



**DESIGN-IN WITH WINBOND  
W39V040FA/W39V040FB(FWH) PRODUCT**

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# DESIGN-IN WITH WINBOND

## W39V040FA/W39V040FB(FWH) PRODUCT



### 1. GENERAL DESCRIPTION

W39V040FA and W39V040FB FWH flash are application-specific devices which are used for Intel Chipset solution. Both W39V040FA and W39V040FB 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 W39V040FA and W39V040FB.

### 2. DETAIL DESCRIPTION

For W39V040FB, the 4Mbits of data are divided into 8 uniform sectors of 64 Kbytes.

For W39V040FA, the 4Mbits of data are divided into 8 uniform sectors of 64 Kbytes, which are composed of 16 smaller even pages with 4 Kbytes.

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

#### 2.1 Function

**Function Comparison Table**

FUNCTION COMPARISON	WINBOND W39V040FB	WINBOND W39V040FA
Device ID	Yes(54H)	Yes(34H)
Sector Definition	Uniform 64KB	Uniform 4KB
FWH Interface Mode	FWH	FWH
Programmer Interface Mode	Yes	Yes
Internal Boot Block Lockout	Yes (64KB)	Yes(64KB/16KB)
External H/W Protect Pins	Yes	Yes
Chip Erase	No	Yes
Sector Erase	Yes	Yes
Page erase	No	Yes
R/W Lock Registers	Yes	Yes
Multiple Device Selection	Yes	Yes
Device ID Register	Yes	Yes
Vpp For Fast Programming	Yes	No
General Purpose Inputs Register	Yes	Yes

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## 2.2 Command

FUNCTION COMPARISON	WINBOND W39V040FB	WINBOND W39V040FA
Byte Program	A0H	A0H
Chip Erase	-----	10H
Sector Erase	30H	30H
Page erase	-----	50H
Product ID Entry	90H	90H
Product ID Exit	F0H	F0H

## 2.3 Pin Assignment

The pin assignment of W39V040FA and W39V040FB are arranged to be easily adapted for each other. Therefore, there's only minor differences between W39V040FA and W39V040FB.

For Vpp pin of W39V040FB, 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 W39V040FB, it is a open-drain output pin.

### 2.3.1 In Programmer Mode

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

WINBOND W39V040FA	WINBOND W39V040FB	PIN ASSIGNMENT IN PROGRAMMER MODE		WINBOND W39V040FB	WINBOND W39V040FA	
---	Vpp	1	<b>WINBOND 32-LEAD PLCC STANDARD PINOUT</b>	32	V <sub>DD</sub>	
RESET#	RESET#	2		31	R/C#	R/C#
A9	A9	3		30	A10	A10
A8	A8	4		29	IC	IC
A7	A7	5		28	GND	GND
A6	A6	6		27	---	---
A5	A5	7		26	---	---
A4	A4	8		25	V <sub>DD</sub>	V <sub>DD</sub>
A3	A3	9		24	OE#	OE#
A2	A2	10		23	WE#	WE#
A1	A1	11		22	RY/BY#	---
A0	A0	12		21	DQ7	DQ7
DQ0	DQ0	13		20	DQ6	DQ6
DQ1	DQ1	14		19	DQ5	DQ5
DQ2	DQ2	15		18	DQ4	DQ4
GND	GND	16		17	DQ3	DQ3

Note: (---: NC)

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## 2.3.2 In FWH Mode

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

WINBOND W39V040FA	WINBOND W39V040FB	PIN ASSIGNMENT IN FWH MODE		WINBOND W39V040FB	WINBOND W39V040FA
---	V <sub>PP</sub>	1	<b>WINBOND 32-LEAD PLCC STANDARD PINOUT</b>	32	V <sub>DD</sub>
RESET#	RESET#	2		31	CLK
FGPI3	FGPI3	3		30	FPGI4
FGPI2	FGPI2	4		29	IC
FGPI1	FGPI1	5		28	GND
FGPI0	FGPI0	6		27	---
WP#	WP#	7		26	---
TBL#	TBL#	8		25	V <sub>DD</sub>
ID3	ID3	9		24	INIT#
ID2	ID2	10		23	FWH4
ID1	ID1	11		22	---
ID0	ID0	12		21	RSV
FWH0	FWH0	13		20	RSV
FWH1	FWH1	14		19	RSV
FWH2	FWH2	15		18	RSV
GND	GND	16		17	FWH3

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

## 2.4 Reminder for end-check of sector erase operation (For W39V040FB only)

System designer can use DQ6 (Toggle Bit) or DQ7(Data Polling bit) to determine whether a erase operation is complete or in progress.

While doing end-check of sector erase, please note the following:

The minimum interval between toggling-check (or polling-check) should be more than 50 mS.

W39V040FA and W39V040FB are already well supported by all famous BIOS vendors like AMI, Award/Phoenix.

## 3. CONCLUSION

The W39V040FA and W39V040FB are already well supported by all famous third parties like BIOS vendors AMI, Award/Phoenix, and Programmer vendors. They have made efforts to cover the differences on device's command sets and programming algorithm.

W39V040FB provides a very cost-effective solution for most 4Mb-FWH applications.

W39V040FA provides flexible erase capability for specific 4Mb-FWH application, which small segmentation is needed.

In summary, both W39V040FA and W39V040FB are compatible for each other in most applications.

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## 4. VERSION HISTORY

VERSION	DATE	PAGE	DESCRIPTION
A1	Dec. 7, 2004	-	Initial Issued

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