S29GL064N. The memory can be either programmed using a Fast Program or an Enhanced Buffered Program command or using the word by word program command.

Table 12 M29W640G program and erase times

Parameter	Min	Typ[1][2]	Max[2]	Unit
Chip Erase		80	400[3]	s
Block Erase (64 Kbytes)[4]		0.5	6	s
Erase Suspend latency time			50	µs
Program (byte or word)		10	200	µs
Double Byte		10	200[3]	µs
Double Word / Quadruple Byte Program		10		µs
Quadruple Word / Octuple Byte Program		10		
Single Byte and Word Program		10		µs
32-byte/16-word Program using Write to Buffer and Program		180		
32-byte/16-word Program using Write to Buffer and Program (V_{PP}/ $\overline{WP}$ = 12V)		45		µs
Chip Program (byte by byte)		80	400[3]	s
Chip Program (word by word)		40	200[3]	s
Chip Program (Double Word/Quadruple Byte Program		20	100[3]	s
Chip Program (Quadruple Word/Octuple Byte Program		10	50[3]	s
Program Suspend latency time			4	µs
Program/Erase cycles (per block)	100,000			cycles
Data retention	20			years

1. Typical values measured at room temperature and nominal voltages.
2. Sampled, but not 100% tested.
3. Maximum value measured at worst case conditions for both temperature and V_{CC} after 100,000 program/erase cycles.
4. Block Erase Polling cycle time (see Figure 23: Data polling AC waveforms in the M29W640G datasheet).
5. Intrinsic program timing, that means without the time required to execute the bus cycles to load the program commands.

Table 13 Comparison between S29GL064N and M29W640G performance and characteristics

Parameter	S29GL064N	M29W640G
Access time	90, 110 ns	60 ns, 70 and 90 ns
Page Read	25 ns	25 ns
Fast Program	Write to Buffer Program	
	-	Multi-Word Program
Chip Program time	63 s	40 s (word by word)
		20 s (double word programming) 10 s (quadruple word programming)
Supply voltage	2.7 to 3.6 V	2.7 to 3.6 V
Temperature range	–40 to 85 °C	
Chip Erase time	64 s (typical), except all 0000h programmed prior to erasing	80 s (typical)

Block protection

The M29W640G memories, as the S29GL064N devices, feature hardware and software techniques to control block protection. The table below shows how the techniques are called in the M29W640G and S29GL064N devices, respectively.

Table 14 Block protection techniques in M29W640G and S29GL064N Flashes

M29W640G	S29GL064N
Hardware method (V_{PP}/WP)	Hardware Data Protection (WP/ACC)
Software Protection Scheme Standard Protection Mode Password Protection Mode valid on M29W640GS only	Software Protection Scheme Persistent Sector Protection Mode Password Sector Protection Mode

Hardware Protection

On both devices, the V_{PP} function allows the memory to use an external high voltage power supply to reduce the time required for fast program operations. The Write Protect (WP) function provides a hardware method of protecting the outermost memory block:

- When V_{PP}/WP (WP#/ACC) is Low, $V_{IL,}$ the highest or lowest block is protected on both the M29W640G and S29GL064N devices.
- When V_{PP}/WP (WP#/ACC) is High, V_{IH}, the memory reverts to the previous protection status of the outermost block.

Upon customer request, on the M29W640G devices, applying 12 V to the V_{PP}/WP pin will temporarily unprotect any block previously protected (including the two outermost blocks).

Software Protection

Persistent Sector Protection in S29GL064N corresponds to Standard protection Mode in M29W640GS, while Password Sector Protection corresponds to Password Protection Mode in M29W640GS, they are configured through a set of protection bits.

The key difference between S29GL064N and M29W640GS under software protection scheme is that M29W640GS can only protect up to 4 main blocks or 4 parameter blocks in boot sector.

For more details, please refer to AN2392: OTP Irreversible Protection modes on the M29W640GSH/L and M29W640GST/B Secure Flash memories.

Temporary block unprotect

In the M29W640G, when held at V_{ID}, the RP pin temporarily unprotects all the blocks previously protected except the lowest or highest block protected with V_{PP}/WP held at Vil.

In the M29W640G, this functionality is only available upon customer request, while it is not available at all in S29GL064N devices.

Conclusion

Applications can be migrated from an S29GL064N to an M29W640G Flash memory. In addition, the M29W640G features some better performance with respect to the S29GL064N devices.

Revision history

Date	Version	Changes
20-Mar-2009	1	Initial release.