Application Note-05

FUNCTIONAL COMPARISON BETWEEN WINBOND W49V002F & SST SST49LF002A

GENERAL DESCRIPTION

Even though most of functions are the same between Winbond W49V002F and SST SST49LF002A, there are still some differences between these two parts. This application note will explain the difference. Meanwhile, some recommendations to system designers for these differences will also be stated.

DETAIL DESCRIPTION

The difference between Winbond W49V002F and SST SST49LF002A is as following:

Pin Assignment Differences

Programming Mode:

Table 1. 32L-PLCC Pin Assignment

PART NO.	*Winbond* W49V002FP	*SST* SST49LF002A		PART NO.	*Winbond* W49V002FP	*SST* SST49LF002A
Pin1	NC	NC		Pin17	DQ3	DQ3
Pin2	RESET#	RESET#		Pin18	DQ4	DQ4
Pin3	A9	A9		Pin19	DQ5	DQ5
Pin4	A8	A8		Pin20	DQ6	DQ6
Pin5	A7	A7		Pin21	DQ7	DQ7
Pin6	A6	A6		Pin22	NC	NC
Pin7	A5	A5		Pin23	WE#	WE#
Pin8	A4	A4		Pin24	OE#	OE#
Pin9	A3	A3		Pin25	V_{DD}	V_{DD}
Pin10	A2	A2		**Pin26**[Note1]	**GND**	**NC**
Pin11	A1	A1		Pin27	NC	NC
Pin12	A0	A0		Pin28	GND	GND
Pin13	DQ0	DQ0		Pin29	IC	IC
Pin14	DQ1	DQ1		Pin30	A10	A10
Pin15	DQ2	DQ2		Pin31	R/C#	R/C#
Pin16	GND	GND		Pin32	V_{DD}	V_{DD}

Notes:

1. In Intel 82802AB/AC, the Pin26 is a GND pin.
2. Different pin assignment has been highlighted in bold font.

FUNCTIONAL COMPARISON BETWEEN WINBOND W49V002F & SST SST49LF002A

Table 2. 32L-STSOP Pin Assignment

PART NO.	*Winbond* W49V002FQ	*SST* SST49LF002A		PART NO.	*Winbond* W49V002FQ	*SST* SST49LF002A
Pin1	NC	NC		Pin17	A3	A3
Pin2	NC	NC		Pin18	A2	A2
Pin3	NC	NC		Pin19	A1	A1
Pin4	GND	GND		Pin20	A0	A0
Pin5	IC	IC		Pin21	DQ0	DQ0
Pin6	A10	A10		Pin22	DQ1	DQ1
Pin7	R/C#	R/C#		Pin23	DQ2	DQ2
Pin8	VDD	VDD		Pin24	GND	GND
Pin9	NC	NC		Pin25	DQ3	DQ3
Pin10	RESET#	RESET#		Pin26	DQ4	DQ4
Pin11	A9	A9		Pin27	DQ5	DQ5
Pin12	A8	A8		Pin28	DQ6	DQ6
Pin13	A7	A7		Pin29	DQ7	DQ7
Pin14	A6	A6		Pin30	NC	VDD
Pin15	A5	A5		Pin31	WE#	WE#
Pin16	A4	A4		Pin32	OE#	OE#

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

Firmware Hub Mode

Table 3. 32L-PLCC Pin Assignment

PART NO.	*Winbond* W49V002FP	*SST* SST49LF002A		PART NO.	*Winbond* W49V002FP	*SST* SST49LF002A
Pin1	NC	NC		Pin17	FWH3	FWH3
Pin2	RESET#	RESET#		Pin18	RSV	RSV
Pin3	FGPI3	FGPI3		Pin19	RSV	RSV
Pin4	FGPI2	FGPI2		Pin20	RSV	RSV
Pin5	FGPI1	FGPI1		Pin21	RSV	RSV
Pin6	FGPI0	FGPI0		Pin22	NC	NC
Pin7	RSV	WP#		Pin23	FWH4	FWH4
Pin8	RSV	TBL#		Pin24	INIT#	INIT#
Pin9	ID3	ID3		Pin25	VDD	VDD
Pin10	ID2	ID2		Pin26[Note1]	GND	NC
Pin11	ID1	ID1		Pin27	NC	NC
Pin12	ID0	ID0		Pin28	GND	GND
Pin13	FWH0	FWH0		Pin29	IC	IC
Pin14	FWH1	FWH1		Pin30	FGPI4	FGPI4
Pin15	FWH2	FWH2		Pin31	CLK	CLK
Pin16	GND	GND		Pin32	VDD	VDD

Notes:
1. In Intel 82802AB/AC, the Pin26 is a GND pin.
2. Different pin assignment has been highlighted in bold font.

FUNCTIONAL COMPARISON BETWEEN WINBOND W49V002F & SST SST49LF002A

Table 4. 32L-STSOP Pin Assignment

PART NO.	*Winbond* W49V002FQ	*SST* SST49LF002A		PART NO.	*Winbond* W49V002FQ	*SST* SST49LF002A
Pin1	NC	NC		Pin17	ID3	ID3
Pin2	NC	NC		Pin18	ID2	ID2
Pin3	NC	NC		Pin19	ID1	ID1
Pin4	GND	GND		Pin20	ID0	ID0
Pin5	IC	IC		Pin21	FWH0	FWH0(LAD0)
Pin6	FGPI4	FGPI4		Pin22	FWH1	FWH1(LAD1)
Pin7	CLK	CLK		Pin23	FWH2	FWH2(LAD2)
Pin8	VDD	VDD		Pin24	GND	GND
Pin9	NC	NC		Pin25	FWH3	FWH3(LAD3)
Pin10	RESET#	RESET#		Pin26	RSV	RSV
Pin11	FGPI3	FGPI3		Pin27	RSV	RSV
Pin12	FGPI2	FGPI2		Pin28	RSV	RSV
Pin13	FGPI1	FGPI1		Pin29	RSV	RSV
Pin14	FGPI0	FGPI0		Pin30	NC	VDD
Pin15	RSV	WP#		Pin31	FWH4	FWH4
Pin16	RSV	TBL#		Pin32	INIT#	INIT#

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

1. Function/Feature differences:

There are two major function differences between Winbond and SST parts. One is "Block R/W Lock Control by Registers" and the other is "WP# and TBL# Hardware Protect" features. The main goal of these two features is to provide a better data protection from any illegal write such as virus attack. The detail information will be stated in the following description.

2. The impact from the differences:

a. For Power/GND pins difference, Winbond recommend system designers wire maximum Power/GND pins for maximum flexibility; e.g. you can wire Pin16, 26 and 28 as GND pins for 32L-PLCC, even though Pin26 is a NC Pin in SST 32L_PLCC. For 32L_TSOP, system designer can connect the pin 8 and 30 as VDD pins for 32L_TSOP.
Although the system can still work properly under normal situation, we still recommend system designer to wire maximum Power/GND pins for optimal system stability.

b. The SST Pin7(WP#) is used as a hardware Main Block data write protection. However, customer might be aware that the enable of WP# will inhibit the PnP feature from storing data into Flash.

c. The SST Pin8(TBL#) is used as a hardware Boot Block data write protection. For this feature, Winbond offers an additional Boot Block Lockout command to lock the Top Boot Block.

d. For SST “Block R/W Lock Control by Register,” Winbond does not support this feature.

CONCLUSION

Except for the TBL# and WP#, Winbond can offer a functional compatible to the competitors. As for these two pins, if customers don't need this feature, there is no issue to drop-in replacement. For customers who use SST SST49LF002A, they can still use Winbond W49V002F as an alternative without any hardware change.