



## DESIGN-IN WITH WINBOND 2/4M LPC(W49V002A/W39V040A) PRODUCT

### 1. GENERAL DESCRIPTION

The LPC (Low Pin Count) Flash is an application-specific device, which is used for non-Intel Chipset solution. If users need to use for Intel Chipset solution, please refer to Winbond FWH Flash, W49V002FA and W39V040FA.

There are three major parts listed in this comparison notice to identify the difference between Winbond 2M/4M LPC Flash and the equivalent parts of SST.

### 2. DETAIL DESCRIPTION

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

#### Function

FUNCTION COMPARISON	Winbond W49V002A	SST SST49LF020A	Winbond W49V004A	SST SST49LF040A
Memory Size	2M bits		4M bits	
Sector Definition	16K + 8Kx2 + 32Kx4	Diversified 4K/16K	Diversified 4K/64K/16K*	Diversified 4K/64K
Command Sets	AMD-LIKE command	AMD-LIKE command	AMD-LIKE command	AMD-LIKE command
LPC BUS(LPC) Interface Mode	LPC	LPC	LPC	LPC
Programmer Interface Mode	Yes	Yes	Yes	Yes
Random Number Generator	No	No	No	No
Internal Boot Block Lockout	Yes	No	Yes	No
External H/W Protect Pins	Yes	Yes	Yes	Yes
Chip Erase	Yes	Yes	Yes	Yes
R/W Lock Registers	No	No	Yes	No
Multiple Device Selection	No	Yes	No	Yes
Device ID Register	Yes	Yes	Yes	Yes
VPP For Fast Programming	No	No	No	No
Erase/Program Suspend	No	No	No	No
General Purpose Inputs Register	Yes	Yes	Yes	Yes
X86 Boot Decoding (E0000 – FFFFF)	Yes	No	Yes	No

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### Command

Please note that there might be slight difference between each vendor. It usually bases on vendor's specific device structure and there won't be any influence on PC operation.

FUNCTION COMPARISON	Winbond W49V002A	SST SST49LF020A	Winbond W39V040A	SST SST49LF040A
Memory Size	2M bits		4M bits	
Byte Program	A0H	A0H	A0H	A0H
Chip Erase	10H	10H	10H	10H
Sector Erase (SST Block)	30H	50H	30H	50H
Page Erase (SST Sector)	-----	30H	50H	30H
Boot Block Lockout	40H	-----	40H	-----
Product ID Entry	90H	90H	90H	90H
Product ID Exit	F0H	F0H	F0H	F0H
Block Erase/Program Suspend	-----	-----	-----	-----
Block Erase/Program Resume	-----	-----	-----	-----

### Pin Assignment

The W49V002A/W39V040A is used for specific PC system with Non-Intel chipset solution. Its pin assignment is arranged to be easily adapt to each Intel system. Therefore, all minor differences between Winbond and other vendors can be ignored.

### In Programmer Mode

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

SST SST49LF0X0A	Winbond W49V002A/W39V040A	PIN ASSIGNMENT IN PROGRAMMER MODE		Winbond W49V002A/W39V040A	SST SST49LF0X0A
---	---	1	32	VDD	VDD
RESET#	RESET#	2	31	R/C#	R/C#
A9	A9	3	30	A10	A10
A8	A8	4	29	IC	IC
A7	A7	5	28	---	CE#
A6	A6	6	27	---	---
A5	A5	7	26	---	---
A4	A4	8	25	VDD	VDD
A3	A3	9	24	OE#	OE#
A2	A2	10	23	WE#	WE#
A1	A1	11	22	---	---
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: Different pin assignment has been highlighted in bold font.

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### In LPC Mode

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

SST SST49LF0X0A	Winbond W49V002A/W39V040A	PIN ASSIGNMENT IN FWH MODE		Winbond W49V002A/W39V040A	SST SST49LF020A
---	---	1	32	VDD	VDD
RESET#	RESET#	2	31	CLK	CLK
GPI3	GPI3	3	30	PGI4	PGI4
GPI2	GPI2	4	29	MODE	MODE
GPI1	GPI1	5	28	GND	GND
GPI0	GPI0	6	27	---	---
WP#	WP#	7	26	---	---
TBL#	TBL#	8	25	VDD	VDD
ID3	ID3	9	24	INIT#	INIT#
ID2	ID2	10	23	LFRAM#4	LFRAM#4
ID1	ID1	11	22	---	---
ID0	ID0	12	21	---	---
LAD0	LAD0	13	20	---	---
LAD1	LAD1	14	19	---	---
LAD2	LAD2	15	18	---	---
GND	GND	16	17	LAD3	LAD3

Note: Different pin assignment has been highlighted in bold font.

### 3. CONCLUSION

The W49V002A/W39V040A is well supported by all famous third parties like BIOS vendors AMI, Award/Phoenix, Insyde and Programmer vendors (please refer to our support list.) They have made efforts to cover the difference on device's command sets and programming algorithm. Therefore, there is no compatible issue for users to directly use it in their system.

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## 2/4M LPC(W49V002A/W39V040A) PRODUCT



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