

查询MA8121A供应商



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MOAI ELECTRONICS CORPORATION

MA8121A

USB 2.0 SD/MMC Card Reader



A. Features

■ USB

- ✧ Fully compatible with USB 2.0/1.1 specification
- ✧ Support USB 2.0 specification for 480Mbit/sec and 12Mbit/sec operation
- ✧ USB Device Class Definition for Mass Storage , Bulk-Transport v1.0
- ✧ USB 2.0 Bus Power device spec. compliance
- ✧ Endpoint:
 - Endpoint 0: 64 bytes control transfer.
 - Endpoint 1: 512 bytes bulk transfer for IN transaction.
 - Endpoint 2: 512 bytes bulk transfer for OUT transaction.

■ MMC/SD card Support

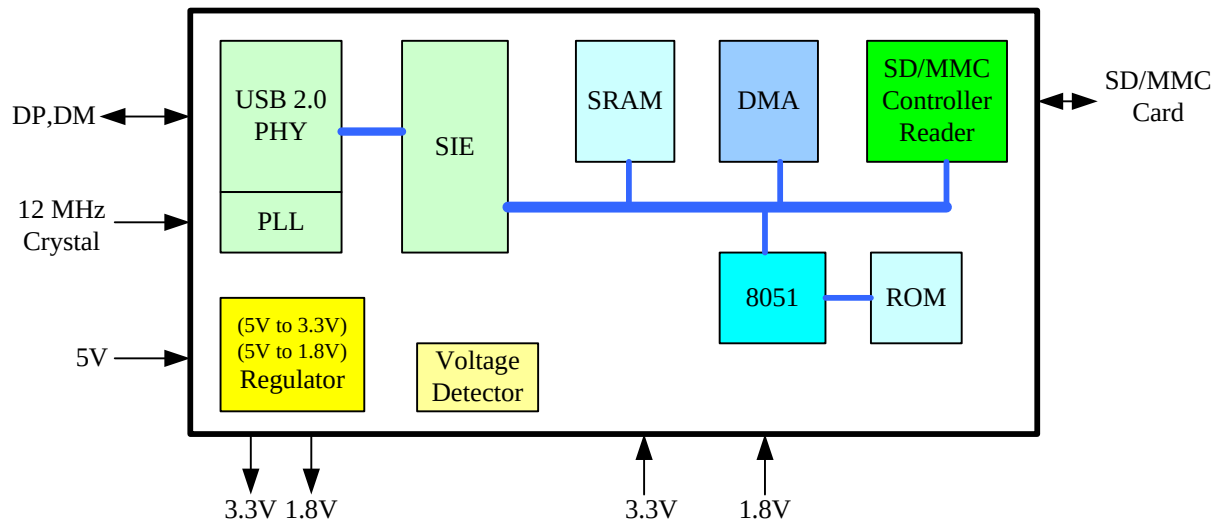
- ✧ Support MMC 4.0/4.1/4.2 (4 bit & 8bit), RS-MMC, MMC-Mobile
- ✧ Support SD 1.1/2.0 SDHC, Mimi SD, Micro SD card
- ✧ Support SD/MMC High Speed Mode

■ Work with the default driver from windows 2000/XP/ME, Mac9.2, Mac OS X, Linux RedHat, Linux Fedora

- Integrated 5V to 3.3V/1.8V Voltage Regulator
- Integrated PLL with 12MHz crystal input
- Support package with Chip On Board (COB)
- 28 pin SSOP package for 4 bit and 8 bit card
- 28 pin SSOP is backward compatible with M121
- 24 pin QFN 4x4 package for 4 bit card.

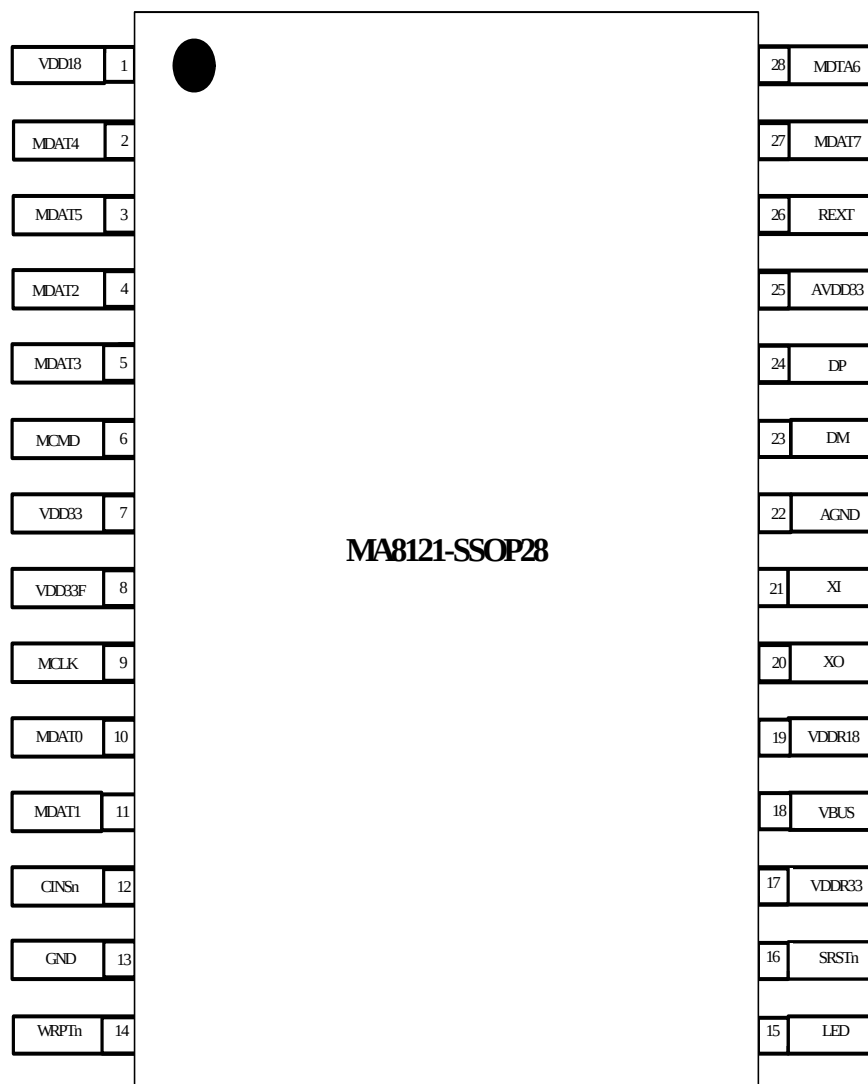


B. Block Diagram

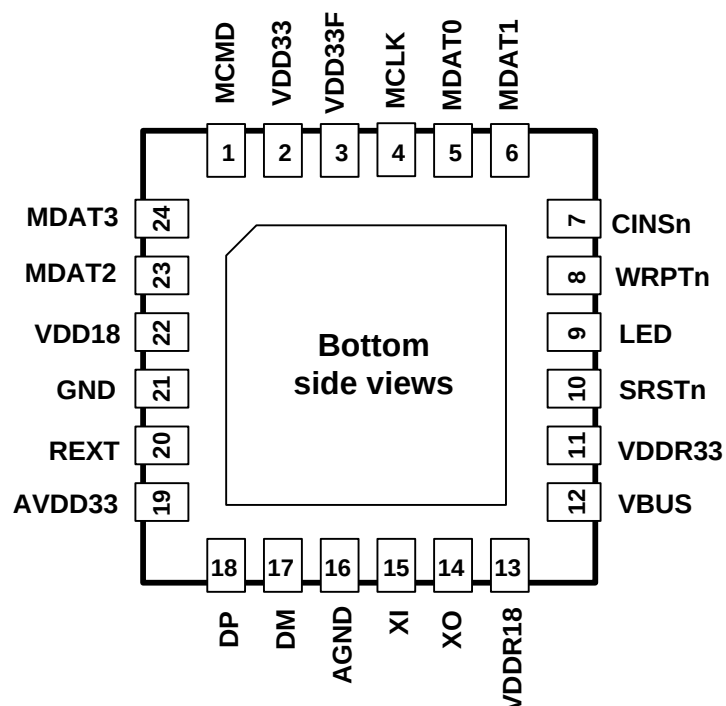
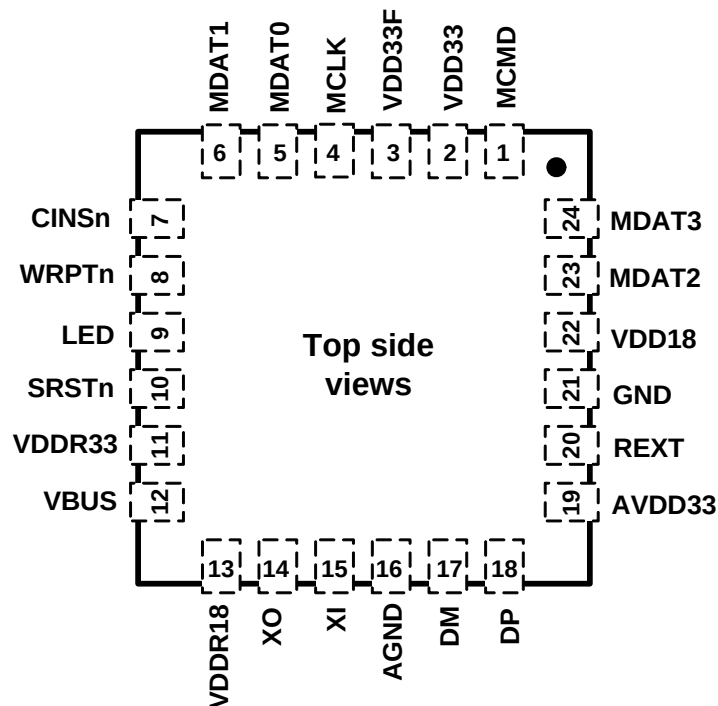


C. Pin Diagram

● SSOP-28 Pin Out



● QFN 4x4 pin out



D. Pin Description

● SSOP-28 Pin Out Description

Power Pins

Symbol	Pin No.	Type	Description
VBUS	18	P	5V Bus Power Input to Internal Regulator
VDDR18	19	P	Output 1.8V from Internal Regulator
VDDR33	17	P	Output 3.3V from Internal Regulator
AVDD33	25	P	PHY 3.3V Power Input
VDD18	1	P	Logical Power 1.8V Input
VDD33	7	P	Logical Power 3.3V Input
VDD33F	8	P	Output 3.3V Power Source for SD/MMC Card (Controlled On/Off by Internal Firmware)
GND, AGND	13, 22	P	Logical ground pin USB PHY ground pin

Analog and Others Pins

Symbol	Pin No.	Type	Description
DM	23	A	USB D- for high/full speed
DP	24	A	USB D+ for high/full speed
XI	21	A	12 MHz crystal input
XO	20	A	12 MHz crystal output
REXT	26	I	To connect an external reference resistor for current source of the USB high-speed driver. The resistor with the range 330~400Ω
SRSTn	16	I	Chip Reset.
LED	15	O	LED for operation status indicator

SD/MMC Interface

Symbol	Pin No.	Type	Description
MDAT [0:7]	[10, 11, 4, 5, 2, 3, 28, 27]	I/O	SD/MMC data pin
MCMD	6	O	SD/MMC command response
MCLK	9	O	SD/MMC clock output
WRPTn	14	I	SD/MMC card write protect High= write protect, Low=normal Internal with pull high resistor
CINSn	12	I	SD/MMC card insert detect Low= card insert Internal with pull up resistor



● QFN-24 Pin Out Description

Power Pins

Symbol	Pin No.	Type	Description
VBUS	12	P	5V Bus Power Input to Internal Regulator
VDDR18	13	P	Output 1.8V from Internal Regulator
VDDR33	11	P	Output 3.3V from Internal Regulator
AVDD33	19	P	PHY 3.3V Power Input
VDD18	22	P	Logical Power 1.8V Input
VDD33	2	P	Logical Power 3.3V Input
VDD33F	3	P	Output 3.3V Power Source for SD/MMC Card (Controlled On/Off by Internal Firmware)
GND, AGND	21, 16	P	Logical ground pin USB PHY ground pin

Analog and Others Pins

Symbol	Pin No.	Type	Description
DM	17	A	USB D- for high/full speed
DP	18	A	USB D+ for high/full speed
XI	15	A	12 MHz crystal input
XO	14	A	12 MHz crystal output
REXT	20	I	To connect an external reference resistor for current source of the USB high-speed driver. The resistor with the range 330~400 Ω
SRSTn	10	I	Chip Reset.
LED	9	O	LED for operation status indicator

SD/MMC Interface

Symbol	Pin No.	Type	Description
MDAT [0:3]	5, 6, 23, 24	I/O	SD/MMC data pin
MCMD	1	O	SD/MMC command response
MCLK	4	O	SD/MMC clock output
WRPTn	8	I	SD/MMC card write protect High= write protect, Low=normal Internal with pull high resistor
CINSn	7	I	SD/MMC card insert detect Low= card insert Internal with pull up resistor

E. Electrical Characteristics

● Regulator

Parameter	Value
VBUS (5 volts input)	Min.=4.2 volts , Max.=5.8 volts
VDDR33 (3.3 volts output)	3.3 volts $\pm$ 10 %
VDDR18 (1.8 volts output)	1.8 volts $\pm$ 10 %
Maximum current	120 mA

● Analog and Digital power

Parameter	Value
AVDD33 (analog supply voltage)	3.3 volts $\pm$ 10 %
VDD33 (Digital supply voltage)	3.3 volts $\pm$ 10 %
VDD33F (Card power supply)	3.3 volts $\pm$ 10 % ; Max. current=100mA
VDD18 (Digital supply voltage)	1.8 volts $\pm$ 10 %

● Power consumption

Parameter	Value	Note
Normal operation	Max. =120mA	With Sandisk 4G SD card
Suspend current	Max.= 450 uA	With Sandisk 4G SD card

● DP,DM characteristics

Parameter	Description
Eye diagram test	Pass the USB eye-diagram test, so the DP,DM electrical characteristics such as eye-diagram, signal rate, rise time, fall time are met the specification.

F. Package Information

- **SSOP-28**

Please contact MOAI sales for the SSOP package information

- **COB Information**

Please contact MOAI sales for the COB package information

- **QFN-24 (4x4) package Information**

Please contact MOAI sales for the QFN-24 package information

G. Revision History

Revision	Release date	Description
Rev 1.0	2007.5.1	Formal release