



Application Note

Eon Flash EN29GL064T-70TIP

VS

Toshiba Flash TC58FVM6T5BTG65



1. INTRODUCTION

The application note introduces how to implement a system design from Toshiba TC58FVM6T5BTG65 Flash to Eon EN29GL064T-70TIP Flash.

2. GENERAL FUNCTION COMPARISON TABLE:

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

Features	EN29GL064T-70TIP	TC58FVM6T5BTG65
voltage range	2.7 ~ 3.6	2.7 ~ 3.6
Pin to Pin	Compatible for 48 TSOP Pin 45 = DQ15 / A-1, Pin 47 = BYTE#	Compatible for 48 TSOP Pin 45 = DQ15, Pin 47 = NC
Page Access time	25ns	25ns
Random access time	70ns	65ns
Read buffer length	16 Bytes / 8Words	8 Words
Write buffer length	32 Bytes / 16 Words	No
Sector Architecture	8 x 8K Byte boot sectors + 127 x 64K Byte sector	8 x 8K Byte boot sectors + 127 x 64K Byte sector
Bank Architecture	Single Bank	8M Bits × 8 Banks
Simultaneous read/write	No	Yes
Page Program	No	8 Words
Fast Program	No	Yes
Byte/Word mode	Yes	Only support Word mode
Secured silicon sector	256 Byte	64K 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	48-pin 12mm x 20mm TSOP



3. HARDWARE & PERFORMANCE CONSIDERATIONS

3.1 I_{CC} comparison

Current	EN29GL064T-70TIP		TC58FVM6T5BTG65		Unit
	Typ	Max	Typ	Max	
Read I _{CC1} (@10MHz)	25	45	37	55	mA
Write I _{CC3}	20	30	11 @ Program 9 @ Erase	15	mA
Standby I _{CC4}	1.5	10	3	10	μA

3.2 48 TSOP package pin out comparison

Pin out	EN29GL064T-70TIP	TC58FVM6T5BTG65
Pin 45	DQ15 / A-1	DQ15
Pin 47	Byte#	NC

For EN29GL064T-70TIP, all of the pin outs are the same as TC58FVM6T5BTG65 except pin 47. The TC58FVM6T5BTG65 don't support the Byte# function (pin 47 = DQ15 and pin 47 = NC).

3.3 Max V_{ID} comparison

TC58FVM6T5BTG65 V_{ID} range is 11.4V ~ 12.6V. But EN29GL064T-70TIP doesn't support V_{ID} function. Any voltage level higher than chip spec would damage the device, possibly. (Using high voltage on Address 9 enters autoselect mode)

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

EN29GL064T-70TIP (V_{HH}) voltage level: 8.5V ~ 9.5V.

TC58FVM6T5BTG65 (V_{ACC}) voltage level: 8.5 ~ 12.6V.

3.5 Different random access speed

EN29GL064T-70TIP: 70ns @ full V_{CC} range: 2.7V ~ 3.6V.

TC58FVM6T5BTG65: 65ns @ full V_{CC} range: 2.7V ~ 3.6V.



3.6 Different VLKO range (for write inhibit condition)

EN29GL064T-70TIP: 2.3V ~ 2.5V

TC58FVM6T5BTG65: 1.0V ~ 2.0V

4. SOFTWARE CONSIDERATIONS

4.1 Manufacturer ID, Device Identifications comparison

Eon		Toshiba	
Manufacture ID: 007Fh (A8 = "0"), 001Ch (A8 = "1").		Manufacture ID: 0098h	
Part No.	Device ID	Part No.	Device ID
EN29GL064T-70TIP (Top boot)	227Eh / 2210h / 2201h	TC58FVM6T5BTG65 (Top boot)	002Dh

4.2. Password protection commands

EN29GL064T-70TIP: No support.

TC58FVM6T5BTG65: Support.

4.2. Write Buffer commands

EN29GL064T-70TIP: Support 32 Bytes / 16 Words.

TC58FVM6T5BTG65: No support.

4.3. Page Program command

EN29GL064T-70TIP: No support.

TC58FVM6T5BTG65: Support 8 Words.



4.4. Fast Program commands

EN29GL064T-70TIP: No support.

TC58FVM6T5BTG65: Support.

4.5. Multi-sector (block) erasure commands

EN29GL064T-70TIP: No supported. (Users must issue another sector erase command for the next sector to be erased after the previous one is completed)

TC58FVM6T5BTG65: Support Multi-Block Erase Modes

4.6. Secured silicon sector Address Range

EN29GL064T-70TIP

Secured Silicon Sector Address Range	
000000h-000007h	Reserve for Factory
000008h-00007Fh	Determined by customer

TC58FVM6T5BTG65:

TYPE	BOOT BLOCK ARCHITECTURE	ADDRESS RANGE	SIZE
TC58FVM6T5B	TOP BOOT BLOCK	3F8000h~3FFFFFFh	32 Kwords

4.7. Different PPB protect range

EN29GL064T-70TIP: Sector 0~123 are 1 PPB per 4 sectors. Sector 124~134 have PPB for each boot sector.

TC58FVM6T5BTG65: A Persistent-Protection-Bit (PPB) is assigned to each block.



4.8. Other software sector protect method

EN29GL064T-70TIP: Support Lock register setting

TC58FVM6T5BTG65: No support.

5. PERFORMANCE DIFFERENCES

5.1 Power-on and Reset Timings.

Parameter	Description	EN29GL064T-70TIP	TC58FVM6T5BTG65
t _{VCS}	Vcc Setup Time (min)	50μs	500μs
t _{RP1}	RESET# Pulse Width (During Embedded Algorithms)	10μs	*None
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	*None
t _{RB2}	RY/BY# Recovery Time (to WE# go low)	50ns	0ns
t _{READY1}	Reset# Pin Low (During Embedded Algorithms) to Read or Write	20μs	25μs
t _{READY2}	Reset# Pin Low (NOT During Embedded Algorithms) to Read or Write	500ns	500ns

Note*: There is no clear description in datasheet.



Eon Silicon Solution Inc.

Revisions List

Revision No	Description	Date
A	Initial Release	2009/08/10