HXSD32G

SD NAND

Datasheet

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1. Introduction

HX SD NAND is an embedded storage solution designed in a LGA8 package form. The operation of SD NAND is similar to an SD card which is an industry standard.

SD NAND consists of NAND flash and a high performance controller. 3.3V supply voltage is required for the NAND area (VCC). SD NAND is fully compliant with SD2.0 interface, which allows most of general CPU to utilize. SD NAND has high performance at a competitive cost, high quality and low power consumption.

2. Product List

Capacity	Part number	Package	Size
32Gb	HXSD32GALGEGA	LGA8 (Land Grid Array)	8x7mm

3. Features

- Support up to 50Mhz clock frequency
- Support 1/4 bit mode
- Built-in HW ECC Engine and highly reliable NAND management mechanism
- Write speed up to class 8
- Smaller package LGA8 (Land Grid Array)

4. Physical Characteristic Temperature

- Operation Conditions

  Temperature Range: Ta = -30 to +85 degrees centigrade

- Storage Conditions

  Temperature Range: Tstg = -40 to +85 degrees centigrade

5. Pin Assignments

Pin No.	Pin name (SD mode)	Pin name (SPI mode)
1	SD2, I/O pin	NC, no connection
2	SD3, I/O pin	/CS, chip select
3	CLK, clock signal	CLK, clock signal
4	Vss, ground	Vss, groud
5	CMD, command signal	DI, data in
6	SD0, I/O pin	DO, data out
7	SD1, I/O pin	NC, no connection
8	Vdd, power supply	Vdd, power supply

6. Usage

6.1. Product Protocol

As SD NAND is the realize SD2.0 standard product, thus please refer to the SD2.0 related protocol : SD Physical Layer Specification Version 2.00.

6.2. DC Characteristics

Item		Symbol	MIN	MAX	Unit	Note
Supply voltage		VDD	2.7	3.6	V	
Input voltage	High Level	VIH	VDD*0.625	VDD+0.3	V	
	Low Level	VIL	VSS-0.3	VDD*0.25	V	
Output voltage	High Level	VOH	VDD*0.75	--	V	IOH=-2mA, VDD=VDDmin
	Low Level	VCL	--	VDD*0.125	V	IOL=2ma, VDD=VDDmin
Standby Current(*)		Icc1	--	20*	mA	VDD=3.6V, clock 25MHz
			--	0.2		VDD=3.0V, clock STOP, Ta=25° C
Operation Current(*)	Write	I	--	30	mA	3.6V/25MHz,50MHz
	Read	I	--	30		
Input voltage setup Time		Vrs	--	250	ms	

Note: Standby current max 20mA with CLOCK 25Mhz only based on 100 pcs samples

Peak Voltage and Leak Current

Item	Symbol	MIN	MAX	Unit	Note
Peak voltage on all lines		-0.3	VDD+0.3	V	
Input Leakage Current for all pins		-10	10	uA	
Output Leakage Current for all outputs		-10	10	uA	

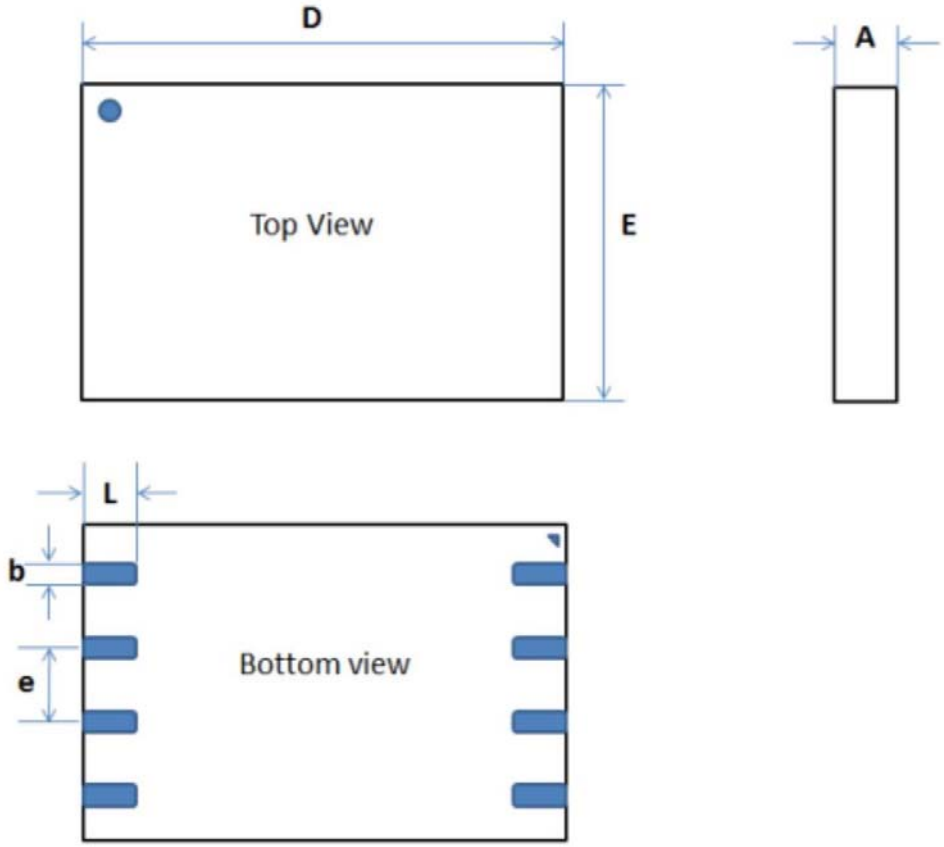
Signal Capacitance

Item	Symbol	MIN	MAX	Unit	Note
Pull up Resistance	RCMD/RDAT	10	100	k	
Total bus capacitance for each signal line	CL	-	40	pF	1 card CHOST+CBUS≤30pF
Card Capacitance for signal pin	CCARD	-	10	pF	
Pull up Resistance inside card (pin1)	RDAT3	10	90	k	
Capacity Connected to Power line	CC	-	5	pF	

Note: WP pull-up (Rwp) Value is depend on the Host Interface drive circuit.

7. Package Dimensions

LGA8 (8*7mm) (Land Grid Array)

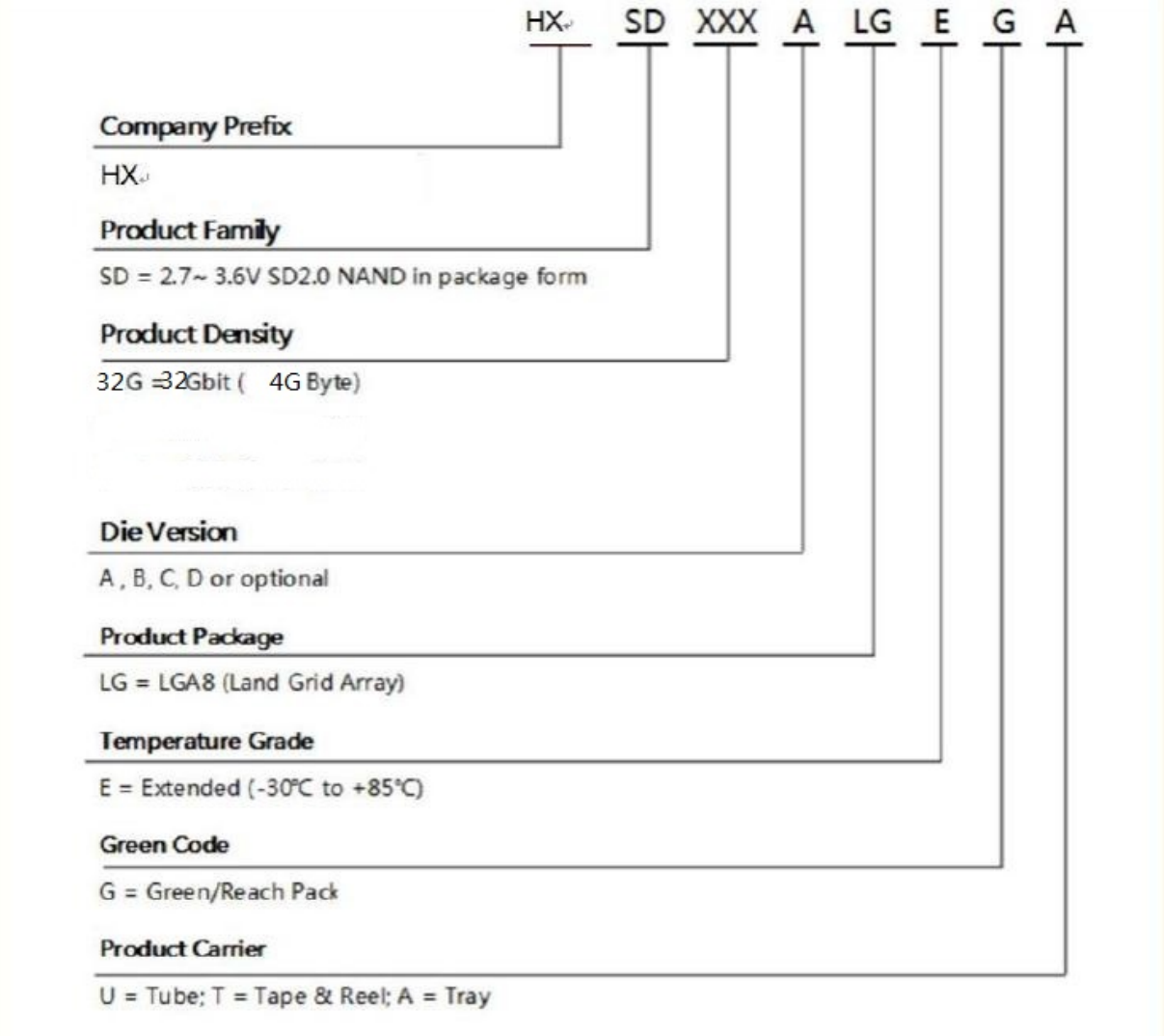


Dimensions

Symbol / Unit		A			b	D		E		e		L
Mm	Min	0.83			0.55	7.95		6.95				0.75
	Norm	0.84			0.6	8		7		1.27		0.8
	Max	0.85			0.65	8.05		7.05				0.85

8. Ordering Information

The p ordering art number is formed by a valid combination of the following



9. Recommended Schematic

Note:

1. CLK should be reserved a position for a 0 ohm resistor.
2. Capacitor C1 should be connected with VCC as closely as possible.
3. We recommend that DAT0,DAT1,DAT2,DAT3,CLK,CMD should be surrounded by GND If not, Please make sure the distance between lines is 2 times wider than the line width.
4. The pads in the middle are fixed, please connect GND.
5. Design Reference:
   We recommend that customers to add a 0.1uF Capacitor C2 to be connected with VCC as closely as possible