Application Note

Eon Flash EN29GL064T-70TIP
vs
Toshiba Flash TC58FVM6T2AFT65

Rev. A, Issue Date: 2009/ 08/10

1. INTRODUCTION

The application note introduces how to implement a system design from Toshiba TC58FVM6T2AFT65 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	TC58FVM6T2AFT65
voltage range	2.7 ~ 3.6	2.7 ~ 3.6
Pin to Pin	Compatible for 48 TSOP	Compatible for 48 TSOP
Page Access time	25ns	25ns
Random access time	70ns	65ns
Read buffer length	16 Bytes / 8Words	16 Bytes / 8Words
Write buffer length	32 Byte / 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	Four Banks 8M Bits : 24M Bits : 24M Bits : 8M Bits
Simultaneous read/write	No	Yes
Page Program	No	8 Words
Fast Program	No	Yes
Byte/Word mode	Yes	Yes
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		TC58FVM6T2AFT65		Unit
	Typ	Max	Typ	Max	
Read I_{CC1} (@10MHz)	25	45	35	55	mA
Write I_{CC3}	20	30	8	15	mA
Standby I_{CC4}	1.5	10	2	10	µA

3.2 Max V_{ID} comparison

TC58FVM6T2AFT65 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)

3.3 Different random access speed

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

TC58FVM6T2AFT65: 65ns @ full V_{CC} range: 2.7V ~ 3.6V.

3.4 Different V_{LKO} range (for write inhibit condition)

EN29GL064T-70TIP: 2.3V ~ 2.5V

TC58FVM6T2AFT65: 1.5V ~ 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	TC58FVM6T2AFT65 (Top boot)	0057h

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.

TC58FVM6T2AFT65: 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).

TC58FVM6T2AFT65: 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

TC58FVM6T2AFT65:

TYPE	BOOT BLOCK ARCHITECTURE	BYTE MODE		WORD MODE	
		ADDRESS RANGE	SIZE	ADDRESS RANGE	SIZE
TC58FVM6T2A	TOP BOOT BLOCK	7F0000h~7FFFFFh	64 Kbytes	3F8000h~3FFFFFh	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.

TC58FVM6T2AFT65: No support.

4.8. Other software sector protect method

EN29GL064T-70TIP: Support. (DYB / PPB / Lock register setting)

TC58FVM6T2AFT65: No support. (Only have hardware WP# control)

5. PERFORMANCE DIFFERENCES

5.1 Power-on and Reset Timings.

Parameter	Description	**EN29GL064T-70TIP**	**TC58FVM6T2AFT65**
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	20µs
t_{READY2}	Reset# Pin Low (NOT During Embedded Algorithms) to Read or Write	500ns	*None

Note*: There is no clear description in datasheet.

Revisions List

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