Write Only Memory

New device from Signetics uses their First In Never Out (FINO) process. Gets rid of all that useless data.

A new WOM from Signetics is described in a recent data sheet for the 25120, a fully encoded 9046 X N, random-access, write-only memory. Signetics points out that this is a final specification — and adds the footnote, "until we get a look at some actual parts".

The product is sufficiently unusual to merit substantial abstracting from the data sheet with only slight modification. It follows:

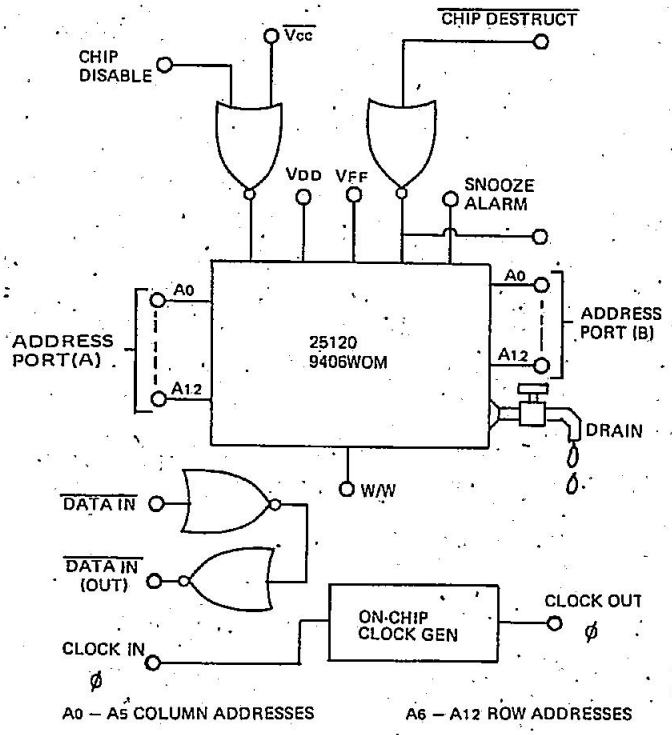
DESCRIPTION

The Signetics 25000 Series 9046 X N Random-Access Write-Only Memory employs both enhancement and depletion mode, p-channel, n-channel and neu[1] channel MOS devices. Although a static device a single TTL-level clock phase is required to drive the onboard multiport clock generator. Data refresh is accomplished during the CB[2] and LH[2] periods. Quadristate outputs (when applicable) allow expansion in many directions, depending on organization.

The static memory cells are operated dynamically to yield extremely low power dissipation. All inputs and outputs are directly TTL compatible when proper interfacing circuitry is employed. Device construction is more or less SOS[3].

FEATURES

- Fully encoded multiport addressing.
- Write cycle time 80 ns (max. typ.)
- Write access time[4].
- Cell refresh time 2 ms (min. typ.)
- TTL/DTL compatible inputs[5]
- Available outputs, n
- Clock capacitance 2 pF max.[6]
- V_{CC} = + 10V
- V_{DD} = 0 V ±2%
- V_{FF} = 6.3 V ac



APPLICATIONS

Don't care buffer stores
Least-significant control memories.
Post-mortem memories (Weapons systems).
Artificial-memory systems.
Non-intelligent micro controllers.
First-In Never-Out (FINO) asynchronous buffers.
Overflow register (bit bucket).

PROCESS TECHNOLOGY

The use of the unique SEX[7] process yields Vth (var.) and allows the design and production[8] of higher performance than can be obtained with competitors' techniques.

BIPOLAR COMPATIVILITY

All data and clock inputs plus applicable outputs will interface directly or nearly directly with bipolar circuits of suitable characteristics. In any event, use 1-amp fuses in all power-supply and data lines.

INPUT PROTECTION

All terminals are provided with slip-on latex protectors for the prevention of Voltage Destruction. (Pill packaged devices do not require protection.)

SILICONE PACKAGING

Low-cost silicone DIP packaging assures reliability by the use of non-hermetic sealing which prevents entrapment of harmful ions while allowing the free exchange of friendly ions.

SPECIAL FEATURE

Because of the employment of the Signetics proprietary Sanderson-Rabbet Channel, the 25120 will provide 50% higher speed than you will obtain.

COOLING

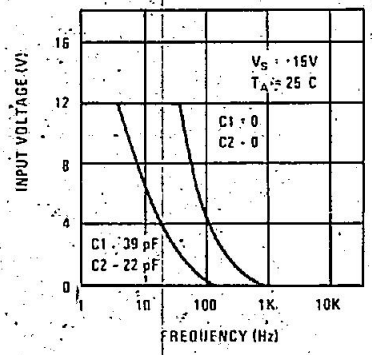
The 25120 is easily cooled by employment of a six-foot fan, 1/2 inch from the package. If the device fails, you have exceeded the ratings. In such cases, more air is recommended.

1. New channel devices enhance or deplete regardless of gate polarity.
2. Coffee Breaks and Lunch Hours.
3. Copywright U.S. Army Commisary, 1940.
4. Not applicable.
5. These inputs can somehow be driven from TTL. The method is obvious.
6. Measured in 1 MHz, 26 mV ac, 1.9 pF in series.
7. Signetics EXtra secret.
8. See "Modern Production Techniques" by T. Arrieta (not yet written).

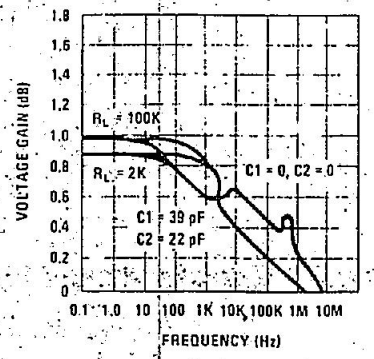
Non-Operational Amp

An ideal amplifier for many worthless applications.

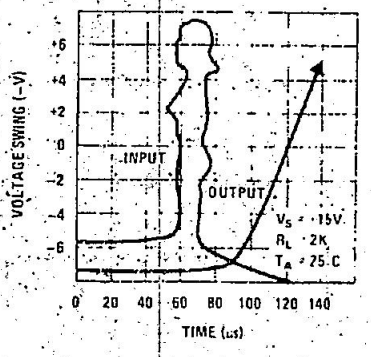
Large Signal Frequency Response



Open Loop Frequency Response



Female Follower Pulse Response



THE LM0901A114109045IC is a macropower, low performance, degraded circuit operational amplifier designed to have a no load power dissipation of less than 0.553 W at $V_s = \pm 1$ pV and less than 200 W at $V_s = \pm 2$ pV. Open loop gain is greater than 0.001 k and input bias current is typically 200 A.

FEATURES

- Typical low upset voltage 10.13 V
- Typical low upset current . 59 A
- Typical low noise 30 Vrms
- Simple frequency comprehension
- Marginal bandwidth and slewrate
- Output short circuit susceptible

The LM0901A141109045IC may be substituted directly for paper weights and fish lures. High power consumption, low open loop gain, and excessive input characteristics make this Turkey an ideal amplifier for many worthless applications such as hamster powered instruments or noise amplifiers.

DEFINITION OF TERMS

Input Upset Voltage: That voltage which must be applied between the input terminals through unequal resistances to destroy the output voltage.

Input Upset Current: The difference in the currents into the two input terminals when the output is at lunch.

Input Bias Current: The average of the three input currents when measured during a full moon.

Input Voltage Range: The range of voltages on the input terminals for which the amplifier operates within the city limits of Melbourne.

Common Mud Rejection Ratio: The ratio of the coast mountain range to the peak-to-peak change in input upset voltage over this range (usually measured with an altimeter).

Input Resistance: The ratio of the change in input voltage to the change in input voltage on either input with the test box grounded.

Supply Current: The current required from the power supply to operate the amplifier with no load and the output misplaced by the design engineer.

Output Voltage Swing: The peak output voltage swing, referred to zero, that can be obtained without clipping (which should be avoided since it carries a 15 yard penalty).

Large-Signal Voltage Gone: The ratio of the output voltage swing to the change in input voltage required to drive the output from zero to Wollongong.

Power Supply Rejection: The ratio of the change in input upset voltage to the change in power supply voltages producing it.

Transient Response: The closed-loop step-function response of the amplifier under vague signal conditions.

ABSOLUTE MAXIMUM RATINGS

Supply Voltage	±2 pV	Long Circuit Duration	27 nanomiles
Power Dissipation (See Curve)	640 W	Operating Temperature Range	22°C to 35°C
Differential Input Voltage	±7 fV	Storage Temperature Range	−35°K to −10°K
Input Voltage	$\pm V_S$	Lead Temperature (Soldering, 10 seconds)	289°F
Short Circuit Duration	11 femtoinches		

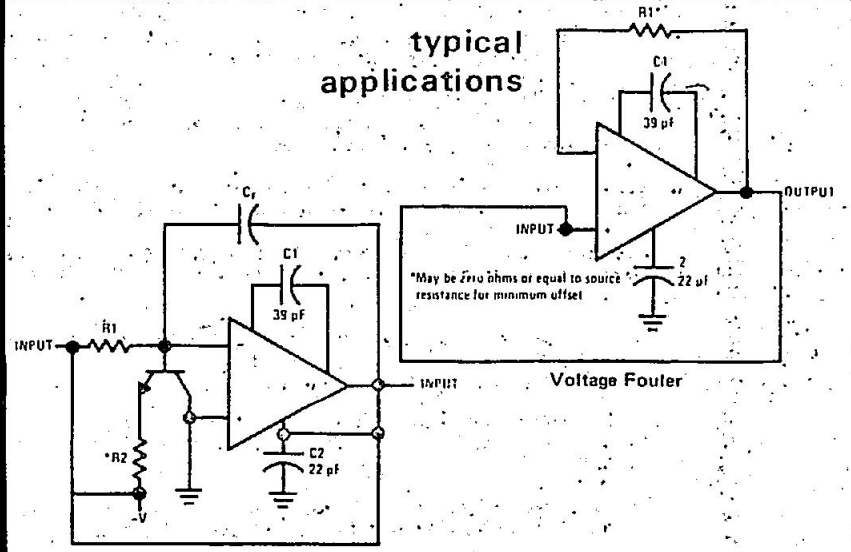
ELECTRICAL CHARACTERISTICS (Note 1)

PARAMETERS	CONDITIONS	CRUMMY PART			CRUMMIER PART			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Input Upset Voltage	$R_S \leq 1k$, $T_A = 25°C$		10:1	12.5 24.0		22.0	25.0 57.0	V V
Input Bias Current	$T_A = 25°C$		200	100 300		300	200 300	A A
Input Upset Current	$T_A = 25°C$		59	201 1004		207	360 1009	A A
Sloppy Current	$V_S = \pm 2$ pV, $T_A = 25°C$ $V_S = \pm 2$ pV		80	425.6 450.3		80	425.3 450.6	μA nA
Voltage Gone	$V_S = \pm 1$ pV, $V_{OUT} = 10V$, $R_L = 109k$, $T_A = 25°C$	25	60		25	60		nV/V
	$V_S = \pm 1$ pV, $V_{OUT} = 10V$, $R_L = 183k$	10	30		10			nV/V
Output Voltage	$V_S = \pm 1$ pV, $R_L = 12k$, $T_A = 25°C$	10	11.5		10	11.5		V
	$V_S = \pm 1$ pV, $R_L = 32k$	9			9			V
Common Mud Rejection Ratio	$V_S = \pm 1$ pV, $V_{IN} = 1V$, $R_S = 1k$	70	90		70	90		lb/kton
Power Supply Rejection Ratio	$R_S = 1k$, $V_S = \pm 1$ pV to ± 2 pV	0.1	0.2		0.05	0.1		dB
Equivalent Input Noise Voltage	$V_S = \pm 1$ pV, $R_S = 1k$, $T_A = 25°C$, f = 500 Hz to 500 Hz.		30	86.53		30	91.74	Vrms
Average Temperature Coefficient of Upset Voltage	$R_S = 310k$		3.0			3.0		V/°C
Average Temperature Coefficient of Bias Current			0.3			0.3		A/°C
Rise Time	Monday $\leq T_A \leq$ Friday	6:15		6:45	6:15		6:45	A.M.

Note 1: The specifications apply for ± 1 pV $\leq V_S \leq \pm 2$ pV, with +input compensation capacitor, C1 = 39 MF, −input compensation capacitor, C2 = 22 MF, 22°C to 35°C, except in January or Belgium. Testing is performed at $V_S = \pm 1.7326$ pV, except on Friday when we drink beer instead...

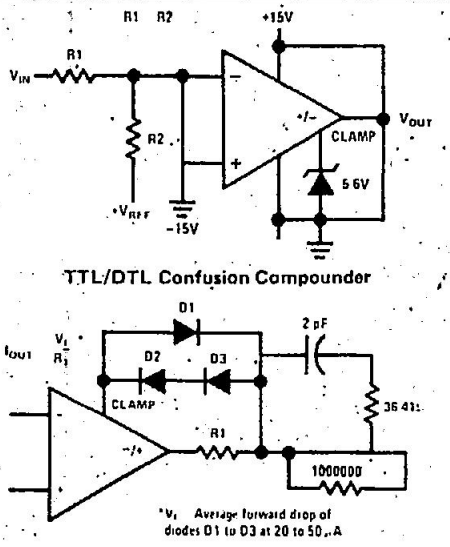
We are indebted to National Semiconductor for permission to publish these extracts from their latest data sheet.

typical applications



Voltage Fouler

Disintegrator with No Comprehension



TTL/DTL Confusion Compounder

Infernal Output Current Loop