8k × 8 Bit SRAM

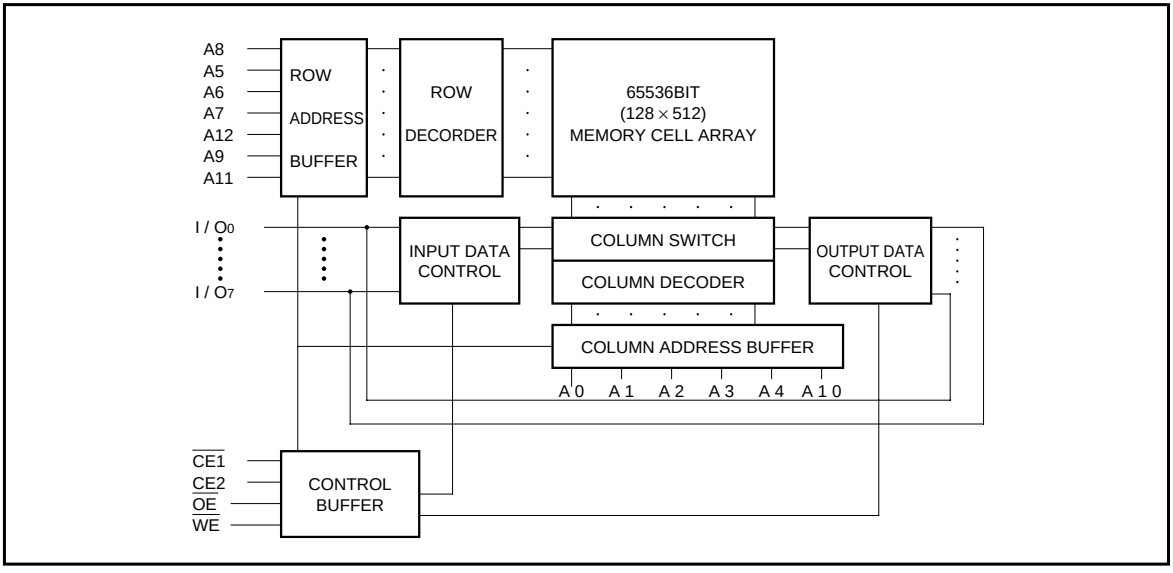
BR6265BF-N10SL

The BR6265BF-N10SL is an 8192 word × 8 bit CMOS static RAM. It runs on a 5V single power supply, and input can be directed coupled with TTL. Current dissipation in the non-selected state is extremely low at 20μA (max.), and memory information can be retained even at a low voltage of 2V, making this product ideal for battery backup operations.
Both the access and cycle timing are 100ns, facilitating timing design.

●Applications
General-purpose

●Features
1) SRAM with an 8192 × 8 bit configuration.
2) 5V single power supply voltage with ± 10% fluctuation tolerance.
3) High speed access time of 100ns.
4) TTL compatible input / output.
5) Input and output use the same pin, and there are 3 output states.
6) No clock is necessary (asynchronous static circuit).
7) Input and output data are in the same phase.
8) Low power dissipation.

●Block diagram



●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits	Unit
Power supply voltage	V_{CC}	– 0.5*1 ~ + 7.0	V
Power dissipation	Pd	850*2	mW
Operating temperature	Topr	0 ~ 70	°C
Storage temperature	Tstg	– 55 ~ + 125	°C
I / O voltage	V_I	– 0.5 ~ V_{CC} + 0.5	V

∗1 At pulse width of 50 ns : – 3.0V (min.)

∗2 Reduced by 8.5mW for each increase in Ta of 1°C over 25°C.

●Recommended operating conditions (Ta = 25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	4.5	5.0	5.5	V
Input high level voltage	V_{IH}	2.2	—	V_{CC} + 0.5	V
Input low level voltage	V_{IL}	– 0.3	—	0.8	V
Ambient temperature	Ta	0	—	70	°C

●Pin descriptions

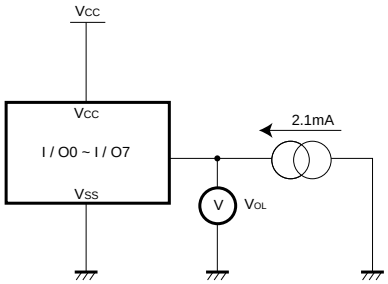
Pin No.	Pin name	Function
1	NC	Internal chip and not connected
2 ~ 10, 21, 23 ~ 25	A0 ~ A12	8192-byte memory address input
11 ~ 13, 15 ~ 19	I / O0 ~ I / O7	8-bit data I / O
20	$\overline{CE1}$	Chip enable control input
26	CE2	Chip enable control input
22	$\overline{OE}$	Output enable control input
27	$\overline{WE}$	Write enable control input
28	V_{CC}	5V ± 10%power supply
14	V_{SS}	Reference voltage for all input / output, 0V

●Electrical characteristics (unless otherwise noted, Ta = 0 to 70°C, V_{CC} = 5V ± 10%)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions	Measurement circuit
Input low level voltage	V_{IL}	– 0.3*1	—	0.8	V	—	—
Input high level voltage	V_{IH}	2.2	—	V_{CC} + 0.5	V	—	—
Output low level voltage	V_{OL}	0	—	0.4	V	I_{OL} = 2.1mA	Fig.1
Output high level voltage	V_{OH}	2.4	—	V_{CC}	V	I_{OH} = – 1.0mA	Fig.2
		$V_{CC} \times 0.8$	—	V_{CC}	V	I_{OH} = – 0.1mA	—
Input leakage current	I_{LI}	—	—	± 1	µA	V_{IN} = 0 ~ V_{CC}	Fig.3
Output leakage current	I_{LO}	—	—	± 1	µA	V_{OUT} = 0 ~ V_{CC}	Fig.4
Average operating current	I_{CCA1}	—	—	40	mA	$\overline{CE1}$ = V_{IL}, CE2 = V_{IH}, I / O: OPEN Minimum cycle time	Fig.5
	I_{CCA2}	—	—	10	mA	$\overline{CE1}$ = V_{IL}, CE2 = V_{IH}, I / O: OPEN f = 1MHz	Fig.5
Standby current	I_{SB}	—	—	3	mA	$\overline{CE1}$ = V_{IH} or CE2 = V_{IL}	—
	I_{SB1}	—	—	20	µA	$\overline{CE1} \geqq V_{CC} - 0.2V$, CE2 $\geqq V_{CC} - 0.2V$ or CE2 $\leqq 0.2V$	Fig.6
	I_{SB2}	—	—	20	µA	CE2 $\leqq 0.2V$	—

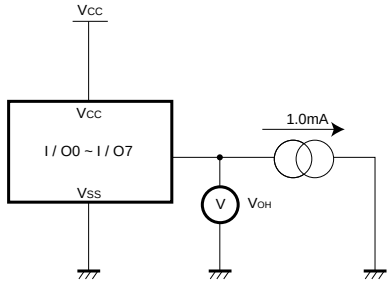
*1 At input voltage pulse width of 50 ns or less : – 3.0V

●Measurement circuits



Data sets all output to LOW (Data 00)

Fig. 1 Output low level voltage measurement circuit



Data sets all output to HIGH (Data FF)

Fig. 2 Output high level voltage measurement circuit

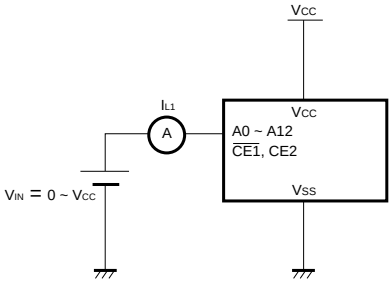


Fig. 3 Input leakage measurement circuit

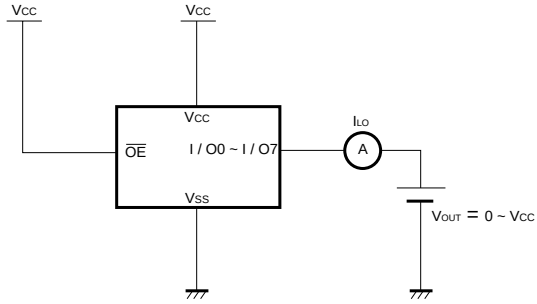
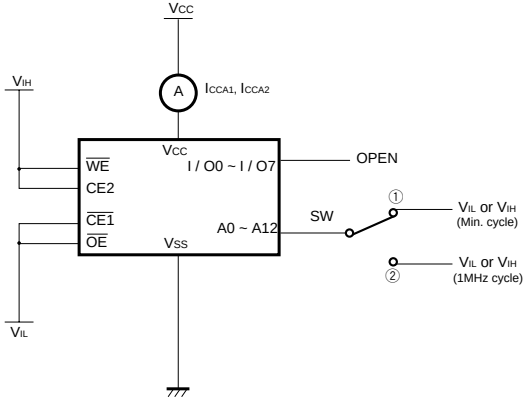


Fig. 4 Output leakage current measurement circuit



① : Average operating current ICCA1

② : Average operating current ICCA2

Fig. 5 Current dissipation measurement circuit

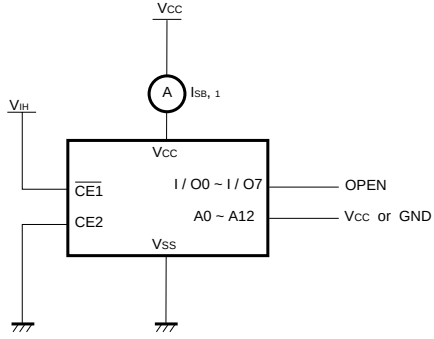


Fig. 6 Standby current measurement circuit

●Operating modes

Control pin				Mode	I / O	Power dissipation
$\overline{OE}$	$\overline{CE1}$	CE2	$\overline{WE}$			
X	H	X	X	Wait state	High impedance	Standby state
X	X	L	X	Wait state	High impedance	Standby state
H	L	H	H	Output disabled	High impedance	Operating state
L	L	H	H	Read	Data output	Operating state
X	L	H	L	Write	Data output	Operating state

X : Either V_{IL} or V_{IH}

●AC test conditions (Ta = 0 to 70°C, V_{CC} = 5V ± 10%)
Input pulse level : 0.8 to 2.4V
Input rise / fall time : 5ns
I / O timing level : 1.5V
Output load : 1 TTL gate and CL = 100pF

●Read cycle

Parameter	Symbol	Min.	Max.	Unit
Read cycle time	t_{RC}	100	—	ns
Address access time	t_{AA}	—	100	ns
$\overline{CE1}$ access time	t_{CO1}	—	100	ns
CE2 access time	t_{CO2}	—	100	ns
$\overline{OE}$ access time	t_{OE}	—	40	ns
Output hold time	t_{OH}	10	—	ns
$\overline{CE1}$ output set time	t_{LZ1}	10	—	ns
CE2 output set time	t_{LZ2}	10	—	ns
$\overline{OE}$ output reset time	t_{OLZ}	5	—	ns
$\overline{CE1}$ deselect output floating	t_{HZ1}	—	35	ns
$\overline{CE2}$ deselect output floating	t_{HZ2}	—	35	ns
$\overline{OE}$ disable output floating	t_{OHZ}	—	35	ns

●Read cycle timing chart 1 ($\overline{CE1}$ = $\overline{OE}$ = V_{IL}, CE2 = $\overline{WE}$ = V_{IH})

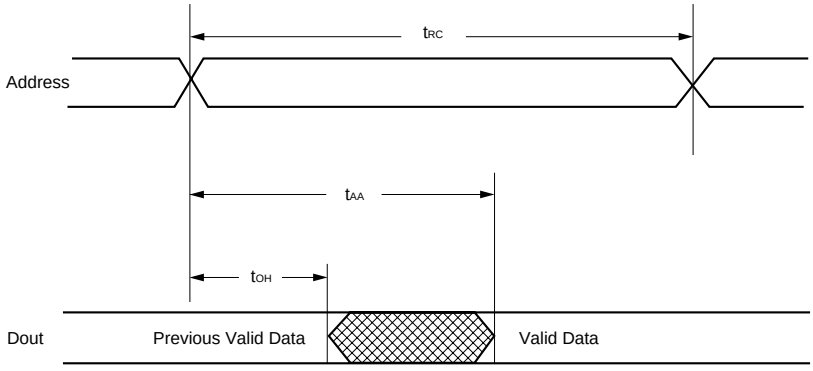
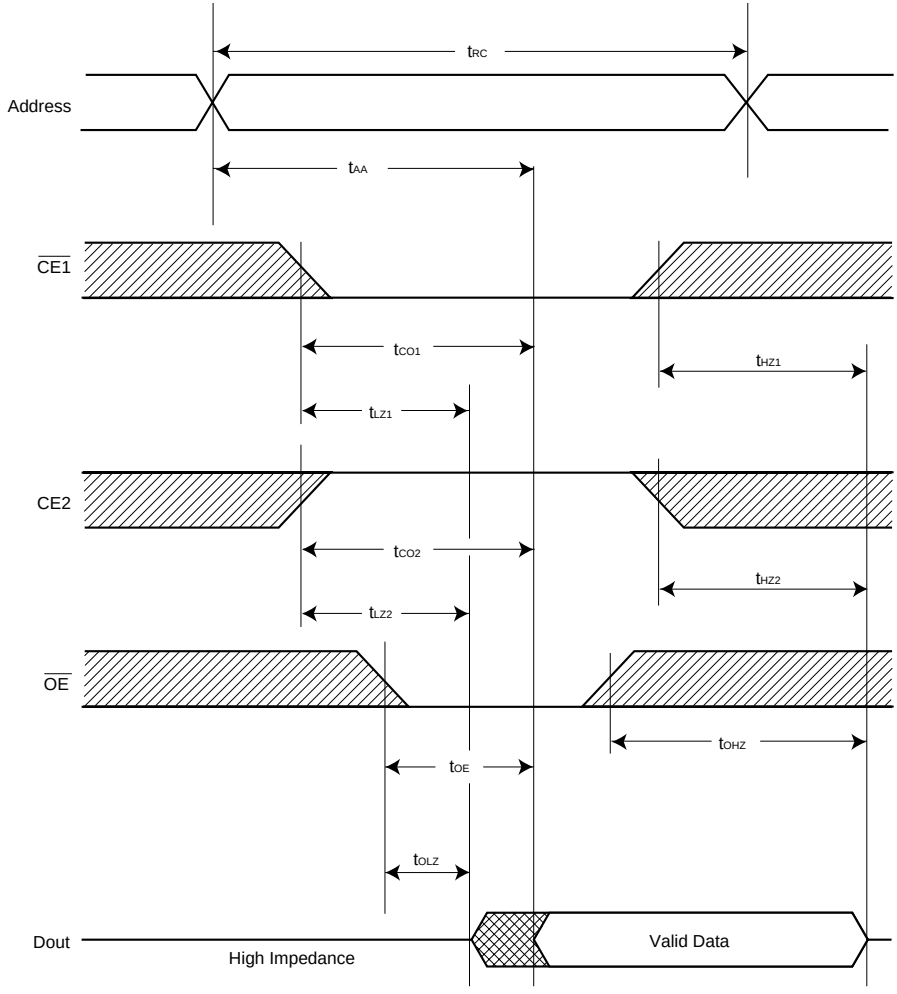


Fig.7

●Read cycle timing chart 2 ($\overline{WE}$ = V_{IH})



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●Write cycle

Parameter	Symbol	Min.	Max.	Unit
Write cycle time	t_{WC}	100	—	ns
Chip select time	t_{CW}	80	—	ns
Address valid time	t_{AW}	80	—	ns
Address setup time	t_{AS}	0	—	ns
Write pulse width	t_{WP}	60	—	ns
$\overline{WE}$ output delay time	t_{WR}	0	—	ns
$\overline{CE1}$, CE2 output delay time	t_{WR1}	0	—	ns
$\overline{WE}$ · output floating time	t_{WHZ}	—	35	ns
Input data set time	t_{DW}	40	—	ns
Input data hold time	t_{DH}	0	—	ns
$\overline{WE}$ · output set time	t_{OW}	5	—	ns

●Write cycle timing chart 1 ($\overline{WE}$ control)

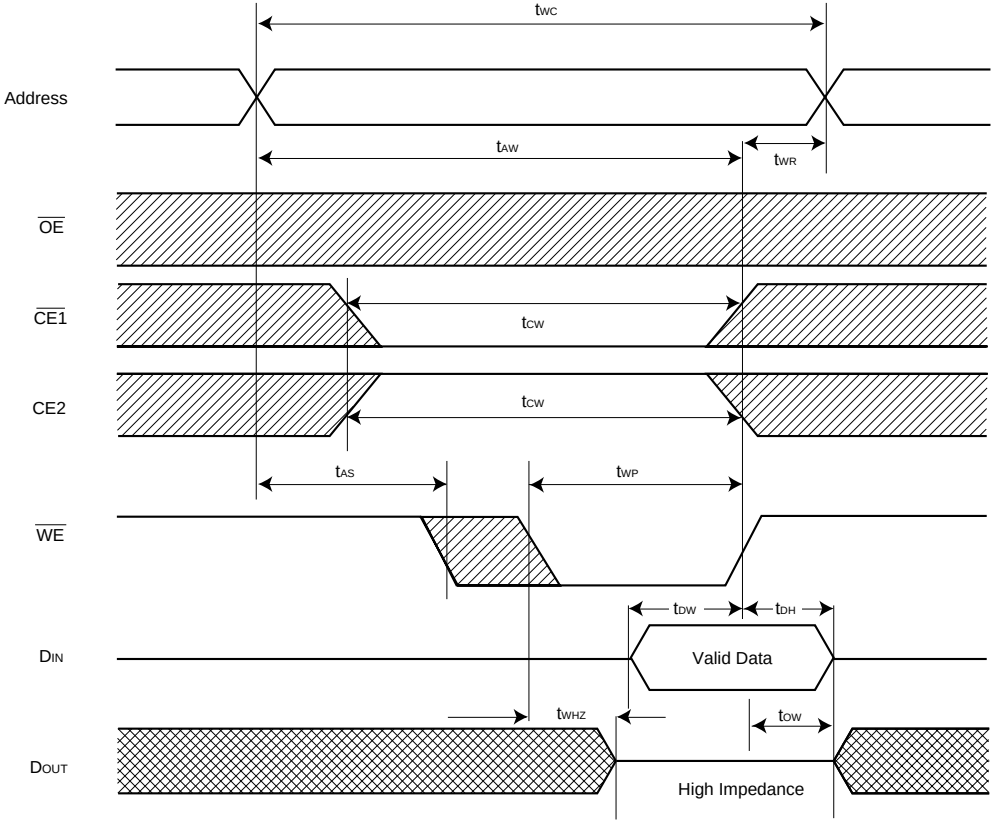


Fig.9

●Write cycle timing chart 2 ($\overline{CE1}$ control)

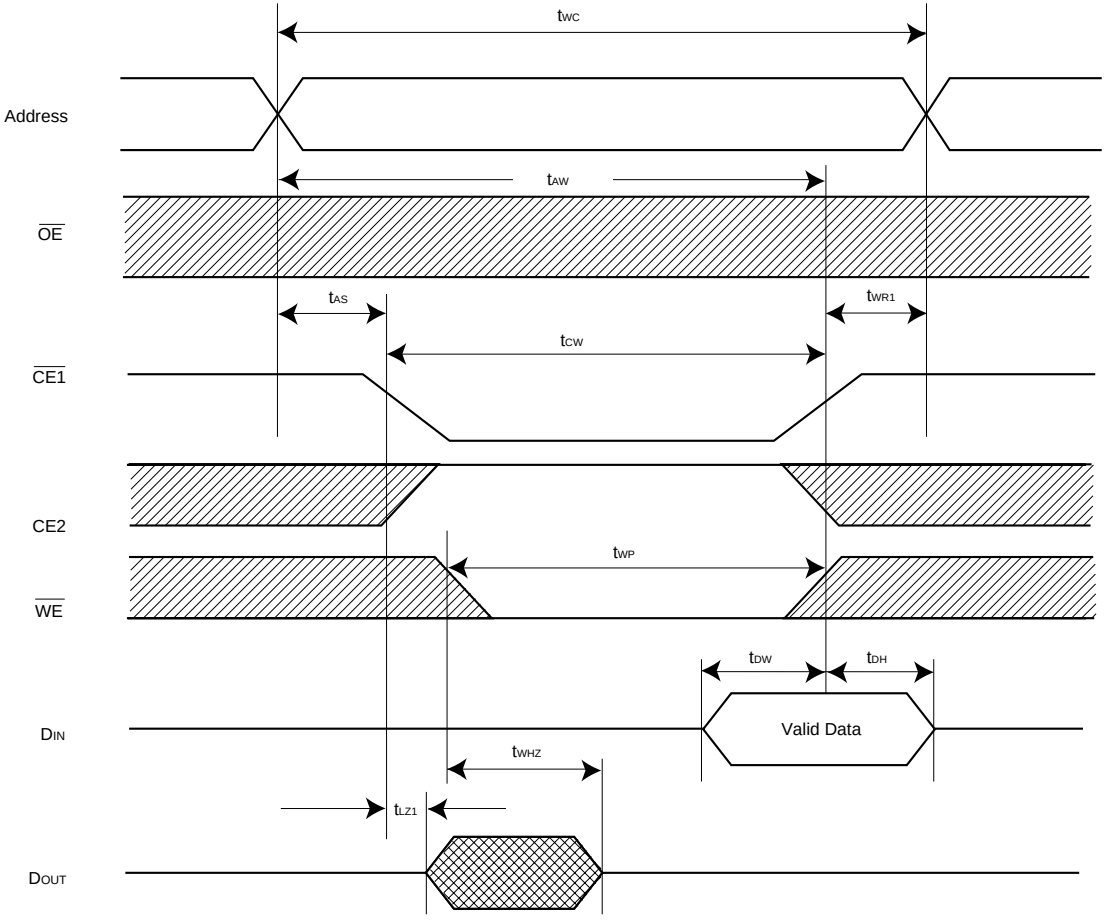


Fig.10

●Write cycle timing chart 3 (CE2 control)

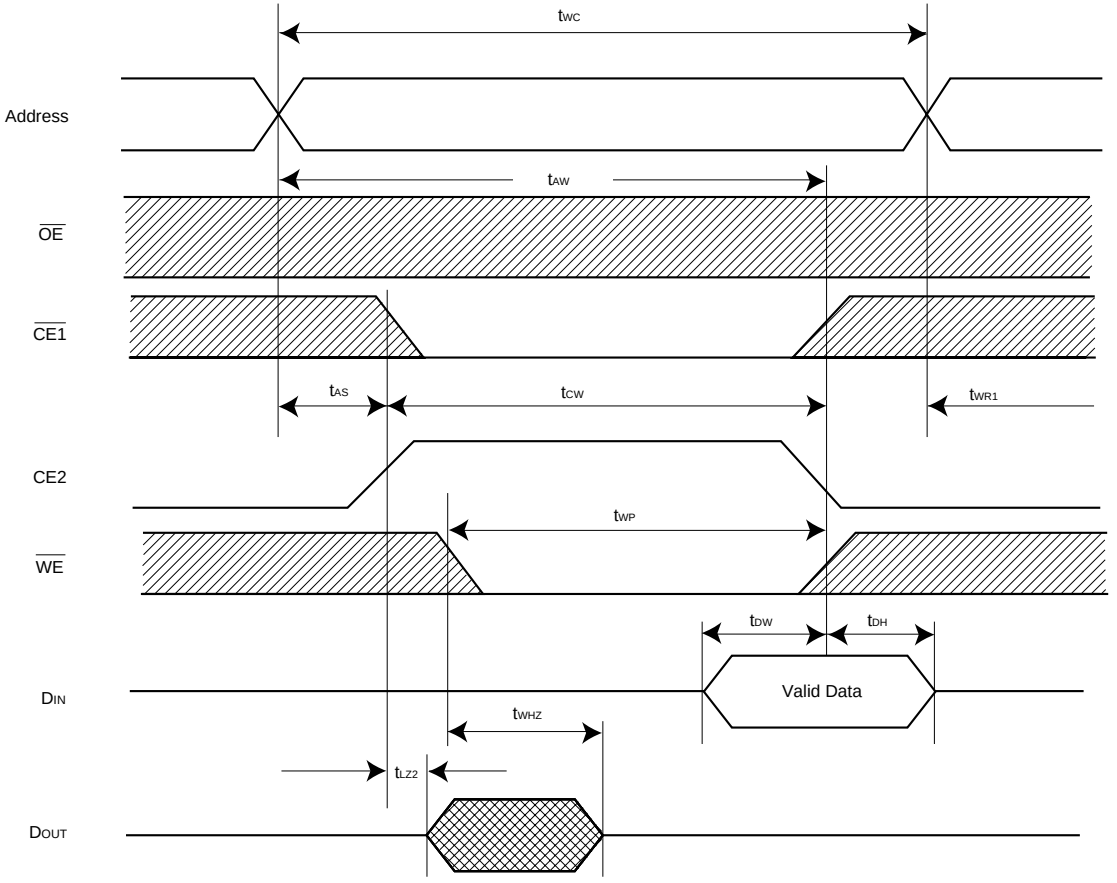


Fig.11

* While the I / O pin is in output state, input signals should not be applied which are in reverse phase to the output.
* The contents noted in this document may fall under the jurisdiction of services pertaining to overseas exchange rates and overseas control regulations (services pertaining to design, construction, specifications), and may requlre special handiing.

●Data retention characteristics at low power supply voltage (Ta = 0 to 70°C): SL version products

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Data retention power supply voltage	V_{DR}	2.0	—	5.5	V	$\overline{CE1} \geqq V_{CC} - 0.2V$, $CE2 \geqq V_{CC} - 0.2V$ or $CE2 \leqq 0.2V$
Data retention current	I_{CCDR}*	—	—	10	μA	$\overline{CE1} \geqq V_{CC} - 0.2V$, $CE2 \geqq V_{CC} - 0.2V$ or $CE2 \leqq 0.2V$, $V_{CC} = 3.0V$
CS data retention time	t_{CDR}	0	—	—	ns	—
Operating recovery time	t_R	5	—	—	ms	—

* 1μA (Max.), when Ta = 0 ~ 40°C

●Data retention waveform at low power supply voltage

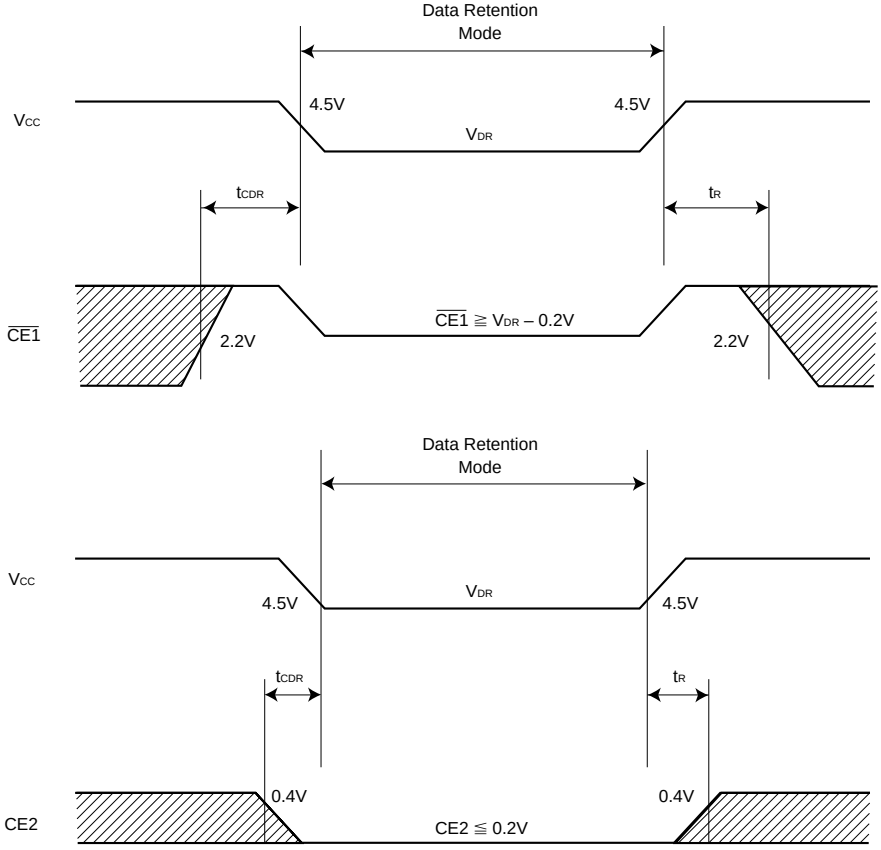
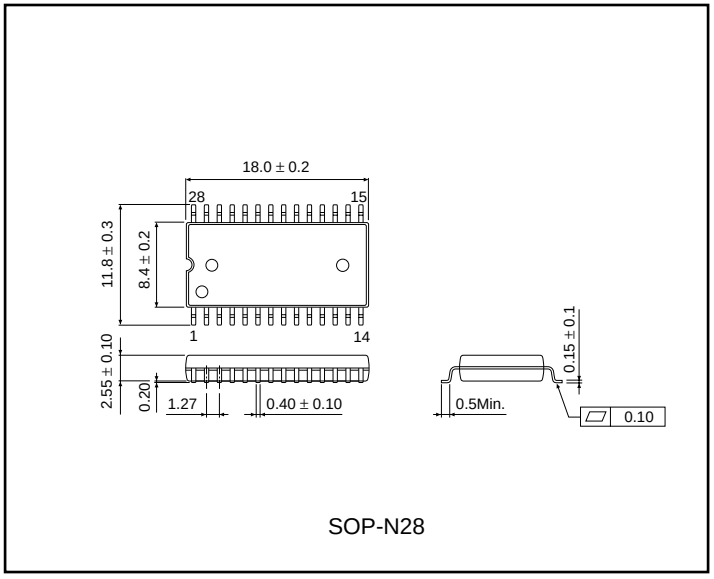


Fig.12

●External dimensions (Units: mm)



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