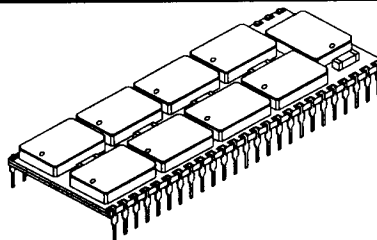


NOT RECOMENDED FOR NEW DESIGNS

DESCRIPTION:

The DPS288 is a 16K X 18 Static Random Access Memory (SRAM) fabricated using 18 CMOS 16K X 1 SRAMs. The memory utilizes asynchronous circuitry and may be maintained in any state for an indefinite period of time. All pins are TTL compatible, and a single +5V power supply is required.

The DPS288 is ideally suited for use in high speed computers, signal processors or any application that utilizes parity bit or other error detection schemes. DPS288 device offers the advantage of high speed and low cost.



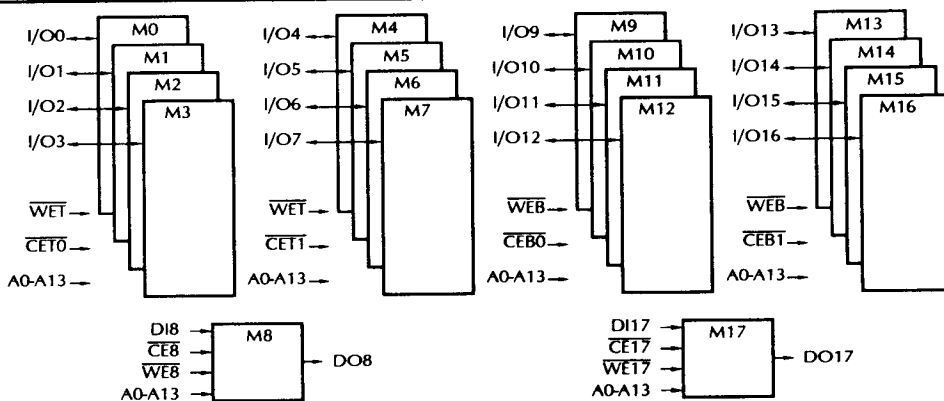
FEATURES:

- **Organizations:**
16K X 18 and 32K X 9 (user defined)
- **Fast Access Times:** 25, 35, 45ns (max.)
- **Low Operating Power**
- **Fully Static Operation; No Clock or Refresh Required**
- **TTL Compatible Inputs and Outputs**
- **Single +5V Power Supply ($\pm 10\%$ Tolerance)**
- **Three State Output**
- **50-Pin DIP Package**

PIN-OUT DIAGRAMS

[illegible]

FUNCTIONAL BLOCK DIAGRAM



NOT RECOMENDED FOR NEW DESIGNS

PIN NAMES	
A0 - A13	Address Inputs
I/O0 - I/O16	Data Inputs/Outputs
DI8 / DI17	Data Inputs Parity Bit
DO8 / DO17	Data Outputs Parity Bit
$\overline{CE}T0 / \overline{CE}T1$	Chip Enables Top
$\overline{CE}B0 / \overline{CE}B1$	Chip Enables Bottom
$\overline{CE}8 / \overline{CE}17$	Chip Enables Parity Bit
$\overline{WE}T / \overline{WE}B$	Write Enables Top/Bottom
$\overline{WE}8 / \overline{WE}17$	Write Enables Parity Bit
V _{DD}	Power (+5V)
V _{SS}	Ground
N.C.	No Connect

TRUTH TABLE					
Mode	$\overline{CE}$	$\overline{WE}$	DI	DO	Supply Current
Standby	H	X	X	HIGH-Z	Standby
Read	L	H	X	DOUT	Active
Write	L	L	DIN	HIGH-Z	Active

L = LOW

H = HIGH

X = Don't Care

ABSOLUTE MAXIMUM RATINGS ¹		
Parameter	Value	Unit
Storage Temperature	-65 to + 150	°C
Operating Temperature	-55 to + 125	°C
Supply Voltage ¹	-0.5 to + 7.0	V

CAPACITANCE 4: T _A = 25°C, F = 1.0MHz				
Symbol	Parameter	Max.	Unit	Condition
C _{CE}	Chip Enable	60	pF	V _{IN} = 0V
C _{ADR}	Address Input	180		
C _{WE}	Write Enable	90		
C _{I/O}	Data Inputs/Outputs	50		
C _{IN}	Data Inputs	25		
C _{OUT}	Data Outputs	25		

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

DC OPERATING CHARACTERISTICS: Over operating ranges									
Symbol	Characteristics	Test Conditions	C		I		M/B		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
I _{IN}	Input Leakage Current	$\overline{CE} = V_{IH}$, V _{IN} = 0.5 to 5.V	-20	+20	-20	+20	-20	+20	μA
I _{OUT}	Output Leakage Current (on Data Outputs)	$\overline{CE} = V_{IH}$, V _{IN} = 0.5 to 5.V	-20	+20	-20	+20	-20	+20	μA
I _{CC1}	Operating Supply Current	$\overline{CE} = V_{IL}$, f = 0 Output Open		990		1080		1125	mA
I _{CC18}	Dynamic Operating Supply Current (x18 mode)	$\overline{CE} = V_{IL}$, f = f max. Output Open		1125		1260		1280	mA
I _{CC9}	Dynamic Operating Supply Current (x9 mode)	$\overline{CE} = V_{IL}$, f = f max. Output Open		685		765		780	mA
I _{S81}	Standby Supply	$\overline{CE} = V_{IH}$		250		270		280	mA
I _{S82}	Full Standby Supply Current	$\overline{CE} \geq V_{DD} - 0.2V$, V _{IN} $\geq V_{DD} - 0.2V$ or V _{IN} $\leq 0.2V$		25		35		50	mA
V _{OL}	Output Low Voltage	I _{OUT} = 8mA		0.4		0.4		0.4	V
V _{OH}	Output High Voltage	I _{OUT} = -4mA	2.4		2.4		2.4		V

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

NOT RECOMENDED FOR NEW DESIGNS

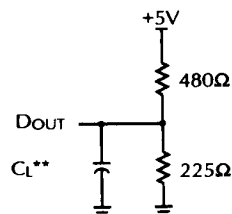
AC TEST CONDITIONS	
Input Pulse Levels	0V to 3.0V
Input Pulse Rise and Fall Times	5ns*
Input and Output Timing Reference Levels	1.5V

* Transient between 0.8V and 2.2V.

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}

Figure 1. Output Load

** Including Probe and Jig Capacitance.

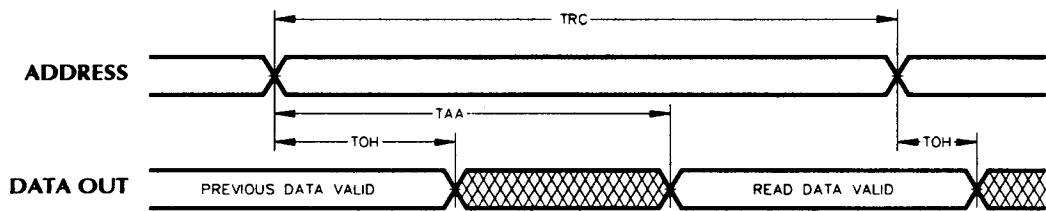
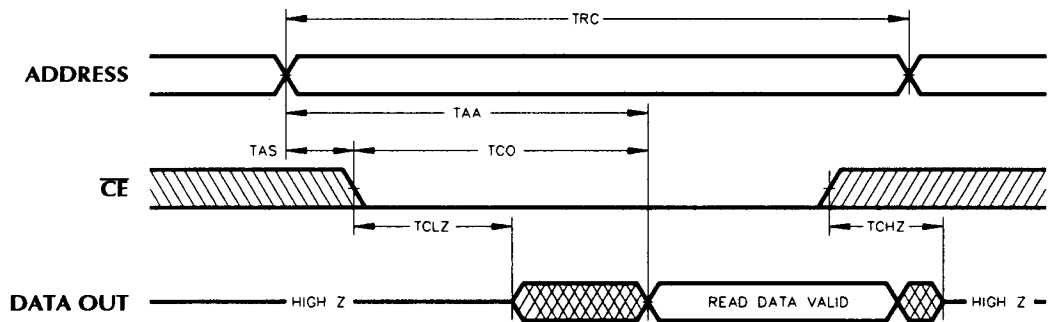
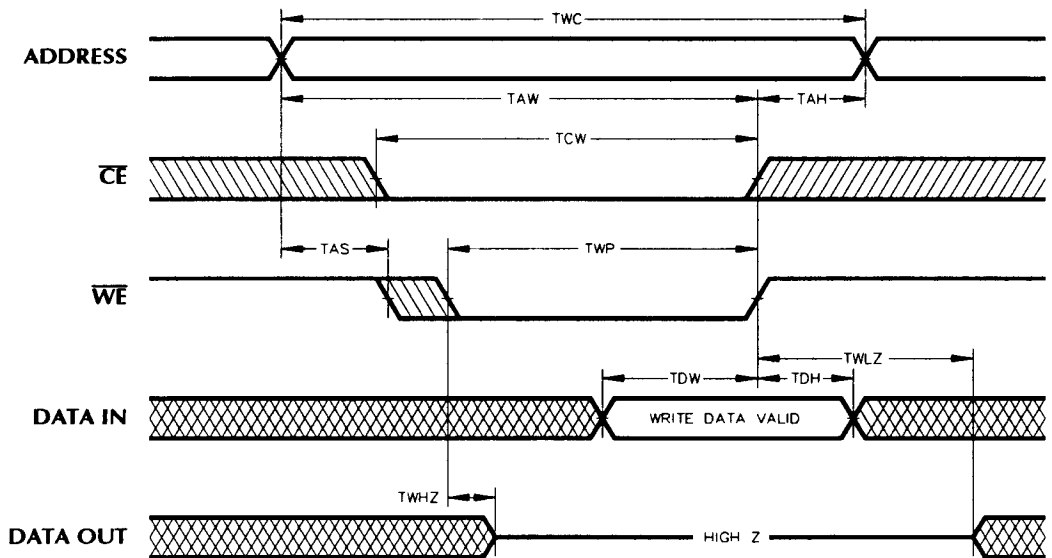


AC OPERATING CONDITIONS AND CHARACTERISTICS - READ CYCLE: Over operating ranges									
No.	Symbol	Parameter	-25		-35		-45		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
1	t _{RC}	Read Cycle Time	25		35		45		ns
2	t _{AA}	Address Access Time		25		35		45	ns
3	t _{CO}	Chip Enable to Output Valid		25		35		45	ns
4	t _{OH}	Output Hold from Address Change	5		5		5		ns
5	t _{CLZ}	Chip Enable to Output in LOW-Z ^{4, 5}	5		5		5		ns
6	t _{CHZ}	Chip Enable to Output in HIGH-Z ^{4, 5}	0	20	0	25	0	30	ns
7	t _{OC}	Output Hold from Chip Enable	0	10	0	10	0	10	ns

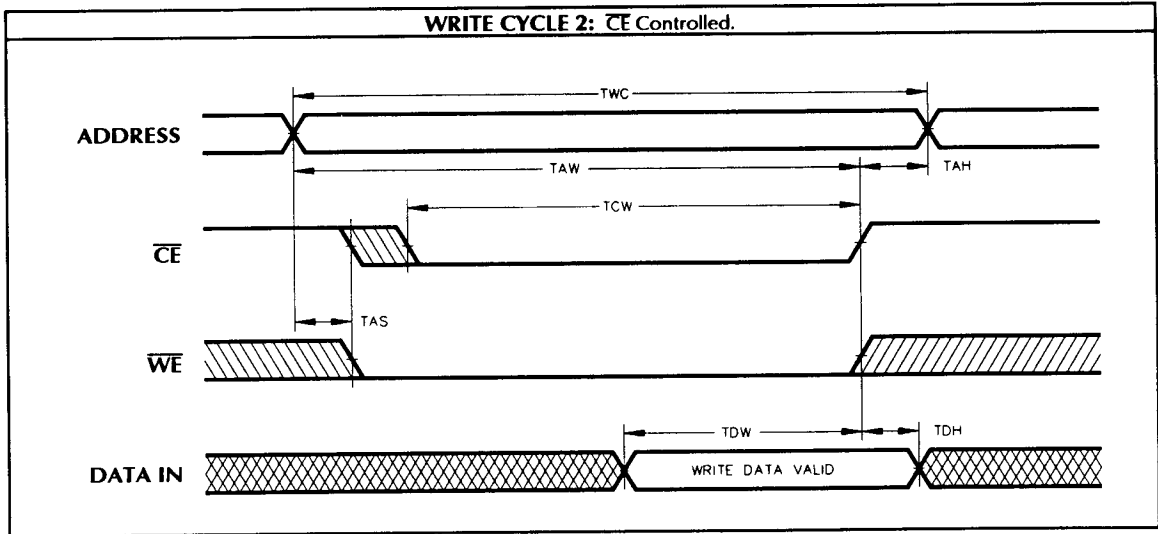
AC OPERATING CONDITIONS AND CHARACTERISTICS - WRITE CYCLE: Over operating ranges									
No.	Symbol	Parameter	-25		-35		-45		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
8	t _{WC}	Write Cycle Time	25		35		45		ns
9	t _{AW}	Address Valid to End of Write	20		30		40		ns
10	t _{CW}	Chip Enable to End of Write	20		30		40		ns
11	t _{DW}	Data Valid to End of Write	15		20		25		ns
12	t _{DH}	Data Hold Time	0		0		0		ns
13	t _{WP}	Write Pulse Width	20		30		30		ns
14	t _{AS}	Address Set-up Time ***	0		0		0		ns
15	t _{AH}	Address Hold Time	0		0		0		ns
16	t _{WHZ}	Write Enable to Output in HIGH-Z 4, 5	0	20	0	25	0	30	ns
17	t _{WLZ}	Write Enable to Output in LOW-Z 4, 5	0		0		0		ns

*** Valid for both Read and Write Cycles.

NOT RECOMENDED FOR NEW DESIGNS

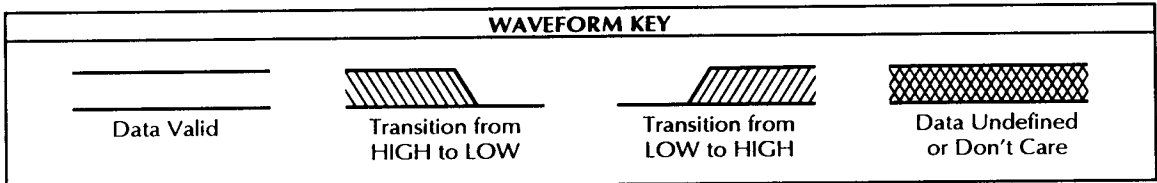
READ CYCLE 1: Address Controlled. $\overline{WE}$ is HIGH. $\overline{CE}$ is LOW.READ CYCLE 2: $\overline{CE}$ Controlled. $\overline{WE}$ is HIGH.WRITE CYCLE 1: $\overline{WE}$ Controlled.

NOT RECOMENDED FOR NEW DESIGNS

**NOTES:**

1. All voltages are referenced to V_{SS} pin = 0V.
2. -3.0V min. for pulse width less than 20ns. (V_{IL} min. = -0.5V at DC level).
3. Stresses greater than those listed under **ABSOLUTE MAXIMUM RATINGS** may cause permanent damage to the device. This is a stress rating only and the functional operation of this 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 but not 100% tested.
5. Transition is measured at the point of $\pm 500\text{mV}$ from steady state voltage.

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WAVEFORM KEY

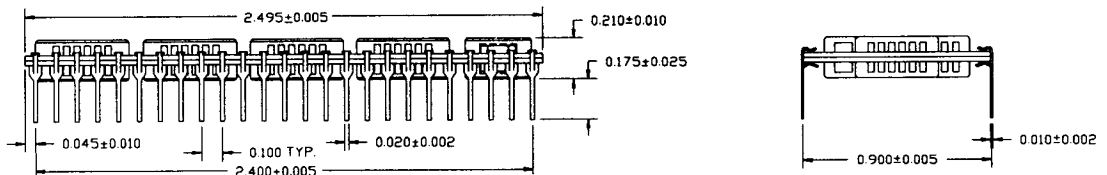
ORDERING INFORMATION

DP S288 - XX X
PREFIX DEVICE TYPE SPEED GRADE

C	COMMERCIAL	0°C to +70°C
I	INDUSTRIAL	-40°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	
16KX18 CMOS SRAM MODULE		

* B grade modules built with 883 devices.

MECHANICAL DIAGRAMS



Dense-Pac Microsystems, Inc.

7321 Lincoln Way • Garden Grove, California 92641-1428
(714) 898-0007 • (800) 642-4477 (Outside CA) • FAX: (714) 897-1772