

GR3281

.....23rd April 1999



DESCRIPTION

The GR3281 is a 32768 word by 8 bits (32K x 8) non-volatile CMOS Static Ram, fabricated from advanced silicon gate CMOS technology and a high reliability lithium power cell. The pin-out of the GR3281 conforms to the JEDEC standards and is fully compatible with normal static RAM. The power down circuit is fully automatic and is referenced at 4.5 volts. At this point the GR3281 is write protected by an internal inhibit function for Data Protection and the memory contents are retained by the lithium power source. Power down is very fast, this being essential for data integrity, taking a maximum of 15 μ S (15 microseconds) to power down from 5 volts to 0 volts. This is much faster than system power failure conditions. Therefore there are no special conditions required when installing the GR3281. The GR3281 can, without external power, retain data almost indefinitely. The limiting factor will be the shelf life of the lithium cell, which is typically ten years. It is possible that this figure may be extended in view of the extremely light duty imposed upon the cell.

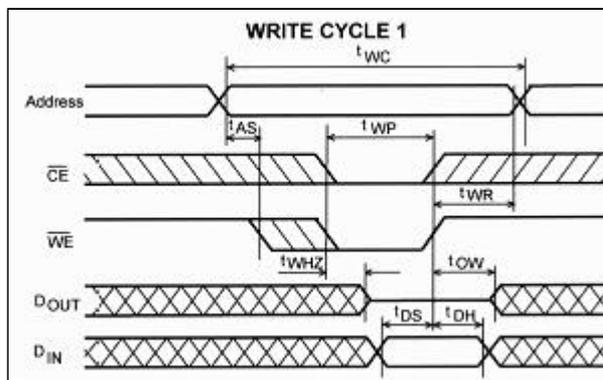
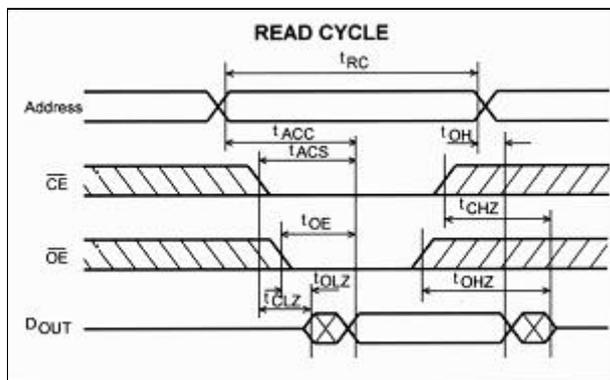
TECHNICAL DATA

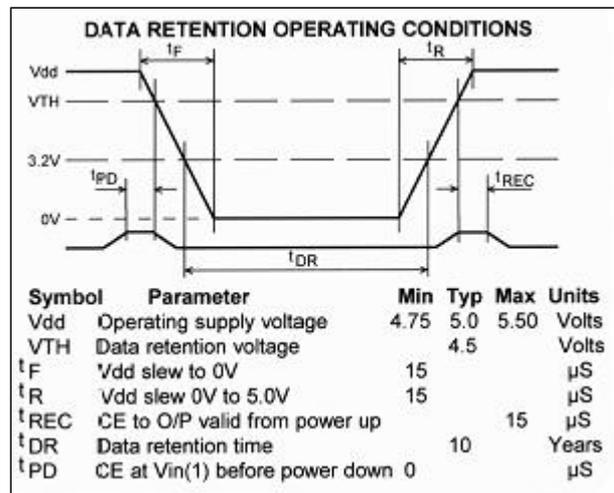
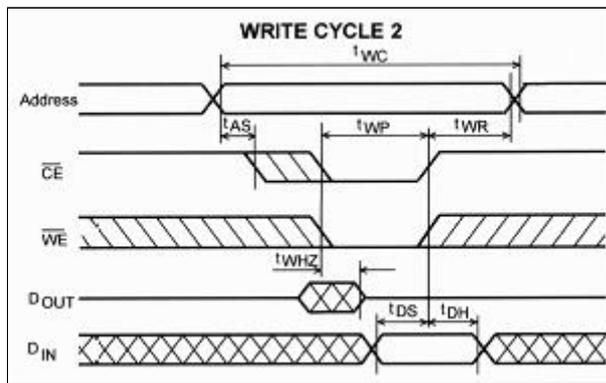
ABSOLUTE MAXIMUM RATINGS			
Symbol	Min	Max	Units
Vdd	- 0.3	7.0	Volts
V _{i/o}	- 0.3	Vdd + 0.3	Volts
Temp	- 20	+70	deg. C

OPERATING MODE					
\overline{CE}	\overline{OE}	WR	MODE	OUTPUT	I _{dd}
H	X	X	Unsel.	Hi-Z	Deselected
L	H	H	Unsel.	Hi-Z	Active
L	L	H	Read	Dout	Active
L	X	L	Write	Din	Active

PIN CONNECTIONS				PIN DESIGNATIONS	
A14	1	28	Vdd	Pin	Function
A12	2	27	WR	A0-A12	Address I/P's
A7	3	26	A13	D0-D7	Data in/out
A6	4	25	A8	\overline{OE}	Output Enable
A5	5	24	A9	\overline{CE}	Chip Enable
A4	6	23	A11	WR	Write Enable
A3	7	22	OE	Vdd	+5Volt Power
A2	8	21	A10	GND	Ground
A1	9	20	CE		
A0	10	19	D7		
D0	11	18	D6		
D1	12	17	D5		
D2	13	16	D4		
GND	14	15	D3		

OPERATING CONDITIONS				
Symbol	Min	Typ	Max	Unit
Vdd	4.75	5.0	5.5	Volts
V _{in} (1)	2.2			Volts
V _{in} (0)			0.8	Volts
I _{in} (any other pin)	- 1.0		+1.0	μ A
V _{out} (1)(I _{out} = -1mA)	2.4			Volts
V _{out} (0)(I _{out} = +2mA)			0.4	Volts
I _{dd} (Active)		30		mA
I _{dd} (Deselected)		1.0		mA
T _{cycle}			100	nS.
C _{in} (any pin)		10		pF





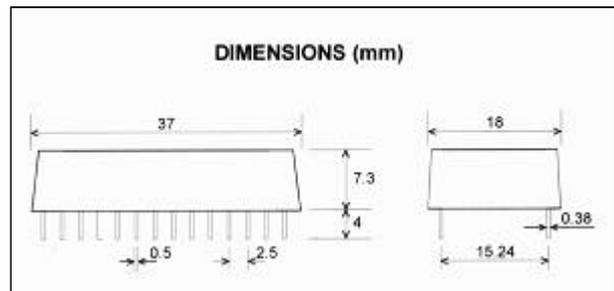
TIMING (nS-nano seconds)

Read Cycle		100nS	
Symbol	Parameter	Min	Max
t_{RC}	Read cycle time	100	
t_{ACC}	Access time		100
t_{ACS}	\overline{CE} to output valid		100
t_{OE}	\overline{OE} to output valid		50
t_{CLZ}	\overline{CE} to output active	10	
t_{OLZ}	\overline{OE} to output active	10	
t_{OH}	Output hold time	20	
t_{CHZ}	\overline{CE} to output disable		35
t_{OHZ}	\overline{OE} to output disable		35

Write Cycle		100nS	
Symbol	Parameter	Min	Max
t_{WC}	Write cycle time	100	
t_{WP}	Write pulse width	60	
t_{AS}	Address setup time	0	
t_{WR}	Write recovery time	0	
t_{WHZ}	WR to output disable		35
t_{OW}	Output active from WR	10	
t_{DS}	Data setup time	35	
t_{DH}	Data HOLD TIME	0	

Notes

1. \overline{WE} must be high during address transitions.
2. A Write occurs during the overlap of a low \overline{CE} and a low \overline{WE} .
3. \overline{WE} is high for a read cycle.



APPLICATION

When powered down, the GR3281 is transportable and data can be moved from system to system, this makes it ideal for program development, data collection in data loggers, program changes in process control, automation and robotics and user definable lookup tables, etc.

Additional information available through our technical services department.

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