SD UHS-II V90

SD V90 Catalyst Series

Specifications

Capacity
- 64GB/128GB/256GB

Flash Type
- 3D TLC

Bus Speed Mode
- UHS-II (HD312/FD156)
- Backward compatibility with UHS-I cards

Power Consumption Note
- UHS-I Mode
- Power Up Current < 250uA
- Standby Current < 1000uA
- Read Current < 400mA
- Write Current < 400mA
- UHS-II Mode
- Power Up Current
- Standby Current
  - ✓ Hibernate Mode
  - ✓ w/o Hibernate Mode
- Read Current
- Write Current

CPRM Optional (Content Protection for Recordable Media)

Advanced Flash Management
- Static and Dynamic Wear Leveling
- Bad Block Management

Write Protect with mechanical switch
- Supply Voltage
  - ✓ VDD1: 2.7V ~ 3.6V
  - ✓ VDD2: 1.7V ~ 1.95V

Temperature Range
- Operating temperature: -25℃ ~ 85℃
- Storage temperature: -40℃ ~ 85℃

RoHS compliant
- FCC / CE / RoHS

EMI compliant

Warranty
- Limited-lifetime warranty [3]

Table of Contents

Product datasheet

1. Order information

PART NUMBER	CAPACITY*	FLASH TYPE	FORM FACTOR
EX64GSDU2	64GB *	3D TLC	SD UHS-II V90
EX128GSDU2	128GB *	3D TLC	SD UHS-II V90
EX256GSDU2	256GB *	3D TLC	SD UHS-II V90

2. Performance

	SD UHS-II V90 (Catalyst)		
Capacity	**64GB**	**128GB**	**256GB**
Burst Read (MB/s)	300	300	300
Burst Write (MB/s)	280	280	280
Form factor	SD UHS-II V90		

3. Power Consumption

3-1 Power Consumption of SD card (UHS-I Mode)

Bus Speed Mode		Max. Power Up Current (uA)	Max. Standby Current (uA)	Max. Read Current (mA)	Max. Write Current (mA)
Default Speed Mode		250	1000	150 @ 3.6V	150 @ 3.6V
High Speed Mode		250	1000	200 @ 3.6V	200 @ 3.6V
UHS-I Mode	UHS50 / DDR50	250	1000	400 @ 3.6V	400 @ 3.6V
	UHS104 / DDR50	250	1000	400 @ 3.6V	400 @ 3.6V

*Power consumptions are measured at room temperature.

*For SDXC, up to 100mA from VDD1 when XPC=0; up to 150mA from VDD1 when XPC=1.

3-2 Power Consumption of SD card (UHS-I Mode)

Bus Speed Mode		Max. Power Up Current (uA)		Max. Standby Current (uA)				Max. Read Current (mA)		Max. Write Current (mA)	
				w/o Hibernate Mode		Hibernate Mode					
		VDD1	VDD2	VDD1	VDD2	VDD1	VDD2	VDD1	VDD2	VDD1	VDD2
UHS-II	FD156	500	200	1380	120	80	120	200	50	200	50
Mode	HD312	500	200	1380	120	80	120	200	50	250	50

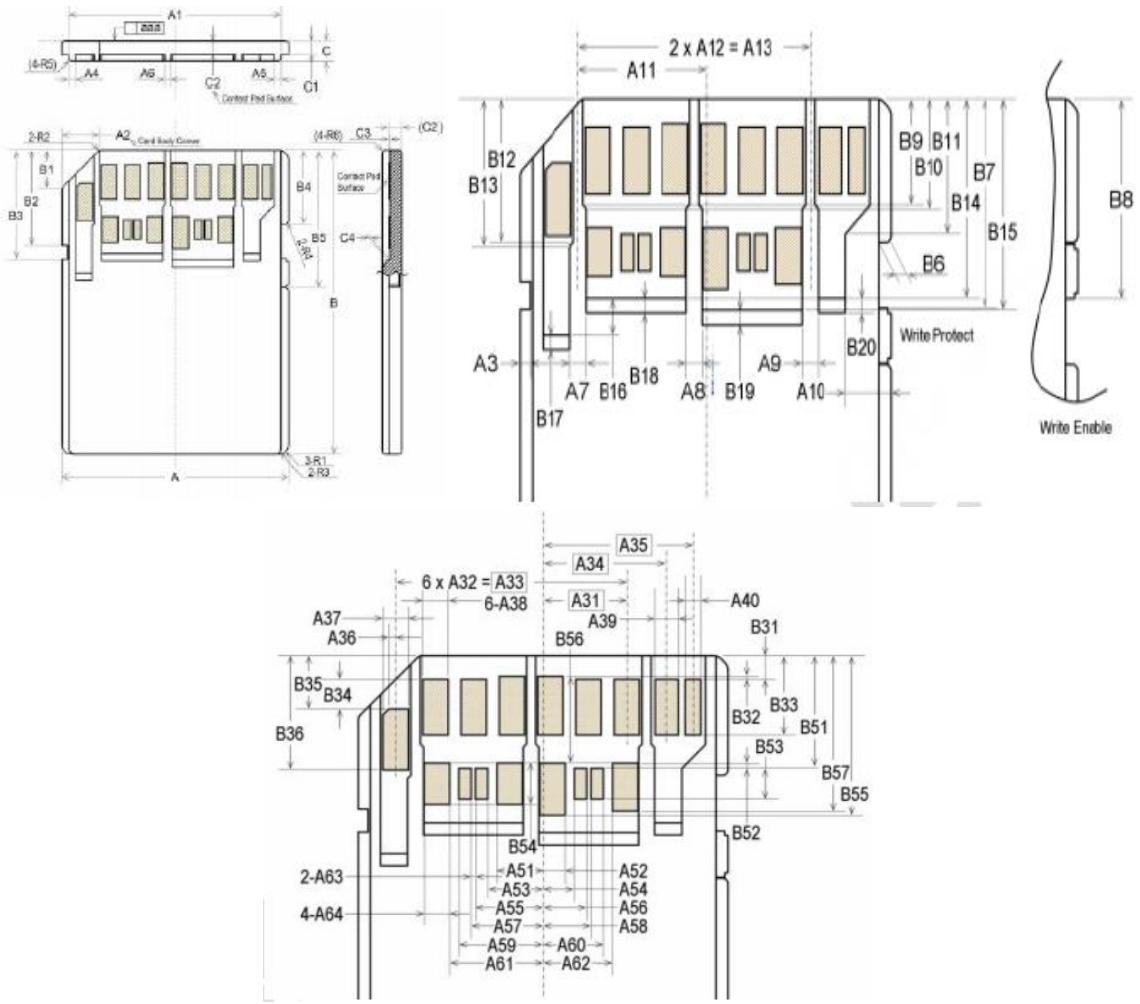
3-3 SD card Peak Power Consumption (UHS-II Mode)

Bus Speed Mode		Max. Power Up Current (uA)		Max. Standby Current (uA)				Max. Read Current (mA)		Max. Write Current (mA)	
				w/o Hibernate Mode		Hibernate Mode					
		VDD1	VDD2	VDD1	VDD2	VDD1	VDD2	VDD1	VDD2	VDD1	VDD2
UHS-II	FD156	1000	650	1380	120	80	120	350	50	400	50
Mode	HD312	1000	650	1380	120	80	120	350	50	450	50

*Power consumptions are measured at room temperature.

4. Physical Dimension Diagram

32mm(L)x24mm(W)x2.1mm(H)



	COMMON DIMENSIONS			
SYMBOL	MIN	NOM	MAX	NOTE
A	23.9	24.0	24.1	
A1	22.4	22.5	22.5	
A2	3.85	4.00	4.15	
A3	0.60	0.75	0.90	
A4	0.55	0.70	0.85	
A5	0.55	0.70	0.85	
A6	0.45	0.60	0.75	
A7	0.90	1.05	1.20	
A8	0.90	1.05	1.20	
A9	0.90	1.05	1.20	
A10	2.85	3.00	3.15	
A11	7.975	8.125	8.275	
A12	-	7.50	-	
A13	14.85	15.00	15.15	
A31	-	5.625	-	BASIC
A32	-	2.5	-	
A33	-	15.00	-	BASIC
A34	-	8.05	-	BASIC
A35	-	9.75	-	BASIC
A36	0.25	-	-	
A37	1.40	-	-	
A38	1.40	-	-	
A39	1.10	-	-	
A40	0.90	-	-	
A51	2.675	2.825	2.975	
A52	1.425	1.575	1.725	
A53	3.325	3.475	3.625	
A54	2.075	2.225	2.375	
A55	4.125	4.275	4.425	
A56	2.875	3.025	3.175	
A57	4.325	4.475	4.625	
A58	3.075	3.225	3.375	
A59	5.125	5.275	5.425	
A60	3.875	4.025	4.175	
A61	5.775	5.925	6.075	
A62	4.525	4.675	4.825	
A63	0.20	-	-	*8
A64	1.65	-	1.85	

1. Dimensions are in millimeters.
2. VDD2 pad must not be connected with the contact pins for xD of a combo connector.
3. Whichever of VDD1 and VDD2 may be connected first.
4. However, the legacy signal pins should be connected after VDD1.
5. The UHS-II signal pins should be connected after VDD2.
6. When a card is pushed in front of the lock position, the signal and GND contact pins are allowed to disconnect once.
7. Also refer to detailed description of Standard Size SD Card Mechanical Specification Version 3.00 for the legacy shape portion.
8. This is a double dimension. It shall satisfy this rule, after satisfying other rules.

5. Compliance

Exascend SD V90 memory card complies with the following specifications:

- FCC
- CE
- RoHS

Legal information

Limited Warranty Policy

Exascend Corporation ("Exascend") warrants that Exascend's product, in its original sealed packaging, will be free from defects in materials and workmanship. Subject to the conditions and limitations set forth below, Exascend will either repair or replace any part of its products that prove defective by reason of improper workmanship or materials. This warranty is non-transferable and valid only for the original purchaser of the Exascend products, except where prohibited by law. An original or copy sales receipt or invoice is required to establish purchase date and original purchaser.

1. This warranty supersedes all other warranties and representations, whether oral or written, between you and Exascend. Exascend makes no other warranties, including any warranty of merchantability or fitness for a particular purpose, whether expressly or implied.

2. All warranties, whether express or implied, are limited to the periods of time set forth below. Some states and jurisdictions do not allow such exclusion of implied warranties, limitations or warranty period, so above restrictions may not apply to you.

3. Exascend may acknowledge or read and save the data and information (collectively, "Information") stored in the product during after services. Exascend hereby agrees that Exascend will not disclose any Information to any third parties, except Exascend's employees, who may need to access the Information, with or without your prior written consent.

Warranty Terms

We offer limited-lifetime warranty for our SD cards.

The warranty period is the SHORTER OF:

- a period of lifetime beginning from the date of purchase; or

This Limited Warranty will not apply to, and Exascend will have no liability or obligation with respect to, problems or damage resulting from any of the following: (i) accident, modification, neglect, abuse, careless or incorrect handling, misuse or improper operation, disassembly, misapplication or use in unusual physical environments or under operating conditions not approved by Exascend (including, but not limited to, use of the Product with an improper voltage supply); (ii) normal wear and tear; (iii) removal of label(s) or sticker(s) provided on or with the Product (including all warranty or quality-control stickers, product serial or electronic numbers); (iv) problems relating to or residing in non-Exascend hardware, software or other items with which the Product is used; (v) use in an environment, in a manner or for a purpose for which the Product was not designed or not in accordance with Exascend’s published documentation; (vi) installation, modification, alteration or repair by anyone other than Exascend or its authorized representatives; (vii) problems that do not relate to materials or workmanship or that have an insignificant impairment on the use or operation of the Product; or (viii) problems related to consumables; (ix) Product purchased “AS-IS” or “with known faults, defects or problems.” Additionally, Exascend will have no liability or obligation to recover any data in the Product.

Disclaimer of liability

Exascend, Inc. reserves the right to make changes to specifications and product descriptions such as but not limited to numbers, parameters and other technical information contained herein without notice. Please contact Exascend, Inc. to obtain the latest specifications. Exascend, Inc. grants no warranty with respect to this datasheet, explicit or implied, and is not liable for direct or indirect damages. Some states do not grant the exclusion of incidental damages and as such this statement may not be valid in such states. The provisions of the datasheet do not convey to the purchaser of the device any license under any patent right or other intellectual property right of Exascend, Inc.

Customers must not use Exascend products in applications where a device failure or malfunction may cause personal injury or death, e.g., in life support systems or devices.

Exascend shall not be liable for any loss, injury or damage caused by use of the products in any of the following applications:

- Medical-related devices, life support, medical measurement devices, etc.
- Control devices for trains, ships, mass transportation systems or automotive vehicles, etc.
- Specific applications including military/defense-related equipment, aerospace, nuclear facility control systems, etc.
- Safety systems for disaster prevention/crime prevention, etc.

Copyright notice

Contact information

Exascend Taiwan Office

Address: Room 1, 6F, No.288, Sec. 6, Civic Blvd., Xinyi Dist., Taipei City 110, Taiwan (R.O.C.)

General Support: +886-2-2726-6500

Fax: +886-2-2726-6126

Email: sales@exascend.us

Revision history

Table 1: Catalyst SD V90 datasheet revision history

REVISION	DESCRIPTION	DATE
001	First released	Jul, 2021
002	Modify product list	Feb, 2022
003	Modify format & address	Jun, 2023
004	Add 256GB & modify warranty	Dec, 2023
005	Modify temperature	Feb, 2024
006	Email updated	Apr, 2024
007	Modify format	Jun, 2024
008	Update storage temperature	Aug., 2024