

# MOS Memories

## Dynamic RAMs

Memory Size (bit)	Type No.	Memory Composition (Word × bit)	Access Time max. (ns)	Cycle Time min. (ns)	Refresh Cycle (cycle/ms)	Supply Voltage (V)	Power Consumption max. (mW)		Package		Process	Remarks
							Operating	Stand-by	No.	No.		
256K	MN41256A-08	262,144 × 1	80	160	256/4ms	4.5 ~ 5.5	440	16.5	DIP016-P-0300A	M8	NMOS	● Page mode
	QFJ018-P-R290								M32			
	ZIP016-P-0300								M2			
	MN41257A-08	262,144 × 1	80	160	256/4ms	4.5 ~ 5.5	440	16.5	DIP016-P-0300A	M8	NMOS	● Nibble mode
	QFJ018-P-R290								M32			
	ZIP016-P-0300								M2			
	MN41464A-08	65,536 × 4	80	160	256/4ms	4.5 ~ 5.5	440	16.5	DIP018-P-0300A	M8	NMOS	● Page mode
	QFJ018-P-R290								M32			
	ZIP018-P-0350								M3			
	ZIP020-P-0400								M4			
SOP024-P-0425	M24											
1M	MN41C1000A-06 MN41C1000A-07 MN41C1000A-08	1,048,576 × 1	60	110	512/8ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● High-speed page mode
	70		130	440								
	80		150	413								
	MN41C1000AL-06 MN41C1000AL-07 MN41C1000AL-08		60	110			468					
	70		130	440								
	80		150	413								
	MN41C1000ASJ-06 MN41C1000ASJ-07 MN41C1000ASJ-08		60	110			468					
	70		130	440								
	80		150	413								
	MN41C1000AT-06 MN41C1000AT-07 MN41C1000AT-08		60	110			468					
	70		130	440								
	80		150	413								
	MN41C1000ATR-06 MN41C1000ATR-07 MN41C1000ATR-08	60	110	468								
	70	130	440									
	80	150	413									
	MN41C1002A-06 MN41C1002A-07 MN41C1002A-08	1,048,576 × 1	60	110	512/8ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● Static column mode
	70		130	440								
	80		150	413								
	MN41C1002AL-06 MN41C1002AL-07 MN41C1002AL-08		60	110			468					
	70		130	440								
	80		150	413								
	MN41C1002ASJ-06 MN41C1002ASJ-07 MN41C1002ASJ-08		60	110			468					
	70		130	440								
	80		150	413								
MN41C1002AT-06 MN41C1002AT-07 MN41C1002AT-08	60		110	468								
70	130		440									
80	150		413									
MN41C1002ATR-06 MN41C1002ATR-07 MN41C1002ATR-08	60	110	468									
70	130	440										
80	150	413										
MN41C4256A-06 MN41C4256A-07 MN41C4256A-08	262,144 × 4	60	110	512/8ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● High-speed page mode	
70		130	440									
80		150	413									
MN41C4256AL-06 MN41C4256AL-07 MN41C4256AL-08		60	110			468						
70		130	440									
80		150	413									
MN41C4256ASJ-06 MN41C4256ASJ-07 MN41C4256ASJ-08		60	110			468						
70		130	440									
80		150	413									
MN41C4256AT-06 MN41C4256AT-07 MN41C4256AT-08		60	110			468						
70		130	440									
80		150	413									
MN41C4256ATR-06 MN41C4256ATR-07 MN41C4256ATR-08	60	110	468									
70	130	440										
80	150	413										

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## Dynamic RAMs (continued)

Memory Size (bit)	Type No.	Memory Composition (Word × bit)	Access Time max. (ns)	Cycle Time min. (ns)	Refresh Cycle (cycle/ms)	Supply Voltage (V)	Power Consumption max. (mW)		Package		Process	Remarks																				
							Operating	Stand-by	No.	No.																						
1M	MN41C4258A-06 MN41C4258A-07 MN41C4258A-08	262,144 × 4	60	110	512/8ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● Static column mode																				
	70		130	440																												
	80		150	413																												
	MN41C4258AL-06 MN41C4258AL-07 MN41C4258AL-08		60	110			468						ZIP020-P-0400	M4																		
	70		130	440																												
	80		150	413																												
	MN41C4258ASJ-06 MN41C4258ASJ-07 MN41C4258ASJ-08		60	110			468								SOJ026-P-0300A	M20																
	70		130	440																												
	80		150	413																												
	MN41C4258AT-06 MN41C4258AT-07 MN41C4258AT-08		60	110			468										TSOP020-P-0616	M33														
	70		130	440																												
	80		150	413																												
	MN41C4258ATR-06 MN41C4258ATR-07 MN41C4258ATR-08		60	110			468												TSOP020-P-0616R	M34												
	70		130	440																												
	80		150	413																												
	MN42C1000A-06 MN42C1000A-07 MN42C1000A-08		1,048,576 × 1	60			110														512/64ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● High-speed page mode ● CBR-self-refresh				
	70			130			440																									
	80			150			413																									
	MN42C1000AL-06 MN42C1000AL-07 MN42C1000AL-08			60			110																468						ZIP020-P-0400	M4		
	70			130			440																									
80	150	413																														
MN42C1000ASJ-06 MN42C1000ASJ-07 MN42C1000ASJ-08	60	110		468	SOJ026-P-0300A	M20																										
70	130	440																														
80	150	413																														
MN42C1000AT-06 MN42C1000AT-07 MN42C1000AT-08	60	110		468			TSOP020-P-0616	M33																								
70	130	440																														
80	150	413																														
MN42C1000ATR-06 MN42C1000ATR-07 MN42C1000ATR-08	60	110		468					TSOP020-P-0616R	M34																						
70	130	440																														
80	150	413																														
MN42C4256A-06 MN42C4256A-07 MN42C4256A-08	262,144 × 4	60		110							512/64ms	4.5 ~ 5.5	468	0.275 (CMOS level)	DIP018-P-0300C	M10	CMOS	● High-speed page mode ● CBR-self-refresh														
70		130		440																												
80		150		413																												
MN42C4256AL-06 MN42C4256AL-07 MN42C4256AL-08		60		110									468						ZIP020-P-0400	M4												
70		130		440																												
80		150	413																													
MN42C4256ASJ-06 MN42C4256ASJ-07 MN42C4256ASJ-08		60	110	468									SOJ026-P-0300A								M20											
70		130	440																													
80		150	413																													
MN42C4256AT-06 MN42C4256AT-07 MN42C4256AT-08		60	110	468																		TSOP020-P-0616	M33									
70		130	440																													
80		150	413																													
MN42C4256ATR-06 MN42C4256ATR-07 MN42C4256ATR-08		60	110	468	TSOP020-P-0616R	M34																										
70		130	440																													
80		150	413																													
4M		MN414100AL-07 MN414100AL-08	1,194,304 × 1	70			130	1024/16ms																4.5 ~ 5.5	550	0.275 (CMOS level)	ZIP020-P-0400	M4	CMOS	● High-speed page mode		
		80		150			495																									
		MN414100ASJ-07 MN414100ASJ-08		70			130		550	SOJ026-P-0300A															M20							
		80		150			495																									
		MN414100ATT-07 MN414100ATT-08		70			130		550																						TSOP026-P-0300A	M35
	80	150		495																												
	MN414100ATTR-07 MN414100ATTR-08	70		130			550		TSOP026-P-0300AR		M36																					
	80	150		495																												
	MN414400AL-07 MN414400AL-08	1,048,576 × 4		70			130					1024/16ms		4.5 ~ 5.5	550	0.275 (CMOS level)	ZIP020-P-0400	M4	CMOS	● High-speed page mode												
	80			150			495																									
	MN414400ASJ-07 MN414400ASJ-08			70			130								550																	
	80			150			495																									
MN414400ATT-07 MN414400ATT-08	70		130	550			TSOP026-P-0300A	M35																								
80	150		495																													
MN414400ATTR-07 MN414400ATTR-08	70		130	550						TSOP026-P-0300AR			M36																			
80	150		495																													

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## Dynamic RAMs (continued)

Memory Size (bit)	Type No.	Memory Composition (Word × bit)	Access Time max. (ns)	Cycle Time min. (ns)	Refresh Cycle (cycle/ms)	Supply Voltage (V)	Power Consumption max. (mW)		Package		Process	Remarks				
							Operating	Stand-by	No.	No.						
4M	MN424100AL-07 MN424100AL-08	4,194,304 × 1	70	130	1024/128ms	4.5 ~ 5.5	550	0.275	ZIP020-P-0400	M4	CMOS	● High-speed page mode ● CBR-self-refresh				
	80		150	495												
	70		130	550 495			SOJ026-P-0300A						M20			
	80		150													
	70		130	5.5			TSOP026-P-0300A	M35								
	80		150													
	70		130						550 495	TSOP026-P-0300AR			M36			
	80		150													
	MN424400AL-07 MN424400AL-08	1,048,576 × 4	70	130	1024/128ms	4.5 ~ 5.5	550	0.275	ZIP020-P-0400	M4	CMOS	● High-speed page mode ● CBR-self-refresh				
	80		150	495												
	70		130	550 495			SOJ026-P-0300A						M20			
	80		150													
	70		130	5.5			TSOP026-P-0300A	M35								
	80		150													
	70		130						550 495	TSOP026-P-0300AR			M36			
	80		150													
	MN414170SJ-08 ▲MN414170TT-08 ▲MN414170TTR-08	262,144 × 16	80	150	1024/16ms	4.5 ~ 5.5	605	2.75 (CMOS level)	SOJ040-P-0400	M23	CMOS	● 1CAS/2WE ● High-speed page mode				
	▲MN414170TT-08								TSOP044-P-0400A	M44						
	▲MN414170TTR-08								TSOP044-P-0400AR	M45						
	MN414260SJ-08 ▲MN414260TT-08 ▲MN414260TTR-08	262,144 × 16	80	150	512/8ms	4.5 ~ 5.5	880		5.5 (TTL level)	SOJ040-P-0400		M23	CMOS	● 2CAS/1WE ● High-speed page mode		
	▲MN414260TT-08									TSOP044-P-0400A		M44				
	▲MN414260TTR-08									TSOP044-P-0400AR		M45				
	MN414270SJ-08 ▲MN414270TT-08 ▲MN414270TTR-08	262,144 × 16	80	150	512/8ms	4.5 ~ 5.5	880			5.5 (TTL level)		SOJ040-P-0400		M23	CMOS	● 1CAS/2WE ● High-speed page mode
	▲MN414270TT-08											TSOP044-P-0400A		M44		
▲MN414270TTR-08	TSOP044-P-0400AR											M45				
MN424170SJ-08 ▲MN424170TT-08 ▲MN424170TTR-08	262,144 × 16	80	150	1024/128ms	4.5 ~ 5.5	605	0.275 (CMOS level)	SOJ040-P-0400			M23	CMOS		● 1CAS/2WE ● High-speed page mode ● CBR-self-refresh		
▲MN424170TT-08								TSOP044-P-0400A			M44					
▲MN424170TTR-08								TSOP044-P-0400AR			M45					
MN424260SJ-08 ▲MN424260TT-08 ▲MN424260TTR-08	262,144 × 16	80	150	512/64ms	4.5 ~ 5.5	880		5.5 (TTL level)	SOJ040-P-0400		M23		CMOS	● 2CAS/1WE ● High-speed page mode ● CBR-self-refresh		
▲MN424260TT-08									TSOP044-P-0400A		M44					
▲MN424260TTR-08									TSOP044-P-0400AR		M45					
MN424270SJ-08 ▲MN424270TT-08 ▲MN424270TTR-08	262,144 × 16	80	150	512/64ms	4.5 ~ 5.5	880			5.5 (TTL level)	SOJ040-P-0400	M23			CMOS	● 1CAS/2WE ● High-speed page mode ● CBR-self-refresh	
▲MN424270TT-08										TSOP044-P-0400A	M44					
▲MN424270TTR-08										TSOP044-P-0400AR	M45					
▲MN41V4400SJ-06 ▲MN41V4400SJ-07 ▲MN41V4400SJ-08	1,048,576 × 4	60	110	1024/16ms	3.0 ~ 3.6	288	0.18 (CMOS level)			SOJ026-P-0300A	M20	CMOS			● High-speed page mode	
▲MN41V4400TT-06 ▲MN41V4400TT-07 ▲MN41V4400TT-08		70	130			252										
▲MN41V4400TTR-06 ▲MN41V4400TTR-07 ▲MN41V4400TTR-08		80	150			216										
▲MN41V4400TT-06 ▲MN41V4400TT-07 ▲MN41V4400TT-08		60	110			288										
▲MN41V4400TTR-06 ▲MN41V4400TTR-07 ▲MN41V4400TTR-08		70	130			252										
▲MN41V4400TTR-06 ▲MN41V4400TTR-07 ▲MN41V4400TTR-08		80	150			216										
▲MN41V4800SJ-06 ▲MN41V4800SJ-07 ▲MN41V4800SJ-08	524,288 × 8	60	110	1024/16ms	3.0 ~ 3.6	288	0.18 (CMOS level)	SOJ028-P-0400	M21	CMOS	● High-speed page mode ● CAS before RAS-self-refresh					
▲MN41V4800TT-06 ▲MN41V4800TT-07 ▲MN41V4800TT-08		70	130			252										
▲MN41V4800TTR-06 ▲MN41V4800TTR-07 ▲MN41V4800TTR-08		80	150			216										
▲MN41V4800TT-06 ▲MN41V4800TT-07 ▲MN41V4800TT-08		60	110			288										
▲MN41V4800TTR-06 ▲MN41V4800TTR-07 ▲MN41V4800TTR-08		70	130			252										
▲MN41V4800TTR-06 ▲MN41V4800TTR-07 ▲MN41V4800TTR-08		80	150			216										

▲ Under development

(Package Symbol) DIP = Dual-In-Line Plastic Package, ZIP = Zigzag-In-Line Plastic Package

SOJ = Small-Outline J-Bend Package, TSOP = Thin Small Outline Package, SOW = Small Outline Package (Wide-type), VSOP = Very Short Pitch Small Outline Package, QFP = Quad Flat Package

# MOS Memories

## Dynamic RAMs (continued)

Memory Size (bit)	Type No.	Memory Composition (Word × bit)	Access Time max. (ns)	Cycle Time min. (ns)	Refresh Cycle (cycle/ms)	Supply Voltage (V)	Power Consumption max. (mW)		Package No.	Process	Remarks																							
							Operating	Stand-by																										
4M	▲MN42V4400SJ-06 ▲MN42V4400SJ-07 ▲MN42V4400SJ-08	1,048,576 × 4	60	110	1024/16ms	3.0 ~ 3.6	288 252 216	0.18 (CMOS level)	SOJ026-P-0300A	M20	CMOS ● High-speed page mode ● CBR-self-refresh																							
	70		130	TSOP026-P-0300A					M35																									
	80		150																															
	60		110																															
	70		130	TSOP026-P-0300AR					M36																									
	80		150																															
	60		110																															
	70		130	524,288 × 8					1024/16ms	3.0 ~ 3.6		288 252 216	0.18 (CMOS level)	SOJ028-P-0400	M21	CMOS ● High-speed page mode ● CBR-self-refresh																		
	70		130											TSOP028-P-0400	M37																			
	80		150																															
	60		110																															
	70		130											TSOP028-P-0400R	M38																			
80	150																																	
60	110																																	
16M	MN4116100SJ-08 MN4116100TT-08 MN4116100TTR-08	16,777,216 × 1	80		150	4096/64ms	4.5 ~ 5.5	522.5			11 (TTL level)			SOJ028-P-0400A	M22		CMOS ● High-speed page mode																	
	TSOP028-P-0400A													M39																				
	TSOP028-P-0400AR													M40																				
	MN4116400SJ-08 MN4116400TT-08 MN4116400TTR-08	4,194,304 × 4	80		150	4096/64ms	4.5 ~ 5.5	522.5			1.1 (CMOS level)			SOJ028-P-0400A	M22		CMOS ● High-speed page mode																	
	TSOP028-P-0400A													M39																				
	TSOP028-P-0400AR			M40																														
	MN4117100SJ-08 MN4117100TT-08 MN4117100TTR-08	16,777,216 × 1	80	150	2048/32ms	4.5 ~ 5.5	687.5	11 (TTL level)	SOJ028-P-0400A	M22	CMOS ● High-speed page mode																							
	TSOP028-P-0400A								M39																									
	TSOP028-P-0400AR								M40																									
	MN4117400SJ-08 MN4117400TT-08 ▲MN4117400TTR-08	4,194,304 × 4	80	150	2048/32ms	4.5 ~ 5.5	687.5	1.1 (CMOS level)	SOJ028-P-0400A	M22	CMOS ● High-speed page mode																							
	TSOP028-P-0400A								M39																									
	TSOP028-P-0400AR								M40																									
	▲MN41V16100SJ-05 ▲MN41V16100SJ-06 ▲MN41V16100SJ-07 ▲MN41V16100SJ-08	16,777,216 × 1	50 60 70 80	90 110 130 150	4096/64ms	3.0 ~ 3.6	288 252 216 180	1.8	SOJ026-P-0300B	M19	CMOS	● High-speed page mode																						
	▲MN41V16400SJ-05 ▲MN41V16400SJ-06 ▲MN41V16400SJ-07 ▲MN41V16400SJ-08												4,194,304 × 4	50 60 70 80	90 110 130 150	4096/64ms	3.0 ~ 3.6	288 252 216 180	1.8	SOJ026-P-0300B	M19	CMOS	● High-speed page mode											
	▲MN41V17100SJ-05 ▲MN41V17100SJ-06 ▲MN41V17100SJ-07 ▲MN41V17100SJ-08																							16,777,216 × 1	50 60 70 80	90 110 130 150	2048/32ms	3.0 ~ 3.6	468 396 324 288	1.8	SOJ026-P-0300B	M19	CMOS	● High-speed page mode
	▲MN41V17400SJ-05 ▲MN41V17400SJ-06 ▲MN41V17400SJ-07 ▲MN41V17400SJ-08																																	

▲ Under development

(Package Symbol) DIC = Dual-In-Line Ceramic Package, DIP = Dual-In-Line Plastic Package, SOW = Small Outline Package (Wide Type),  
SOJ = Small Outline J-Bend Package, SOP = Small Outline Package, TSOP = Thin Small Outline Package

# MOS Memories

## Dynamic RAMs (continued)

Memory Size (bit)	Type No.	Memory Composition (Word × bit)	Access Time max. (ns)	Cycle Time min. (ns)	Refresh Cycle (cycle/ms)	Supply Voltage (V)	Power Consumption max. (mW)		Package	No.	Process	Remarks
							Operating	Stand-by				
16M	▲MN42V16100SJ-05	16,777,216 × 1	50	90	4096/256ms	3.0 ~ 3.6	288	0.36	SOJ026-P-0300B	M19	CMOS	● High-speed page mode
	▲MN42V16100SJ-06		60	110			252					
	▲MN42V16100SJ-07		70	130			216					
	▲MN42V16100SJ-08		80	150			180					
	▲MN42V16400SJ-05	4,194,304 × 4	50	90	4096/256ms	3.0 ~ 3.6	288	0.36	SOJ026-P-0300B	M19	CMOS	● High-speed page mode
	▲MN42V16400SJ-06		60	110			252					
	▲MN42V16400SJ-07		70	130			216					
	▲MN42V16400SJ-08		80	150			180					
	▲MN42V17100SJ-05	16,777,216 × 1	50	90	2048/256ms	3.0 ~ 3.6	468	0.36	SOJ026-P-0300B	M19	CMOS	● High-speed page mode
	▲MN42V17100SJ-06		60	110			396					
	▲MN42V17100SJ-07		70	130			324					
	▲MN42V17100SJ-08		80	150			288					
	▲MN42V17400SJ-05	4,194,304 × 4	50	90	2048/256ms	3.0 ~ 3.6	468	0.36	SOJ026-P-0300B	M19	CMOS	● High-speed page mode
	▲MN42V17400SJ-06		60	110			396					
	▲MN42V17400SJ-07		70	130			324					
	▲MN42V17400SJ-08		80	150			288					

▲ Under development

(Package Symbol) DIC = Dual-In-Line Ceramic Package, DIP = Dual-In-Line Plastic Package, SOW = Small Outline Package (Wide Type).

SOJ = Small Outline J-Bend Package, SOP = Small Outline Package, TSOP = Thin Small Outline Package