

16-Mbit (1M × 16 / 2M × 8) Static RAM

Features

- Ultra-low standby power
 - Typical standby current: 5.5 μA
 - Maximum standby current: 16 μA
- TSOP I package configurable as 1M × 16 or 2M × 8 SRAM
- Very high speed: 45 ns
- Temperature ranges
 - Industrial: -40 °C to +85 °C
- Wide voltage range: 1.65 V to 2.2 V, 2.2 V to 3.6 V, and 4.5 V to 5.5 V
- Easy memory expansion with \overline{CE}_1 , CE_2 , and \overline{OE} Features
- Automatic power-down when deselected
- CMOS for optimum speed and power
- Offered in Pb-free 48-ball VFBGA and 48-pin TSOP I packages

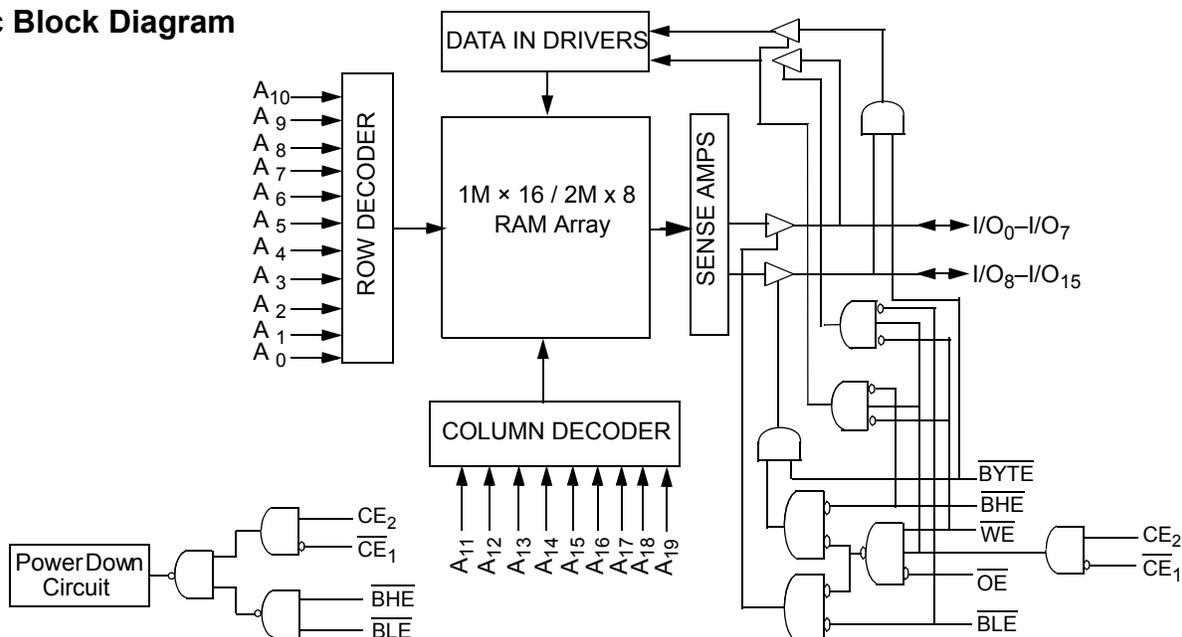
Functional Description

The CY62167GN is a high performance CMOS static RAM organized as 1M words by 16 bits or 2M words by 8 bits. This device features an advanced circuit design that provides an ultra low active current. Ultra low active current is ideal for providing More Battery Life™ (MoBL®) in portable applications such as cellular telephones. The device also has an automatic power down feature that reduces power consumption by 99 percent when addresses are not toggling. Place the device into standby mode when deselected (\overline{CE}_1 HIGH or CE_2 LOW or both \overline{BHE} and \overline{BLE} are HIGH). The input and output pins (I/O_0 through I/O_{15}) are placed in a high impedance state when: the device is deselected (\overline{CE}_1 HIGH or CE_2 LOW), outputs are disabled (\overline{OE} HIGH), both Byte High Enable and Byte Low Enable are disabled (\overline{BHE} , \overline{BLE} HIGH), or a write operation is in progress (\overline{CE}_1 LOW, CE_2 HIGH and \overline{WE} LOW).

To write to the device, take Chip Enables (\overline{CE}_1 LOW and CE_2 HIGH) and Write Enable (\overline{WE}) input LOW. If Byte Low Enable (\overline{BLE}) is LOW, then data from I/O pins (I/O_0 through I/O_7) is written into the location specified on the address pins (A_0 through A_{19}). If Byte High Enable (\overline{BHE}) is LOW, then data from the I/O pins (I/O_8 through I/O_{15}) is written into the location specified on the address pins (A_0 through A_{19}).

To read from the device, take Chip Enables (\overline{CE}_1 LOW and CE_2 HIGH) and Output Enable (\overline{OE}) LOW while forcing the Write Enable (\overline{WE}) HIGH. If Byte Low Enable (\overline{BLE}) is LOW, then data from the memory location specified by the address pins appears on I/O_0 to I/O_7 . If Byte High Enable (\overline{BHE}) is LOW, then data from memory appears on I/O_8 to I/O_{15} . See Truth Table on page 13 for a complete description of read and write modes.

Logic Block Diagram



Contents

Pin Configuration	3	Ordering Information	14
Product Portfolio	3	Ordering Code Definitions	14
Maximum Ratings	4	Package Diagrams	15
Operating Range	4	Acronyms	16
Electrical Characteristics	4	Document Conventions	16
Capacitance	6	Units of Measure	16
Thermal Resistance	6	Document History Page	17
AC Test Loads and Waveforms	6	Sales, Solutions, and Legal Information	18
Data Retention Characteristics	7	Worldwide Sales and Design Support	18
Data Retention Waveform	7	Products	18
Switching Characteristics	8	PSoC® Solutions	18
Switching Waveforms	9	Cypress Developer Community	18
Truth Table	13	Technical Support	18

Pin Configuration

Figure 1. 48-ball VFBGA pinout (Top View)^[1, 2]

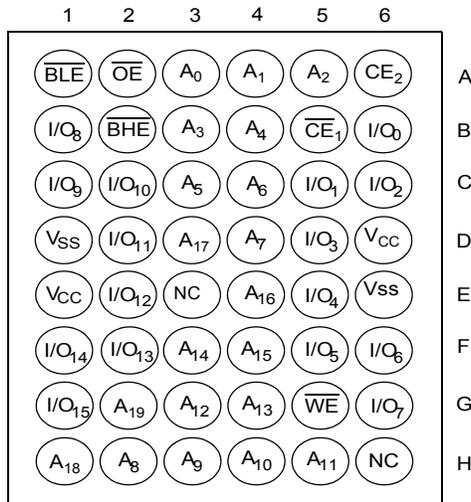
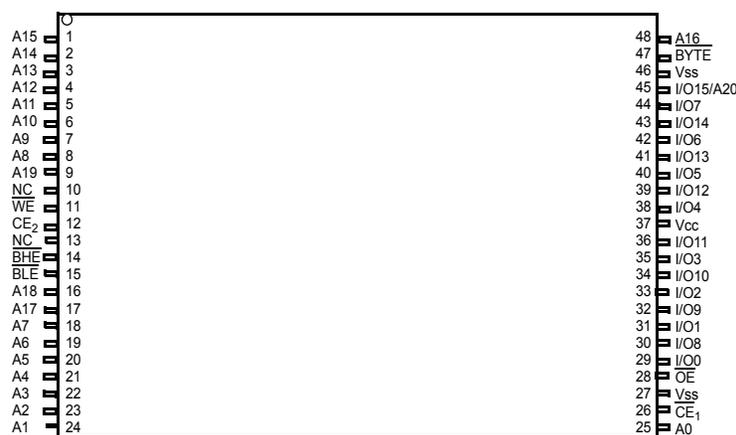


Figure 2. 48-pin TSOP I pinout (Top View)^[2, 3]



Product Portfolio

Product	Range	V _{CC} Range (V)			Speed (ns)	Power Dissipation							
						Operating I _{CC} (mA)				Standby I _{SB2} (μA)			
		f = 1 MHz		f = f _{max}									
		Min	Typ ^[4]	Max		Typ ^[4]	Max	Typ ^[4]	Max				
CY62167GN18	Industrial	1.65	1.8	2.2	55	7	9	29	32	7	26		
CY62167GN30		2.2	3.0	3.6				29	36			5.5	16
CY62167GN		4.5	5.0	5.5									

Notes

- Ball H6 for the VFBGA package can be used to upgrade to a 32M density.
- NC pins are not connected on the die.
- The BYTE pin in the 48-pin TSOP I package has to be tied to V_{CC} to use the device as a 1 M × 16 SRAM. The 48-pin TSOP I package can also be used as a 2 M × 8 SRAM by tying the BYTE signal to V_{SS}. In the 2 M × 8 configuration, Pin 45 is A20, while BHE, BLE and I/O₈ to I/O₁₄ pins are not used.
- Typical values are included for reference only and are not guaranteed or tested. Typical values are measured at V_{CC} = V_{CC(typ)}, T_A = 25 °C.

Maximum Ratings

Exceeding maximum ratings may shorten the useful life of the device. User guidelines are not tested.

Storage temperature -65 °C to + 150 °C

Ambient temperature with power applied -55 °C to + 125 °C

Supply voltage to ground potential^[5, 6] -0.3 V to $V_{CC(max)}$ + 0.3 V

DC voltage applied to outputs in High Z state^[5, 6] -0.3 V to $V_{CC(max)}$ + 0.3 V

DC input voltage^[5, 6] -0.3 V to $V_{CC(max)}$ + 0.3 V

Output current into outputs (LOW) 20 mA

Static discharge voltage (MIL-STD-883, Method 3015) >2001 V

Latch-up current >200 mA

Operating Range

Device Range	Ambient Temperature	V_{CC} ^[7]
Industrial	-40 °C to +85 °C	1.65 V to 2.2 V, 2.2 V to 3.6 V, 4.5 V to 5.5 V

Electrical Characteristics

Over the Operating Range

Parameter	Description	Test Conditions	45 ns/ 55 ns			Unit	
			Min	Typ ^[8]	Max		
V_{OH}	Output HIGH voltage	$1.65 \leq V_{CC} \leq 2.2$	$I_{OH} = -0.1$ mA	1.4	-	-	V
		$2.2 \leq V_{CC} \leq 2.7$	$I_{OH} = -0.1$ mA	2.0	-	-	
		$2.7 \leq V_{CC} \leq 3.6$	$I_{OH} = -1.0$ mA	2.4	-	-	
		$4.5 \leq V_{CC} \leq 5.5$	$I_{OH} = -1.0$ mA	2.4	-	-	
		$4.5 \leq V_{CC} \leq 5.5$	$I_{OH} = -0.1$ mA	$V_{OH} - 0.5$ ^[9]	-	-	
V_{OL}	Output LOW voltage	$1.65 \leq V_{CC} \leq 2.2$	$I_{OL} = 0.1$ mA	-	-	0.2	V
		$2.2 \leq V_{CC} \leq 2.7$	$I_{OL} = 0.1$ mA	-	-	0.4	
		$2.7 \leq V_{CC} \leq 3.6$	$I_{OL} = 2.1$ mA	-	-	0.4	
		$4.5 \leq V_{CC} \leq 5.5$	$I_{OL} = 2.1$ mA	-	-	0.4	
V_{IH}	Input HIGH voltage	$1.65 \leq V_{CC} \leq 2.2$		1.4	-	$V_{CC} + 0.2$	V
		$2.2 \leq V_{CC} \leq 2.7$		1.8	-	$V_{CC} + 0.3$	
		$2.7 \leq V_{CC} \leq 3.6$		2	-	$V_{CC} + 0.3$	
		$4.5 \leq V_{CC} \leq 5.5$		2.2	-	$V_{CC} + 0.5$	
V_{IL}	Input LOW voltage	$1.65 \leq V_{CC} \leq 2.2$		-0.2	-	0.4	V
		$2.2 \leq V_{CC} \leq 2.7$		-0.3	-	0.6	
		$2.7 \leq V_{CC} \leq 3.6$		-0.3	-	0.8	
		$4.5 \leq V_{CC} \leq 5.5$		-0.5	-	0.8	
I_{IX}	Input leakage current	$GND \leq V_I \leq V_{CC}$		-1	-	+1	μ A
I_{OZ}	Output leakage current	$GND \leq V_O \leq V_{CC}$, Output disabled		-1	-	+1	μ A
I_{CC}	V_{CC} operating supply current	$f = 22.22$ MHz (45 ns)	$V_{CC} = V_{CC(max)}$ $I_{OUT} = 0$ mA CMOS levels	-	29	36	mA
		$f = 18.18$ MHz (55 ns)		-	29	32	mA
		$f = 1$ MHz		-	7	9	mA

Notes

- $V_{IL(min)}$ = -2.0 V for pulse durations less than 20 ns.
- $V_{IH(max)}$ = $V_{CC} + 2$ V for pulse durations less than 20 ns.
- Full Device AC operation assumes a 100 μ s ramp time from 0 to $V_{CC(min)}$ and 200 μ s wait time after V_{CC} stabilization.
- Indicates the value for the center of distribution at 3.0 V, 25 °C and not 100% tested
- This parameter is guaranteed by design and not tested.

Electrical Characteristics (continued)

Over the Operating Range

Parameter	Description	Test Conditions	45 ns/ 55 ns			Unit	
			Min	Typ ^[8]	Max		
$I_{SB1}^{[10]}$	Automatic power down current – CMOS inputs	$\overline{CE}_1 \geq V_{CC} - 0.2 \text{ V}$ or $CE_2 \leq 0.2 \text{ V}$ or $(\overline{BHE}$ and $\overline{BLE}) \geq V_{CC} - 0.2 \text{ V}$, $V_{IN} \geq V_{CC} - 0.2 \text{ V}$, $V_{IN} \leq 0.2 \text{ V}$, $f = f_{max}$ (address and data only), $f = 0$ (\overline{OE} , and \overline{WE}), $V_{CC} = V_{CC(max)}$	–	5.5	16	μA	
$I_{SB2}^{[10]}$	Automatic Power-down Current – CMOS Inputs $V_{CC} = 2.2 \text{ V}$ to 3.6 V and 4.5 V to 5.5 V	$\overline{CE}_1 \geq V_{CC} - 0.2 \text{ V}$ or $CE_2 \leq 0.2 \text{ V}$ or $(\overline{BHE}$ and $\overline{BLE}) \geq V_{CC} - 0.2 \text{ V}$, $V_{IN} \geq V_{CC} - 0.2 \text{ V}$ or $V_{IN} \leq 0.2 \text{ V}$, $f = 0$, $V_{CC} = V_{CC(max)}$	25 °C ^[11]	–	5.5	6.5	μA
			40 °C ^[11]	–	6.3	8.0	
			70 °C ^[11]	–	8.4	12.0	
			85 °C	–	12.0	16.0	
	Automatic Power-down Current – CMOS Inputs $V_{CC} = 1.65 \text{ V}$ to 2.2 V	$\overline{CE}_1 \geq V_{CC} - 0.2 \text{ V}$ or $CE_2 \leq 0.2 \text{ V}$ or $(\overline{BHE}$ and $\overline{BLE}) \geq V_{CC} - 0.2 \text{ V}$, $V_{IN} \geq V_{CC} - 0.2 \text{ V}$ or $V_{IN} \leq 0.2 \text{ V}$, $f = 0$, $V_{CC} = V_{CC(max)}$	–	7.0	26.0		

Notes

10. Chip enables (\overline{CE}_1 and CE_2), byte enables (\overline{BHE} and \overline{BLE}) and \overline{BYTE} must be tied to CMOS levels to meet the $I_{SB1}/I_{SB2} / I_{CCDR}$ spec. Other inputs can be left floating.
 11. Indicates the value for the center of distribution at 3.0 V, 25 °C and not 100% tested.

Capacitance

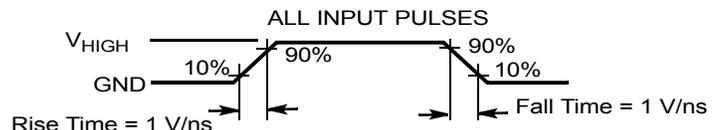
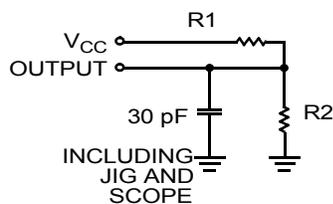
Parameter ^[12]	Description	Test Conditions	Max	Unit
C _{IN}	Input capacitance	T _A = 25 °C, f = 1 MHz, V _{CC} = V _{CC(typ)}	10	pF
C _{OUT}	Output capacitance		10	pF

Thermal Resistance

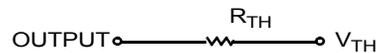
Parameter ^[12]	Description	Test Conditions	48-ball VFBGA	48-pin TSOP I	Unit
Θ _{JA}	Thermal resistance (junction to ambient)	Still air, soldered on a 3 × 4.5 inch, four-layer printed circuit board	31.50	57.99	°C/W
Θ _{JC}	Thermal resistance (junction to case)		15.75	13.42	°C/W

AC Test Loads and Waveforms

Figure 3. AC Test Loads and Waveforms



Equivalent to: THÉVENIN EQUIVALENT



Parameters	1.8 V	2.5 V	3.0 V	5.0 V	Unit
R ₁	13500	16667	1103	1800	Ω
R ₂	10800	15385	1554	990	Ω
R _{TH}	6000	8000	645	639	Ω
V _{TH}	0.80	1.20	1.75	1.77	V
V _{HIGH}	1.8	2.5	3.0	5.0	V

Note

12. Tested initially and after any design or process changes that may affect these parameters.

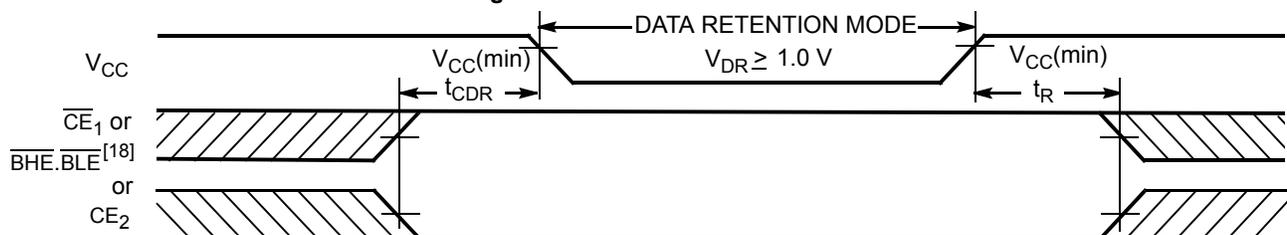
Data Retention Characteristics

Over the Operating Range

Parameter	Description	Conditions	Min	Typ ^[13]	Max	Unit
V_{DR}	V_{CC} for data retention		1.0	–	–	V
I_{CCDR} ^[14, 15]	Data retention current	$V_{CC} = 2.2\text{ V to }3.6\text{ V}$, $\overline{CE}_1 \geq V_{CC} - 0.2\text{ V}$ or $CE_2 \leq 0.2\text{ V}$ or $(\overline{BHE}$ and $\overline{BLE}) \geq V_{CC} - 0.2\text{ V}$, $V_{IN} \geq V_{CC} - 0.2\text{ V}$ or $V_{IN} \leq 0.2\text{ V}$	–	5.5	16	μA
		$1.2\text{ V} \leq V_{CC} \leq 2.2\text{ V}$, $\overline{CE}_1 \geq V_{CC} - 0.2\text{ V}$ or $CE_2 \leq 0.2\text{ V}$ or $(\overline{BHE}$ and $\overline{BLE}) \geq V_{CC} - 0.2\text{ V}$, $V_{IN} \geq V_{CC} - 0.2\text{ V}$ or $V_{IN} \leq$	–	5.5	16.0	
t_{CDR} ^[16]	Chip deselect to data retention time		0	–	–	–
t_R ^[17, 19]	Operation recovery time		45/55	–	–	ns

Data Retention Waveform

Figure 4. Data Retention Waveform



Notes

13. Indicates the value for the center of distribution at 3.0 V, 25 °C and not 100% tested.
14. Chip enables (\overline{CE}_1 and CE_2), byte enables (BHE and BLE) and BYTE must be tied to CMOS levels to meet the $I_{SB1} / I_{SB2} / I_{CCDR}$ spec. Other inputs can be left floating.
15. I_{CCDR} is guaranteed only after the device is first powered up to $V_{CC(min)}$ and then brought down to V_{DR} .
16. Tested initially and after any design or process changes that may affect these parameters.
17. Full device operation requires linear V_{CC} ramp from V_{DR} to $V_{CC(min)} \geq 100\ \mu\text{s}$ or stable at $V_{CC(min)} \geq 100\ \mu\text{s}$.
18. $\overline{BHE.BLE}$ is the AND of both BHE and BLE. Deselect the chip by either disabling the chip enable signals or by disabling both \overline{BHE} and \overline{BLE} .
19. These parameters are guaranteed by design and are not tested.

Switching Characteristics

Parameter ^[20]	Description	45 ns		55 ns		Unit
		Min	Max	Min	Max	
Read Cycle						
t _{RC}	Read cycle time	45.0	–	55.0	–	ns
t _{AA}	Address to data valid	–	45.0	–	55.0	ns
t _{OHA}	Data hold from address change	10.0	–	10.0	–	ns
t _{ACE}	\overline{CE}_1 LOW and CE ₂ HIGH to data valid	–	45.0	–	55.0	ns
t _{DOE}	\overline{OE} LOW to data valid	–	22.0	–	25.0	ns
t _{LZOE}	\overline{OE} LOW to Low Z ^[21, 22]	5.0	–	5.0	–	ns
t _{HZOE}	\overline{OE} HIGH to High Z ^[21, 22, 23]	–	18.0	–	18.0	ns
t _{LZCE}	\overline{CE}_1 LOW and CE ₂ HIGH to Low Z ^[21, 22]	10.0	–	10.0	–	ns
t _{HZCE}	\overline{CE}_1 HIGH and CE ₂ LOW to High Z ^[21, 22, 23]	–	18.0	–	18.0	ns
t _{PU}	\overline{CE}_1 LOW and CE ₂ HIGH to power-up ^[24]	0	–	0	–	ns
t _{PD}	\overline{CE}_1 HIGH and CE ₂ LOW to power-down ^[24]	–	45.0	–	55.0	ns
t _{DBE}	BLE / BHE LOW to data valid	–	45.0	–	55.0	ns
t _{LZBE}	\overline{BLE} / \overline{BHE} LOW to Low Z ^[21, 22]	5.0	–	5.0	–	ns
t _{HZBE}	\overline{BLE} / \overline{BHE} HIGH to High Z ^[21, 22, 23]	–	18.0	–	18.0	ns
Write Cycle^[25, 26]						
t _{WC}	Write cycle time	45	–	55	–	ns
t _{SCE}	\overline{CE}_1 LOW and CE ₂ HIGH to write end	35	–	40	–	ns
t _{AW}	Address setup to write end	35	–	40	–	ns
t _{HA}	Address hold from write end	0	–	0	–	ns
t _{SA}	Address setup to write start	0	–	0	–	ns
t _{PWE}	\overline{WE} pulse width	35	–	40	–	ns
t _{BW}	\overline{BLE} / \overline{BHE} LOW to write end	35	–	40	–	ns
t _{SD}	Data setup to write end	25	–	25	–	ns
t _{HD}	Data hold from write end	0	–	0	–	ns
t _{HZWE}	\overline{WE} LOW to High Z ^[21, 22, 23]	–	18	–	20	ns
t _{LZWE}	\overline{WE} HIGH to Low Z ^[21, 22]	10	–	10	–	ns

Notes

20. Test conditions for all parameters other than tri-state parameters assume signal transition time of 1 V/ns, timing reference levels of V_{CC(typ)}/2, input pulse levels of 0 to V_{CC(typ)}, and output loading of the specified I_{OL}/I_{OH} as shown in Figure 3 on page 6.
21. At any temperature and voltage condition, t_{HZCE} is less than t_{LZCE}, t_{HZBE} is less than t_{LZBE}, t_{HZOE} is less than t_{LZOE}, and t_{HZWE} is less than t_{LZWE} for any device.
22. Tested initially and after any design or process changes that may affect these parameters.
23. t_{HZOE}, t_{HZCE}, t_{HZBE}, and t_{HZWE} transitions are measured when the outputs enter a high impedance state.
24. These parameters are guaranteed by design and are not tested.
25. The internal write time of the memory is defined by the overlap of \overline{WE} , $\overline{CE}_1 = V_{IL}$, \overline{BHE} or \overline{BLE} or both = V_{IL}, and CE₂ = V_{IH}. All signals must be ACTIVE to initiate a write and any of these signals can terminate a write by going INACTIVE. The data input setup and hold timing must refer to the edge of the signal that terminates the write.
26. The minimum write cycle pulse width for Write Cycle No. 3 (WE Controlled, OE LOW) should be equal to the sum of t_{HZWE} and t_{SD}.

Switching Waveforms

Figure 5. Read Cycle No. 1 (Address Transition Controlled)^[27, 28]

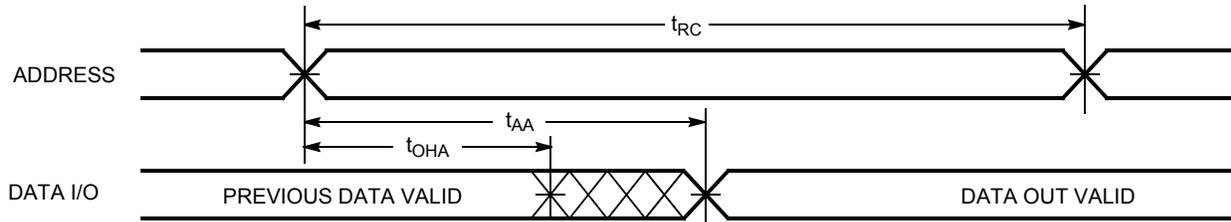
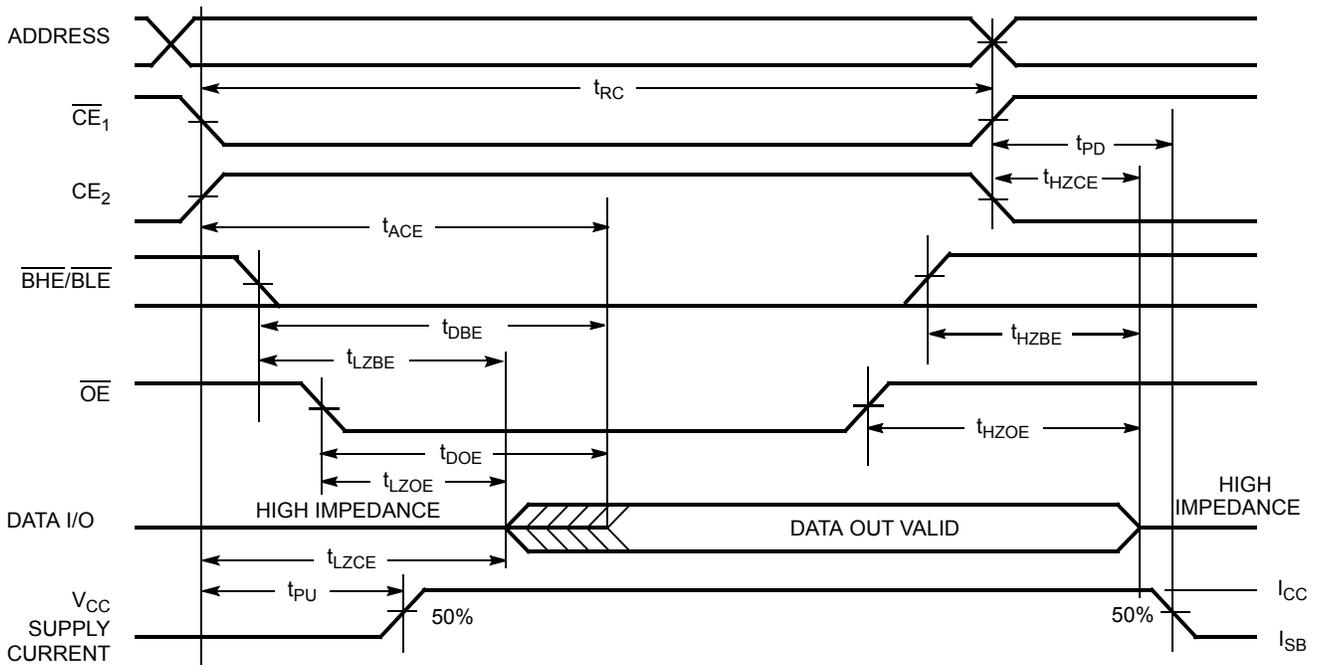


Figure 6. Read Cycle No. 2 (\overline{OE} Controlled)^[28, 29]

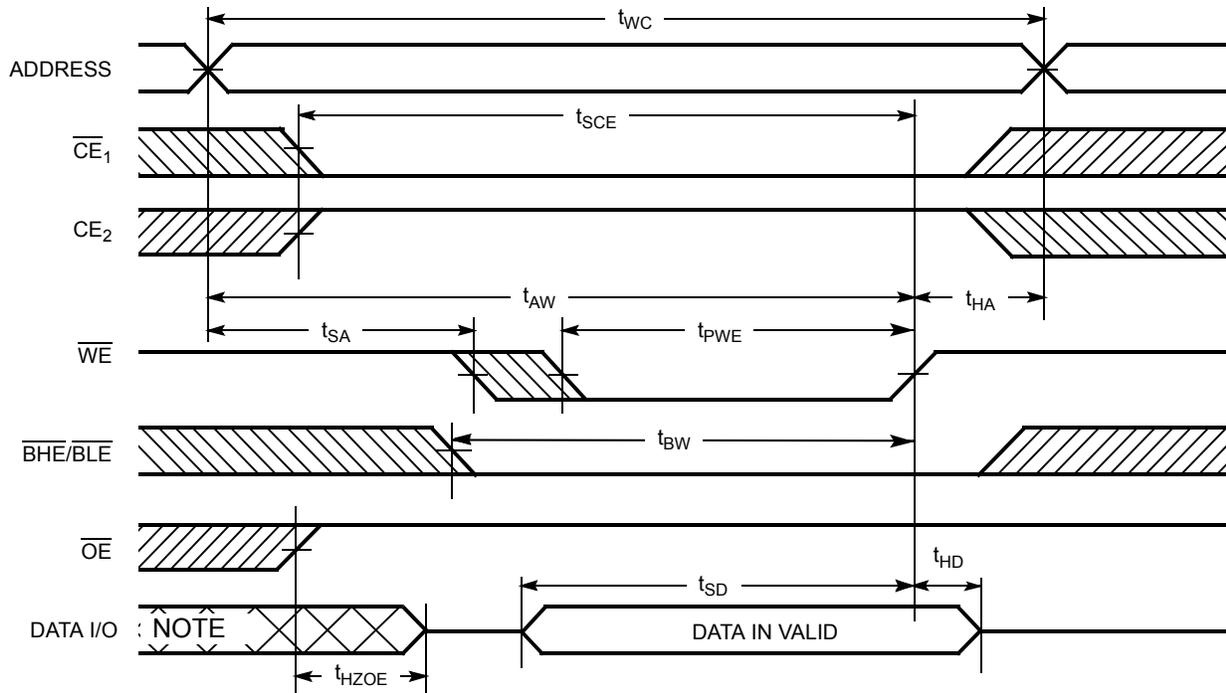


Notes

- 27. The device is continuously selected. \overline{OE} , $\overline{CE}_1 = V_{IL}$, \overline{BHE} , \overline{BLE} or both = V_{IL} , and $CE_2 = V_{IH}$.
- 28. \overline{WE} is HIGH for read cycle.
- 29. Address valid before or similar to \overline{CE}_1 , \overline{BHE} , \overline{BLE} transition LOW and CE_2 transition HIGH.

Switching Waveforms (continued)

Figure 7. Write Cycle No. 1 (\overline{WE} Controlled)^[30, 31, 32]

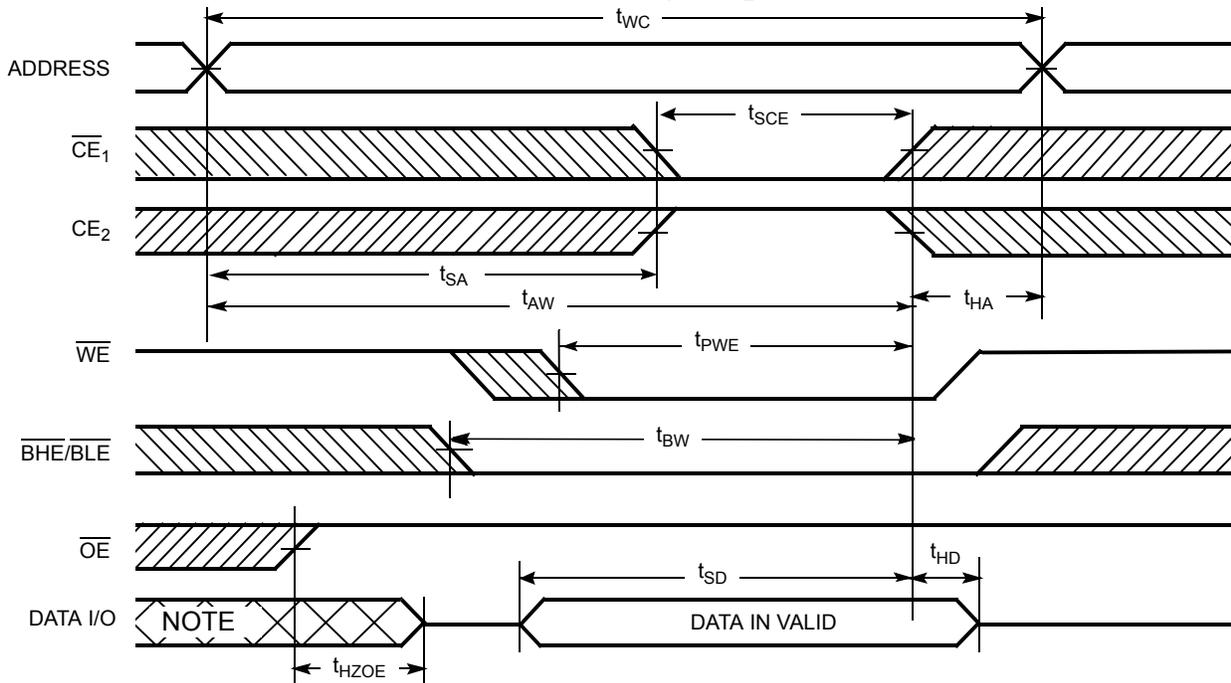


Notes

- 30. The internal write time of the memory is defined by the overlap of \overline{WE} , $\overline{CE}_1 = V_{IL}$, \overline{BHE} or \overline{BLE} or both = V_{IL} , and $CE_2 = V_{IH}$. All signals must be ACTIVE to initiate a write and any of these signals can terminate a write by going INACTIVE. The data input setup and hold timing must refer to the edge of the signal that terminates the write.
- 31. Data I/O is high impedance if $OE = V_{IH}$.
- 32. If \overline{CE}_1 goes HIGH and CE_2 goes LOW simultaneously with $\overline{WE} = V_{IH}$, the output remains in a high impedance state.
- 33. During this period the I/Os are in output state. Do not apply input signals.

Switching Waveforms (continued)

Figure 8. Write Cycle No. 2 (\overline{CE}_1 or CE_2 Controlled)^[34, 35]



Notes

- 34. The internal write time of the memory is defined by the overlap of \overline{WE} , $\overline{CE}_1 = V_{IL}$, \overline{BHE} or \overline{BLE} or both = V_{IL} , and $CE_2 = V_{IH}$. All signals must be ACTIVE to initiate a write and any of these signals can terminate a write by going INACTIVE. The data input setup and hold timing must refer to the edge of the signal that terminates the write.
- 35. If \overline{CE}_1 goes HIGH and CE_2 goes LOW simultaneously with $\overline{WE} = V_{IH}$, the output remains in a high impedance state.
- 36. During this period the I/Os are in output state. Do not apply input signals.

Switching Waveforms (continued)

Figure 9. Write Cycle No. 3 (\overline{WE} Controlled, \overline{OE} LOW)^[37, 38]

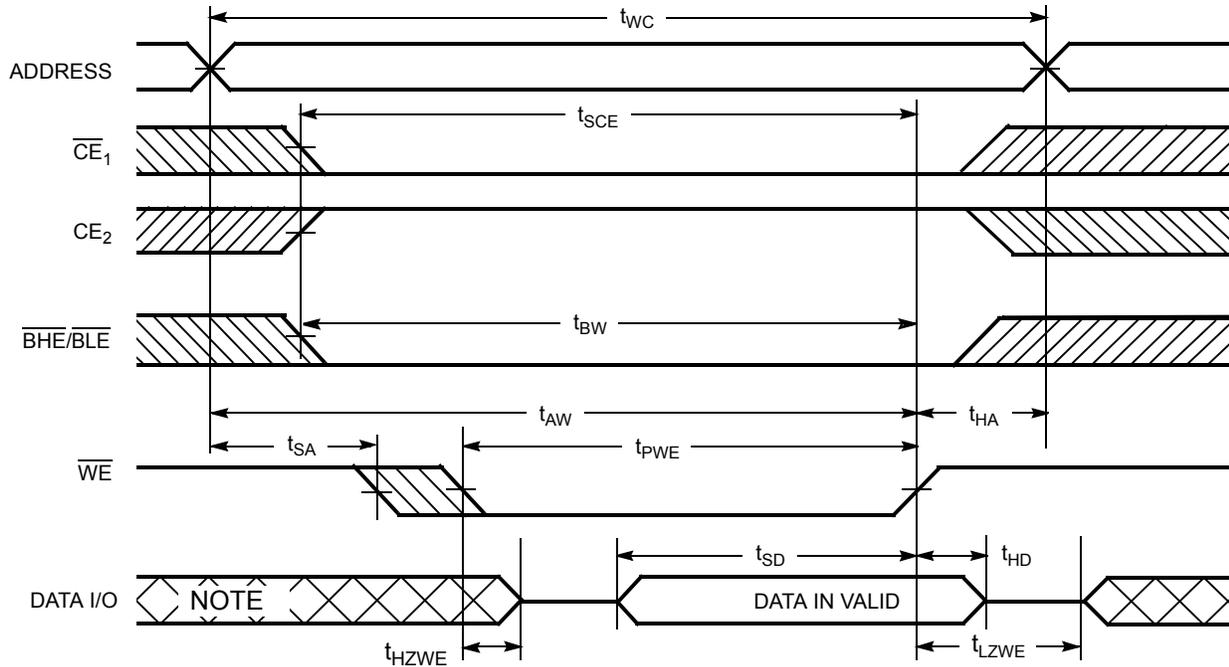
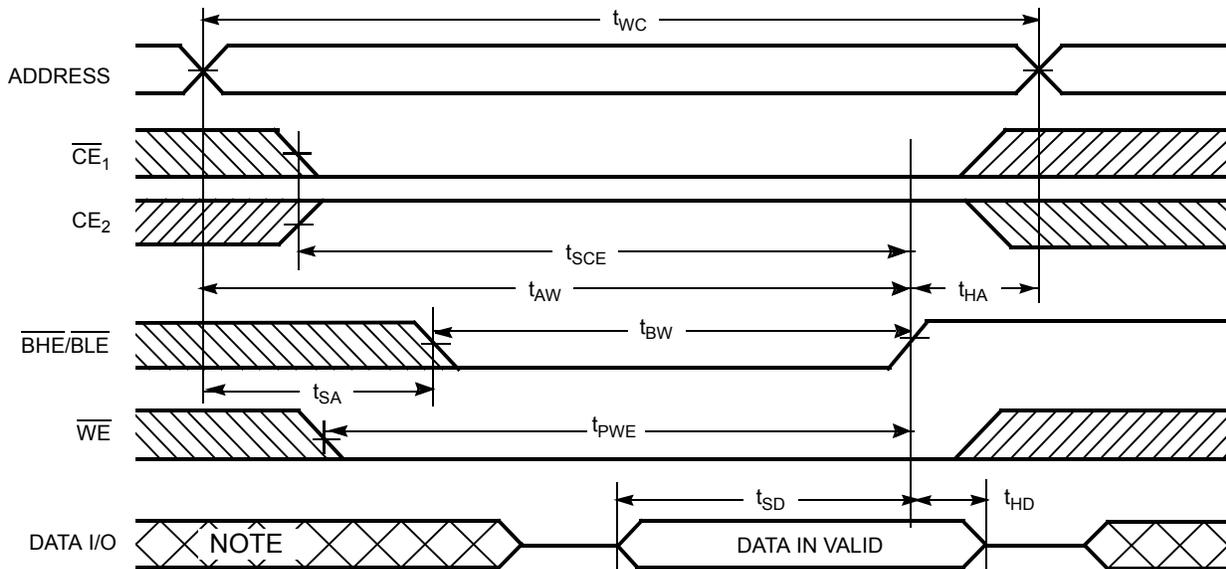


Figure 10. Write Cycle No. 4 ($\overline{BHE}/\overline{BLE}$ Controlled, \overline{OE} LOW)^[37, 38]



Notes

- 37. If \overline{CE}_1 goes HIGH and \overline{CE}_2 goes LOW simultaneously with $\overline{WE} = V_{IH}$, the output remains in a high impedance state.
- 38. The minimum write cycle pulse width should be equal to the sum of t_{HZWE} and t_{SD} .
- 39. During this period the I/Os are in output state. Do not apply input signals.

Truth Table

\overline{CE}_1	CE_2	\overline{WE}	\overline{OE}	\overline{BHE}	\overline{BLE}	Inputs/Outputs	Mode	Power
H	X ^[40]	X	X	X ^[40]	X ^[40]	High Z	Deselect/Power-down	Standby (I_{SB})
X ^[40]	L	X	X	X ^[40]	X ^[40]	High Z	Deselect/Power-down	Standby (I_{SB})
X ^[40]	X ^[40]	X	X	H	H	High Z	Deselect/Power-down	Standby (I_{SB})
L	H	H	L	L	L	Data Out (I/O_0 – I/O_{15})	Read	Active (I_{CC})
L	H	H	L	H	L	Data Out (I/O_0 – I/O_7); High Z (I/O_8 – I/O_{15})	Read	Active (I_{CC})
L	H	H	L	L	H	High Z (I/O_0 – I/O_7); Data Out (I/O_8 – I/O_{15})	Read	Active (I_{CC})
L	H	H	H	X	X	High Z	Output disabled	Active (I_{CC})
L	H	L	X	L	L	Data In (I/O_0 – I/O_{15})	Write	Active (I_{CC})
L	H	L	X	H	L	Data In (I/O_0 – I/O_7); High Z (I/O_8 – I/O_{15})	Write	Active (I_{CC})
L	H	L	X	L	H	High Z (I/O_0 – I/O_7); Data In (I/O_8 – I/O_{15})	Write	Active (I_{CC})

Note

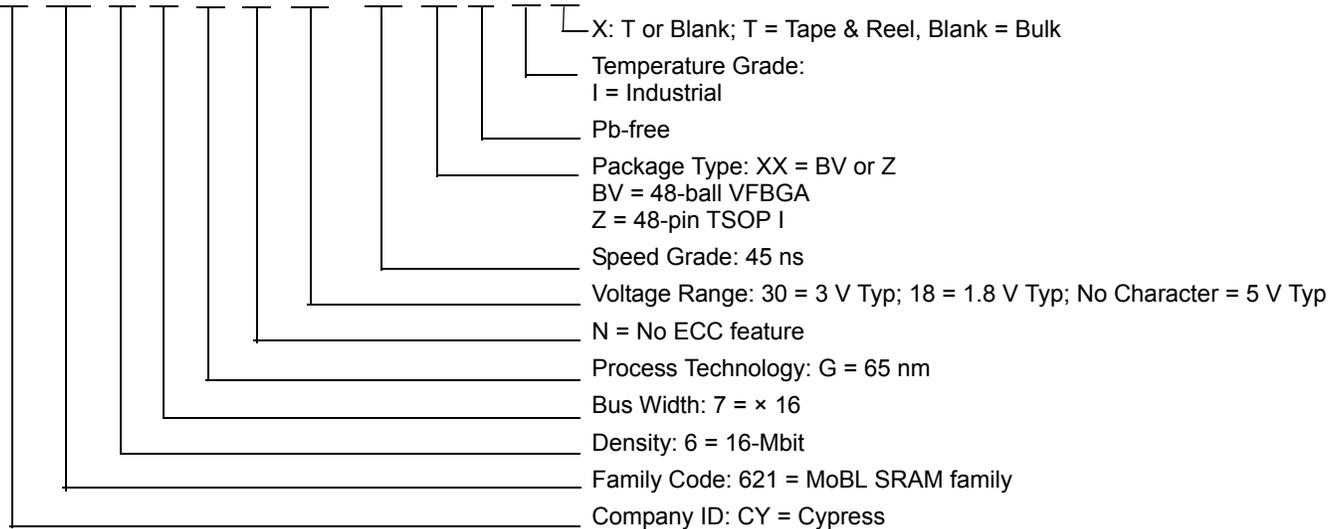
40. The 'X' (Don't care) state for the chip enables and Byte enables in the truth table refer to the logic state (either HIGH or LOW). Intermediate voltage levels on these pins is not permitted.

Ordering Information

Speed (ns)	Voltage Range	Ordering Code	Package Diagram	Package Type	Operating Range
55	1.65 V–2.2 V	CY62167GN18-55BVXI	51-85150	48-ball VFBGA (6 × 8 × 1 mm), Package Code: BV48	Industrial
		CY62167GN18-55BVXIT			
45	2.2 V–3.6 V	CY62167GN30-45BVXI	51-85150	48-ball VFBGA (6 × 8 × 1 mm), Package Code: BV48	
		CY62167GN30-45BVXIT			
		CY62167GN30-45ZXI	51-85183	48-pin TSOP I (Pb-free)	
		CY62167GN30-45ZXIT			
	4.5 V–5.5 V	CY62167GN-45ZXI	51-85183	48-pin TSOP I (Pb-free)	
		CY62167GN-45ZXIT			

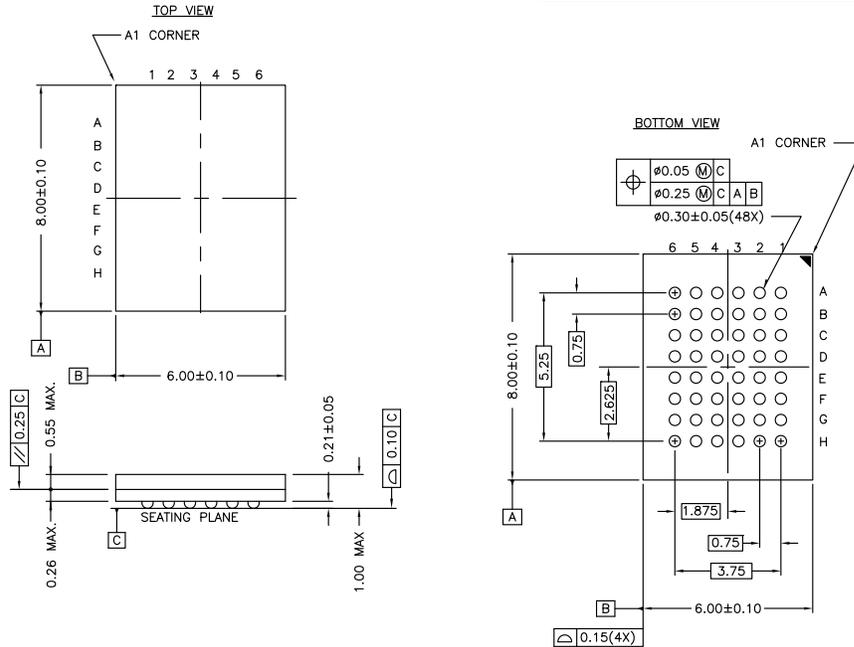
Ordering Code Definitions

CY 621 6 7 G N 30 - 45 XX X I X



Package Diagrams

Figure 11. 48-ball VFBGA (6 × 8 × 1.0 mm) BV48 (Non Pb-free) / BZ48 (Pb-free) Package Outline, 51-85150



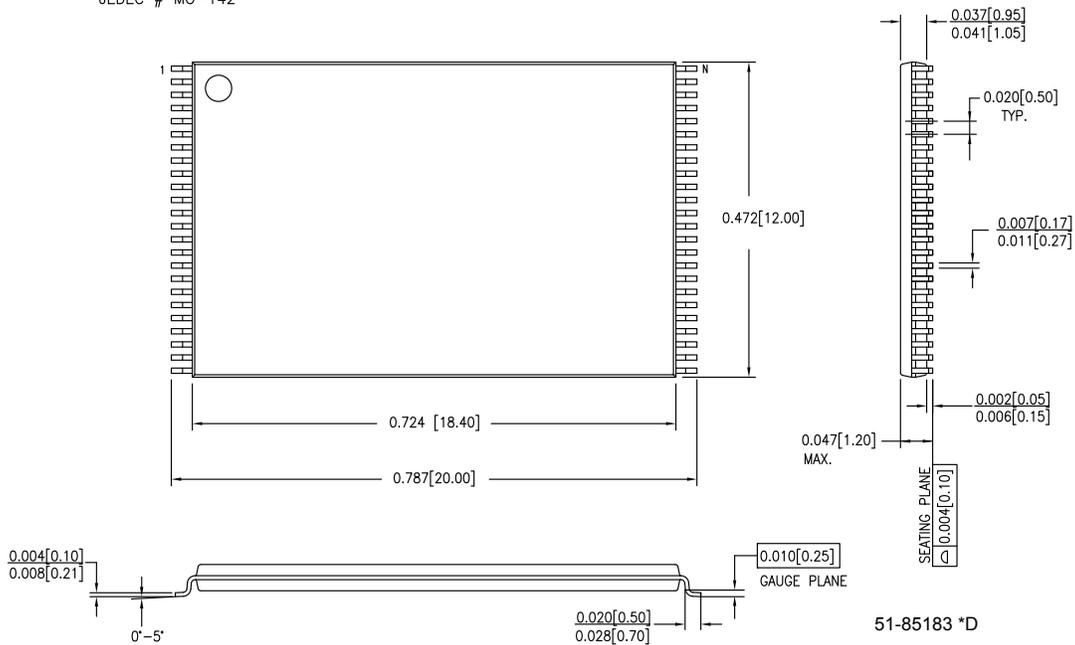
NOTE:
 PACKAGE WEIGHT: See Cypress Package Material Declaration Datasheet (PMDD)
 posted on the Cypress web.

51-85150 *H

Figure 12. 48-pin TSOP I (12 × 18.4 × 1.0 mm) Z48A Package Outline, 51-85183

DIMENSIONS IN INCHES[MM] MIN.
 MAX.

JEDEC # MO-142



51-85183 *D

Acronyms

Acronym	Description
BHE	Byte High Enable
BLE	Byte Low Enable
CE	Chip Enable
CMOS	Complementary Metal Oxide Semiconductor
I/O	Input/Output
OE	Output Enable
SRAM	Static Random Access Memory
TSOP	Thin Small Outline Package
VFBGA	Very Fine-Pitch Ball Grid Array
WE	Write Enable

Document Conventions

Units of Measure

Symbol	Unit of Measure
°C	degree Celsius
MHz	megahertz
μA	microampere
μs	microsecond
mA	milliampere
mm	millimeter
ns	nanosecond
Ω	ohm
%	percent
pF	picofarad
V	volt
W	watt

Document History Page

Document Title: CY62167GN MoBL®, 16-Mbit (1M × 16 / 2M × 8) Static RAM Document Number: 001-93628				
Rev.	ECN No.	Orig. of Change	Submission Date	Description of Change
*B	5210733	NILE	07/04/2016	Changed status from Preliminary to Final.
*C	5420388	VINI	09/08/2016	Updated Electrical Characteristics : Corrected VIH value in 2.2V to 2.7V operating range. Corrected VOH value in 2.7V to 3.6V operating range Updated Notes 5 and 6 . Updated Ordering Information : Added Tape and Reel parts. Updated Copyright and Disclaimer.

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