

Advance Information

256K x 16 CMOS Dynamic RAM

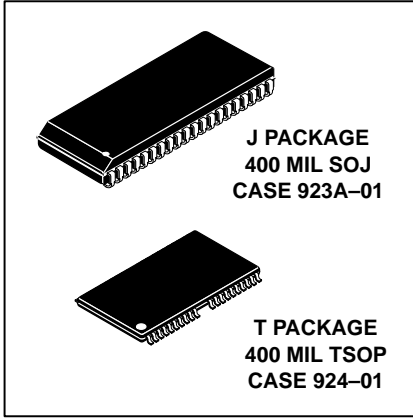
Fast Page Mode – 2 CAS, 1 Write Enable

The MCM54260B is a 0.6 μ CMOS high-speed dynamic random access memory. It is organized as 262,144 sixteen-bit words and fabricated with CMOS silicon-gate process technology. Advanced circuit design and fine line processing provide high performance, improved reliability, and low cost.

The MCM54260B requires only 9 address lines; row and column address inputs are multiplexed. The device is packaged in a standard 400 mil SOJ plastic package and a 400 mil thin-small-outline package (TSOP).

- Three-State Data Output
- Fast Page Mode
- TTL-Compatible Inputs and Outputs
- RAS-Only Refresh
- CAS Before RAS Refresh
- Hidden Refresh
- 512 Cycle Refresh:
 - MCM54260B = 8 ms
 - MCM5L4260B = 64 ms
 - MCM5S4260B = 64 ms
- Fast Access Time (t_{RAC}):
 - MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70 = 70 ns (Max)
 - MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80 = 80 ns (Max)
 - MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10 = 100 ns (Max)
- Low Active Power Dissipation:
 - MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70 = 550 mW (Max)
 - MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80 = 468 mW (Max)
 - MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10 = 413 mW (Max)
- Low Standby Power Dissipation:
 - MCM54260B, MCM5L4260B, and MCM5S4260B = 5.5 mW (Max, TTL Levels)
- Battery Backup Power Dissipation:
 - MCM5L4260B and MCM5S4260B = 1.7 mW (Max, Battery Backup Mode, $t_{RC} = 125 \mu s$)

MCM54260B
MCM5L4260B
MCM5S4260B



PIN NAMES	
A0 – A8	Address Inputs
<u>DQ0</u> – <u>DQ15</u>	Data Input/Output
<u>W</u>	Read/Write Enable
<u>RAS</u>	Row Address Strobe
LCAS, UCAS	Column Address Strobe
VCC	Power Supply (+ 5 V)
VSS	Ground
NC	No Connect
G	Output Enable

This document contains information on a product under development. Motorola reserves the right to change or discontinue this product without notice.

PIN ASSIGNMENTS

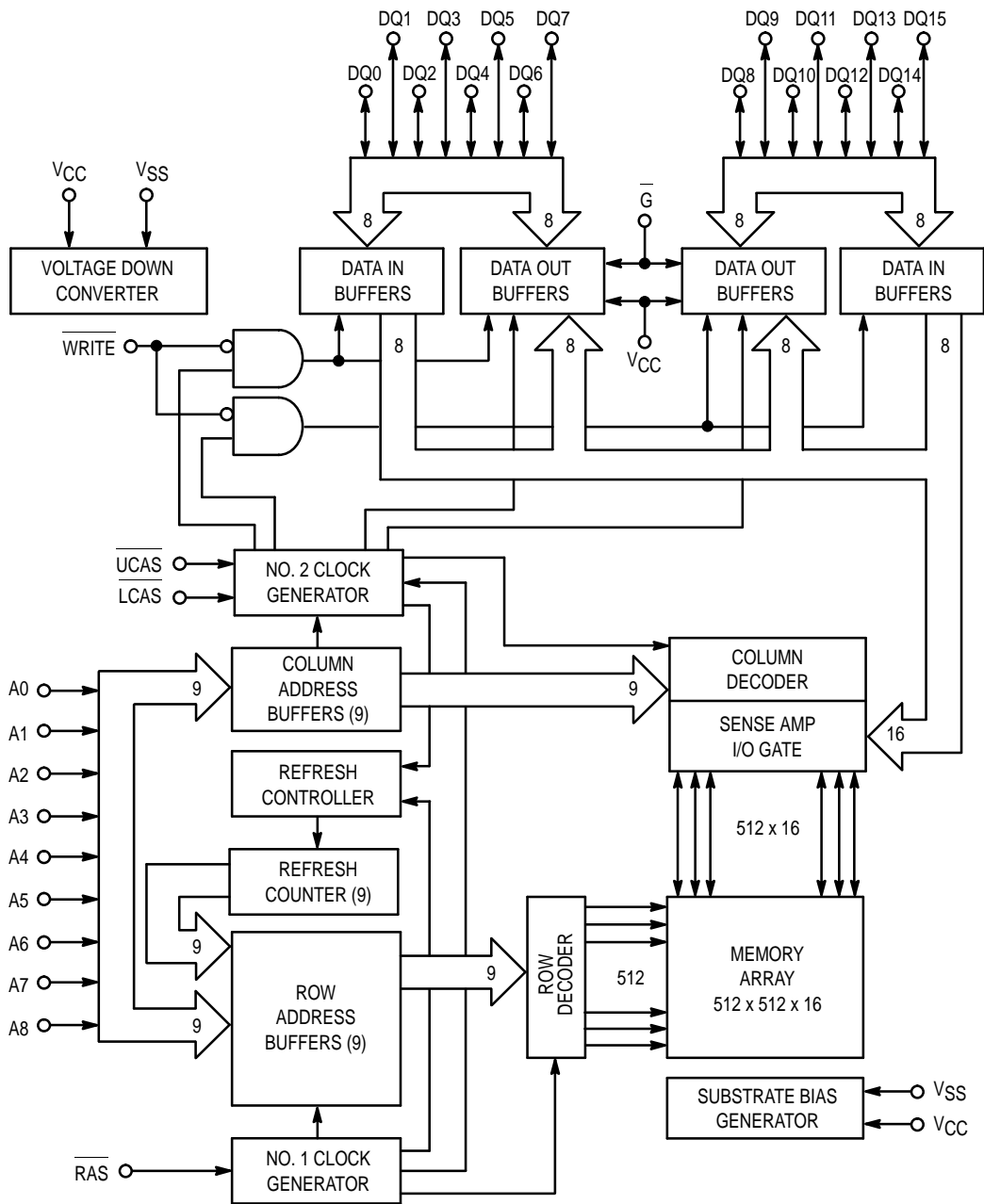
400 MIL SOJ

V _{CC}	1 ●	40	V _{SS}
DQ0	2	39	DQ15
DQ1	3	38	DQ14
DQ2	4	37	DQ13
DQ3	5	36	DQ12
V _{CC}	6	35	V _{SS}
DQ4	7	34	DQ11
DQ5	8	33	DQ10
DQ6	9	32	DQ9
DQ7	10	31	DQ8
NC	11	30	NC
NC	12	29	$\overline{\text{LCAS}}$
$\overline{\text{W}}$	13	28	$\overline{\text{UCAS}}$
$\overline{\text{RAS}}$	14	27	$\overline{\text{G}}$
NC	15	26	A8
A0	16	25	A7
A1	17	24	A6
A2	18	23	A5
A3	19	22	A4
V _{CC}	20	21	V _{SS}

400 MIL TSOP

V _{CC}	1 ●	44	V _{SS}
DQ0	2	43	DQ15
DQ1	3	42	DQ14
DQ2	4	41	DQ13
DQ3	5	40	DQ12
V _{CC}	6	39	V _{SS}
DQ4	7	38	DQ11
DQ5	8	37	DQ10
DQ6	9	36	DQ9
DQ7	10	35	DQ8
NC	13	32	NC
NC	14	31	$\overline{\text{LCAS}}$
$\overline{\text{W}}$	15	30	$\overline{\text{UCAS}}$
$\overline{\text{RAS}}$	16	29	$\overline{\text{G}}$
NC	17	28	A8
A0	18	27	A7
A1	19	26	A6
A2	20	25	A5
A3	21	24	A4
V _{CC}	22	23	V _{SS}

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS (See Note)

Rating	Symbol	Value	Unit
Power Supply Voltage	V_{CC}	- 1 to + 7	V
Voltage Relative to V_{SS} for Any Pin Except V_{CC}	V_{in}, V_{out}	- 1 to + 7	V
Data Out Current	I_{out}	50	mA
Power Dissipation	P_D	700	mW
Operating Temperature Range	T_A	0 to + 70	°C
Storage Temperature Range	T_{stg}	- 55 to + 150	°C

NOTE: Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. Functional operation should be restricted to RECOMMENDED OPERATING CONDITIONS. Exposure to higher than recommended voltages for extended periods of time could affect device reliability.

This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields; however, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high-impedance circuit.

DC OPERATING CONDITIONS AND CHARACTERISTICS

($V_{CC} = 5.0 \text{ V} \pm 10\%$, $T_A = 0 \text{ to } +70^\circ\text{C}$, Unless Otherwise Noted)

RECOMMENDED OPERATING CONDITIONS (Voltages referenced to V_{SS})

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage (Operating Voltage Range)	V_{CC}	4.5	5.0	5.5	V
	V_{SS}	0	0	0	
Logic High Voltage, All Inputs	V_{IH}	2.4	—	6.0	V
Logic Low Voltage, All Inputs Except DQ0 – DQ15	V_{IL}	-0.5*	—	0.8	V
Logic Low Voltage, DQ0 – DQ15	V_{IL}	-0.5*	—	0.8	V

*- 2.0 V at pulse width $\leq 20 \text{ ns}$

DC CHARACTERISTICS

Characteristic	Symbol	Min	Max	Unit	Notes
V_{CC} Power Supply Current MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70, $t_{RC} = 130 \text{ ns}$ MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80, $t_{RC} = 150 \text{ ns}$ MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10, $t_{RC} = 180 \text{ ns}$	I_{CC1}	—	100 85 75	mA	1, 2
V_{CC} Power Supply Current (Standby) (RAS = CAS = V_{IH})	I_{CC2}	—	2	mA	
V_{CC} Power Supply Current During RAS Only Refresh Cycles (CAS = V_{IH}) MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70, $t_{RC} = 130 \text{ ns}$ MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80, $t_{RC} = 150 \text{ ns}$ MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10, $t_{RC} = 180 \text{ ns}$	I_{CC3}	—	100 85 75	mA	1, 2
V_{CC} Power Supply Current During Fast Page Mode Cycle (RAS = V_{IL}) MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70, $t_{PC} = 45 \text{ ns}$ MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80, $t_{PC} = 50 \text{ ns}$ MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10, $t_{PC} = 60 \text{ ns}$	I_{CC4}	—	70 60 55	mA	1, 2
V_{CC} Power Supply Current (Standby) (RAS = CAS = $V_{CC} - 0.2 \text{ V}$) MCM54260B MCM5L4260B MCM5S4260B	I_{CC5}	—	1.0 200 200	mA μA μA	
V_{CC} Power Supply Current During CAS Before RAS Refresh Cycle MCM54260B-70, MCM5L4260B-70, and MCM5S4260B-70, $t_{RC} = 130 \text{ ns}$ MCM54260B-80, MCM5L4260B-80, and MCM5S4260B-80, $t_{RC} = 150 \text{ ns}$ MCM54260B-10, MCM5L4260B-10, and MCM5S4260B-10, $t_{RC} = 180 \text{ ns}$	I_{CC6}	—	100 85 75	mA	1
V_{CC} Power Supply Current, <u>Battery Backup Mode</u> —MCM5L4260B and MCM5S4260B ($t_{RC} = 125 \mu\text{s}$; $t_{RAS} = 1 \mu\text{s}$; CAS = CAS Before RAS Cycle or 0.2 V; A0 – A8, W, D = $V_{CC} - 0.2 \text{ V}$ or 0.2 V)	I_{CC7}	—	300	μA	1, 3
Input Leakage Current ($0 \text{ V} \leq V_{in} \leq 7.0 \text{ V}$)	$I_{lkg(I)}$	-10	10	μA	
Output Leakage Current ($0 \text{ V} \leq V_{out} \leq 7.0 \text{ V}$, Output Disable)	$I_{lkg(O)}$	-10	10	μA	
Output High Voltage ($I_{OH} = -5 \text{ mA}$)	V_{OH}	2.4	—	V	
Output Low Voltage ($I_{OL} = 4.2 \text{ mA}$)	V_{OL}	—	0.4	V	

NOTES:

- Current is a function of cycle rate and output loading. Maximum currents are at the specified cycle time (min) with the output open.
- Column address can be changed once or less while RAS = V_{IL} and CAS = V_{IH} .
- $t_{RAS}(\text{max}) = 1 \mu\text{s}$ is only applied to refresh of battery back-up. $t_{RAS}(\text{max}) = 10 \mu\text{s}$ is applied to functional operating.

CAPACITANCE (f = 1.0 MHz, $T_A = 25^\circ\text{C}$, $V_{CC} = 5 \text{ V}$, periodically sampled, not 100% tested)

Parameter	Symbol	Max	Unit
Input Capacitance A0 – A8 RAS, CAS, W, G	C_{in}	5	pF
		7	
Input/Output Capacitance (CAS = V_{IH} to Disable Output) DQ0 – DQ15	C_{out}	7	pF

NOTE: Capacitance measured with a Boonton Meter or effective capacitance calculated from the equation: $C = I \Delta t / \Delta V$.

AC OPERATING CONDITIONS AND CHARACTERISTICS

($V_{CC} = 5.0\text{ V} \pm 10\%$, $T_A = 0\text{ to } +70^\circ\text{C}$, Unless Otherwise Noted)

READ, WRITE, AND READ-MODIFY-WRITE CYCLES (See Notes 1, 2, 3, 4, and 5)

Parameter	Symbol		MCM54260B-70 MCM5L4260B-70 MCM5S4260B-70		MCM54260B-80 MCM5L4260B-80 MCM5S4260B-80		MCM54260B-10 MCM5L4260B-10 MCM5S4260B-10		Unit	Notes
	Std	Alt	Min	Max	Min	Max	Min	Max		
Random Read or Write Cycle Time	t _{RELREL}	t _{RC}	130	—	150	—	180	—	ns	5
Read-Modify-Write Cycle Time	t _{RELREL}	t _{RWC}	185	—	205	—	245	—	ns	5
Page Mode Cycle Time	t _{CELCEL}	t _{PC}	45	—	50	—	60	—	ns	
Page Mode Read-Modify-Write Cycle Time	t _{CELCEL}	t _{PRWC}	100	—	105	—	125	—	ns	
Access Time from RAS	t _{RELQV}	t _{RAC}	—	70	—	80	—	100	ns	6,7,8
Access Time from CAS	t _{CELQV}	t _{CAC}	—	20	—	20	—	25	ns	6, 7
Access Time from Column Address	t _{AVQV}	t _{AA}	—	35	—	40	—	50	ns	6, 8
Access Time from CAS Precharge	t _{CEHQV}	t _{CPA}	—	40	—	45	—	55	ns	6
CAS to Output in Low-Z	t _{CELQX}	t _{CLZ}	0	—	0	—	0	—	ns	6
Output Buffer Turn-Off Delay	t _{CEHQZ}	t _{OFF}	0	15	0	15	0	20	ns	9
Transition Time (Rise and Fall)	t _T	t _T	3	50	3	50	3	50	ns	
RAS Precharge Time	t _{REHREL}	t _{RP}	50	—	60	—	70	—	ns	
RAS Pulse Width	t _{RELREH}	t _{RAS}	70	10,000	80	10,000	100	10,000	ns	
RAS Pulse Width (Page Mode)	t _{RELREH}	t _{RASP}	70	100,000	80	100,000	100	100,000	ns	
RAS Hold Time	t _{CELREH}	t _{RSH}	20	—	20	—	25	—	ns	
CAS Hold Time	t _{RELCEH}	t _{CSH}	70	—	80	—	100	—	ns	
CAS Pulse Width	t _{CELCEH}	t _{CAS}	20	10,000	20	10,000	25	10,000	ns	
RAS to CAS Delay Time	t _{RELCEL}	t _{RCD}	20	50	20	60	25	75	ns	7
RAS to Column Address Delay Time	t _{RELAV}	t _{RAD}	15	35	15	40	20	50	ns	8
CAS to RAS Precharge Time	t _{CEHREL}	t _{CRP}	5	—	5	—	10	—	ns	
CAS Precharge Time (Page Mode Only)	t _{CEHCEL}	t _{CP}	10	—	10	—	10	—	ns	
RAS Hold Time From CAS Precharge (Page Mode Only)	t _{CEHREH}	t _{RHCP}	40	—	45	—	55	—	ns	
Row Address Setup Time	t _{AVREL}	t _{ASR}	0	—	0	—	0	—	ns	
Row Address Hold Time	t _{RELAX}	t _{RAH}	10	—	10	—	15	—	ns	
Column Address Setup Time	t _{AVCEL}	t _{ASC}	0	—	0	—	0	—	ns	
Column Address Hold Time	t _{CELAX}	t _{CAH}	15	—	15	—	20	—	ns	
Column Address to RAS Lead Time	t _{AVREH}	t _{RAL}	35	—	40	—	50	—	ns	

NOTES:

(continued)

- V_{IH} (min) and V_{IL} (max) are reference levels for measuring timing of input signals. Transition times are measured between V_{IH} and V_{IL} .
- An initial pause of 100 μs is required after power-up followed by 8 RAS only refresh cycles or 8 CAS before RAS refresh cycles, before proper device operation is guaranteed.
- The transition time specification applies for all input signals. In addition to meeting the transition rate specification, all input signals must transition between V_{IH} and V_{IL} (or between V_{IL} and V_{IH}) in a monotonic manner.
- AC measurements $t_T = 5.0\text{ ns}$.
- The specifications for t_{RC} (min) and t_{RMW} (min) are used only to indicate cycle time at which proper operation over the full temperature range ($0 \leq T_A \leq 70^\circ\text{C}$) is ensured.
- Measured with a current load equivalent to 2 TTL ($-200\ \mu\text{A}$, $+4\ \text{mA}$) loads and 100 pF with the data output trip points set at $V_{OH} = 2.0\ \text{V}$ and $V_{OL} = 0.8\ \text{V}$.
- Operation within the t_{RCD} (max) limit ensures that t_{RAC} (max) can be met. t_{RCD} (max) is specified as a reference point only; if t_{RCD} is greater than the specified t_{RCD} (max) limit, then access time is controlled exclusively by t_{CAC} .
- Operation within the t_{RAD} (max) limit ensures that t_{RAC} (max) can be met. t_{RAD} (max) is specified as a reference point only; if t_{RAD} is greater than the specified t_{RAD} (max) limit, then access time is controlled exclusively by t_{AA} .
- t_{OFF} (max) and t_{GZ} (max) defines the time at which the output achieves the open circuit condition and is not referenced to output voltage levels.

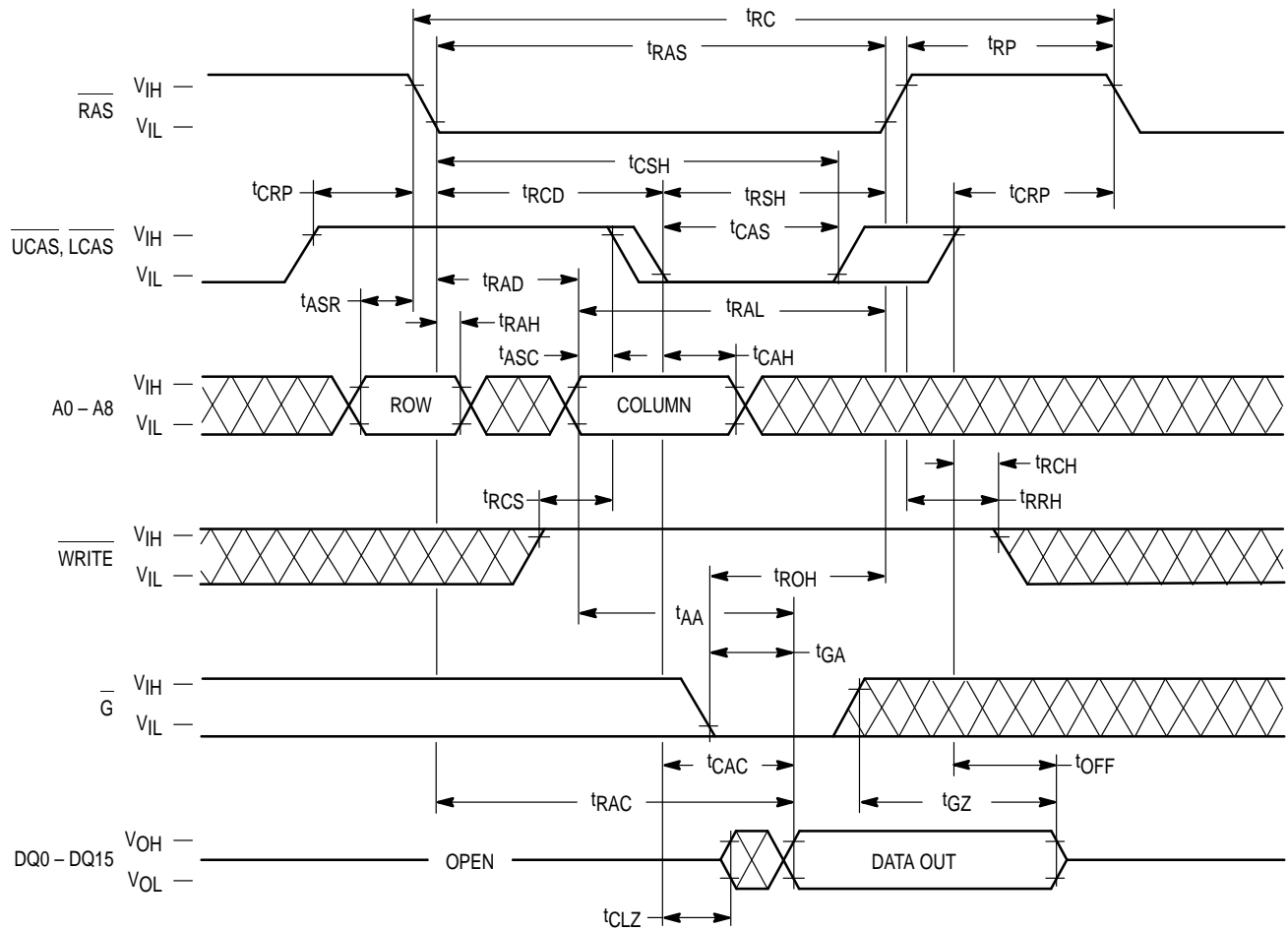
READ, WRITE, AND READ-MODIFY-WRITE CYCLES (Continued)

Parameter	Symbol		MCM54260B-70 MCM5L4260B-70 MCM5S4260B-70		MCM54260B-80 MCM5L4260B-80 MCM5S4260B-80		MCM54260B-10 MCM5L4260B-10 MCM5S4260B-10		Unit	Notes	
	Std	Alt	Min	Max	Min	Max	Min	Max			
Read Command Setup Time	t _{WHCEL}	t _{RCS}	0	—	0	—	0	—	ns		
Read Command Hold Time	t _{CEHWX}	t _{RCH}	0	—	0	—	0	—	ns	10	
Read Command Hold Time Referenced to RAS	t _{REHWX}	t _{RRH}	0	—	0	—	0	—	ns	10	
Write Command Hold Time	t _{CELWH}	t _{WCH}	15	—	15	—	20	—	ns		
Write Command Pulse Width	t _{WLWH}	t _{WP}	15	—	15	—	20	—	ns		
Write Command to RAS Lead Time	t _{WLREH}	t _{RWL}	20	—	20	—	25	—	ns		
Write Command to CAS Lead Time	t _{WLCEH}	t _{CWL}	20	—	20	—	25	—	ns		
Data in Setup Time	t _{DVCEL}	t _{DS}	0	—	0	—	0	—	ns	11	
Data in Hold Time	t _{CELDX}	t _{DH}	15	—	15	—	20	—	ns	11	
Refresh Period	MCM54260B MCM5L4260B MCM5S4260B	t _{RVRV}	t _{RFSH}	—	8 64 64	—	8 64 64	—	8 64 64	ms	
Write Command Setup Time	t _{WLCEL}	t _{WCS}	0	—	0	—	0	—	ns	12	
CAS to Write Delay	t _{CELWL}	t _{CWD}	50	—	50	—	60	—	ns	12	
RAS to Write Delay	t _{RELWL}	t _{RWD}	100	—	110	—	135	—	ns	12	
Column Address to Write Delay	t _{AVWL}	t _{AWD}	65	—	70	—	85	—	ns	12	
CAS Precharge to Write Delay	t _{CEHWL}	t _{CPWD}	70	—	75	—	90	—	ns	12	
CAS Setup Time for CAS Before RAS Cycle	t _{RELCEL}	t _{CSR}	5	—	5	—	5	—	ns		
CAS Hold Time for CAS Before RAS Cycle	t _{RELCEH}	t _{CHR}	15	—	15	—	20	—	ns		
RAS Precharge to CAS Active Time	t _{REHCEL}	t _{RPC}	5	—	5	—	5	—	ns		
CAS Precharge Time (CAS Before RAS Counter Test)	t _{CEHCEL}	t _{CPT}	30	—	30	—	40	—	ns		
RAS Hold Time Referenced to G	t _{GLREH}	t _{ROH}	10	—	10	—	20	—	ns		
G Access Time	t _{GLQV}	t _{GA}	—	20	—	20	—	25	ns	6	
G to Data Delay	t _{GLHDX}	t _{GD}	20	—	20	—	25	—	ns		
Output Buffer Turn-Off Delay Time from G	t _{GHQZ}	t _{GZ}	0	20	0	20	0	25	ns	9	
G Command Hold Time	t _{WLGL}	t _{GH}	20	—	20	—	25	—	ns		
Output Disable Setup Time	t _{GLCEL}	t _{GDS}	0	—	0	—	0	—	ns		

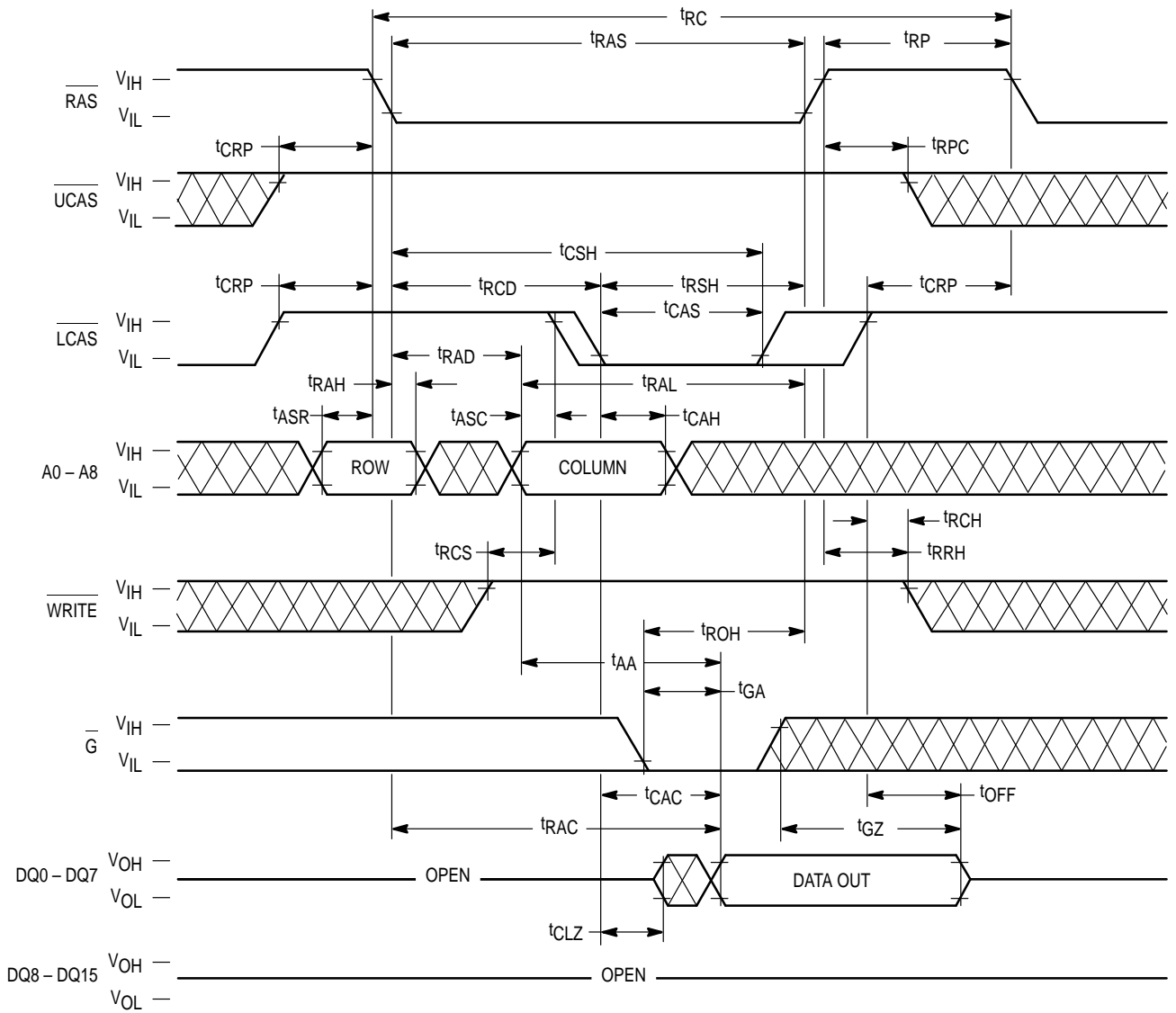
NOTES:

10. Either t_{RRH} or t_{RCH} must be satisfied for a read cycle.
11. These parameters are referenced to CAS leading edge in early write cycles and to W leading edge in late write or read-write cycles.
12. t_{WCS}, t_{RWD}, t_{CWD}, t_{CPWD}, and t_{AWD} are not restrictive operating parameters. They are included in the data sheet as electrical characteristics only. If t_{WCS} ≥ t_{WCS} (min), the cycle is an early write cycle and the data out pin will remain open circuit (high impedance) throughout the entire cycle. If t_{CWD} ≥ t_{CWD} (min), t_{CPWD} ≥ t_{CPWD} (min), t_{RWD} ≥ t_{RWD} (min), and t_{AWD} ≥ t_{AWD} (min), the cycle is a read-modify-write cycle and the data out will contain data read from the selected cell. If neither of these sets of conditions is satisfied, the condition of the data out (at access time) is indeterminate.

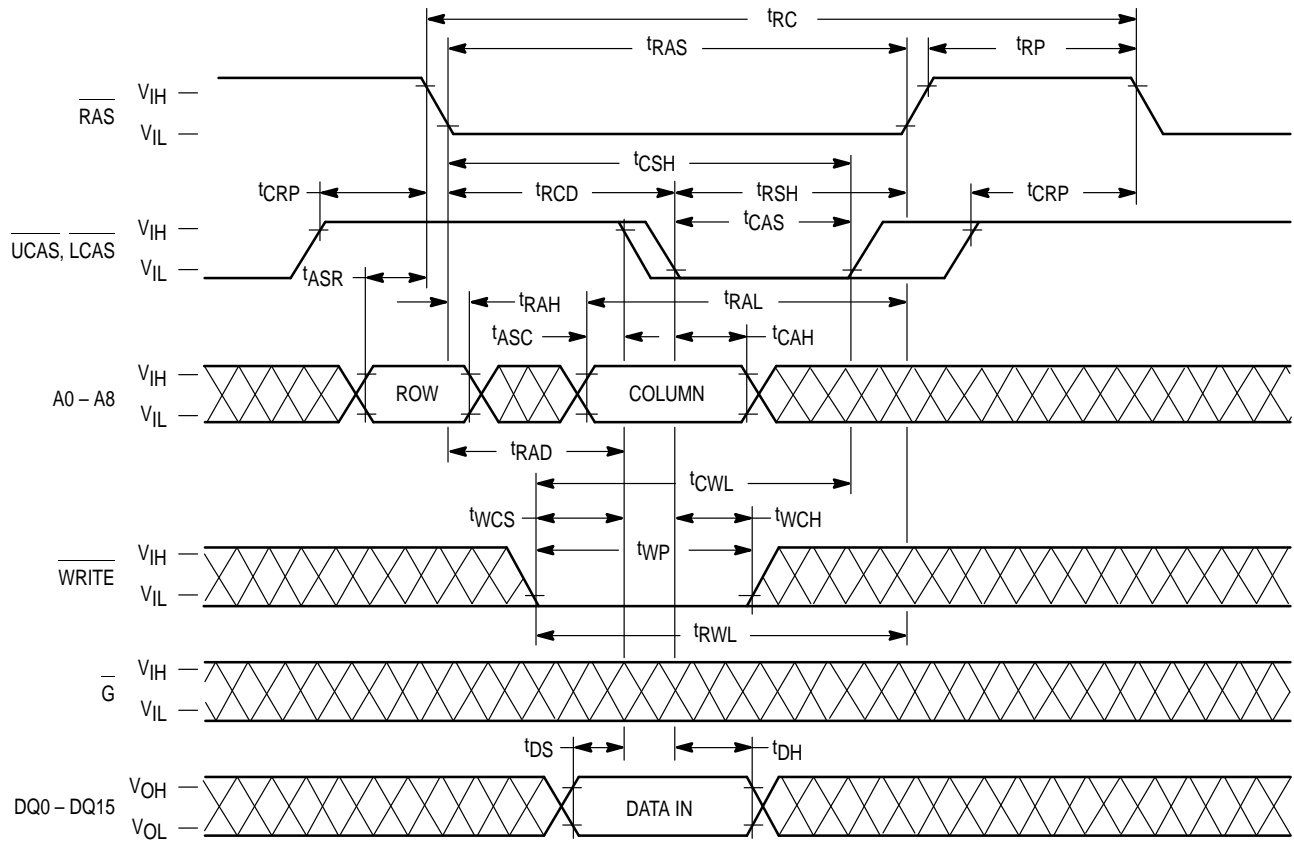
READ CYCLE



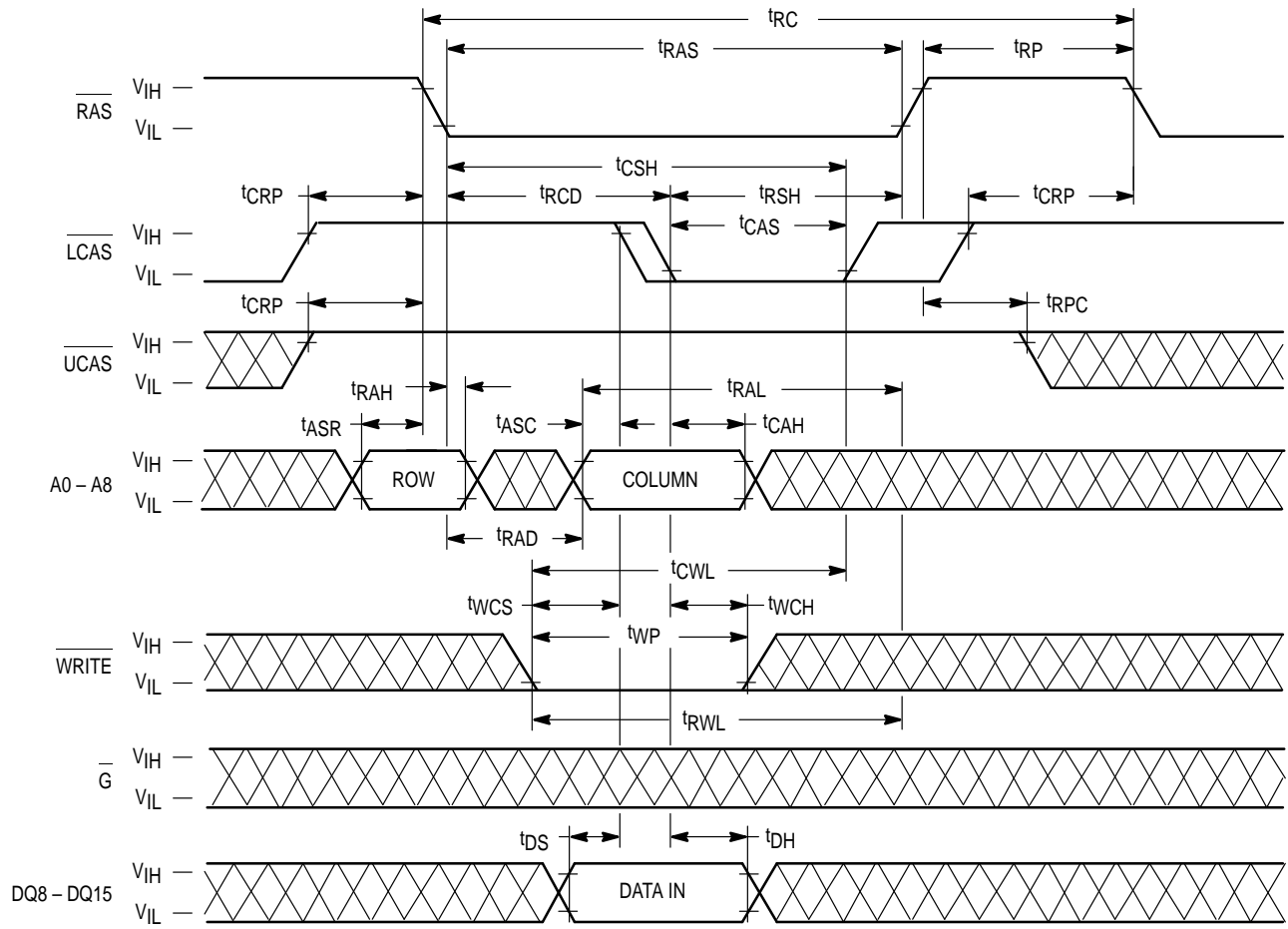
LOWER BYTE READ CYCLE



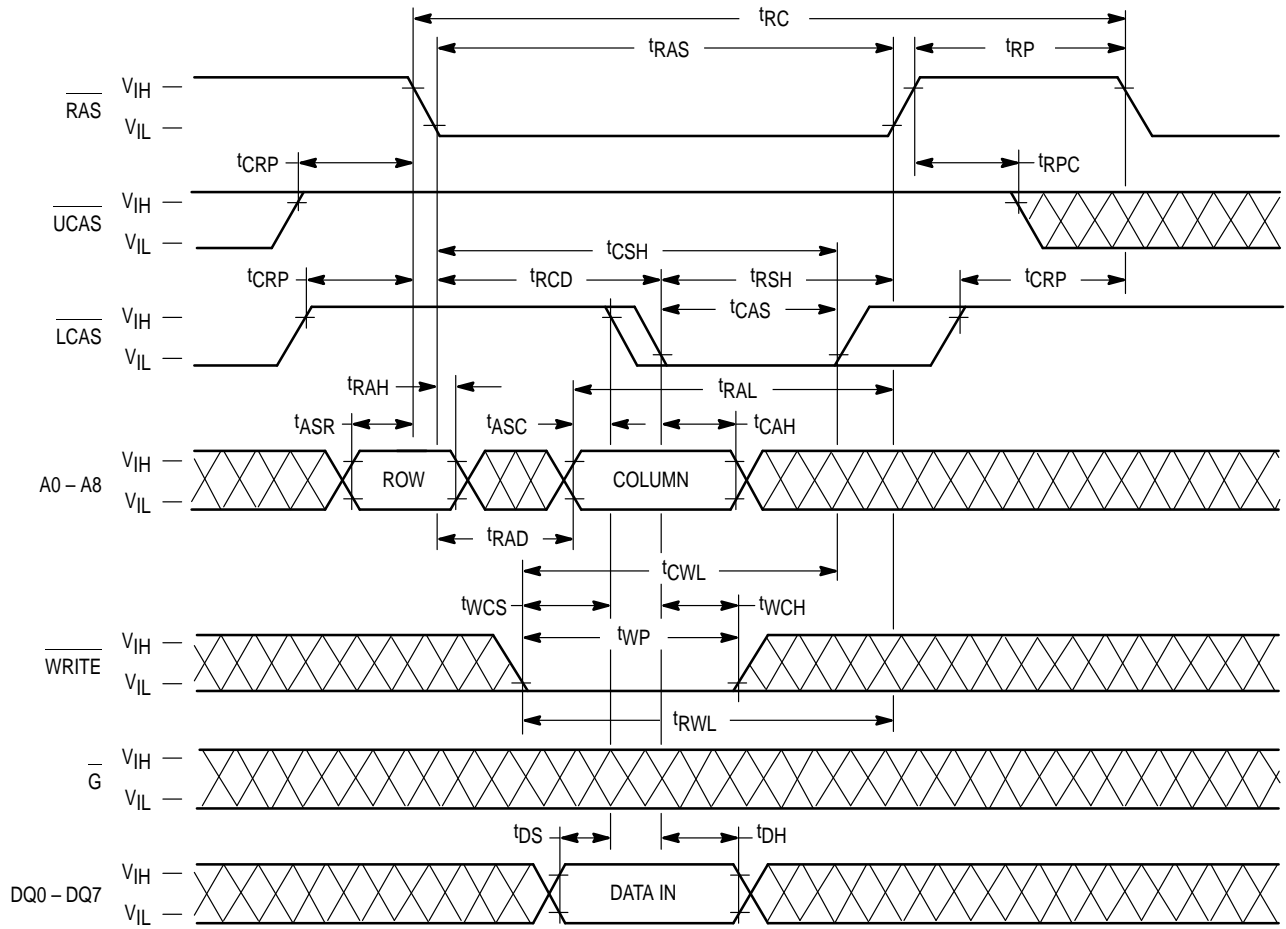
WRITE CYCLE (EARLY WRITE)



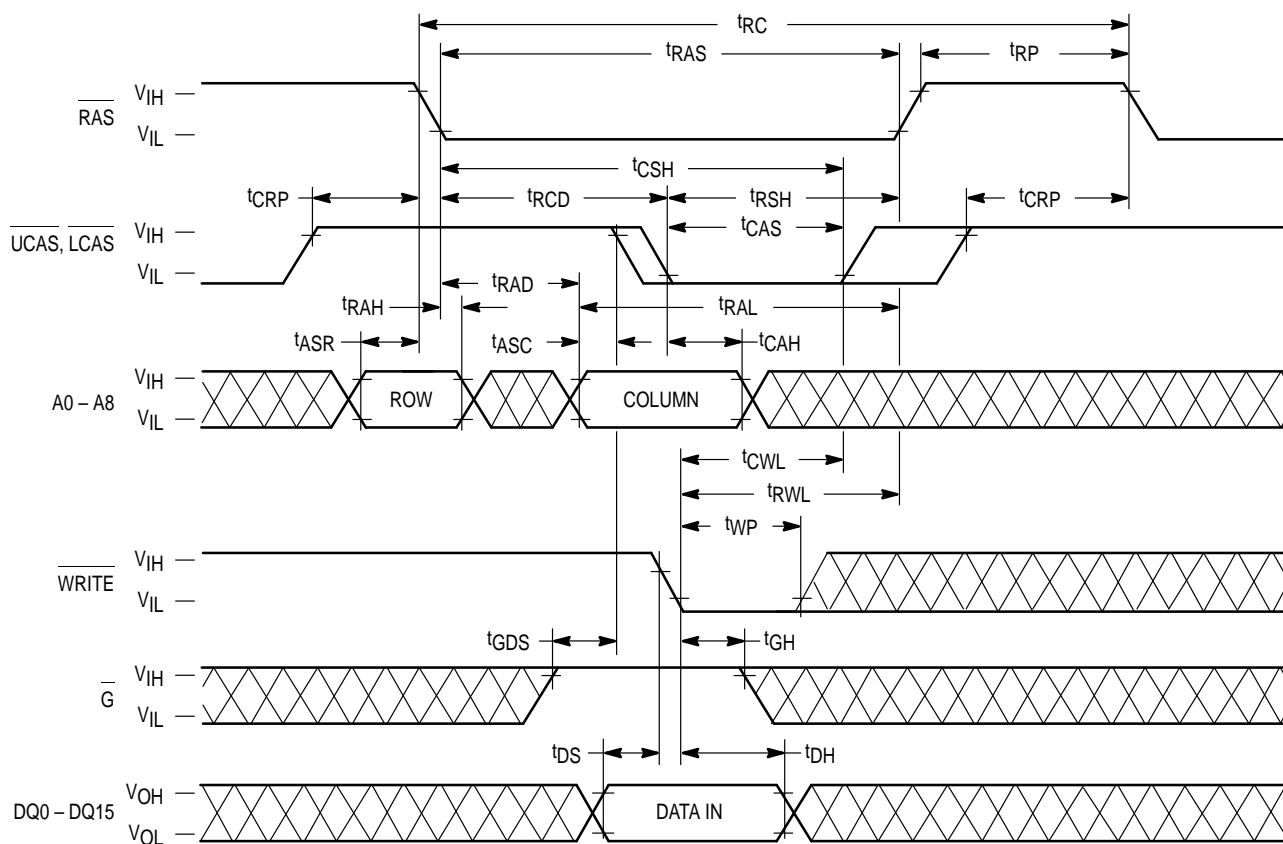
UPPER BYTE WRITE CYCLE (EARLY WRITE)



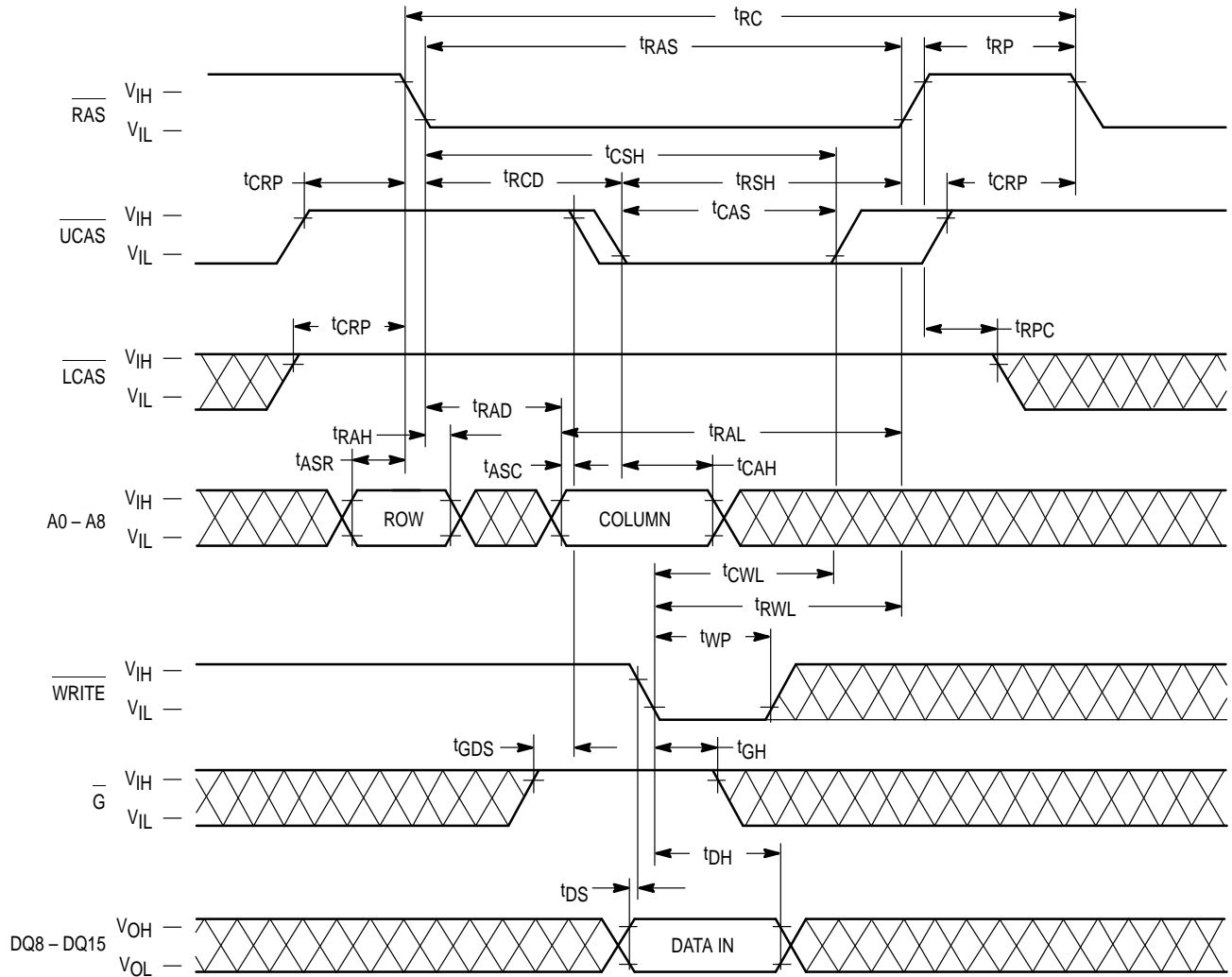
LOWER BYTE WRITE CYCLE (EARLY WRITE)



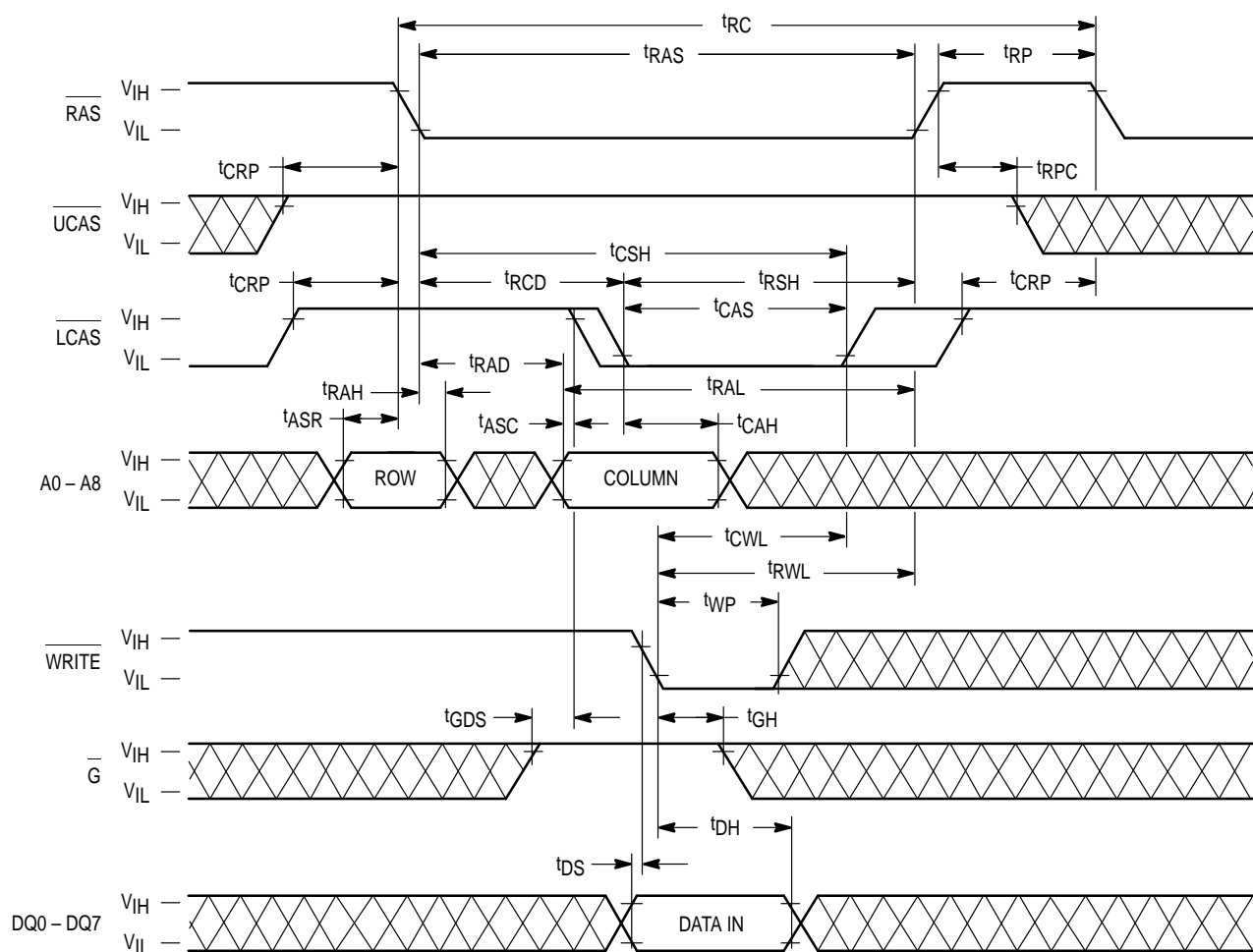
WRITE CYCLE (\overline{G} CONTROLLED WRITE)



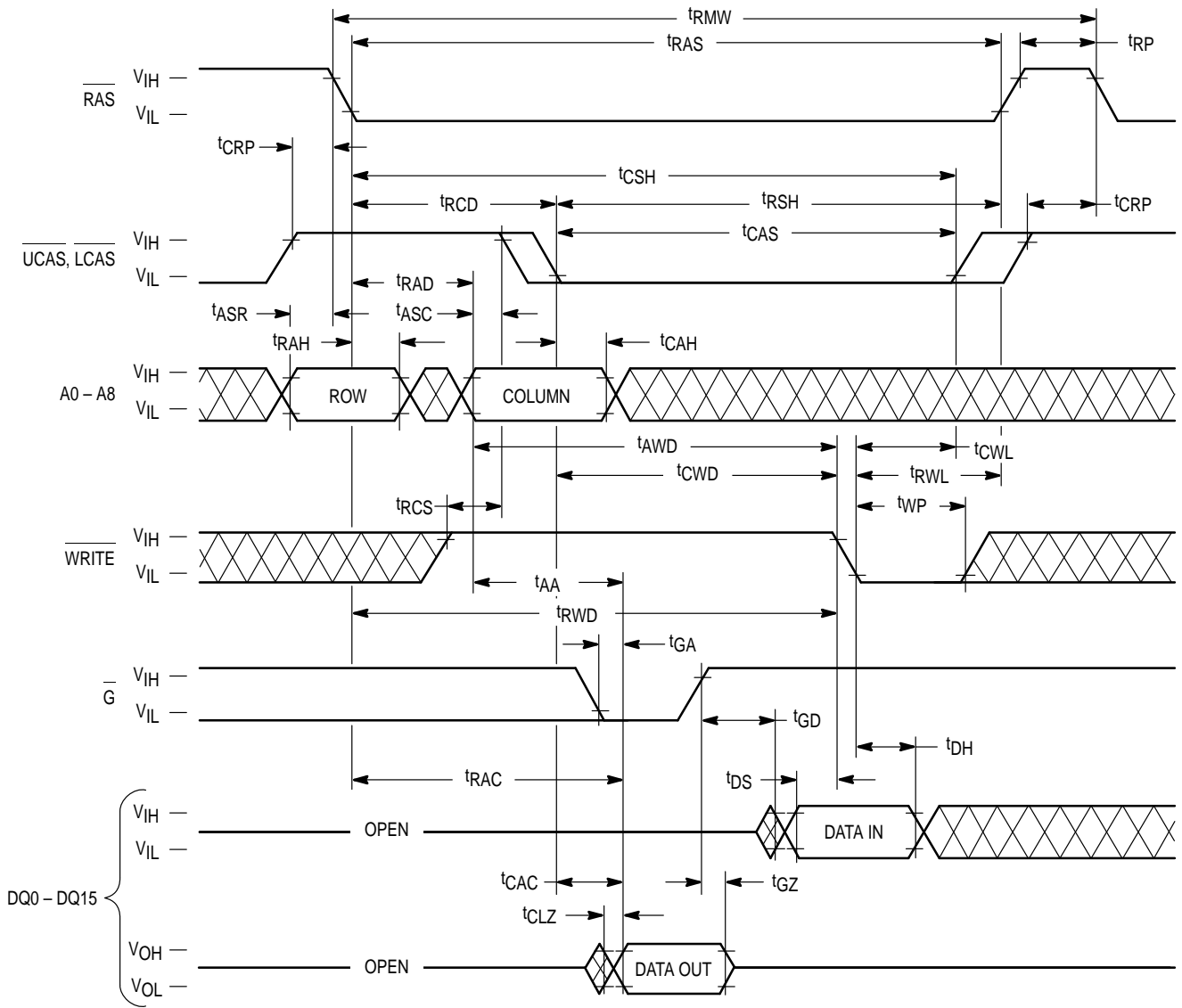
UPPER BYTE WRITE CYCLE (\overline{G} CONTROLLED WRITE)



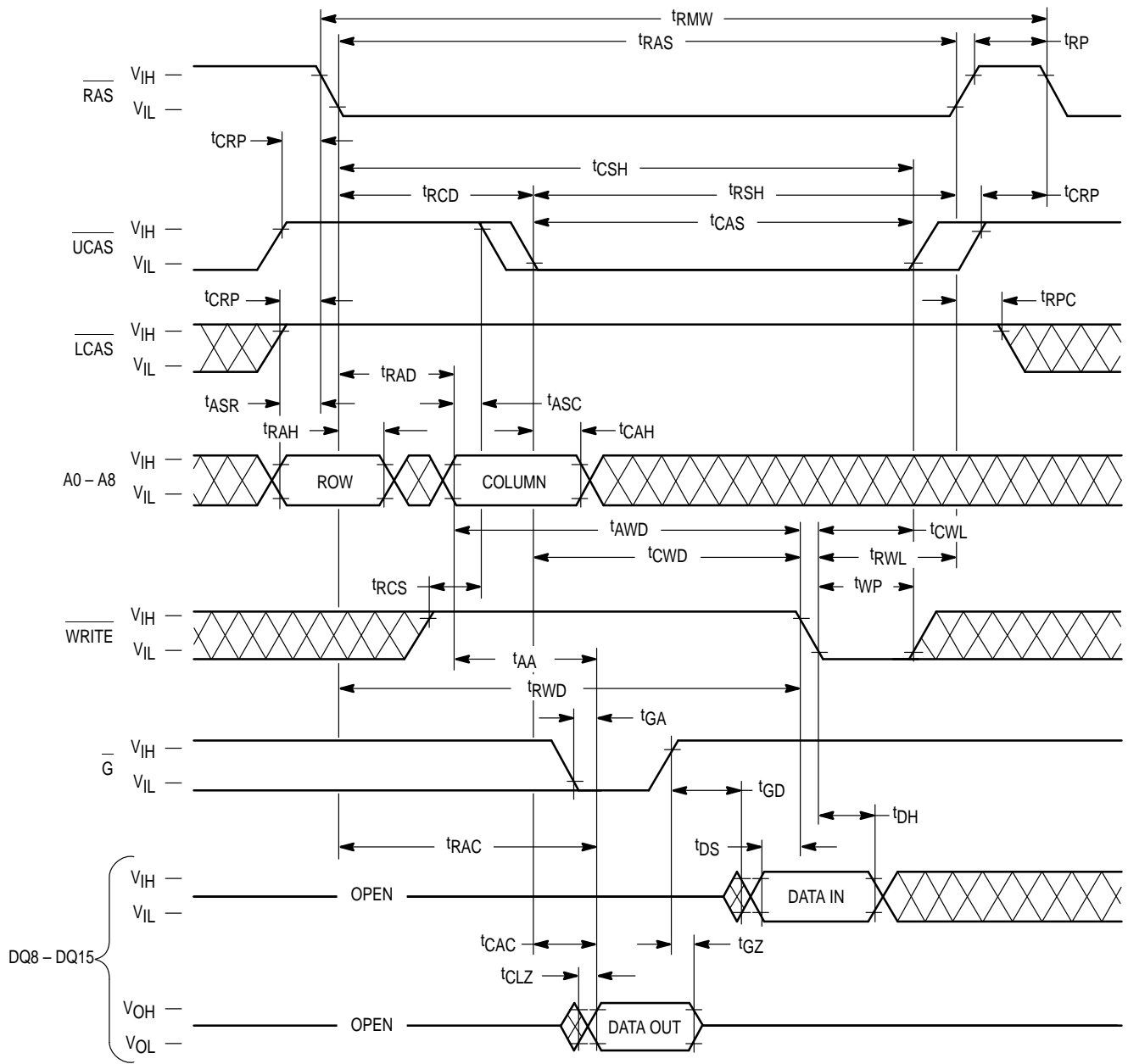
LOWER BYTE WRITE CYCLE (\overline{G} CONTROLLED WRITE)



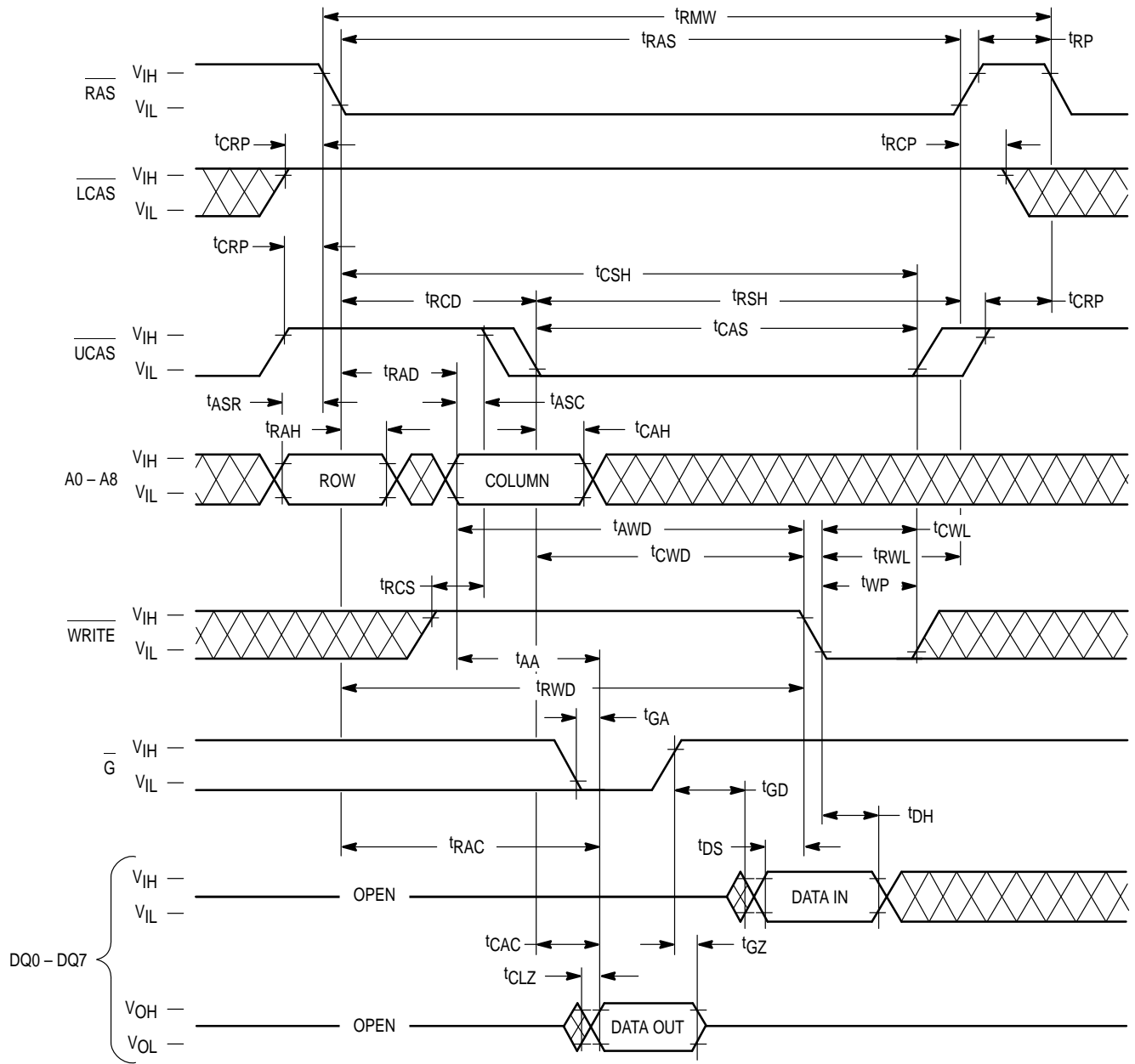
READ-MODIFY-WRITE CYCLE



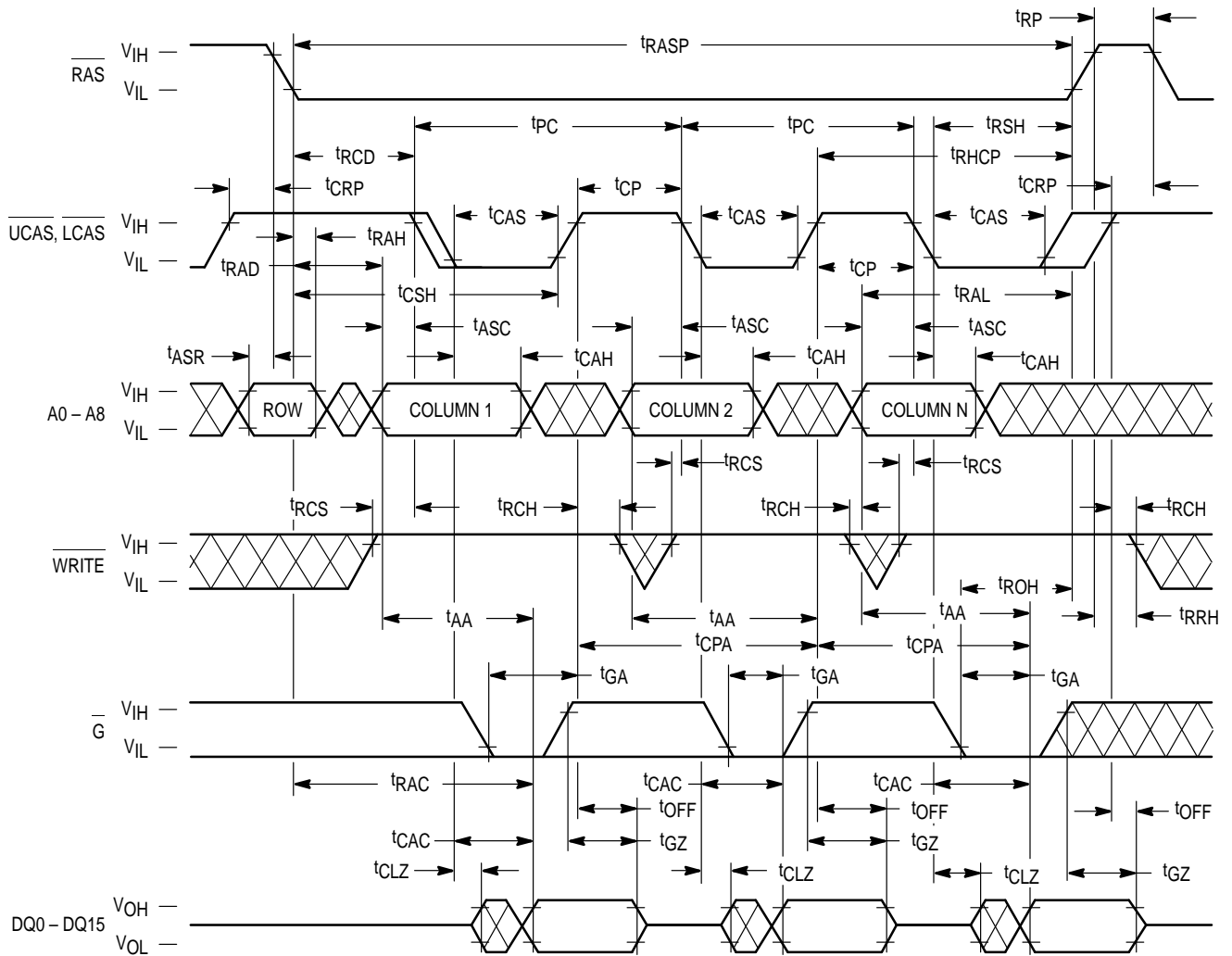
UPPER BYTE READ-MODIFY-WRITE CYCLE



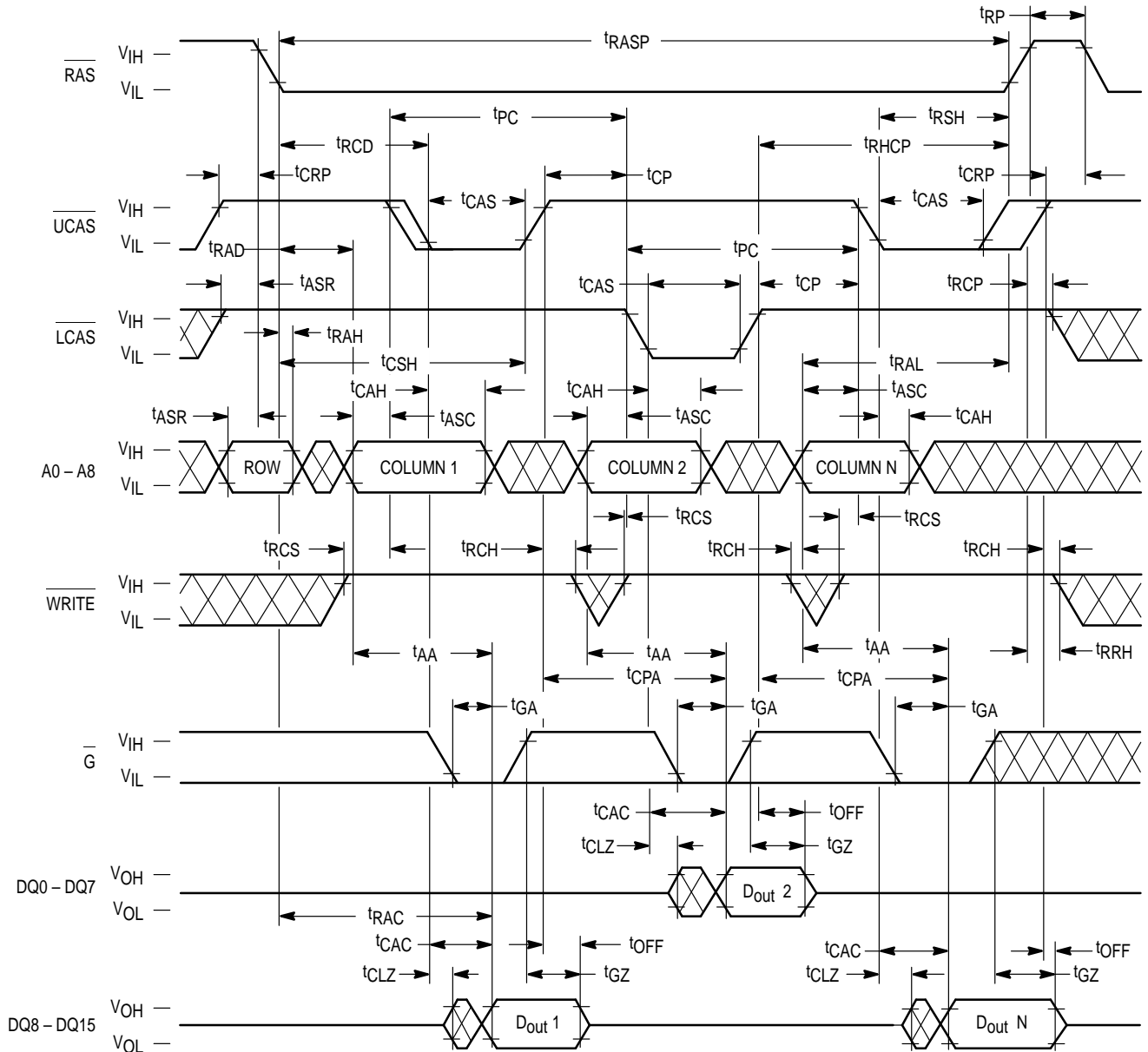
LOWER BYTE READ-MODIFY-WRITE CYCLE



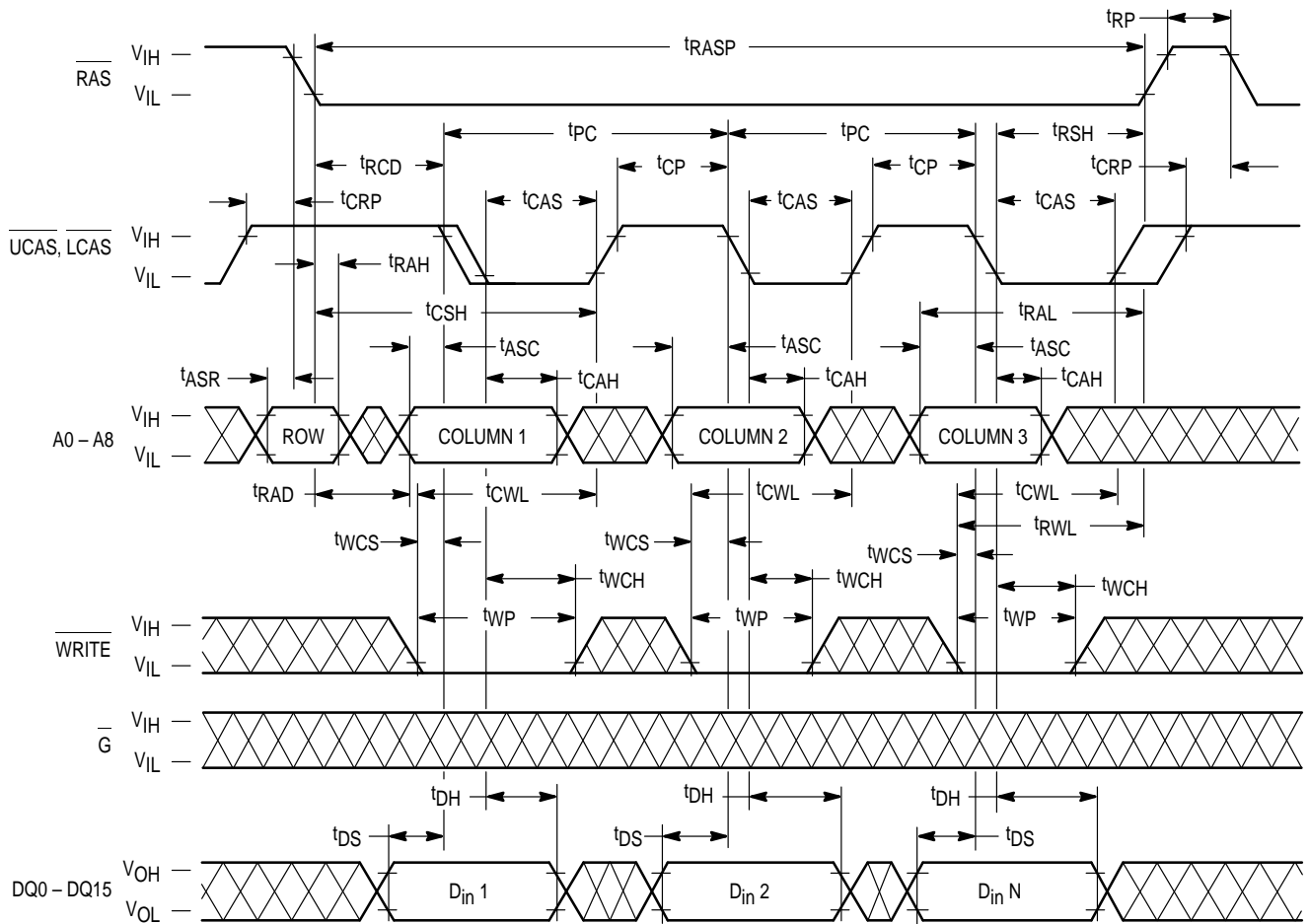
FAST PAGE MODE READ CYCLE



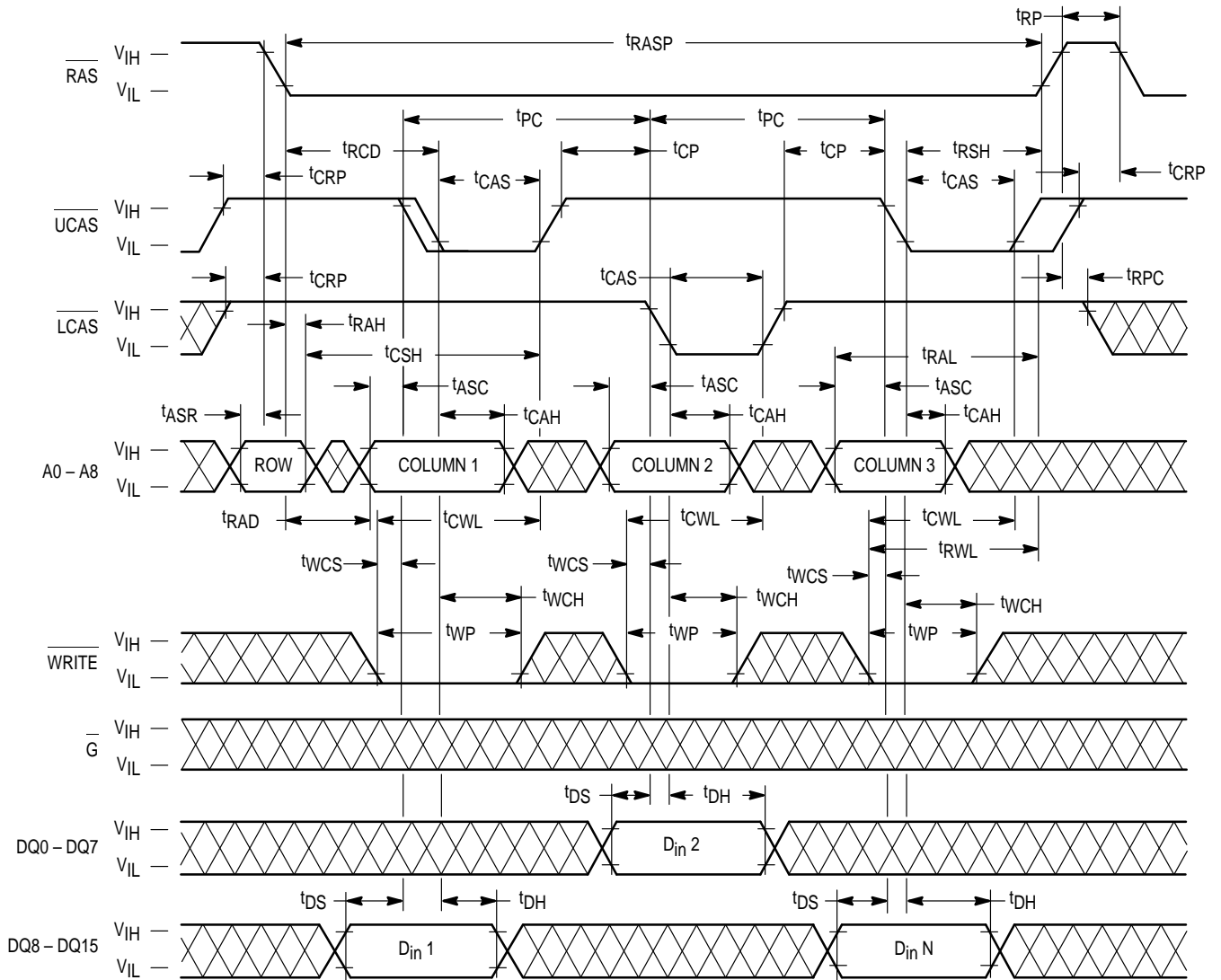
FAST PAGE MODE BYTE READ CYCLE



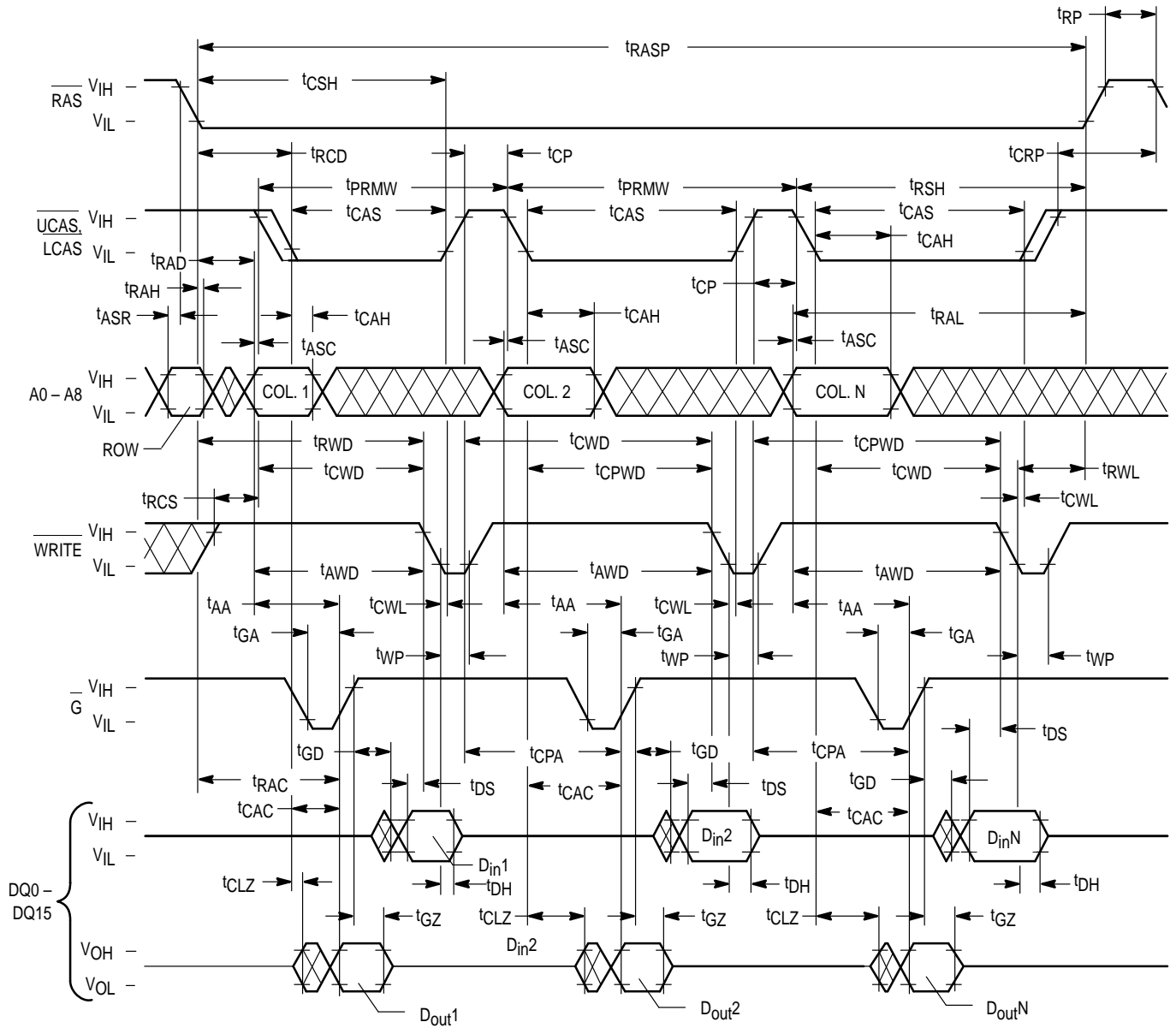
FAST PAGE MODE WRITE CYCLE (EARLY WRITE)



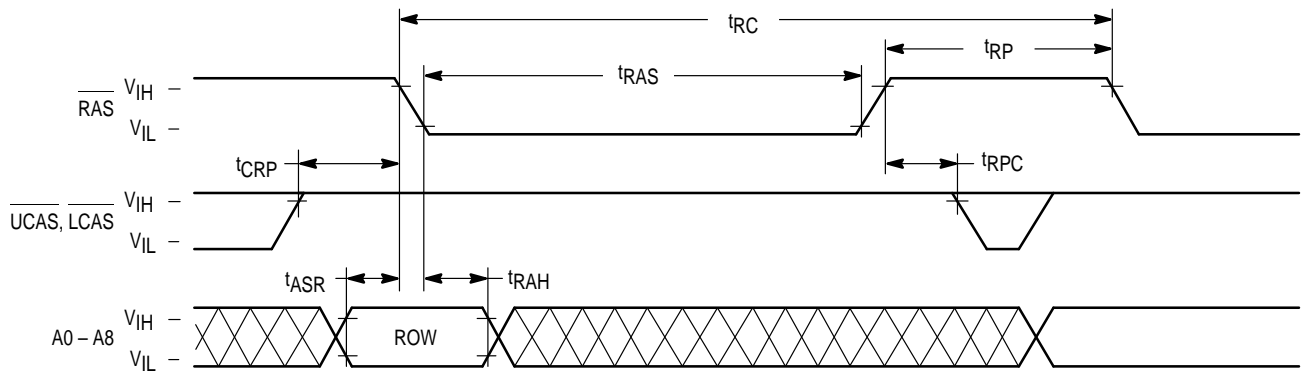
FAST PAGE MODE BYTE WRITE CYCLE (EARLY WRITE)



FAST PAGE MODE READ-MODIFY-WRITE CYCLE

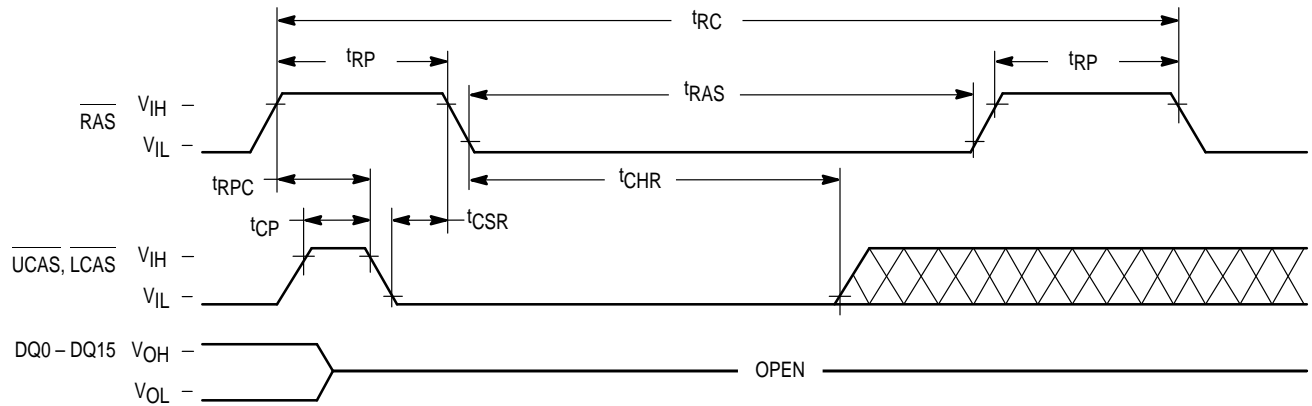


RAS-ONLY REFRESH CYCLE



NOTE: $\overline{\text{WRITE}}, \overline{\text{G}}$ = "H" or "L"

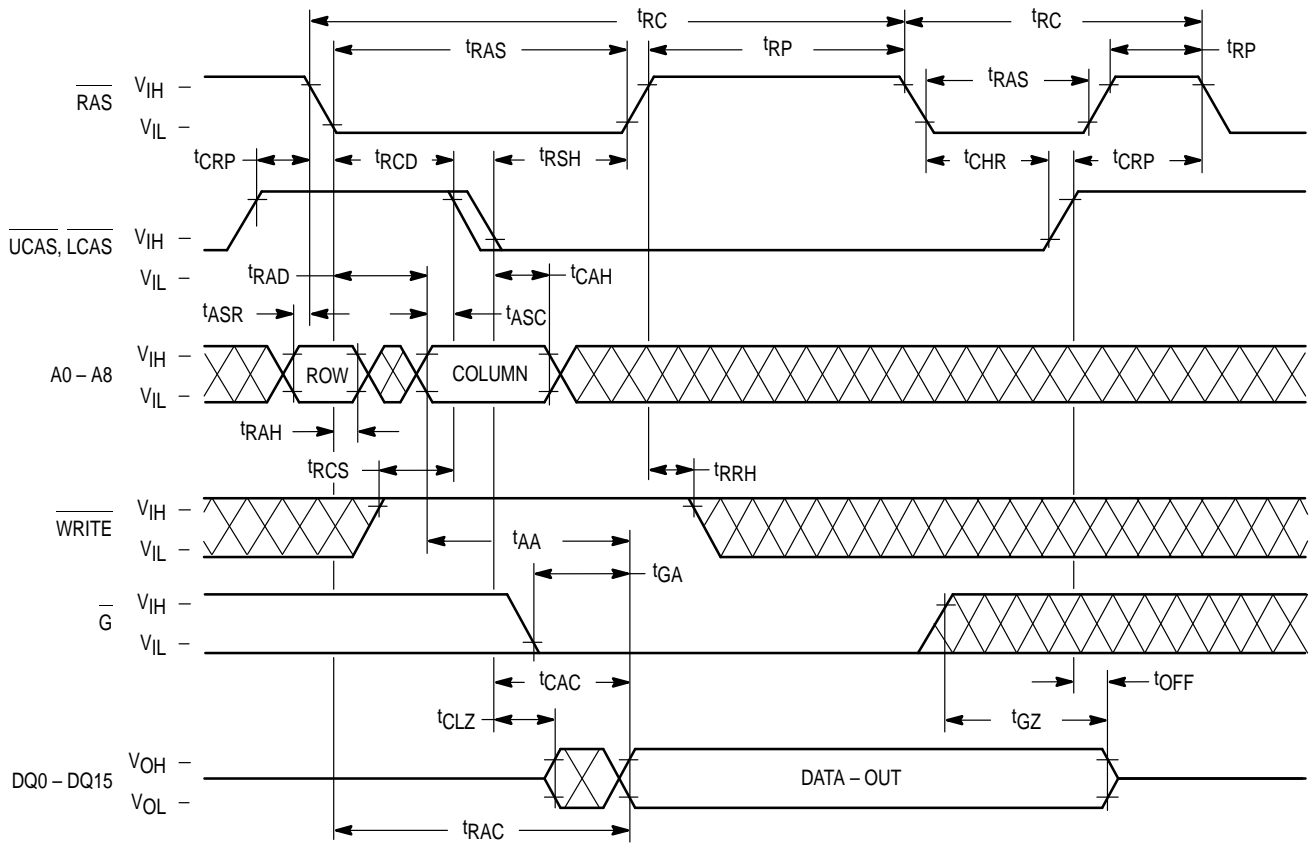
CAS BEFORE RAS REFRESH CYCLE



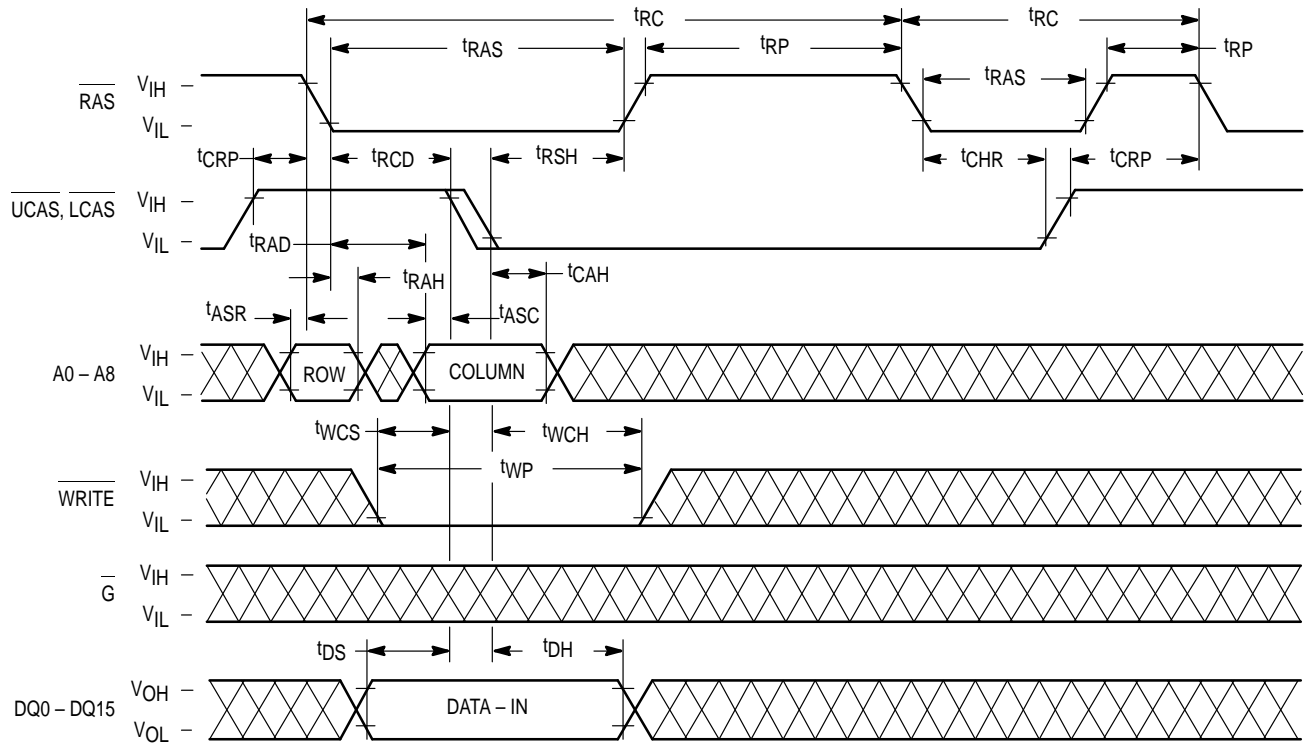
NOTE: $\overline{\text{WRITE}}, \overline{\text{G}}, \text{A0-A8}$ = "H" or "L"

CAS before RAS refresh is performed when either UCAS or LCAS meets this timing.

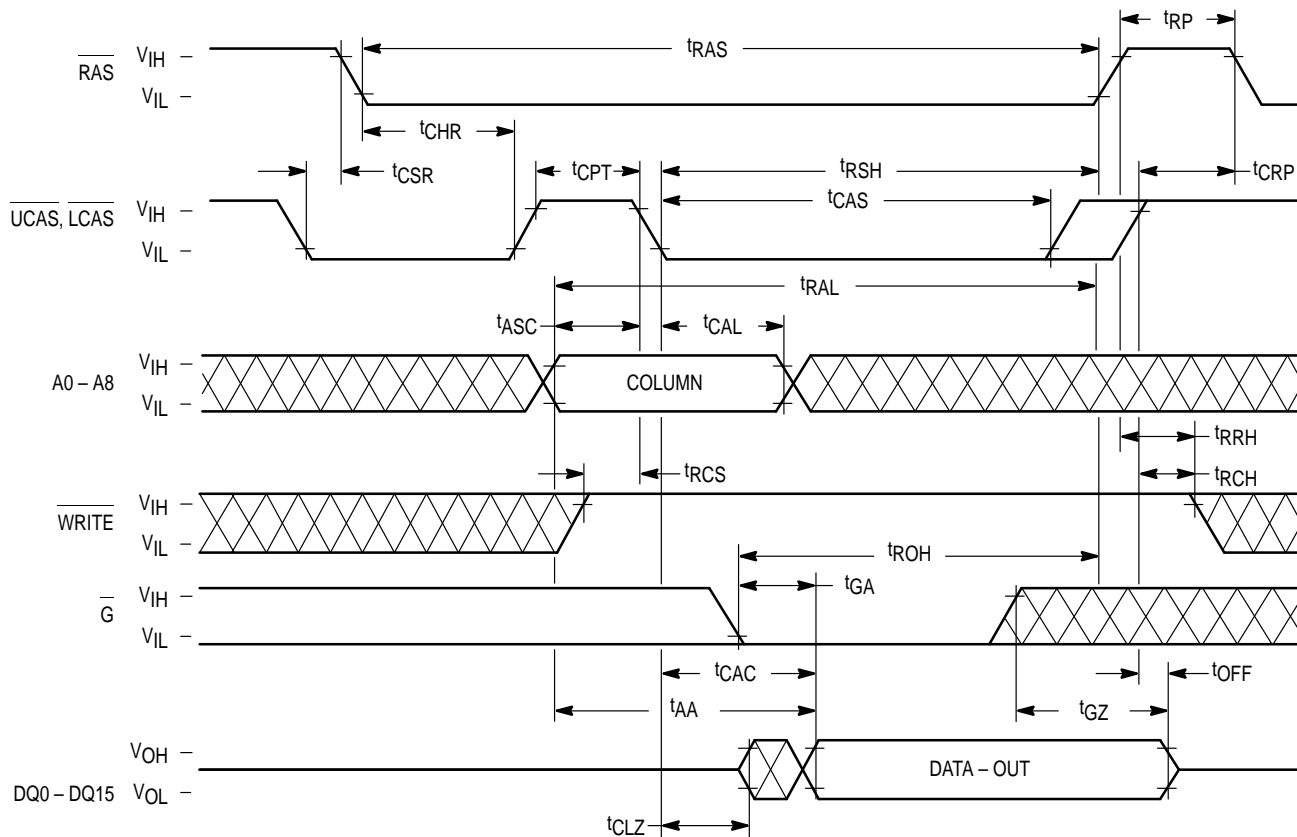
HIDDEN REFRESH CYCLE (READ)



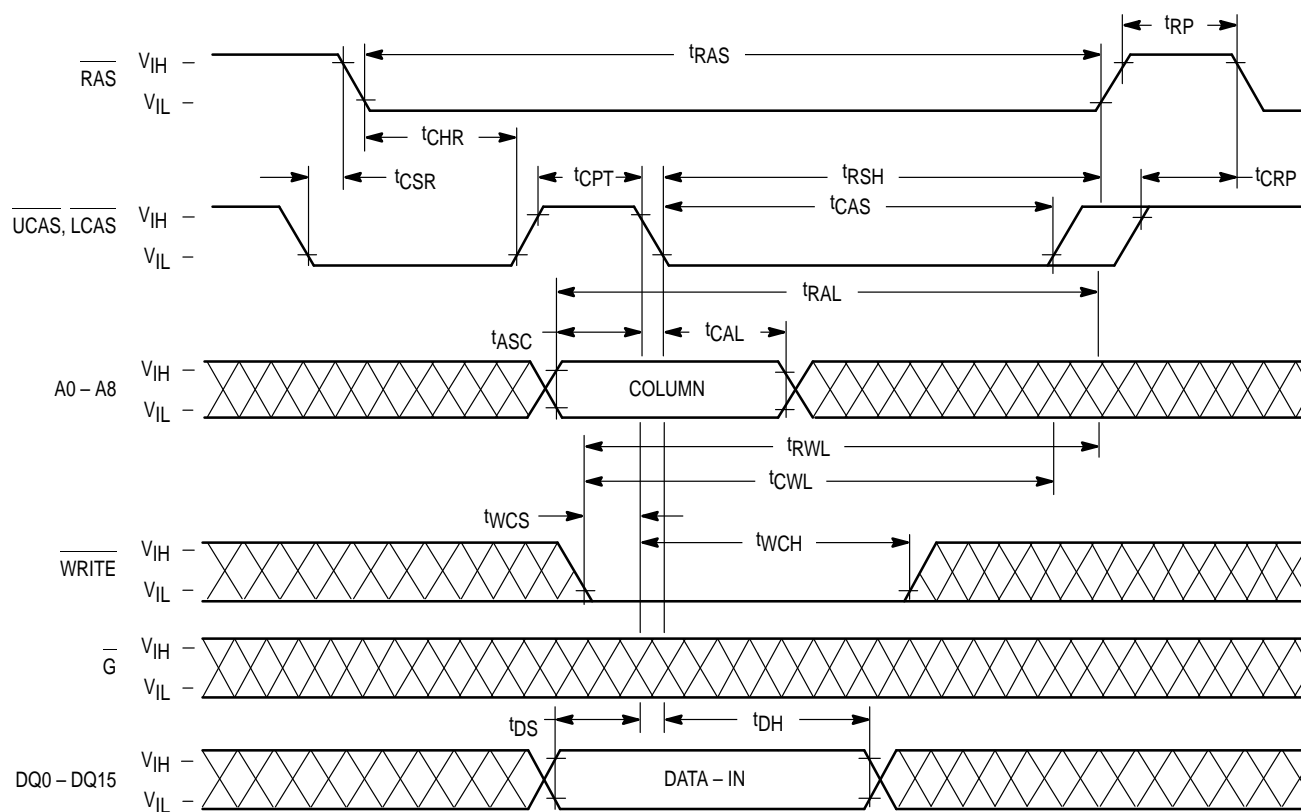
HIDDEN REFRESH CYCLE (WRITE)



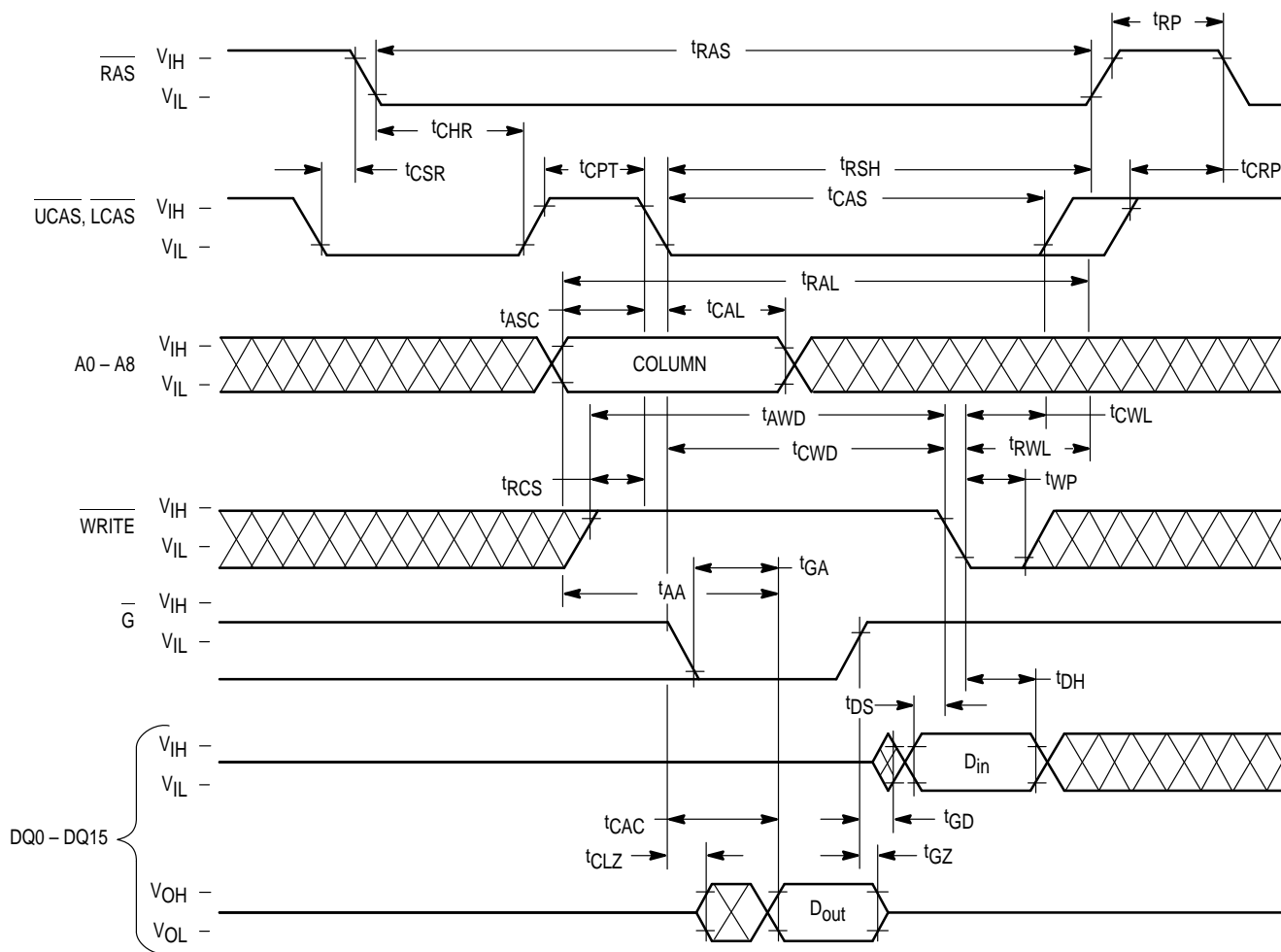
CAS BEFORE RAS REFRESH COUNTER TEST READ CYCLE



CAS BEFORE RAS REFRESH COUNTER TEST WRITE CYCLE



CAS BEFORE RAS REFRESH COUNTER TEST READ-MODIFY-WRITE CYCLE



**ORDERING INFORMATION
(Order by Full Part Number)**

54260B
5L4260B
MCM 5S4260B X XX XX

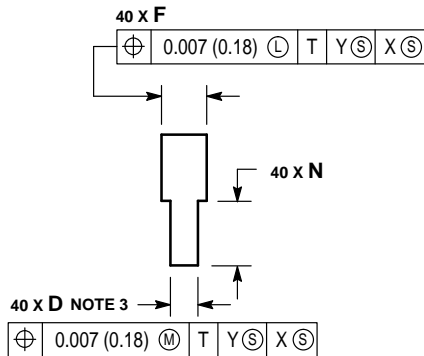
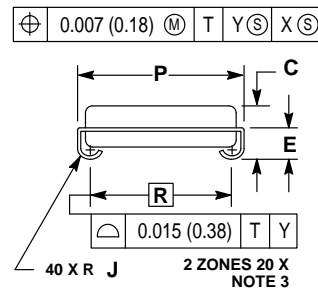
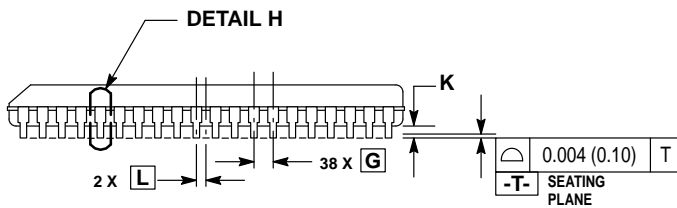
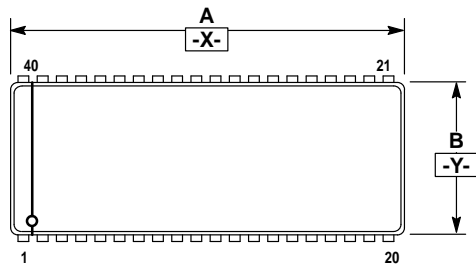
Motorola Memory Prefix _____
Part Number _____

Shipping Method (Blank = Rails or Tray, R = Tape and Reel)
Speed (70 = 70 ns, 80 = 80 ns, 10 = 100 ns)
Package (J = 400 mil SOJ, T = 400 mil TSOP)

Full Part Numbers —	MCM54260BJ70 MCM54260BJ80 MCM54260BJ10	MCM5L4260BJ70 MCM5L4260BJ80 MCM5L4260BJ100	MCM5S4260BJ70 MCM5S4260BJ80 MCM5S4260BJ10
	MCM54260BT70 MCM54260BT80 MCM54260BT10	MCM5L4260BT70 MCM5L4260BT80 MCM5L4260BT10	MCM5S4260BT70 MCM5S4260BT80 MCM5S4260BT10
	MCM54260BJ70R MCM54260BJ80R MCM54260BJ10R	MCM5L4260BJ70R MCM5L4260BJ80R MCM5L4260BJ10R	MCM5S4260BJ70R MCM5S4260BJ80R MCM5S4260BJ10R
	MCM54260BT70R MCM54260BT80R MCM54260BT10R	MCM5L4260BT70R MCM5L4260BT80R MCM5L4260BT10R	MCM5S4260BT70R MCM5S4260BT80R MCM5S4260BT10R

PACKAGE DIMENSIONS

J PACKAGE
400 MIL SOJ
CASE 923A-01



DETAIL H

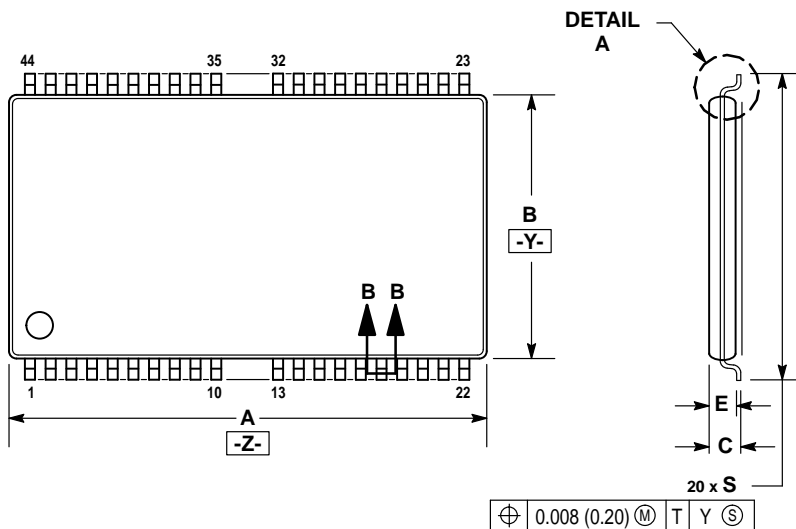
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. TO BE DETERMINED AT PLANE -T-.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION. MOLD PROTRUSION SHALL NOT EXCEED 0.006 (0.15) PER SIDE.
5. DIMENSIONS A AND B INCLUDE MOLD MISMATCH AND ARE DETERMINED AT THE PARTING LINE.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.020	1.030	25.91	26.16
B	0.395	0.405	10.03	10.29
C	0.128	0.148	3.25	3.76
D	0.012	0.021	0.33	0.53
E	0.082	—	2.08	—
F	0.024	0.032	0.61	0.81
G	0.050 BSC		1.27 BSC	
J	0.030	0.040	0.77	1.01
K	0.031	—	0.80	—
L	0.025 BSC		0.635 BSC	
N	0.035	0.045	0.89	1.14
P	0.430	0.440	10.92	11.18
R	0.366 BSC		9.30 BSC	

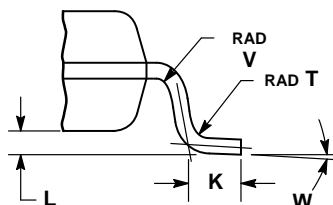
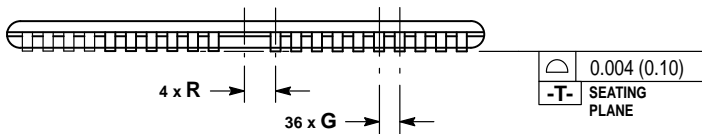
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**T PACKAGE
400 MIL TSOP
CASE 924-01**

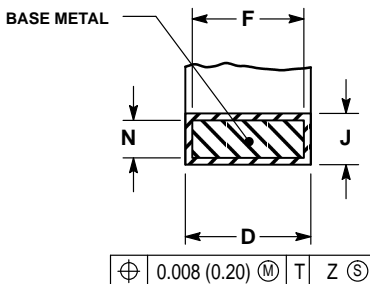


- NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. DIMENSIONS A AND B DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE MOLD PROTRUSION IS 0.006 (0.15) PER SIDE.
 4. DIMENSION D DOES NOT INCLUDE DAMBAR PROTRUSIONS. DAMBAR PROTRUSIONS SHALL NOT ALLOW THE D DIMENSION TO EXCEED 0.023.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.721	0.729	18.313	18.517
B	0.396	0.404	10.058	10.262
C	—	0.050	—	1.270
D	0.012	0.018	0.305	0.457
E	0.038	0.042	0.965	1.067
F	0.012	0.016	0.305	0.406
G	0.315 BSC		0.800 BSC	
J	0.005	0.008	0.127	0.203
K	0.016	0.023	0.406	0.584
L	0.002	0.006	0.051	0.152
N	0.004	0.006	0.101	0.152
R	0.0472 BSC		1.200 BSC	
S	0.456	0.470	11.582	11.938
T	0.004 REF		0.100 REF	
V	0.004 REF		0.100 REF	
W	0°	5°	0°	5°



DETAIL A
ROTATED 90° CLOCK-
WISE



SECTION B-B

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MCM54260B/D

