



# **Application Note**

## **Eon Flash EN29GL128H/L VS NUMONYX Flash M29W128G**



# Eon Silicon Solution Inc.

## 1. INTRODUCTION

The application note introduces how to implement a system design from NUMONYX M29W128G Flash to Eon EN29GL128H/L Flash.

## 2. GENERAL FUNCTION COMPARISON TABLE:

The following table highlights the major features of these two devices.

<b>Features</b>	<b>EN29GL128H/L</b>	<b>M29W128G</b>
<b>voltage range</b>	2.7 ~ 3.6	2.7 ~ 3.6
<b>Pin to Pin</b>	Compatible (for 56 TSOP) Compatible (for 64 FBGA)	Compatible (for 56 TSOP) Compatible (for 64 FBGA)
<b>Page Access time</b>	25ns	25ns / 30ns
<b>Fast random access time</b>	70ns	70ns
<b>Write buffer length</b>	64 Byte	64 Byte
<b>Sector Architecture</b>	Uniform 128K Byte	Uniform 128K Byte
<b>Byte/Word mode</b>	Yes	Yes
<b>Page read buffer length</b>	16 Byte	16 Byte
<b>Secured silicon sector</b>	256 Byte	256 Byte
<b>CFI Compliant</b>	Yes	Yes
<b>JEDEC Data# polling &amp; toggle bit command</b>	Yes	Yes
<b>Erase Suspend / Resume</b>	Yes	Yes
<b>Program Suspend / Resume</b>	Yes	Yes
<b>Minimum endurance cycle</b>	100K	100K
<b>Package</b>	56-pin 14mm x 20mm TSOP 64 ball 11mm x13mm FBGA	56-pin 14mm x 20mm TSOP 64 ball 11mm x13mm FBGA



## 3. HARDWARE & PERFORMANCE CONSIDERATIONS

### 3.1 I<sub>CC</sub> comparison

Current	EN29GL128H/L		M29W128G		Unit
	Typ	Max	Typ	Max	
Read I <sub>CC1</sub> (@5MHz)	15	30	*None	10	mA
Write I <sub>CC2</sub>	20	30	1	10	mA
Standby I <sub>CC3</sub>	1.5	10	*None	100	μA

Note\*: There is no clear description in datasheet.

### 3.2 Max VID comparison

M29W128G VID range is 11.5V~12.5V. But EN29GL128H/L doesn't support VID function. Any voltage level higher than chip spec would damage the device, possibly. (Using high voltage into autoselect mode)

### 3.3 Different VHH level (for accelerating programming functions)

EN29GL128H/L voltage level: 8.5V~9.5V.

M29W128G voltage level: 11.4~12.6V.

### 3.4 Different VLKO range

EN29GL128H/L voltage level: 2.3V~2.5V.

M29W128G voltage level: 1.8V~2.5V.



## 4. SOFTWARE CONSIDERATIONS

### 4.1 Except of Manufacturer ID, Device Identifications are the same

For EN29GL128H/L: manufacture ID: 007Fh (A8 = "0"), 001Ch (A8 = "1"); device ID: 227Eh / 2221h / 2201h.

For M29W128G: manufacture ID: 0020h, device ID: 227Eh / 2221h / 2201h (M29W128GH) or 2200h. (M29W128GL)

### 4.2. Password protection commands

EN29GL128H/L: No support.

M29W128G: Support.

### 4.3. Multi-sector erasure commands

EN29GL128H/L: No supported. (Users must issue another sector erase command for the next sector to be erased after the previous one is completed)

M29W128G: Support.

### 4.4. Different PPB protect range

EN29GL128H/L: Sector 0~3 and 124~127 have PPB for each sector. Sector 4~123 are 1 PPB per 4 sectors.

M29W128G: A non-volatile protection bit (NVPB) is assigned to each block.



## 5. PERFORMANCE DIFFERENCES

### 5.1 Power-on and Reset Timings

Parameter	Description	EN29GL128H/L	M29W128G
$t_{VCS}$	Vcc Setup Time (min)	50 $\mu$ s	50 $\mu$ s
$t_{RP1}$	RESET# Pulse Width (During Embedded Algorithms)	10 $\mu$ s	10 $\mu$ s
$t_{RP2}$	RESET# Pulse Width (NOT During Embedded Algorithms)	500ns	*None
$t_{RH}$	Reset# High Time Before Read	50ns	50ns
$t_{RB1}$	RY/BY# Recovery Time ( to CE#, OE# go low)	0ns	0ns
$t_{RB2}$	RY/BY# Recovery Time ( to WE# go low)	50ns	50ns
$t_{READY1}$	Reset# Pin Low (During Embedded Algorithms) to Read or Write	20 $\mu$ s	20 $\mu$ s
$t_{READY2}$	Reset# Pin Low (NOT During Embedded Algorithms) to Read or Write	500ns	*None

**Note\*:** There is no clear description in datasheet.



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## Revisions List

Revision No	Description	Date
A	Initial Release	2009/6/16