

Technical Note

Migrating from Micron N25Q 64Mb Standard to Enhanced Program and Erase Speed Configuration

Introduction

This technical note provides information to help users to migrate from a standard configuration to an enhanced program and erase speed configuration of the Micron Flash memory N25Q 64Mb device. General differences between the two devices are shown in the table below, followed by tables showing the electrical specification differences, package differences, and part number. Refer to the respective data sheets for complete descriptions of functionality, operating modes, and specifications.

Table 1: Device Component Comparison – Standard and Enhanced

Components	Standard	Enhanced	Description
Memory Array	Uniform sector erase (64KB)	Uniform sector erase (64KB)	All other memory related features are the same
	–	Uniform subsector erase (32KB)	
	Uniform subsector erase (4KB)	Uniform subsector erase (4KB)	
Signals	W#/V _{pp} /DQ2	W#/DQ2	All other signals are the same; V _{pp} is unavailable on enhanced device

Table 2: Comparison – Packages and Commands

Components	Standard	Enhanced	Description	
Package Details				
	SOP2-16/300 mils		–	
	SOP2-8 208 mils body width		–	
	T-PBGA-24b05 (6mm x 8mm, 4 x 6 ball)		–	
	V-PDFN-8 (MLP8 6mm x 5mm)	–	–	
	V-PDFN-8 (MLP8 8mm x 6mm)	–	–	
	XF-SCSP-8/2.93mm x 3.5mm (XFCSP)	–	Die capable but not in mass production	
	–	T-PBGA-24b05 (6mm x 8mm, 5 x 5 ball)		–
	–	W-PDFN-8 (MLP8 6mm x 5mm)		–
	–	W-PDFN-8 (MLP8 8mm x 6mm)		–
Commands				
	EXTENDED QUAD INPUT FAST PROGRAM		Standard op code = 12h Enhanced op code = 12h/38h ¹	
	–	RESET ENABLE	66h ²	
	–	RESET MEMORY	99h	
	–	SUBSECTOR ERASE (32KB)	52h	
	–	ENTER QUAD	35h	
	–	EXIT QUAD	F5h	

- Notes:
1. The 38h command op code ensures compatibility with other industry devices.
 2. RESET ENABLE command must be followed by the RESET MEMORY command. It is recommended that the device is not in XIP mode before executing these two commands.



Comparisons of Electrical Specifications, Part Number, and Package

Table 3: Electrical Specifications

Parameter	Symbol	Standard		Enhanced		Units
		Typ	Max	Typ	Max	
Erase to suspend	–	700	–	100	–	μs
PAGE PROGRAM cycle time (256 bytes)	t _{PP}	0.5	5	0.2	0.4	ms
PAGE PROGRAM cycle time (n bytes)		int(n/8) x 0.015	5	int(n/8) x 0.006	0.4	ms
PAGE PROGRAM cycle time, V _{PP} = V _{PPH} (256 bytes)		0.4	5	0.2	0.4	ms
4KB subsector ERASE cycle time	t ^{SS} E1	250	800	50	200	ms
32KB subsector ERASE cycle time	t ^{SS} E2	N/A	N/A	0.16	0.4	s
64KB sector ERASE cycle time	t ^{SE}	0.7	3	0.3	1	s
64KB sector ERASE cycle time (V _{PP} = V _{PPH})		0.6	3	N/A	N/A	s
Bulk ERASE cycle time	t ^{BE}	60	120	26	120	s
Bulk ERASE cycle time (V _{PP} = V _{PPH})		50	120	N/A	N/A	s

Table 4: Part Number and Package Correlation

Part Numbers		Packages	Secure
Standard	Enhanced		
N25Q064A13E1240x	N/A	T-PBGA (4x6 ball)	No
N25Q064A13E1241x	N25Q064A13E12D1E		Yes
N/A	N25Q064A13E14D0E	T-PBGA (5x5 ball)	No
N/A	N25Q064A13E14D1E		Yes
N25Q064A13EF640x	N25Q064A13EW7Dx	PDFN-8 (6 x 5)	No
N25Q064A13EF840x	N25Q064A13EW9D0x	PDFN-8 (8 x 6)	
N25Q064A13ESE40x	N25Q064A13ESED0x	S08 Wide	
N25Q064A13ESF40x	N25Q064A13ESFD0x	S016 Wide	



Revision History

Rev. A – 09/16

- Initial release

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