

OVERVIEW

The TMC's MMC/RSDMMC Flash Card has a 256/512/1024/2048 Mbit capacity, supporting the standard MMC/RSDMMC V3.2/V4.0 bus interface. It is fabricated using TMC most advanced COB and Molding technology. It has been developed for dual voltage applications (1.8 V and 3.3 V). Some of its major features are best compatibility, best performance, and less power consumption. It provided highest data transfer and excellent performance to accommodate more data intensive content in future mobile phones and digital cameras.

FEATURES

Multimedia Card Standard.

- System specification V3.2 and V4.0 Compliance
- SPI Mode support
- Support clock frequencies 0~52MHZ
- High performance DMA transfer.

Flash NAND Type

- Storage Size: 256/512/1024/2048 Mbit
(32/64/128/256 M byte)
- 100,000 erase/ write cycles
- 10 years data retention

Operating Characteristics

- Dual Operating voltage
 - 1.75V~1.95V
 - 2.7V~3.6V
- Operating current
 - Maximum sequential read current<35 mA/1.8V>
 - Maximum stand-by current:<0.45 mA>
- Operating temperature range
 - 25 to +85
- Operating clock frequencies
 - 26M HZ~52M HZ
- Electrostatic discharge (ESD)
 - 5,000 V

Packages

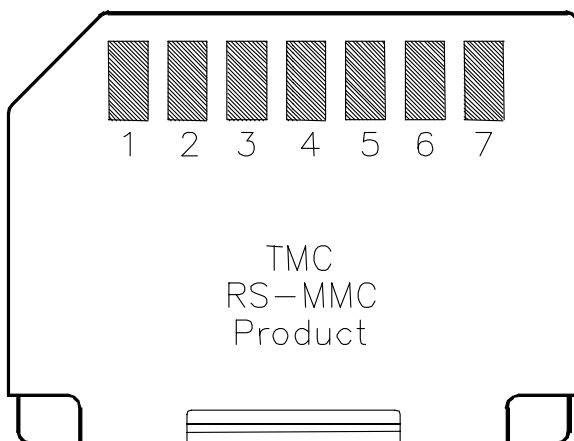
- 7 pin MMC/RSDMMC V3.2
- 13 pin MMC/RS-MMC V4.0

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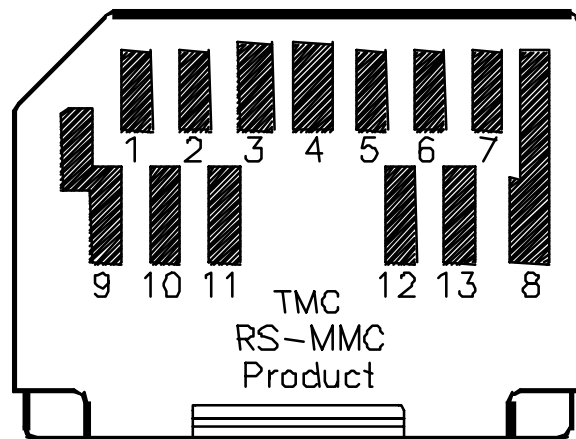
32MB/64MB/128MB/256MB
MMC/RSMMC V3.2/V4.0 Flash Card

Data Sheet

OUTLINE



RSMMC V3.2



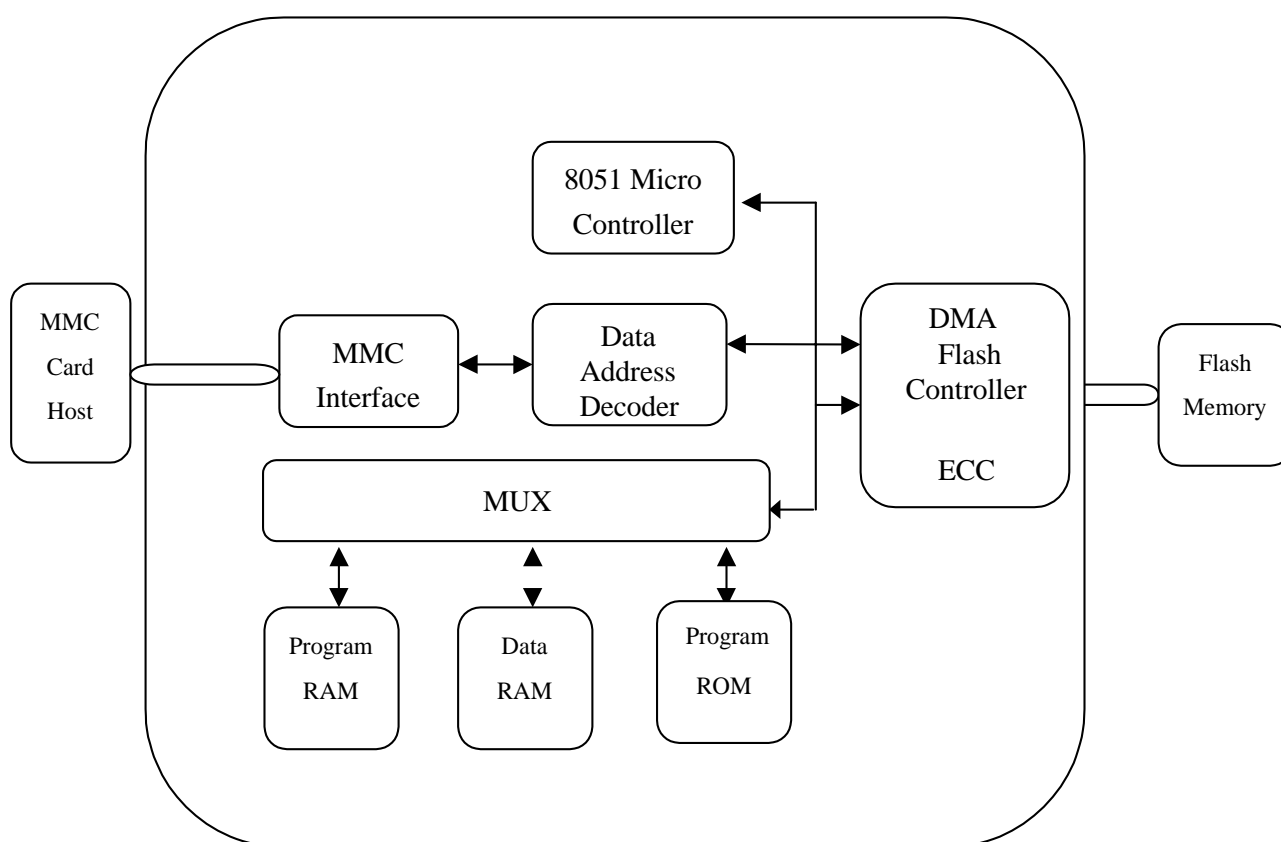
RSMMC V4.0

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32MB/64MB/128MB/256MB
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Data Sheet

BLOCK DIAGRAM



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32MB/64MB/128MB/256MB
MMC/RSMHC V3.2/V4.0 Flash Card

Data Sheet

PIN DEFINITIONS

V 3.2 Pins

Pin no.	Name	Type	Description	Remark
1	RSV	NC	Reserved for future use	
2	CMD	I/O	Command / Response	
3	Vss 1	S	Supply voltage ground	
4	VDD	S	Supply voltage	
5	CLK	I	Clock	
6	Vss 2	S	Supply voltage	
7	DAT	I/O	Date	

V4.0 Pins

Pin no.	Name	Type	Description	Remark
1	DAT3	I/O	Date bit 3	
2	CMD	I/O	Command / Response	
3	Vss 1	S	Supply voltage ground	
4	VDD	S	Supply voltage	
5	CLK	I	Clock	
6	Vss 2	S	Supply voltage	
7	DAT0	I/O	Date bit 0	
8	DAT1	I/O	Date bit 1	
9	DAT2	I/O	Date bit 2	
10	DAT4	I/O	Date bit 4	
11	DAT5	I/O	Date bit 5	
12	DAT6	I/O	Date bit 6	
13	DAT7	I/O	Date bit 7	

ELECTRIAL SPECIFICATIONS

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit	Remark
Power Supply Voltage	VDD	-0.6~+4.6	V	
Signal Input Voltage	Vin	-0.6~+4.6	V	
Input/Output Voltage	Vi/o	-0.6~+4.6	V	
Storage Temperature	Tstg	-55~+150	°C	
Operating Temperature	Topr	I-25~+85	°C	

Recommended Operation Conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
Power supply(High Voltage)	VDD _H	2.7	3.3	3.6	V	Dual Voltage-High
Power supply(Low Voltage)	VDD _L	1.65	1.8	1.95	V	Dual Voltage-Low

DC Characteristics

1 .High Voltage Power Supply($V_{DDH}=2.7V\sim 3.6V$)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Output High Voltage	V_{OH}	$0.75* V_{DDH}$			V	$I_{OH}=-100\mu A$
Output Low Voltage	V_{OL}			$0.125* V_{DDH}$	V	$I_{OL}=100\mu A$
Input High Voltage	V_{IH}	$0.625* V_{DDH}$		$0.3+V_{DDH}$	V	
Input Low Voltage	V_{IL}	-0.3		$0.25*V_{DDH}$	V	
Operating Current	I_{CC}			40	mA	
Standby Current	I_{SB}			0.45	mA	
Input Leakage Current	I_{LI}			+20	μA	$V_{IN}=0\sim V_{DDH}$
Output Leakage Current	I_{LO}			+20	μA	$V_{OUT}=0\sim V_{DDH}$

2. Low Voltage Power Supply($V_{DDL}=1.65V\sim 1.95V$)

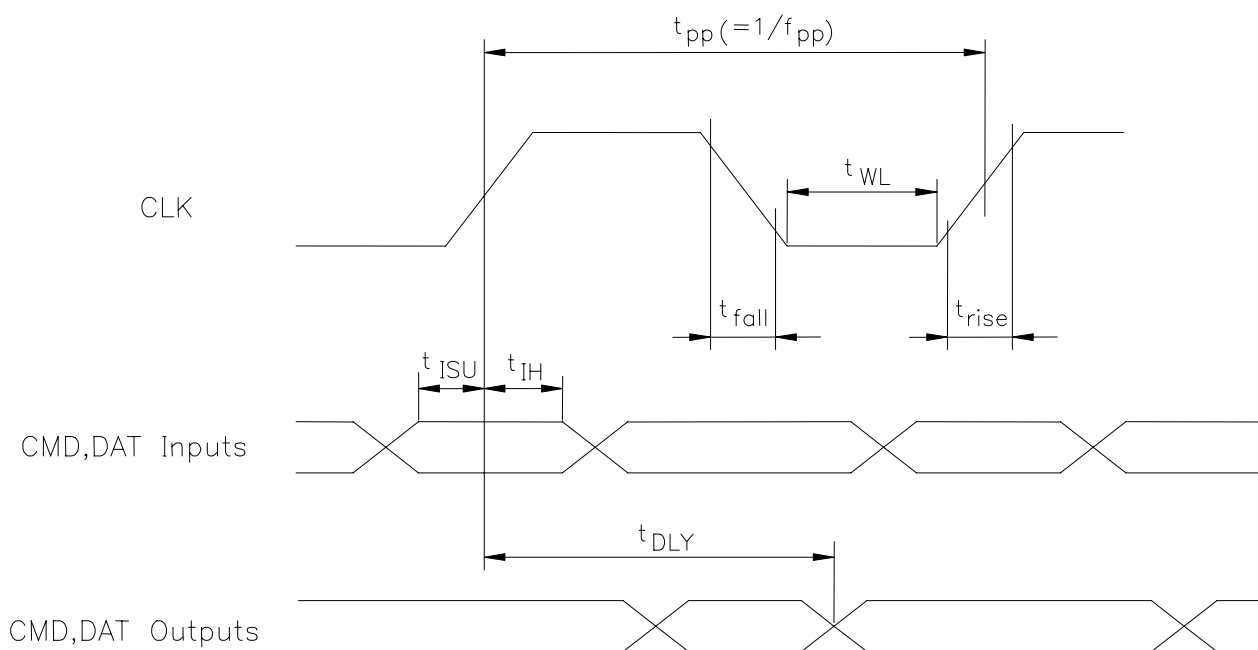
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Output High Voltage	V_{OH}	$-0.2+ V_{DDL}$			V	$I_{OH}=-100\mu A$
Output Low Voltage	V_{OL}			$0.125* V_{DDH}$	V	$I_{OL}=100\mu A$
Input High Voltage	V_{IH}	$0.7* V_{DDL}$		$0.3+V_{DDH}$	V	
Input Low Voltage	V_{IL}	-0.3		$0.25*V_{DDH}$	V	
Operating Current	I_{CC}			35	mA	
Standby Current	I_{SB}			0.45	mA	
Input Leakage Current	I_{LI}			+20	μA	$V_{IN}=0\sim V_{DDL}$
Output Leakage Current	I_{LO}			+20	μA	$V_{OUT}=0\sim V_{DDL}$

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AC Characteristics



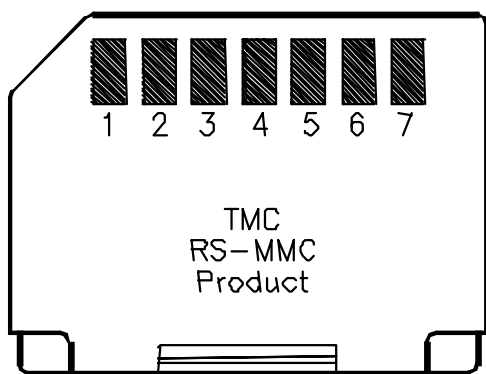
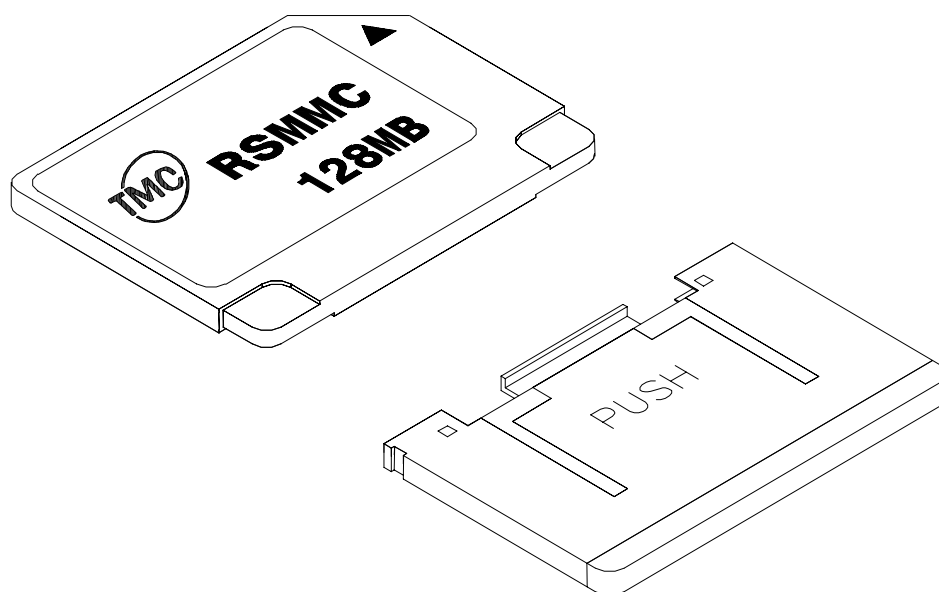
Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
Clock Frequency(Data Transfer)	f_{PP}	26		52	MHz	
Clock Frequency(Identification)	f_{ID}			400	KHz	
Clock Low Time	t_{WL}	6.5			ns	
Clock Rise Time	t_{TLH}			3	ns	
Clock Fall Time	t_{THL}			3	ns	
Input Setup Time	t_{ISU}	3			ns	
Input Hold Time	t_{IH}	3			ns	
Output Delay Time	t_{DLY}	5		14	ns	
Signal Rise Time	t_{rise}			3	ns	
Signal Fall Time	t_{fall}			3	ns	

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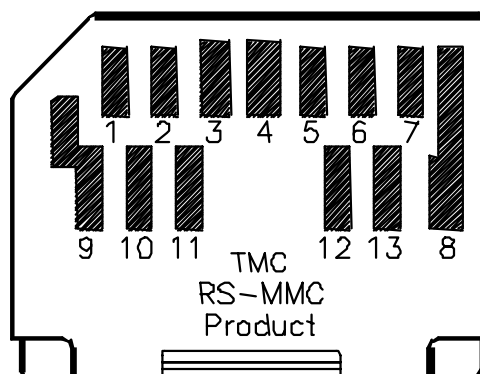
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OUTLINE DRAWING



V3.2



V4.0

