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 µS (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
Vi/o	– 0.3	Vdd + 0.3	Volts
Temp	– 20	+70	deg. C

OPERATING MODE

$\overline{CE}$	$\overline{OE}$	$\overline{WR}$	MODE	OUTPUT	Idd
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

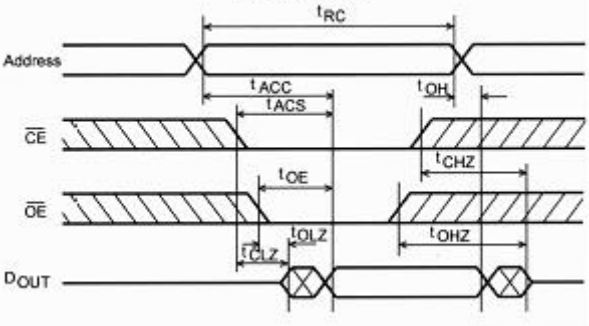
PIN DESIGNATIONS

Pin	Function
A0-A12	Address I/P`s
D0-D7	Data in/out
$\overline{OE}$	Output Enable
$\overline{CE}$	Chip Enable
$\overline{WR}$	Write Enable
Vdd	+5Volt Power
GND	Ground

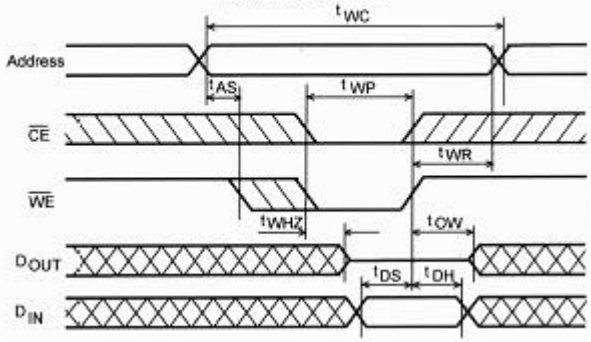
OPERATING CONDITIONS

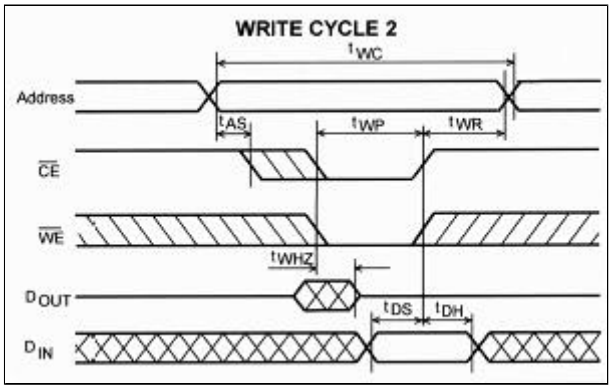
Symbol	Min	Typ	Max	Unit
Vdd	4.75	5.0	5.5	Volts
Vin (1)	2.2			Volts
Vin (0)			0.8	Volts
Iin (any other pin)	– 1.0		+1.0	µA.
Vout (1)(Iout = –1mA)	2.4			Volts
Vout (0)(Iout = +2mA)			0.4	Volts
Idd (Active)		30		mA.
Idd (Deselected)		1.0		mA.
Tcycle			100	nS.
Cin (any pin)		10		pF

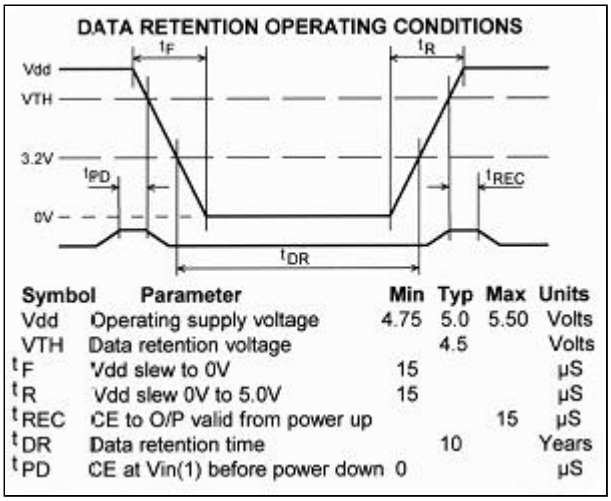
READ CYCLE



WRITE CYCLE 1







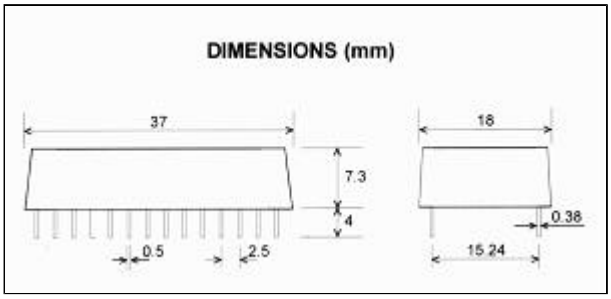
Symbol	Parameter	Min	Typ	Max	Units
Vdd	Operating supply voltage	4.75	5.0	5.50	Volts
VTH	Data retention voltage		4.5		Volts
tF	Vdd slew to 0V	15			µS
tR	Vdd slew 0V to 5.0V	15			µS
tREC	CE to O/P valid from power up			15	µS
tDR	Data retention time		10		Years
tPD	CE at Vin(1) before power down	0			µS

TIMING (nS-nano seconds)

	Read Cycle	100nS	
Symbol	Parameter	Min	Max
tRC	Read cycle time	100	
tACC	Access time		100
tACS	CE to output valid		100
tOE	OE to output valid		50
tCLZ	CE to output active	10	
tOLZ	OE to output active	10	
tOH	Output hold time	20	
tCHZ	CE to output disable		35
tOHZ	OE to output disable		35

	Write Cycle	100nS	
Symbol	Parameter	Min	Max
tWC	Write cycle time	100	
tWP	Write pulse width	60	
tAS	Address setup time	0	
tWR	Write recovery time	0	
tWHZ	WR to output disable		35
tOW	Output active from WR	10	
tDS	Data setup time	35	
tDH	Data HOLD TIME	0	

Notes
1.WE must be high during address transitions.
2.A Write occurs during the overlap of a low CE and a low WE.
3.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 sevices department.

Homepage - Memory