

# APPLICATION NOTE-23



## DESIGN-IN WITH WINBOND W39V040A/W39V040B(LPC) PRODUCT

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# DESIGN-IN WITH WINBOND

## W39V040A/W39V040B(LPC) PRODUCT



### 1. GENERAL DESCRIPTION

W39V040A and W39V040B LPC flash are application-specific devices which are used for Non-Intel Chipset solution. Both W39V040A and W39V040B 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 W39V040A and W39V040B.

### 2. DETAIL DESCRIPTION

For W39V040B, the 4Mbits of data are divided into 8 uniform sectors of 64 Kbytes.

For W39V040A, 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 LPC mode is described in the following:

#### 2.1 Function

**Function Comparison Table**

FUNCTION COMPARISON	WINBOND W39V040B	WINBOND W39V040A
Device ID	Yes(54H)	Yes(3DH)
Sector Definition	Uniform 64KB	Uniform 4KB
LPC Interface Mode	LPC	LPC
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
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 W39V040B	WINBOND W39V040A
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 W39V040A and W39V040B are arranged to be easily adapted for each other. Therefore, there's only minor differences between W39V040A and W39V040B.

For Vpp pin of W39V040B, 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 W39V040B, it is a open-drain output pin.

### 2.3.1 In Programmer Mode

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

WINBOND W39V040A	WINBOND W39V040B	PIN ASSIGNMENT IN PROGRAMMER MODE		WINBOND W39V040B	WINBOND W39V040A
---	Vpp	1	<b>WINBOND 32-LEAD PLCC STANDARD PINOUT</b>	32	V <sub>DD</sub>
RESET#	RESET#	2		31	R/C#
A9	A9	3		30	A10
A8	A8	4		29	MODE
A7	A7	5		28	GND
A6	A6	6		27	---
A5	A5	7		26	---
A4	A4	8		25	V <sub>DD</sub>
A3	A3	9		24	OE#
A2	A2	10		23	WE#
A1	A1	11		22	RY/BY#
A0	A0	12		21	DQ7
DQ0	DQ0	13		20	DQ6
DQ1	DQ1	14		19	DQ5
DQ2	DQ2	15		18	DQ4
GND	GND	16		17	DQ3

Note: (---: NC)

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### 2.3.2 In LPC Mode

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

WINBOND W39V040A	WINBOND W39V040B	PIN ASSIGNMENT IN LPC MODE		WINBOND W39V040B	WINBOND W39V040A
---	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	MODE
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	LFRAME#
ID1	ID1	11		22	---
ID0	ID0	12		21	RSV
LAD0	LAD0	13		20	RSV
LAD1	LAD1	14		19	RSV
LAD2	LAD2	15		18	RSV
GND	GND	16		17	LAD3

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

### 2.4 Reminder for end-check of sector erase operation (For W39V040B 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.

W39V040A and W39V040B are already well supported by all famous BIOS vendors like AMI, Award/Phoenix.

## 3. CONCLUSION

The W39V040A and W39V040B 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.

W39V040B provides a very cost-effective solution for most 4Mb-LPC applications.

W39V040A provides flexible erase capability for specific 4Mb-LPC application, which small segmentation is needed.

In summary, both W39V040A and W39V040B are compatible for each other in most applications.

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## 4. VERSION HISTORY

VERSION	DATE	PAGE	DESCRIPTION
A1	Dec. 21, 2005	-	Initial Issued



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