

TS8G/16G/32GSDHC10M



- RoHS compliant product.
- Operating Voltage: 2.7 ~ 3.6V
- Operating Temperature: *%+ °C ,+
- Durability: 10,000 insertion/removal cycles
- Compatible with SD Specification Ver. 3.0
- Comply with SD File System Specification Ver. 3.0
- Supports Speed Class Specification Class 10
- Supports Copy Protection for Recorded Media (CPRM) for SD-Audio
- Form Factor: 24mm x 32mm x 2.1mm

Description

Transcend High Capacity SD Card series are specifically designed to meet the High Capacity, High Definition Audio and Video requirement for the latest Digital Cameras, DV Recorders, Mobile Phones, etc,. The new defined Speed Class enables the host to support AV applications to perform real time recording to the SD memory card.

Placement



Pin Definition

Pin No.	SD Mode			SPI Mode			
	Name	Туре	Description	Name	Туре	Description	
	CD/DAT	80#0 (Card Detect/Data Line [Bit3]	CS	8	Chip Select (neg true)	
%	CMD		Command/Response	DI	8	Data In	
(V _{SS1}	S	Supply voltage ground	VSS	S	Supply voltage ground	
5	V _{DD}	S	Supply voltage	VDD	S	Supply voltage	
+	CLK	8	Clock	SCLK	8	Clock	
)	V_{SS2}	S	Supply voltage ground	VSS2	S	Supply voltage ground	
&	DAT0	80#0	Data Line [Bit0]	DO	#0	Data Out	
,	DAT1	80#0	Data Line [Bit1]	RSV			
?	DAT2	80#0	Data Line [Bit2]	RSV			

S: Power Supply; I:Input; O:Output; PP:Push-Pull



Bus Operating Conditions

General

Parameter	Symbol	Min.	Max.	Unit	Remark
Peak voltage on all lines		-0.3	V _{DD} +0.3	V	
All Inputs					
Input Leakage Current		-10	10	μA	
All Outputs					
Output Leakage Current		-10	10	μA	

Power Supply Voltage

Parameter	Symbol	Min.	Max.	Unit	Remark
Supply voltage	V _{DD}	2.7	3.6	V	
Output High Voltage	V _{OH}	0.75* V _{DD}		V	I _{он} =-100uA@V _{DD} Min.
Output Low Voltage	V _{OL}		0.125* V _{DD}	V	I _{oL} =100uA@V _{DD} Min.
Input High Voltage	V _{IH}	0.625* V _{DD}	V _{DD} +0.3	V	
Input Low Voltage	VIL	V _{SS} -0.3	0.25* V _{DD}	V	
Power up time			250	ms	From $0v$ to V_{DD} Min.

Current Consumption

The current consumption is measured by averaging over 1 second.

- Before first command: Maximum 15 mA
- During initialization: Maximum 100 mA
- Operation in Default Mode: Maximum 100 mA
- Operation in High Speed Mode: Maximum 200 mA
- Operation with other functions: Maximum 500 mA.

Reliability and Durability

Temperature	Operation: -25°C / 85°C					
	Storage: -40°C (168h) / 85°C (500h)					
	Junction temperature: max. 95°C					
Moisture and corrosion	Operation: 25°C / 95% rel. humidity					
	Storage: 40°C / 93% rel. hum./500h					
	Salt Water Spray: 3% NaCl/35C; 24h acc. MIL STD Method 1009					
Durability	10.000 mating cycles;					
Bending	10N					
Torque	0.15N.m or +/-2.5 deg					
Drop test	1.5m free fall					
Visual inspection	No warp page; no mold skin; complete form; no cavities surface smoothness <=					
Shape and form	-0.1 mm/cm ² within contour; no cracks; no pollution (fat, oil dust, etc.)					

end Info

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CID Register

The Card IDentification (CID) register is 128 bits wide. It contains the card identification information used during the card identification phase. Every individual flash card shall have a unique identification number. The structure of the CID register is defined in the following paragraphs:

Name	Field	Width	CID-slice
Manufacturer ID	MID	8	[127:120]
OEM/Application ID	OID	16	[119:104]
Product name	PNM	40	[103:64]
Product revision	PRV	8	[63:56]
Product serial number	PSN	32	[55:24]
reserved		4	[23:20]
Manufacturing date	MDT	12	[19:8]
CRC7 checksum	CRC	7	[7:1]
not used, always '1'	-	1	[0:0]

• MID

An 8-bit binary number that identifies the card manufacturer. The MID number is controlled, defined, and allocated to a SD Memory Card manufacturer by the SD-3C, LLC. This procedure is established to ensure uniqueness of the CID register.

• OID

A 2-character ASCII string that identifies the card OEM and/or the card contents (when used as a distribution media either on ROM or FLASH cards). The OID number is controlled, defined, and allocated to a SD Memory Card manufacturer by the SD-3C, LLC. This procedure is established to ensure uniqueness of the CID register.

SD-3C, LLC licenses companies that wish to manufacture and/or sell SD Memory Cards, including but not limited to flash memory, ROM, OTP, RAM, and SDIO Combo Cards. SD-3C, LLC is a limited liability company established by Matsushita Electric Industrial Co. Ltd., SanDisk Corporation and Toshiba Corporation.

• PNM

The product name is a string, 5 ASCII characters long.

• PRV

The product revision is composed of two Binary Coded Decimal (BCD) digits, four bits each, representing an "n.m" revision number. The "n" is the most significant nibble and "m" is the least significant nibble. As an example, the PRV binary value field for product revision "6.2" will be: 0110 0010

• PSN

The Serial Number is 32 bits of binary number.

• MDT

The manufacturing date composed of two hexadecimal digits, one is 8 bit representing the year(y)

and the other is four bits representing the month(m).

The "m" field [11:8] is the month code. 1 = January.

The "y" field [19:12] is the year code. 0 = 2000.

As an example, the binary value of the Date field for production date "April 2001" will be:

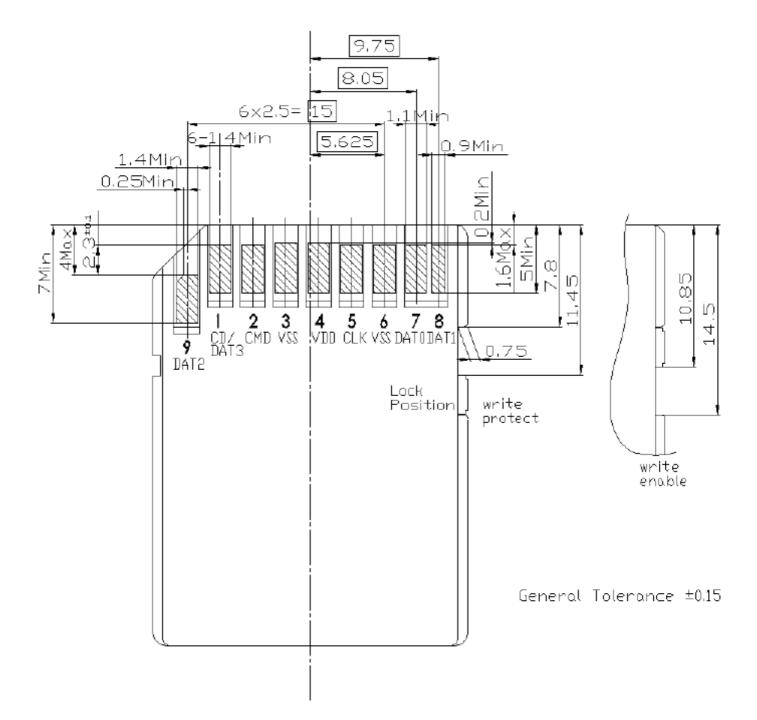
0000001 0100.

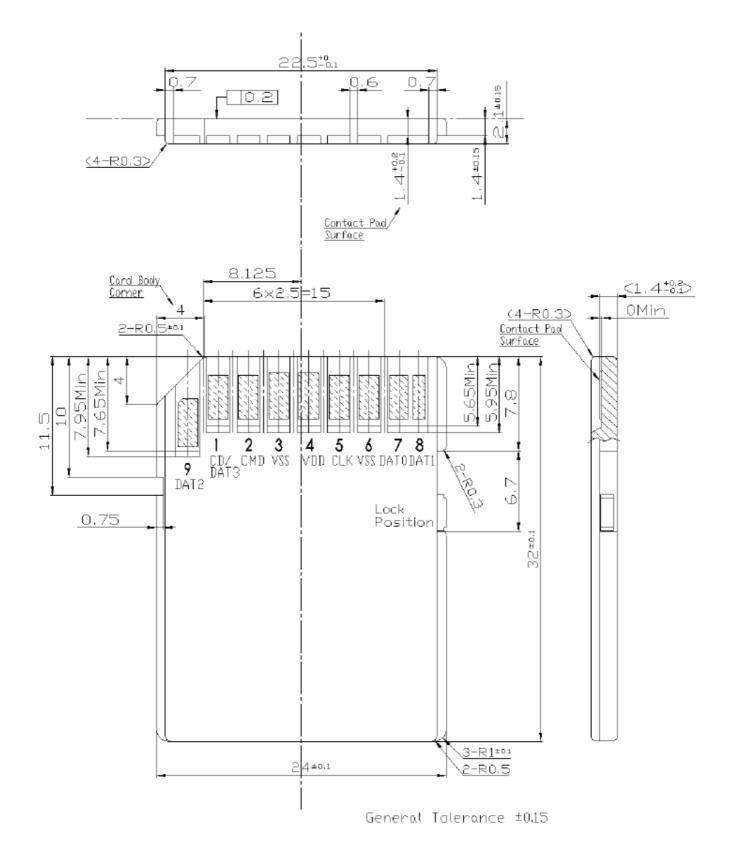
• CRC

CRC7 checksum (7 bits).



Mechanical Dimension





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