



Application Note

Eon Flash EN29GL064H/L/T/B VS SPANSION Flash S29GL064N



Eon Silicon Solution Inc.

1. INTRODUCTION

The application note introduces how to implement a system design from SPANSION S29GL064N Flash to Eon EN29GL064H/L/T/B Flash.

2. GENERAL FUNCTION COMPARISON TABLE:

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

| Features | EN29GL064H/L/T/B | S29GL064N |
|--|--|--|
| voltage range | 2.7 ~ 3.6 | 2.7 ~ 3.6 |
| Pin to Pin | Compatible (for 48 / 56 TSOP) Compatible (for 64 FBGA) | Compatible (for 48 / 56 TSOP) Compatible (for 64 FBGA) |
| Page Access time | 25ns | 25ns |
| Random access time | 70ns | 90ns /100ns /100ns |
| Read buffer length | 16 Byte | 16 Byte |
| Write buffer length | 32 Byte | 32 Byte |
| Sector Architecture | Uniform 64K Byte @ H / L 8 x 8K Byte boot sectors + 127 x 64K Byte sector @ T/ B | Uniform 64K Byte @ H / L 8 x 8K Byte boot sectors + 127 x 64K Byte sector @ T/ B |
| Byte/Word mode | Yes | Yes |
| Secured silicon sector | 256 Byte | 256 Byte |
| CFI Compliant | Yes | Yes |
| JEDEC Data# polling & toggle bit command | Yes | Yes |
| Erase Suspend / Resume | Yes | Yes |
| Program Suspend / Resume | Yes | Yes |
| Minimum endurance cycle | 100K | 100K |
| Package | 48-pin 12mm x 20mm TSOP 56-pin 14mm x 20mm TSOP 64 ball 11mm x13mm FBGA | 48-pin 12mm x 20mm TSOP 56-pin 14mm x 20mm TSOP 64 ball 11mm x13mm FBGA |

Note:

EN29GL064H: The highest address sector protected when WP#/ACC = "L".

EN29GL064L: The Lowest address sector protected when WP#/ACC = "L".

EN29GL064T: Top boot sector

EN29GL064B: Bottom boot sector.



3. HARDWARE & PERFORMANCE CONSIDERATIONS

3.1 I_{CC} comparison

| Current | EN29GL064H/L/T/B | | S29GL064N | | Unit |
|-------------------------------|------------------|-----|-----------|-----|------|
| | Typ | Max | Typ | Max | |
| Read I _{CC1} (@5MHz) | 15 | 30 | 25 | 30 | mA |
| Write I _{CC2} | 20 | 30 | 50 | 60 | mA |
| Standby I _{CC3} | 1.5 | 10 | 1 | 5 | μA |

3.2 Max VID comparison

S29GL064N VID range is 11.5V ~ 12.5V. But EN29GL064H/L/T/B doesn't support VID function. Any voltage level higher than chip spec would damage the device, possibly. (Using high voltage on Address9 enters autoselect mode)

3.3 Different V_{HH} level (for accelerating programming functions)

EN29GL064H/L/T/B voltage level: 8.5V ~ 9.5V.

S29GL064N voltage level: 11.5 ~ 12.5V.

3.4 Different V_{IO} level (for adjusting different I/O voltage range)

EN29GL064H/L/T/B voltage level: 1.65V ~ 3.6V.

S29GL064N: 1.65V ~ 3.6V

3.5 Different random access speed

EN29GL064H/L/T/B: 70ns @ full VCC range: 2.7V ~ 3.6V.

S29GL064N: 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

| Eon | | SPANSION | |
|--|-----------------------|---|-----------------------|
| Manufacture ID: 007Fh (A8 = "0"), 001Ch (A8 = "1"). | | Manufacture ID: 0001h | |
| Part No. | Device ID | Part No. | Device ID |
| EN29GL064H (Uniform, highest address sector protected) | 227Eh / 220Ch / 2201h | S29GL064N (Uniform, highest address sector protected) | 227Eh / 220Ch / 2201h |
| EN29GL064L (Uniform, lowest address sector protected) | 227Eh / 220Ch / 2201h | S29GL064N (Uniform, lowest address sector protected) | 227Eh / 220Ch / 2201h |
| EN29GL064T (Top boot) | 227Eh / 2210h / 2201h | S29GL064N (Top boot) | 227Eh / 2210h / 2201h |
| EN29GL064B (Bottom Boot) | 227Eh / 2210h / 2200h | S29GL064N (Bottom Boot) | 227Eh / 2210h / 2200h |

4.2. Password protection commands

EN29GL064H/L/T/B: No support.

S29GL064/N: Support.

4.3. Multi-sector erasure commands

EN29GL064H/L/T/B: No supported. (Users must issue another sector erase command for the next sector to be erased after the previous one is completed)

S29GL064N: Support.

4.4. Different PPB protect range

EN29GL064H/L: Sector 0~3 and 124~127 have PPB for each sector. Sector 4~123 are 1 PPB per 4 sectors.

EN29GL064T: Sector 0~123 are 1 PPB per 4 sectors. Sector 124~134 have PPB for each boot sector.

EN29GL064B: Sector 0~10 have PPB for each boot sector. Sector 11~134 are 1 PPB per 4 sectors.

S29GL064/N: A Persistent-Protection-Bit (PPB) is assigned to each block.



5. PERFORMANCE DIFFERENCES

5.1 Power-on and Reset Timings.

| Parameter | Description | EN29GL064H/L/T/B | S29GL064N |
|---------------------|--|------------------|-----------|
| t _{VCS} | Vcc Setup Time (min) | 50μs | 50us |
| t _{RP1} | RESET# Pulse Width (During Embedded Algorithms) | 10us | 500ns |
| t _{RP2} | RESET# Pulse Width (NOT During Embedded Algorithms) | 500ns | 500ns |
| 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 | *None |
| t _{READY1} | Reset# Pin Low (During Embedded Algorithms) to Read or Write | 20μs | 20us |
| t _{READY2} | Reset# Pin Low (NOT During Embedded Algorithms) to Read or Write | 500ns | 500ns |

Note*: There is no clear description in datasheet.



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Revisions List

| Revision No | Description | Date |
|-------------|-----------------|------------|
| A | Initial Release | 2009/07/21 |