

Micro SD CARD



Product Model : **IDU3A**

Capacity : **4GB 、 8GB 、 16GB 、 32GB 、 64GB**

Revision History

Revision	Date	Description	Editor
0	July. 18, 2013	Formal release	Andy Lin
1	July. 22, 2013	Add dimensions	Andy Lin
2	Feb. 05, 2014	Add Key feature	Kelvin Wang
3	Jan.08.2015	Update Model name	Jerry Hong
4	April.17.2015	Add Write/Read Current	Jerry Hong
5	June.26.2015	Add SPI mode & Update Power consumption	Jerry Hong
6	September.20.2016	Modify Endurance & Thickness description	Jerry Hong
7	Nov. 4. 2019	Update new IA format Add TBW spec.	Steven Wang
8	April. 17. 2020	Update new IA format Add A+SLC(MLC).	Alex Lee

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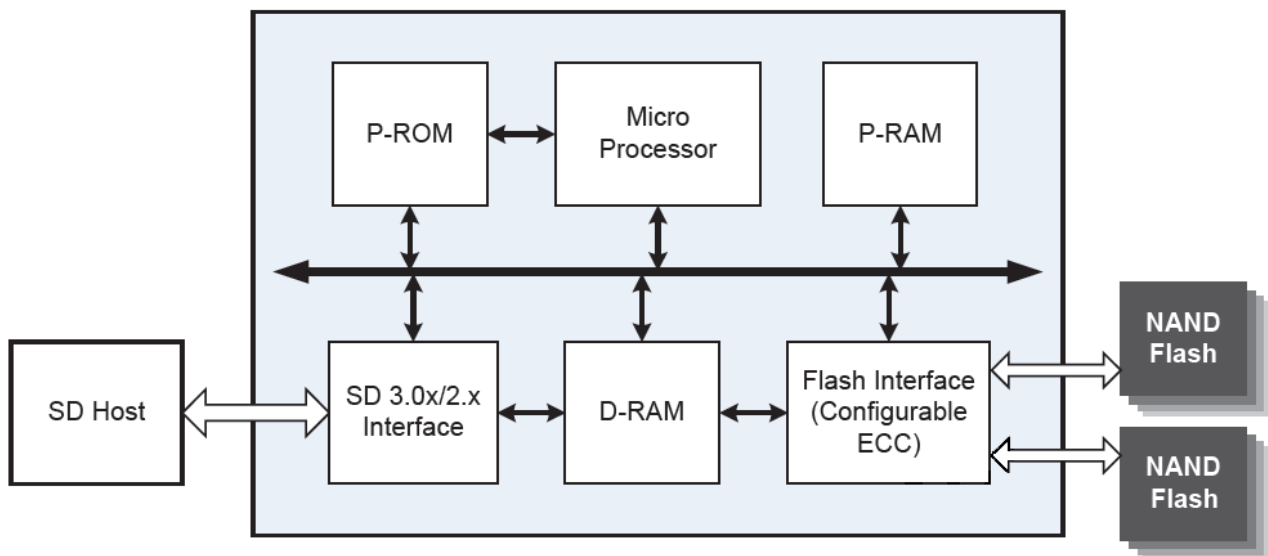
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Key Features

- **Capacity:**
 - MLC:4GB,8GB,16GB,32GB,64GB
 - A+SLC:4GB,8GB,16GB,32GB
- **NAND Flash:** MLC, A+SLC
- **Form Factor:** micro SD
- **Compatibility:**
 - Supports SD specification v2.x/v3.0
 - UHS speed class 1
 - Support CPRM code
 - Follow up SD PHYSICAL LAYER SPECIFICATION Ver.3.00
 - Follow SD Card Memory Card Mechanical Specification Ver.1.00
- **Performance**
 - Read: Up to 90 MB/s
 - Write: Up to 80 MB/s
- **Temperature:**
 - Commercial: -25°C ~ 85°C
 - Industrial: -40°C ~ 85°C
- **Humidity**
 - 0°C to 55°C / 5%~95% RH, non-condensing
- **Shock**
 - 1500G/0.5ms
- **Vibration**
 - 20G Peak, 80~2000Hz

1.0 General Description

The ADATA IDU3A Micro SD Memory Card is to save every precious, tender, and romantic moment. You may purchase high resolution digital camera, digital camcorder, or other high-end devices. However, normal Secure Digital Cards (Micro SD Cards) on the market today may not let you capture these moments because of slow read/ write speed. Slow read/write speed may cause lag time between shots, resulting in missing the opportunity to record some of your finest memories. This ADATA Micro SD Memory Card, rated a UHS-1 performance card which means the card has a guaranteed read/write speed of at least 10MB/s, will reduce working time between shots. For those high-end digital device's users, ADATA SD Memory Card will ensure you capturing every perfect moment.



2.0 Mechanical Specification

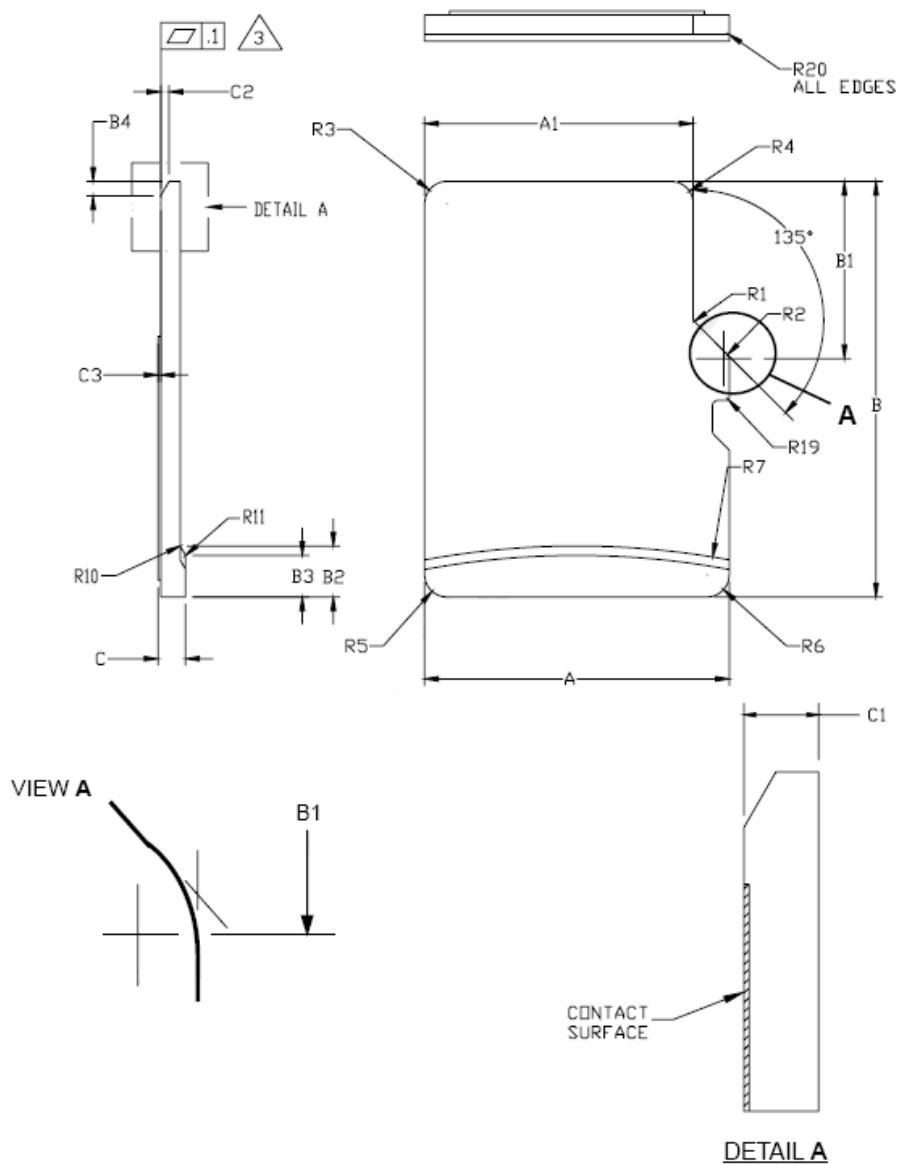
All product specifications not covered in this document (electrical performance, appearance, etc.) are in accordance with ADATA's defined norms and standards.

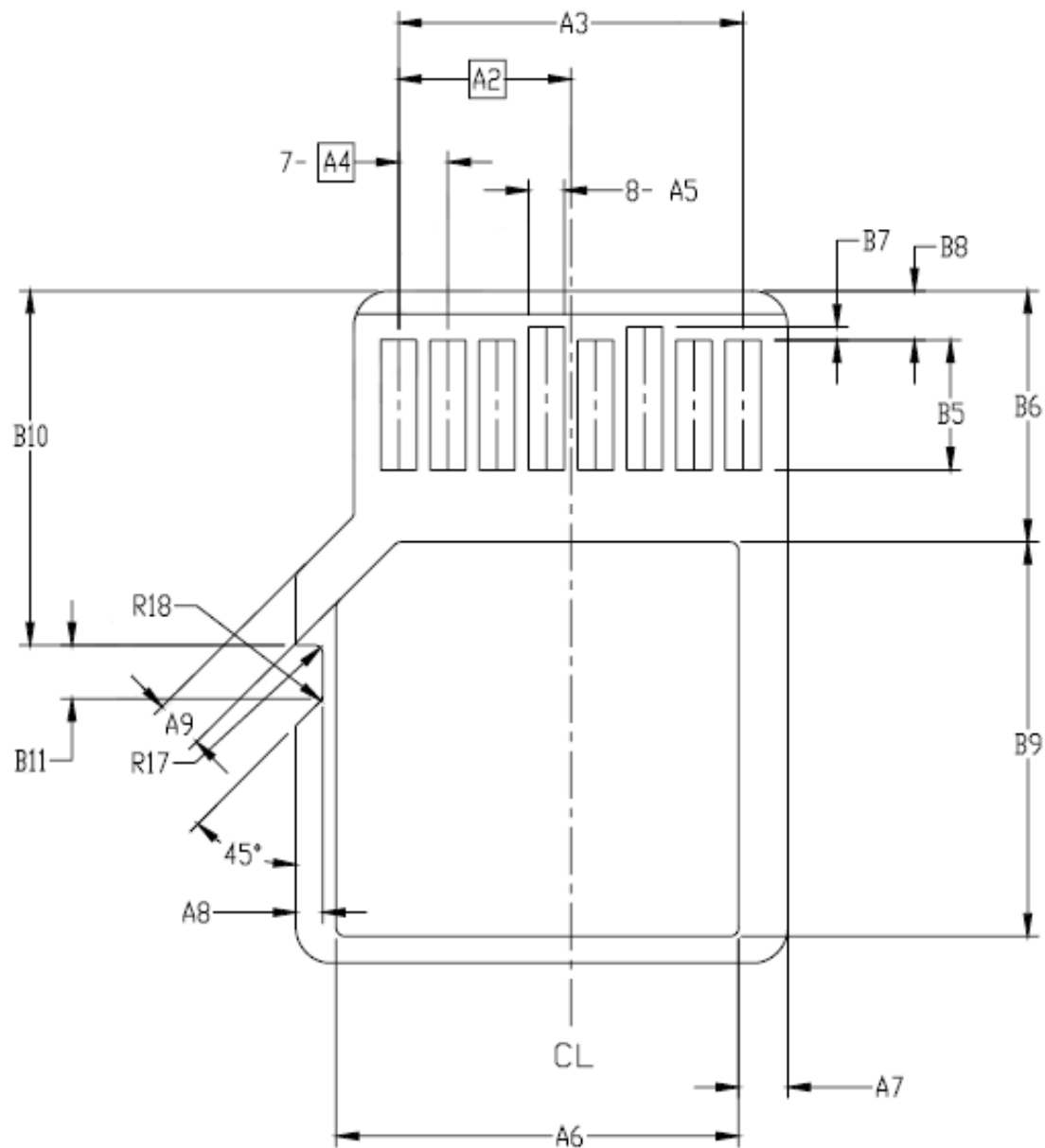
2.1 Physical dimensions and Weight

Table 2-1 Dimensions and Weight

Model	Length(mm)	Width(mm)	Height(mm)	Weight(gram)
4GB	11.00 +/- 0.10	15.00 +/- 0.10	1.0 +/- 0.10	0.25 +/- 0.2
8GB	11.00 +/- 0.10	15.00 +/- 0.10	1.0 +/- 0.10	0.25 +/- 0.2
16GB	11.00 +/- 0.10	15.00 +/- 0.10	1.0 +/- 0.10	0.25 +/- 0.2
32GB	11.00 +/- 0.10	15.00 +/- 0.10	1.0 +/- 0.10	0.25 +/- 0.2
64GB	11.00 +/- 0.10	15.00 +/- 0.10	1.0 +/- 0.10	0.25 +/- 0.2

2.2 Product Dimensions





COMMON DIMENSIONS

SYMBOL	MIN	NOM	MAX	NOTE
A	10.90	11.00	11.10	
A1	9.60	9.70	9.80	
A2		3.85		BASIC
A3	7.60	7.70	7.80	
A4		1.10		BASIC
A5	0.75	0.80	0.85	
A6			8.50	
A7	0.90			
A8	0.60	0.70	0.80	
A9	0.80			
B	14.90	15.00	15.10	
B1	6.30	6.40	6.50	
B2	1.64	1.84	2.04	

B3	1.30	1.50	1.70	
B4	0.42	0.52	0.62	
B5	2.80	2.90	3.00	
B6	5.50			
B7	0.20	0.30	0.40	
B8	1.00	1.10	1.20	
B9	-	-	9.00	
B10	7.80	7.90	8.00	
B11	1.10	1.20	1.30	
C	0.90	1.00	1.10	
C1	0.60	0.70	0.80	
C2	0.20	0.30	0.40	
C3	0.00		0.15	
D1	1.00			
D2	1.00			
D3	1.00			
R1	0.20	0.40	0.60	
R2	0.20	0.40	0.60	
R3	0.70	0.80	0.90	
R4	0.70	0.80	0.90	
R5	0.70	0.80	0.90	
R6	0.70	0.80	0.90	
R7	29.50	30.00	30.50	
R10		0.20		
R11		0.20		
R17	0.10	0.20	0.30	
R18	0.20	0.40	0.60	
R19	0.05		0.20	

3.0 Product Specification

3.1 Interface and configuration

- Supports SD specification v2.x/ v3.0
- UHS speed class 1
- Follow up SD PHYSICAL LAYER SPECIFICATION Ver.3.00
- Follow SD Card Memory Card Mechanical Specification Ver.1.00

3.2 Capacity

Table 3-1 User Addressable Sectors

Model	IDU3A				
Unformatted Capacity	4GB	8GB	16GB	32GB	64GB
Total User Addressable Sectors (LBA Mode)	7,870,464	15,759,360	31,537,152	63,084,544	123,500,544

Total useable capacity may be less (due to formatting, flash management, and other functions).
1GB=1,000,000,000 bytes; 1sector = 512bytes.

3.3 Performance

3.3.1 Read/Write & CDM Performance

Table 3-2 Read/Write Performance (CDM)

MLC	4GB	8GB	16GB	32GB	64GB	Unit
Sequential Read	35	50	70	70	70	MB/s
Sequential Write	10	10	10	20	30	MB/s

A+SLC	4GB	8GB	16GB	32GB	Unit
Sequential Read	80	90	90	90	MB/s
Sequential Write	60	80	80	80	MB/s

3.4 Electrical

3.4.1 Operating Voltage

Table 3-7 Operating Voltage

Operating Voltage	
Input Power	DC 3.3V $\pm$ 5%
Maximum Ripple	100mV p-p or less

3.4.2 Power Consumption (Typical)

Table 3-8 Power Consumption (Typical)

	4GB	8GB	16GB	32GB	64GB	Unit
Active	0.4	0.4	0.5	0.5	0.5	W
Idle	1	1	1	1	1	mW

3.5 Environmental Conditions

Table 3-9 Temperature, Humidity, Shock, Vibration

Feature	Operating (Normal)	Operating (Wide)	Non-Operating
Temperature	-25°C to 85°C	-40°C to 85°C	-50°C to 95°C
Humidity	5%~95%	5%~95%	5%~95%

Vibration	20G Peak, 80~2000Hz
Shock	1500G, duration 0.5ms, Half Sine Wave

3.6 Reliability

Table 3-10 Reliability Specification

Parameter	Value
Mean Time Between Failures (MTBF) The MTBF statistics were calculated by Part Count Method, not relevant to individual units	1,000,000 hours

3.7 Endurance

Table 3-11 Tera Byte Written

MLC	4GB	8GB	16GB	32GB	64GB	Unit
TBW	8	15	30	60	120	TB

A+SLC	4GB	8GB	16GB	32GB	Unit
TBW	80	150	300	600	TB

4.0 Pin assignment and descriptions

Pin #	SD Mode			SPI Mode		
	Name	Type ¹	Description	Name	Type ¹	Description
1	DAT2	I/O/PP	Data Line [Bit 2]	RSV	-	
2	CD/DAT3 ²	I/O/PP ³	Card Detect / Data Line [Bit 3]	CS	I ³	Chip Select (neg true)
3	CMD	I/O/PP	Command / Response	DI	I	Data In
4	VDD	S	Supply voltage	VDD	S	Supply voltage
5	CLK	I	Clock	SCLK	I	Clock
6	VSS2	S	Supply voltage ground	VSS2	S	Supply voltage ground
7	DAT0	I/O/PP	Data Line [Bit 0]	DO	O/PP	Data out
8	DAT1	I/O/PP	Data Line [Bit 1]	RSV	-	

1) S : power supply; I : input; O : output using push-pull drivers; PP : I/O using push-pull drivers;

2) The extended DAT lines (DAT1~DAT3) are input on power up. They start to operate as DAT lines after SET_BUS_WIDTH command. The Host shall keep its own DAT1~DAT3 lines in input mode, as well, while they are not used.

3) At power up this line has a 50K ohm pull up enabled in the card. This resistor serves two functions: Card Detection and Mode Selection. For Mode Selection, the host can drive the line high or let it be pulled high to select SD mode. If the host wants to select SPI mode, it should drive the line low. For Card Detection, the host detects that the line is pulled high. This pull-up should be disconnected by the user, during regular data transfer. With SET_CLR_CARD_DETECT (ACMD42) command.

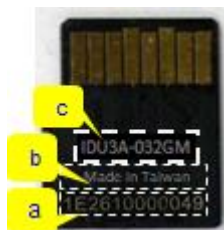
5.0 Product Line up

Table 6-1 Product Line up

Part Number	Capacity	Type	Remark
IDU3A-004GA	4GB	Micro SD	A+SLC, -25 ~ 85°C
IDU3A-004GE	4GB	Micro SD	A+SLC, -40 ~ 85°C
IDU3A-008GA	8GB	Micro SD	A+SLC, -25 ~ 85°C
IDU3A-008GE	8GB	Micro SD	A+SLC, -40 ~ 85°C
IDU3A-008GM	8GB	Micro SD	MLC, -25 ~ 85°C
IDU3A-008GT	8GB	Micro SD	MLC, -40 ~85°C
IDU3A-016GA	16GB	Micro SD	A+SLC, -25 ~ 85°C
IDU3A-016GE	16GB	Micro SD	A+SLC, -40 ~ 85°C
IDU3A-016GM	16GB	Micro SD	MLC, -25 ~ 85°C
IDU3A-016GT	16GB	Micro SD	MLC, -40 ~85°C
IDU3A-032GA	32GB	Micro SD	A+SLC, -25 ~ 85°C
IDU3A-032GE	32GB	Micro SD	A+SLC, -40 ~ 85°C
IDU3A-032GM	32GB	Micro SD	MLC, -25 ~ 85°C
IDU3A-032GT	32GB	Micro SD	MLC, -40 ~85°C
IDU3A-064GM	64GB	Micro SD	MLC, -25 ~ 85°C
IDU3A-064GT	64GB	Micro SD	MLC, -40 ~85°C

6.0 Package Specifications

Back printing



Printing content, a) work order number, b) made in Taiwan, c) model name, ex: IDU3A-004GA

Packing: 120pcs in one tray, 10 tray in the inner box and the place 1 empty tray in the top layer, full box total 1200pcs, 120pcs x 10 = 1200.