



# **Application Note**

## **Eon Flash EN29GL128H/L VS SPANSION Flash S29GL128P (N)**



# Eon Silicon Solution Inc.

## 1. INTRODUCTION

The application note introduces how to implement a system design from SPANSION S29GL128P (N) 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>S29GL128P(N)</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
<b>Read buffer length</b>	16 Byte	16 Byte
<b>Write buffer length</b>	64 Byte	64 Byte / 32 Byte @ N
<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		S29GL128P(N)		Unit
	Typ	Max	Typ	Max	
Read I <sub>CC1</sub> (@5MHz)	15	30	30	55	mA
Write I <sub>CC2</sub>	20	30	50	90	mA
Standby I <sub>CC3</sub>	1.5	10	1	5	μA

### 3.2 Max VID comparison

S29GL128P (N) 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 V<sub>HH</sub> level (for accelerating programming functions)

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

S29GL128P (N) voltage level: 11.5~12.5V.

### 3.3 Different random access speed

EN29GL128H/L: 70ns @ full VCC range: 2.7V~3.6V.

S29GL128P (N): 100ns or 110 ns @ full VCC range / 90 ns. (When VCC is used between 3.0V~3.6V)



## 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 S29GL128P (N): manufacture ID: 0001h, device ID: 227Eh / 2221h / 2201h.

### 4.2. Password protection commands

EN29GL128H/L: No support.

S29GL128P (N): 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)

S29GL128P (N): 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.

S29GL128P (N): A Persistent-Protection-Bit (PPB) is assigned to each block.



## 5. PERFORMANCE DIFFERENCES

### 5.1 Power-on and Reset Timings.

Parameter	Description	EN29GL128H/L	S29GL128P(N)
t <sub>VCS</sub>	Vcc Setup Time (min)	50μs	35us@P 50us@N
t <sub>RP1</sub>	RESET# Pulse Width (During Embedded Algorithms)	10us	35us@P 500ns@N
t <sub>RP2</sub>	RESET# Pulse Width (NOT During Embedded Algorithms)	500ns	35us@P 500ns@N
t <sub>RH</sub>	Reset# High Time Before Read	50ns	200ns@P 50ns@N
t <sub>RB1</sub>	RY/BY# Recovery Time ( to CE#, OE# go low)	0ns	0ns
t <sub>RB2</sub>	RY/BY# Recovery Time ( to WE# go low)	50ns	*None
t <sub>READY1</sub>	Reset# Pin Low (During Embedded Algorithms) to Read or Write	20μs	35μs@P 20us@N
t <sub>READY2</sub>	Reset# Pin Low (NOT During Embedded Algorithms) to Read or Write	500ns	35μs@P 500ns@N

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



# Eon Silicon Solution Inc.

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## Revisions List

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