

Description:

TRS10XXX RS-MMC (Reduce Size MultiMediaCard) is an universal low cost data storage and communication media for most of RSMMC standard define in the RSMMC card System specification devices. It is design for high mobility and high performance at a low cost price for cover a wild area of applications such as cameras, PDAs, smart phones, organizers, digital recorders, MP3 players, toys, pagers, etc.

Features:

- **Capacity: 128MB / 256MB / 512MB**
- **Form Factor: 24mm x 18mm x 1.4mm**
- **Voltage range : 2.7 - 3.6V**
- **Operating Temperature: -25 ~ 85°C**
- **Maximum Data Transfer Rate: Read:2MB/sec,Write:2MB/sec**
- **Fully compatible with MMC spec. v3.2**
- **Embedded with data error correction**
- **Low power consumption**
- **No external programming voltage required.**

Pin #	MultiMediaCard Mode			SPI Mode		
	Name	Type ¹	Description	Name	Type	Description
1	DAT3	I/O/PP	Data	CS	I	Chip Select (neg true)
2	CMD	I/O/PP/ OD	Command/Response	DI	I/PP	Data In
3	V _{SS1}	S	Supply voltage ground	VSS	S	Supply voltage ground
4	V _{DD}	S	Supply voltage	VDD	S	Supply voltage
5	CLK	I	Clock	SCLK	I	Clock
6	V _{SS2}	S	Supply voltage ground	VSS2	S	Supply voltage ground
7	DAT0	I/O/PP	Data	DO	O/PP	Data Out
8	DAT1	I/O/PP	Data	Not used		
9	DAT2	I/O/PP	Data	Not used		
10	DAT4	I/O/PP	Data	Not used		
11	DAT5	I/O/PP	Data	Not used		
12	DAT6	I/O/PP	Data	Not used		
13	DAT7	I/O/PP	Data	Not used		

Figure 2: RS-MMC pad definition

2. Characteristic

2.1 DC Characteristic

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Output Low Voltage (OD)	VODOL			0.3	V	IOL = 2mA
Output High Voltage (PP)	VOH	0.75*VDDH			V	IOH = -100uA
Output Low Voltage (PP)	VOL			0.125*VDDH	V	IOL = 100uA
Input High Voltage	VIH	0.625*VDDH		VDDH+0.3	V	
Input Low Voltage	VIL	-0.3		0.25*VDDH	V	
Operating Current	ICC			20 (TBD)	mA	IVCCF = 0mA
Stand-by Current	ISB			400 (TBD)	uA	
Input Leakage Current	ILI			±10	uA	VIN = 0 to VDDH
Output Leakage Current	ILO			±10	uA	VOUT = 0 to VDDH
Pin Capacitance	CP			7	pF	
Power Output Voltage	VF	1.50	1.8	1.95	V	IF ≤ 240mA
(Ta = -25 to 85 , VDDH = 2.7V to 3.6V)						

2.2 Temperature Characteristic

Parameter	Min	Max	Unit
Storage Temperature	-25	85	°C
Operating Temperature	-25	85	°C

3. Bus Timing (Default)

(Ta = -25°C to 85°C, VDD = 2.7V to 3.6V)

Parameter	Symbol	Min	Typ	Max	Unit	Notes
CLK Input						
Clock Frequency (Data Transfer Mode)	f _{PP}	0		25	MHz	
Clock Frequency (Identification Mode)	f _{OD}	0		400	kHz	
Clock Low Time	t _{WL}	10			ns	
Clock High Time	t _{WH}	10				
Clock Rise Time	t _{TLH}			10	ns	
Clock Fall Time	t _{THL}			10	ns	
CMD, DAT Inputs						
Input Set-up Time	t _{SU}	5			ns	
Input Hold Time	t _H	5			ns	
CMD, DAT Outputs						
Output Delay Time	t _{DLY}	0		14	ns	C _L <= 30pF

(*1) All timing values are measured relative to 50% of voltage level.

(*2) Rise and fall times are measured from 1%-90% of voltage level.

