



Migration Note

EON Flash EN25F80 to EN25Q80A



Eon Silicon Solution Inc.

1. INTRODUCTION

The application note introduces how to implement a system design from EON EN25F80 Flash to Eon EN25Q80A Flash.

2. GENERAL FUNCTION COMPARISON TABLE:

2.1 The following table is major features of these two devices.

Features	EN25Q80A	EN25F80
voltage range	2.7 ~ 3.6	2.7 ~ 3.6
SPI frequency	100MHz (standard mode) 80MHz @ dual & quad mode	100MHz (standard mode)
Secured Silicon Sector region	256 Byte	256 Byte
Sector Architecture	Uniform 256 sectors of 4K byte / 16 block of 64K byte	Uniform 256 sectors of 4K byte / 16 block of 64K byte
SPI mode	Mode 0 / Mode 3	Mode 0 / Mode 3
Dual Output Fast Read (3Bh)	Yes	No
Dual I/O Fast Read (BBh)	Yes	No
Quad I/O Fast Read (EBh)	Yes	No
Minimum endurance cycle	100K	100K
Package	8-pin SOP 150mil 8-pin SOP 200mil 8 contact VDFN 8-pin PDIP	8-pin SOP 150mil 8-pin SOP 200mil 8 contact VDFN 8-pin PDIP



3. HARDWARE CONSIDERATIONS

3.1 I_{CC} comparison

Current	EN25Q80A	EN25F80	Unit
	Max	Max	
Read I _{CC3}	25	25	mA
Page Program (PP) I _{CC4}	28	28	mA
Sector Erase (SE) I _{CC6}	25	25	mA
Standby I _{CC1}	20	20	μA

3.2 The following table is pin comparison

Pin number	EN25Q80A	EN25F80
Pin1	CS#	CS#
Pin2	DO (DQ1)	DO
Pin3	WP# (DQ2)	WP#
Pin4	VSS	VSS
Pin5	DI (DQ0)	DI
Pin6	CLK	CLK
Pin7	NC (DQ3)	HOLD#
Pin8	VCC	VCC

Note:

If customers don't use Hold# pin function on EN25F80, which can be replaced by EN25Q80A in [standard SPI mode](#).

EN25F80 only support general standard SPI mode.

EN25Q80A can support general standard / [dual](#) / [quad](#) SPI mode. (Need specific SPI controller)



4. SOFTWARE CONSIDERATIONS

Except of memory type, (only difference on 9Fh command) there is no difference in Manufacture ID, Device ID

4.1 Manufacturer, Memory Type & Device Identification (M7~M0: manufacture ID, D15~ID0: memory type, ID7~ID0: memory density)

For EN25F80

OP Code	(M7-M0)	(ID15-ID0)	(ID7-ID0)
ABh			13h
90h	1Ch		13h
9Fh	1Ch	3114h	

For EN25Q80A

OP Code	(M7-M0)	(ID15-ID0)	(ID7-ID0)
ABh			13h
90h	1Ch		13h
9Fh	1Ch	3014h	



5. PERFORMANCE DIFFERENCES

5.1 ERASE AND PROGRAM PERFORMANCE

The erasing and programming performance comparison.

Parameter	EN25Q80A		EN25F80		Unit
	Typ	Max	Typ	Max	
Page Programming Time	1.3	5	1.3	5	ms
Sector Erase Time	0.09	0.3	0.09	0.3	Sec
Block Erase Time	0.5	2	0.5	2	Sec
Chip Erase Time	8*	20	8*	20	Sec

* **NOTE:** ERASE FROM “1” → “1”.

5.2 KEY AC PARAMETER PERFORMANCE

Parameter	EN25Q80A	EN25F80
tCH (serial clock high time)	Min@ 4ns	Min@ 4ns
tCL (serial clock low time)	Min@ 4ns	Min@ 4ns
tCLCH(serial clock rise time)	Min@ 0.1V / ns	Min@ 0.1V / ns
tCLCL(serial clock fall time)	Min@ 0.1V / ns	Min@ 0.1V / ns
tCHSH(CS# active setup / hold time)	Min@ 5ns	Min@ 5ns
tSHSL(CS# high time)	Min, read @15ns Program/Erase @50ns	Min@100ns
tDSU(Data in setup time)	Min@2ns	Min@2ns
tDH(Data in hold time)	Min@5ns	Min@5ns



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Revisions List

Revision No	Description	Date
A	Initial Release	2010/03/15