DPS1025

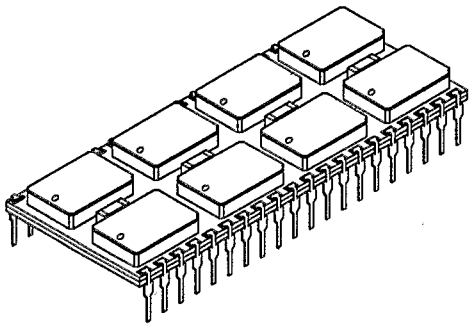
64K X 16 CMOS SRAM MODULE

NOT RECOMMENDED FOR NEW DESIGNS

DESCRIPTION:

The DPS1025 is a 64K X 8 high-speed, low-power static RAM module comprised of sixteen 64K X 1 monolithic SRAM's, and decoupling capacitors surface mounted on a thick film ceramic substrate.

The DPS1025 operates from a single +5V supply and all input and output pins are completely TTL-compatible. The DPS1025 is best suited for high speed military computers and signal processing applications.

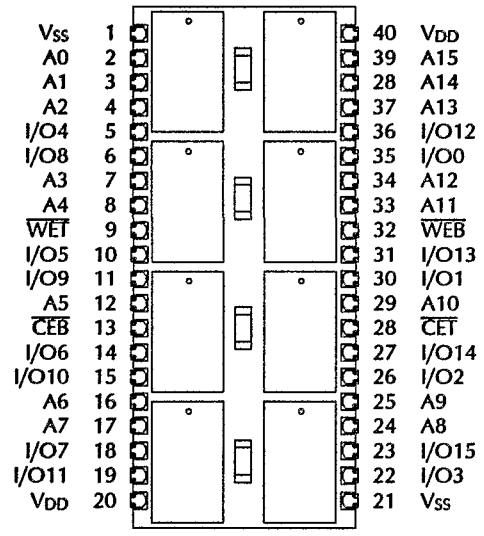


FEATURES:

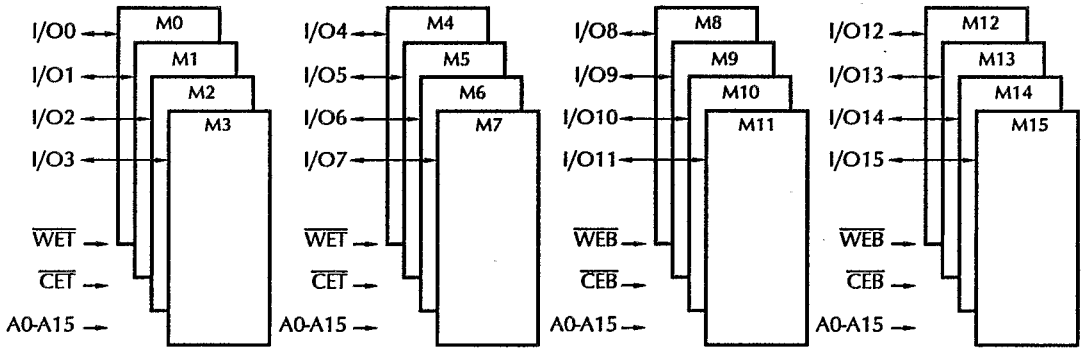
- Organizations available: 64K X 16 or 128K X 8
- Access Times: 25, 35, 45, 55ns (max.)
- Low Power Dissipation
- Completely Static Operation - No Clock or Refresh Needed
- Three State Output
- All inputs and outputs are TTL-compatible
- 900 mil, 40-Pin DIP Pinout

PIN NAMES	
A0 - A15	Address Inputs
I/O0 - I/O15	Data Input/Output
$\overline{CET}$ / $\overline{CEB}$	Chip Enable Top/Bottom
$\overline{WET}$ / $\overline{WEB}$	Write Enable Top/Bottom
V_{DD}	Power (+5V)
V_{SS}	Ground

PIN-OUT DIAGRAM



FUNCTIONAL BLOCK DIAGRAM



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NOT RECOMMENDED FOR NEW DESIGNS

RECOMMENDED OPERATING RANGE [1]					
Symbol	Characteristic	Min.	Typ.	Max.	Unit
V_{DD}	Supply Voltage	4.5	5.0	5.5	V
V_{IH}	Input HIGH Voltage	2.2		V_{DD}+0.5	V
V_{IL}	Input LOW Voltage	-0.5[2]		0.8	V

CAPACITANCE [4]: T_A = 25°C, F = 1.0MHz				
Symbol	Parameter	Max.	Unit	Condition
C_{ADR}	Address Input	160	pF	V_{IN} = 0V
C_{CE}	Chip Enable	80		
C_{WE}	Write Enable	80		
$C_{I/O}$	Data Input/Output	30		

ABSOLUTE MAXIMUM RATINGS [3]			
Symbol	Parameter	Value	Unit
T_{STC}	Storage Temperature	-65 to + 150	°C
T_{BIAS}	Temperature Under Bias	-55 to + 125	°C
V_{DD}	Supply Voltage [1]	-0.5 to + 7.0	V
$V_{I/O}$	Input/Output Voltage [1]	-0.5 to V_{DD} + 0.5	V

TRUTH TABLE				
Mode	$\overline{CE}$	$\overline{WE}$	I/O Pin	Supply Current
Not Selected	H	X	HIGH-Z	Standby
Read	L	H	D_{OUT}	Active
Write	L	L	D_{IN}	Active

H=HIGH L=LOW X=Don't Care

DC OPERATING CHARACTERISTICS: Over operating ranges							
Symbol	Characteristics	Test Conditions	X8		X16		Unit
			Min.	Max.	Min.	Max.	
I_{IN}	Input Leakage Current	V_{IN} = 0V to V_{DD}	-160	+160	-160	+160	µA
I_{OUT}	Output Leakage Current	$V_{I/O}$ = 0V to V_{DD}, $\overline{CE}$ or $\overline{OE}$ = V_{IH}, or $\overline{WE}$ = V_{IL}	-20	+20	-10	+10	µA
I_{CC1}	Operating Power Supply Current (16 Bit Mode)	$\overline{CE}$ = V_{IL}, f = 0 Outputs Open		1280		1680	mA
I_{CC2}	Dynamic Operating Supply Current	Outputs Open $\overline{CE}$ = V_{IL}, f = max.		1640		2240	mA
I_{SB1}	Standby Supply Current (TTL)	$\overline{CE}$ = V_{IH}		880		880	mA
I_{SB2}	Full Standby Supply Current (CMOS)	$\overline{CE}$ ≥ V_{DD} -0.2V, V_{IN} ≥ V_{DD} -0.2V or V_{IN} ≤ V_{SS} +0.2V		400		400	mA
V_{OL}	Output Low Voltage	V_{OL} = 8.0mA		0.4		0.4	V
V_{OH}	Output High Voltage	V_{OH} = -4.0mA	2.4		2.4		V

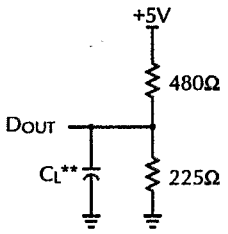
NOTE: Dense-Pac has other specialized suppliers that may provide better A.C. or D.C. Characteristics.

AC TEST CONDITIONS	
Input Pulse Levels	0V to 3.0V
Input Pulse Rise and Fall Times	5ns*
Input and Output Timing Reference Levels	1.5V

* Transient between 0.8V and 2.2V.

Figure 1. Output Load

** Including Probe and Jig Capacitance.



Output Load		
Load	C_L	Parameters Measured
1	30 pF	except t_{CLZ}, t_{CHZ}, t_{WHZ}, and t_{WLZ}
2	5 pF	t_{CLZ}, t_{CHZ}, t_{WHZ}, and t_{WLZ}

AC OPERATING CONDITIONS AND CHARACTERISTICS - READ CYCLE: Over operating ranges [6]

No.	Symbol	Parameter	-25		-35		-45		-55		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	t_{RC}	Read Cycle Time	25		35		45		55		ns
2	t_{AA}	Address Access Time		25		35		45		55	ns
3	t_{CO}	Chip Enable to Output Valid		25		35		45		55	ns
4	t_{OH}	Output Hold for Address Change	5		5		5		5		ns
5	t_{CLZ}	Chip Enable to Output in LOW-Z [4, 5]	5		5		5		5		ns
6	t_{CHZ}	Chip Enable to Output in HIGH-Z [4, 5]		15		20		35		35	ns

AC OPERATING CONDITIONS AND CHARACTERISTICS - WRITE CYCLE: Over operating ranges [7]

No.	Symbol	Parameter	-25		-35		-45		-55		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
10	t_{WC}	Write Cycle Time	25		35		45		55		ns
11	t_{AW}	Address Valid to End of Write	20		30		40		50		ns
12	t_{CW}	Chip Enable to End of Write	20		30		40		50		ns
13	t_{DW}	Data Valid to End of Write	25		25		25		25		ns
14	t_{DH}	Data Hold Time	0		0		0		0		ns
15	t_{WP}	Write Pulse Width	15		20		25		35		ns
16	t_{AS}	Address Set-up Time***	5		5		5		5		ns
17	t_{AH}	Address Hold Time	5		5		5		5		ns
18	t_{WHZ}	Write Enable to Output in HIGH-Z [4, 5]		20		20		25		25	ns
19	t_{WLZ}	Write Enable to Output in LOW-Z [4, 5]	5		5		5		5		ns

*** Valid for both Read and Write Cycles.

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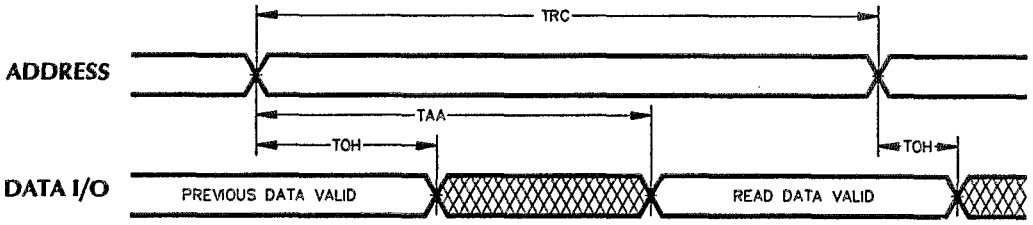
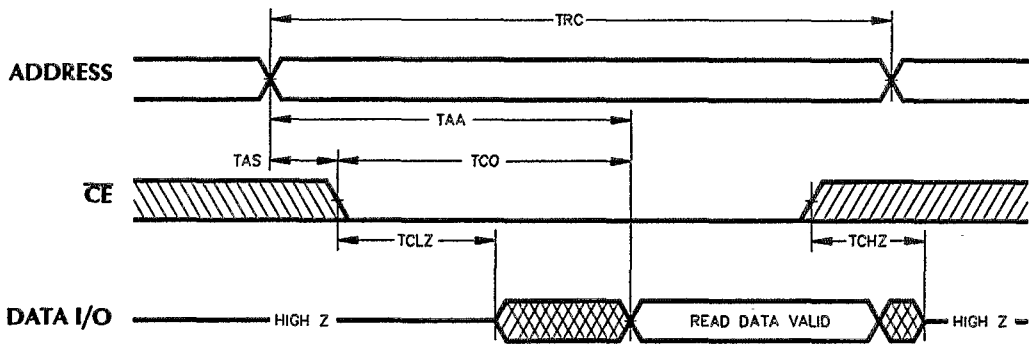
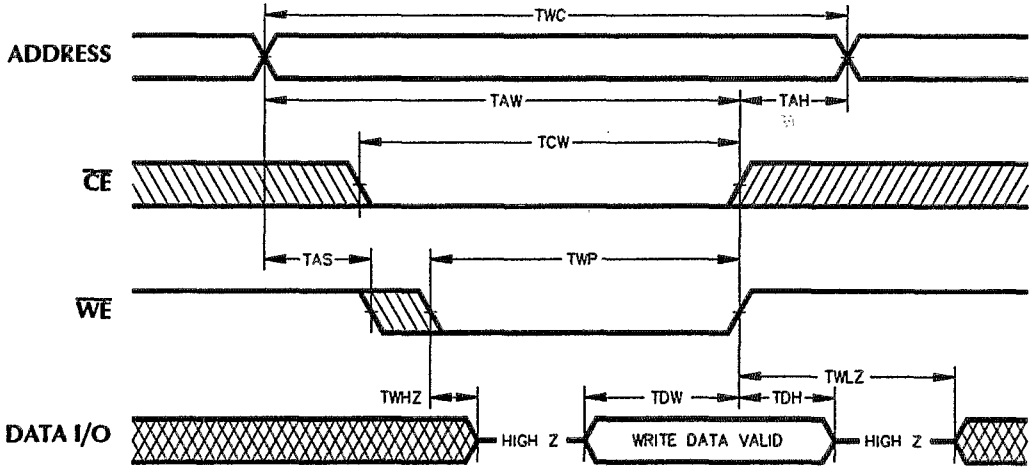
READ CYCLE 1: Address Controlled. $\overline{WE}$ is HIGH. $\overline{CE}$ is LOW.



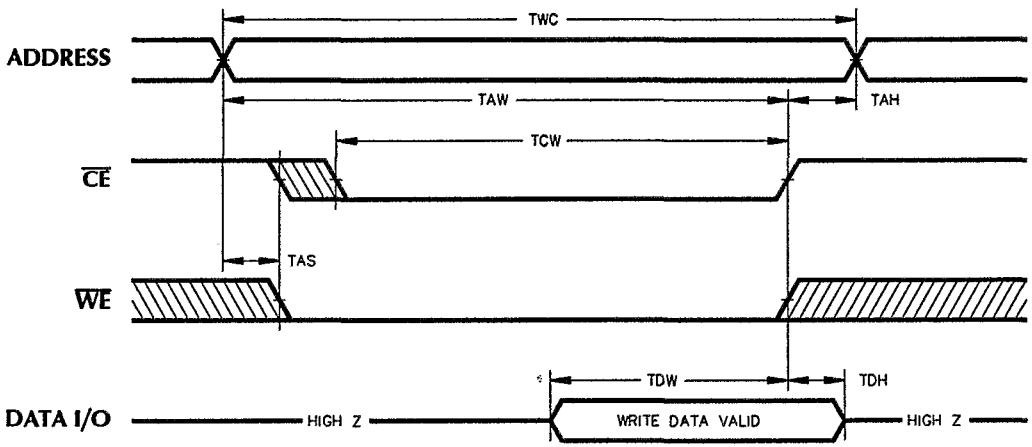
READ CYCLE 2: $\overline{CE}$ Controlled. $\overline{WE}$ is HIGH.



WRITE CYCLE 1: $\overline{WE}$ Controlled.



WRITE CYCLE 2: $\overline{CE}$ Controlled.



NOTES:

1. All voltages are with respect to V_{SS}.
2. -3.0V min. for pulse width less than 20ns (V_{IL} min. = -0.5V at DC level).
3. Stresses greater than those under **ABSOLUTE MAXIMUM RATINGS** may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect reliability.
4. This parameter is guaranteed and not 100% tested.
5. Transition is measured at the point of ±500mV from steady state voltage.
6. When $\overline{CE}$ is LOW and $\overline{WE}$ is HIGH, I/O pins are in the output state,and input signals of opposite phase to the outputs must not be applied.
7. The outputs are in a high impedance state when $\overline{WE}$ is LOW.

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WAVEFORM KEY

Data Valid	Transition from HIGH to LOW	Transition from LOW to HIGH	Data Undefined or Don't Care

NOT RECOMMENDED FOR NEW DESIGNS

PART NUMBERING SYSTEM

DP S1Ø25 – XX X

PREFIX | DEVICE TYPE | SPEED | GRADE

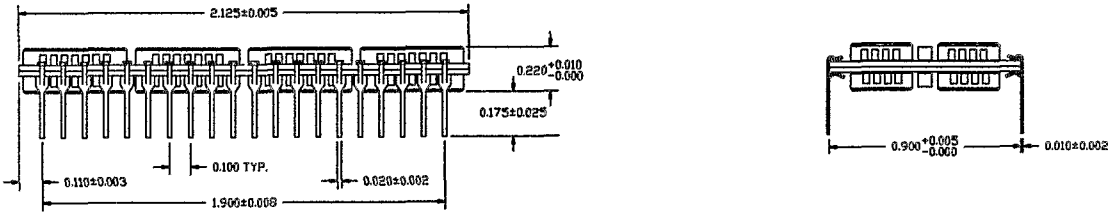
C	COMMERCIAL	Ø°C to +7Ø°C
I	INDUSTRIAL	–4Ø°C to +85°C
M	MILITARY	–55°C to +125°C
B*	MIL–PROCESSED	–55°C to +125°C

25	25ns
35	35ns
45	45ns
55	55ns

CMOS SRAM 64K X 16 MODULE

* B grade modules built with 883 devices.

MECHANICAL DRAWING



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