EMM 2141

SEMI 2141 120NSEC, STATIC, TTL IN/OUT 4096 x 1 N-MOS RAM

FEATURES

- Industry Standard 2147 Pinout
- Completely Static Memory — No Clock or Timing Strobe Required
- Equal Access and Cycle Times
- Single +5V Supply
- Automatic Power-Down
- Directly TTL Compatible — All Inputs and Output
- Separate Data Input and Output
- Three-State Output
- Standard 18-Pin Package

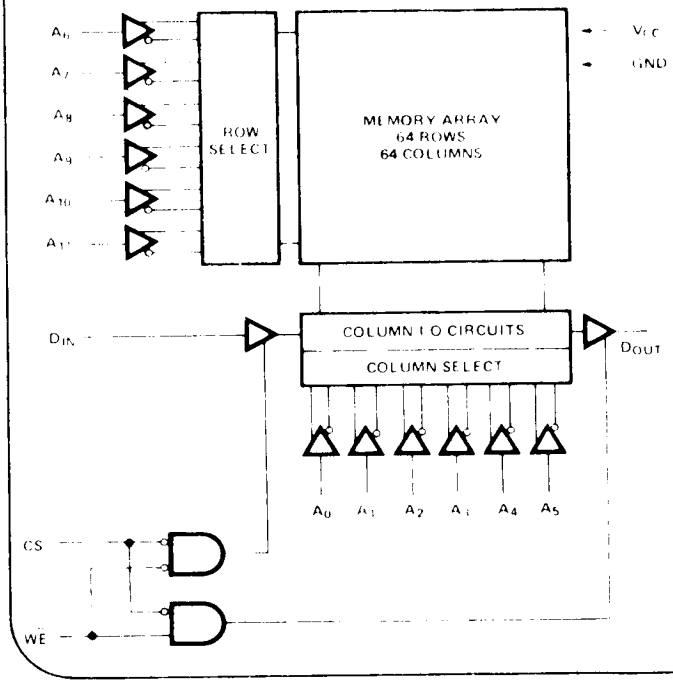
GENERAL DESCRIPTION

The EMM SEMI 2141 is a 4096-bit static Random Access Memory organized as 4096 words by 1-bit using N-MOS, a high-performance technology. It uses a unique design approach which provides the ease-of-use features associated with non-clocked static memories and the reduced standby power dissipation associated with clocked static memories. To the user this means low standby power dissipation without the need for clocks, address setup and hold times, nor reduced data rates due to cycle times that are longer than access times.

$\overline{CS}$ controls the power-down feature. In less than a cycle time after $\overline{CS}$ goes high—deselecting the 2141—the part automatically reduces its power requirements and remains in this low power standby mode as long as $\overline{CS}$ remains high. This device feature results in system power savings as great as 85% in larger systems, where the majority of devices are deselected.

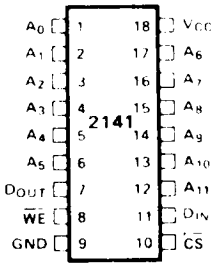
The 2141 is placed in an 18-pin package configured with the industry standard pinout, the same as the 2147. It is directly TTL compatible in all respects: inputs, outputs, and a single +5V supply. The data is read out nondestructively and has the same polarity as the input data. A data input and a separate three-state output are used.

BLOCK DIAGRAM

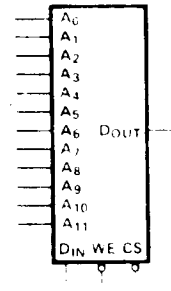


PIN CONFIGURATION AND LOGIC SYMBOL

PIN CONFIGURATION



LOGIC SYMBOL



PIN NAMES

A_0 - A_{11}	ADDRESS INPUTS	V_{CC}	POWER (+5V)
$\overline{WE}$	WRITE ENABLE	GND	GROUND
$\overline{CS}$	CHIP SELECT		
D_{IN}	DATA INPUT		
D_{OUT}	DATA OUTPUT		

TRUTH TABLE

$\overline{CS}$	$\overline{WE}$	MODE	OUTPUT	POWER
H	X	NOT SELECTED	HIGH Z	STANDBY
L	L	WRITE	HIGH Z	ACTIVE
L	H	READ	D_{OUT}	ACTIVE

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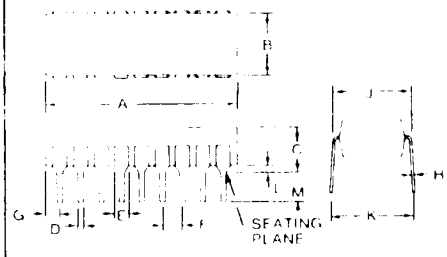
	2141-2	2141-3	2141-4	2141-5	L2141-3	L2141-4	L2141-5
Access/Cycle Time (ns)	120	150	200	250	150	200	250
Operating Current (mA)	70	70	55	55	40	40	40
Standby Current (mA)	20	20	12	12	5	5	5

TYPICAL OUTLINE DRAWING



PACKAGING DIMENSIONS

DIM	"B" PLASTIC PACKAGE				"A" CERAMIC PACKAGE				"E" CERDIP PACKAGE			
	MILLIMETERS		INCHES		MILLIMETERS		INCHES		MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
A	21.590	23.622	0.850	0.930	22.606	23.114	0.890	0.910	[illegible]	[illegible]	[illegible]	[illegible]
B	6.096	7.493	0.240	0.295	7.061	7.569	0.278	0.298	–	[illegible]	–	[illegible]
C		5.588	–	0.210	–	4.826	–	0.190	–	4.76[illegible]	–	0.190
D	0.381	0.584	0.015	0.023	0.381	0.584	0.015	0.023	0.36[illegible]	0.584	[illegible]	[illegible]
E	1.143	1.778	0.045	0.070	1.016	1.778	0.040	0.070	1.143	1.65[illegible]	0.04[illegible]	0.06[illegible]
F	2.286	2.794	0.090	0.110	2.286	2.794	0.090	0.110	2.2[illegible]	2.794	0.090	0.11[illegible]
G	0.635	2.159	0.025	0.085	0.762	1.778	0.030	0.070	0.381	1.27[illegible]	0.01[illegible]	0.050
H	0.203	0.305	0.008	0.012	0.203	0.305	0.008	0.012	0.203	0.305	0.008	0.12[illegible]
J	7.366	8.255	0.290	0.325	7.620	8.077	0.300	0.318	7.[illegible]	8.128	0.29[illegible]	0.32[illegible]
K	7.366	10.414	0.290	0.410	7.620 REF		0.300 REF		8.25[illegible]	9.906	0.325	[illegible]90
L	0.508	1.278	0.020	0.050	0.635	1.651	0.025	0.065	0.381	1.27[illegible]	0.01[illegible]	0.04[illegible]
M	2.540	4.191	0.100	0.165	2.540	3.810	0.100	0.150	2.54[illegible]	3.[illegible]7	0.10[illegible]	[illegible]155

WARNING:

MOS CIRCUITS ARE SUBJECT TO DAMAGE FROM STATIC DISCHARGE

Internal static discharge circuits are provided to minimize part damage due to environmental static electrical charge build ups. Industry established recommendations for handling MOS circuits include:

1. Ship and store product in conductive shipping tubes or in conductive foam plastic. Never ship or store product in non-conductive plastic containers or non-conductive plastic foam material.
2. Handle MOS parts only at conductive work stations.
3. Ground all assembly and repair tools.

Represented in your area by:

EMM SEMI reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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ORIGINAL

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