HHW Corp. Flash Media Products

Issue Date: December 22, 2024
Revision: 1.1

Revision History

Rev. No.	History	Issue Date	Remarks
1.1	Initial Release	Dec 22, 2024	Preliminary

Datasheet
Secure Digital Card

PRODUCT DESCRIPTION

SD Memory card (Secure Digital Memory Card) is a memory card that is specifically designed to meet the security, capacity, performance and environment requirements. The SD Memory Card will include a copyright protection mechanism that complies with the security of the SDMI standard and will be faster and capable for higher memory capacity. The SD Memory Card communication is based on an advanced 9-pin interface (Clock, Command, 4x Data and 3x Power lines) designed to operate in at maximum operating frequency of 50 MHz and low voltage range.

HHW's SD memory card is designed with industry leading edge micro controllers and 3D TLC flash to achieve high level performance, reliability and endurance. SD memory card is optimized for OEM applications where device life is the top priority.

FEATURES
- Compliance:
    - SD specification version3.0
- Operating voltage range
    - 2.7-3.6 V

- Power   Consumption Note

    - Standby Current   <250uA
    - Read Current   <400mA
    - Write Current   <400mA
- Performance:
    - Read Speed(Min): 60MB/s
    - Write Speed(Min): 30MB/s

- Available Storage Capacities:
    - 256GB

- Operating Temperature : 0 ^{o}C to 70 ^{o}C ；

- Storage Temperature   : 0 ^{o}C to 70 ^{o}C ；

- Flash Type :TLC NAND Flash

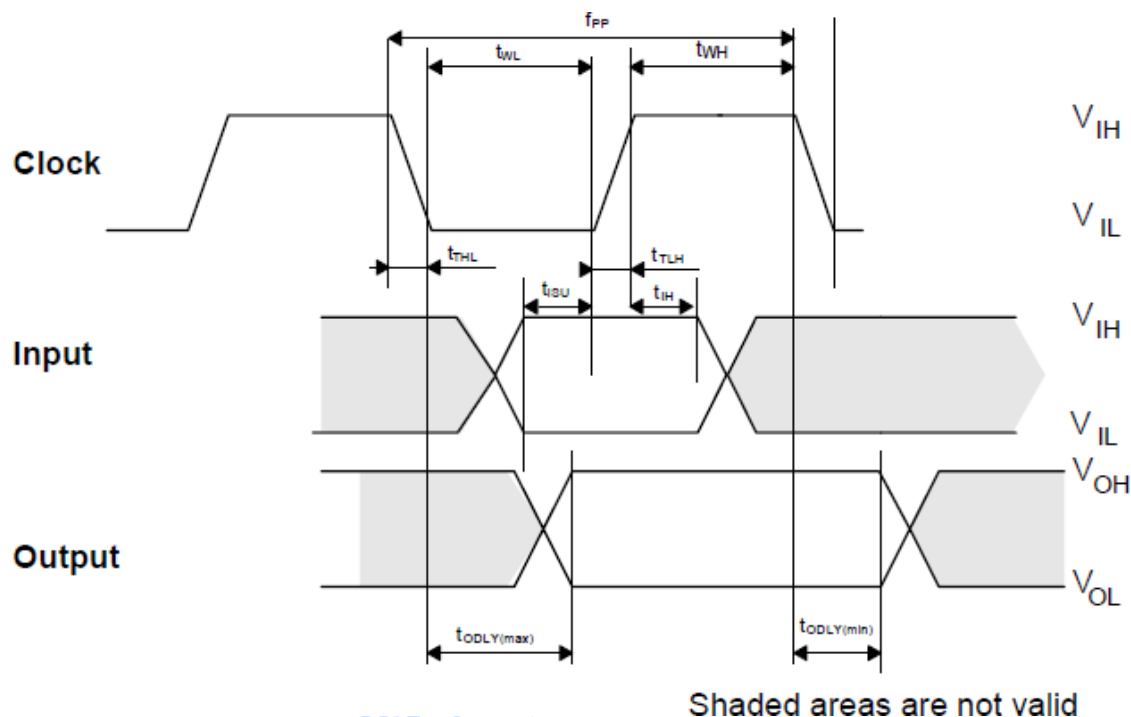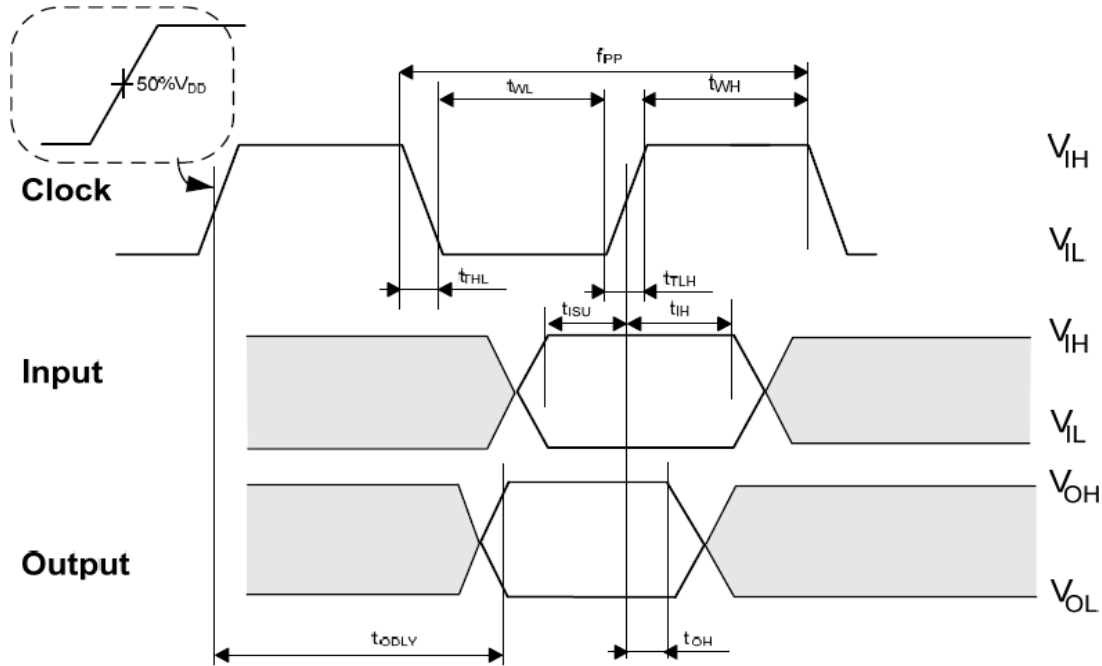## 1.1 AC Characteristics

Figure 3-4a: Timing diagram (default mode)

Shaded areas are not valid

Table 3-4a: AC Characteristics (Default mode)

Parameter	Symbol	Min	Max	Unit	Remark
Clock CLK (All values are referred to min (VIH) and max (VIL))					
Clock frequency data transfer mode	fPP	0	25	MHz	Ccard <= 10pf (1 card)
Clock frequency identification mode	fOD	$0_1/100$	400	kHz	Ccard <= 10pf (1 card)
Clock low time	tWL	10		ns	Ccard <= 10pf (1 card)
Clock high time	tWH	10		ns	Ccard <= 10pf (1 card)
Clock rise time	tTLH		10	ns	Ccard <= 10pf (1 card)
Clock fall time	tTHL		10	ns	Ccard <= 10pf (1 card)
Inputs CMD,DAT (referenced to CLK)					
Input set-up time	tISU	5		ns	Ccard <= 10pf (1 card)
Input hold time	tIH	5		ns	Ccard <= 10pf (1 card)
Outputs CMD,DAT (referenced to CLK)					
Output delay time during data transfer mode	tODLY	0	14	ns	C_L <= 40pf (1 card)
Output delay time during identification mode	tODLY	0	50	ns	C_L <= 40pf (1 card)

Note: 1) 0Hz means to stop the clock. The given minimum frequency range is for cases where continuous clock is required

Figure 3-4b: Timing diagram (high-speed mode)

Shaded areas are not valid

Table 3-4b: AC Characteristics (high-speed mode)

Parameter	Symbol	Min	Max	Unit	Remark
Clock CLK (All values are referred to min (VIH) and max (VIL))					
Clock frequency data transfer mode	fPP	0	50	MHz	Ccard <= 10pf (1 card)
Clock low time	tWL	7		ns	Ccard <= 10pf (1 card)
Clock high time	tWH	7		ns	Ccard <= 10pf (1 card)
Clock rise time	tTLH		3	ns	Ccard <= 10pf (1 card)
Clock fall time	tTHL		3	ns	Ccard <= 10pf (1 card)
Inputs CMD,DAT (referenced to CLK)					
Input set-up time	tISU	6		ns	Ccard <= 10pf (1 card)
Input hold time	tIH	2		ns	Ccard <= 10pf (1 card)
Outputs CMD,DAT (referenced to CLK)					
Output delay time during data transfer mode	tODLY		14	ns	C_L <= 40pf (1 card)
Output hold time	tOH	2.5	50	ns	C_L >= 15pf (1 card)
Total system capacitance for each line[1]	C_L		40	pf	1 card

Note: 1) In order to satisfy severe timing, host shall drive only one card

2 PHYSICAL DIMENSIONS

Table 4-1: Physical Dimensions

Length	32.0mm (+/- 0.1mm)
Width	24.0mm (+/- 0.1mm)
Thickness	2.1mm (+/- 0.15mm)

2.1 Package Dimensions
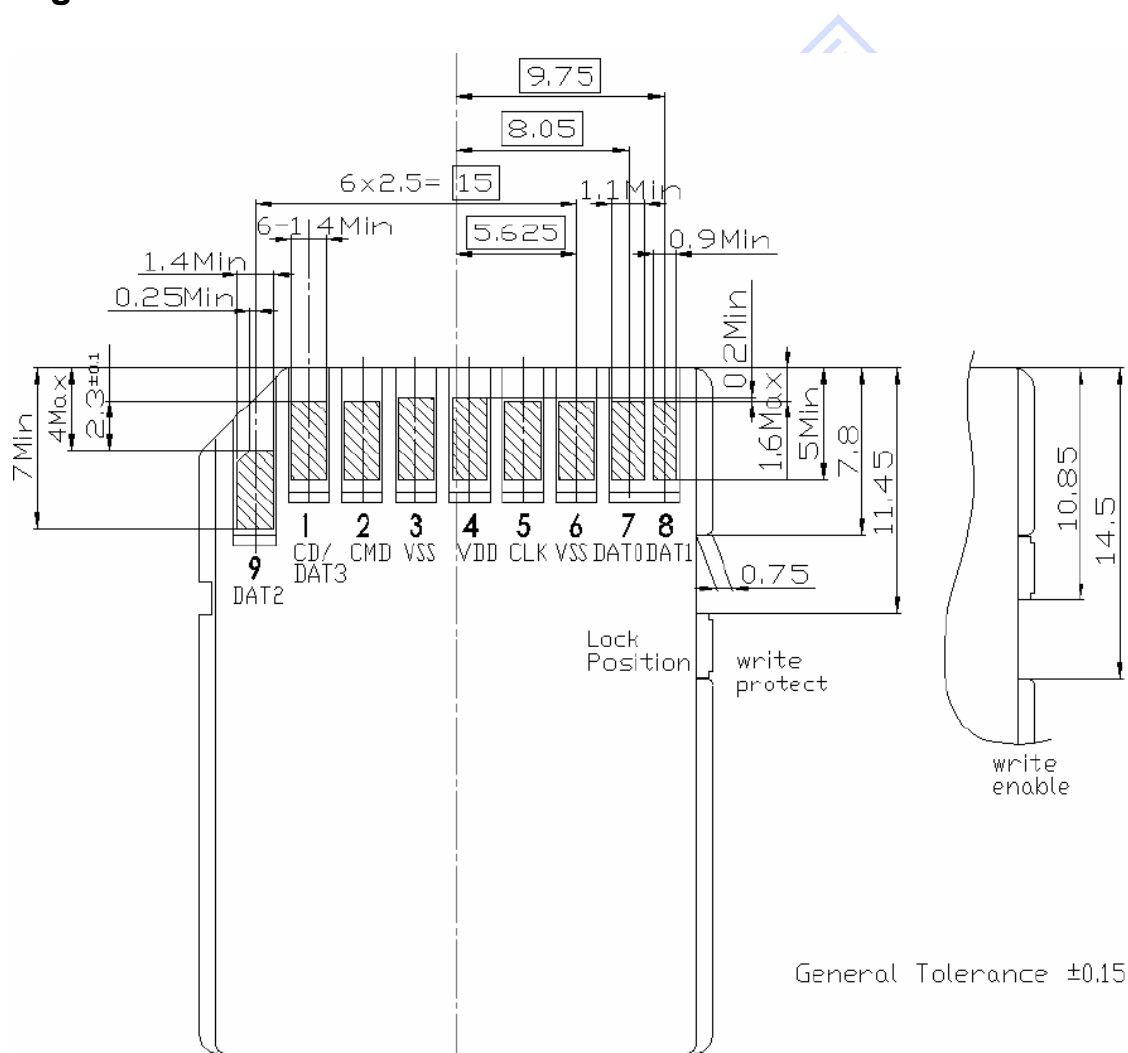

Figure 4-1a: SD card dimension

Figure 4-1b: SD card dimension

3 Part Number and Ordering Information

1. *Part Number List*

	SD Card(TLC)	
Capacity	Normal-Temperature	Wide-temperature
256GB	**HHW256GSDT-D1**	