

# Application Note-24



## DESIGN-IN WITH WINBOND W39V040FC(FWH)/W39V040C(LPC) PRODUCT

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# DESIGN-IN WITH WINBOND W39V040FC(FWH)/W39V040C PRODUCT



## 1. GENERAL DESCRIPTION

W39V040FC and W39V040C are application-specific flash devices which are used for Intel Chipset and non-Intel Chipset respectively.

W39V040FC and W39V040C are 4-Mb 3.3-volt only CMOS flash memory organized as 512K × 8 bits and compatible for each other in most applications.

This application note listed the features comparisons between W39V040FC and W39V040C.

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## 2. DETAIL DESCRIPTION

For W39V040FC/W39V040C, the 4Mbits of data are divided into 6 uniform sectors of 64 Kbytes and 16 sectors of 8Kbytes or 8 uniform sectors of 64 Kbytes .

The comparison on Function, Command, and Pin Assignment in Programmer mode and FWH (LPC)mode is described in the following:

### 2.1 Function

**Function Comparison Table**

FUNCTION COMPARISON	WINBOND W39V040FC (W39V040C)
Device ID	Yes(50H)
Sector Definition	6 X 64KB +16 X 8KB Or 8 X 64KB
FWH Interface Mode	FWH (LPC)
Programmer Interface Mode	Yes
External H/W Boot Block Lockout	Yes (64KB)
External H/W Protect Pins	Yes
Sector Erase (64KB)	Yes
Page erase (8KB)	Yes
R/W Lock Registers	Yes
Multiple Device Selection	Yes
Device ID Register	Yes
Vpp For Fast Programming	Yes
General Purpose Inputs Register	Yes

### 2.2 Command

FUNCTION COMPARISON	WINBOND W39V040FC / W39V040C
Byte Program	A0H
Chip Erase	-----
Sector Erase	30H
Page erase	50H
Product ID Entry	90H
Product ID Exit	F0H

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## 2.3 Pin Assignment

The pin assignment of W39V040FC / W39V040C are arranged to be easily adapted for others.

For Vpp pin of W39V040FC / W39V040C, it may be left disconnected or driven. If it is driven, the voltage levels should satisfy VIH and VIL requirements. For RD/BY# pin of W39V040FC / W39V040C, it is a open-drain output pin.

### 2.3.1 In Programmer Mode

**Table 1. 32L-PLCC Pin Assignment in Programmer Mode**

WINBOND W39V040FC/W39V040C	PIN ASSIGNMENT IN PROGRAMMER MODE		WINBOND W39V040FC/W39V040C
Vpp	1	<b>WINBOND 32-LEAD PLCC STANDARD PINOUT</b>	32
RESET#	2		31
A9	3		30
A8	4		29
A7	5		28
A6	6		27
A5	7		26
A4	8		25
A3	9		24
A2	10		23
A1	11		22
A0	12		21
DQ0	13		20
DQ1	14		19
DQ2	15		18
GND	16		17
			V <sub>DD</sub>
			R/C#
			A10
			IC
			GND
			---
			---
			V <sub>DD</sub>
			OE#
			WE#
			RY/BY#
			DQ7
			DQ6
			DQ5
			DQ4
			DQ3

**Note:** (---: NC)

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## 2.3.2 In FWH (LPC) Mode

**Table 2. 32L-PLCC Pin Assignment in FWH (LPC)Mode**

WINBOND W39V040C	WINBOND W39V040FC	PIN ASSIGNMENT IN FWH MODE		WINBOND W39V040FC	WINBOND W39V040C	
V <sub>PP</sub>	V <sub>PP</sub>	1	<b>WINBOND 32-LEAD PLCC STANDARD PINOUT</b>	32	V <sub>DD</sub>	
RESET#	RESET#	2		31	CLK	CLK
FGPI3	FGPI3	3		30	FPGI4	FPGI4
FGPI2	FGPI2	4		29	IC#	MODE#
FGPI1	FGPI1	5		28	GND	GND
FGPI0	FGPI0	6		27	---	---
WP#	WP#	7		26	---	---
TBL#	TBL#	8		25	V <sub>DD</sub>	V <sub>DD</sub>
ID3	ID3	9		24	INIT#	INIT#
ID2	ID2	10		23	FWH4	LFRAME#
ID1	ID1	11		22	---	---
ID0	ID0	12		21	RSV	RSV
LAD0	FWH0	13		20	RSV	RSV
LAD1	FWH1	14		19	RSV	RSV
LAD2	FWH2	15		18	RSV	RSV
GND	GND	16		17	FWH3	LAD3

**Note:** (---: NC)

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### 3. CHANGE TOGGLING TO POLLING WHILE DOING PROGRAM

In order to enhance devices reliability and compatibility with other components to prevent conflict of poor power decoupling or bus loading might induce Flash internal bounce and let toggling fail. According to our experiences that Polling is better than toggling. So we have a strong suggestion that polling method is needed while doing program. Embedded Polling bit algorithm please refer to **4.1**

### 4. CONCLUSION

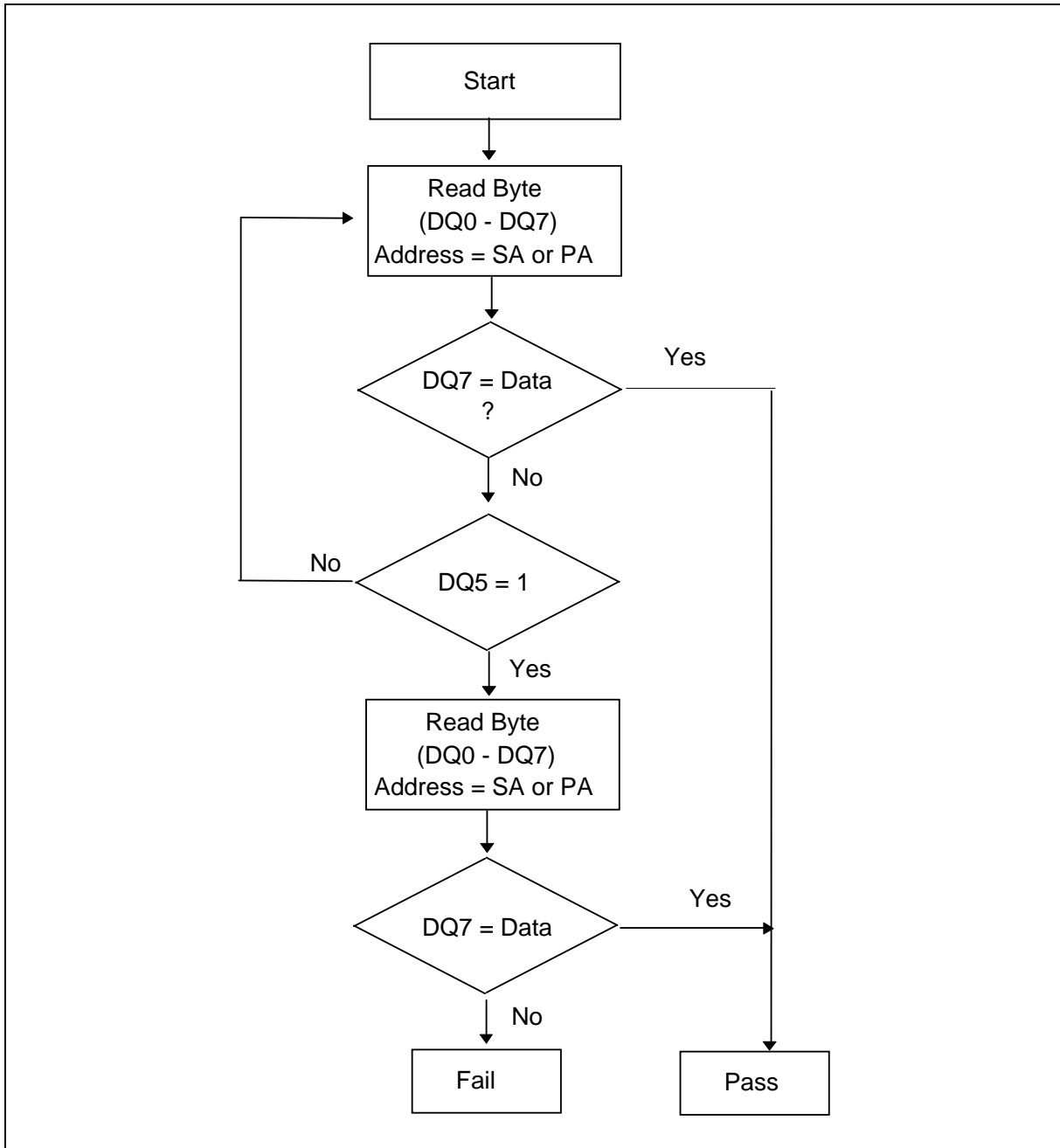
The W39V040FC and W39V040C are already well supported by all famous third parties like BIOS vendors AMI, Award/Phoenix, and Programmer vendors. W39V040FC and W39V040C provides a very cost-effective solution for most 4Mb-FWH applications. In summary, both W39V040FC and W39V040C are compatible for each other in most applications.

Based on our experiences that polling (DQ7)check method is needed while doing program

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4.1 Embedded Polling bit algorithm



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**5. VERSION HISTORY**

<b>VERSION</b>	<b>DATE</b>	<b>PAGE</b>	<b>DESCRIPTION</b>
A1	February 9, 2007	-	Initial Issued

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