4096-BIT BIPOLAR PROM (1024×4) 82S137 (T.S.)

DESCRIPTION

The 82S137 is field programmable, which means that custom patterns are immediately available by following the fusing procedure given in this data manual. The 82S137 is supplied with all outputs at logical low. Outputs are programmed to a logic high level at any specified address by fusing a Ni-Cr link matrix.

These devices include on-chip decoding and 2 chip enable inputs for ease of memory expansion. They feature tri-state outputs for optimization of word expansion in bused organizations.

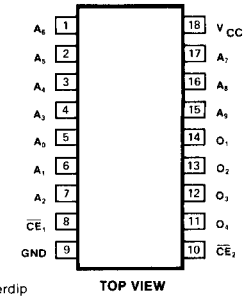
The 82S137 device is available in the commercial and military temperature ranges. For the commercial temperature range (0°C to +75°C) specify N82S137, F or N, and for the military temperature range (–55°C to + 125°C) specify S82S137, F or R.

FEATURES

- **Address access time:**
  N82S137: 60ns max
  S82S137: 80ns max
- **Power dissipation: .13mW/bit typ**
- **Input loading:**
  N82S137: –100μA max
  S82S137: –150μA max
- **On-chip address decoding**
- **No separate fusing pins**
- **Unprogrammed outputs are low level**
- **Fully TTL compatible**

PIN CONFIGURATION

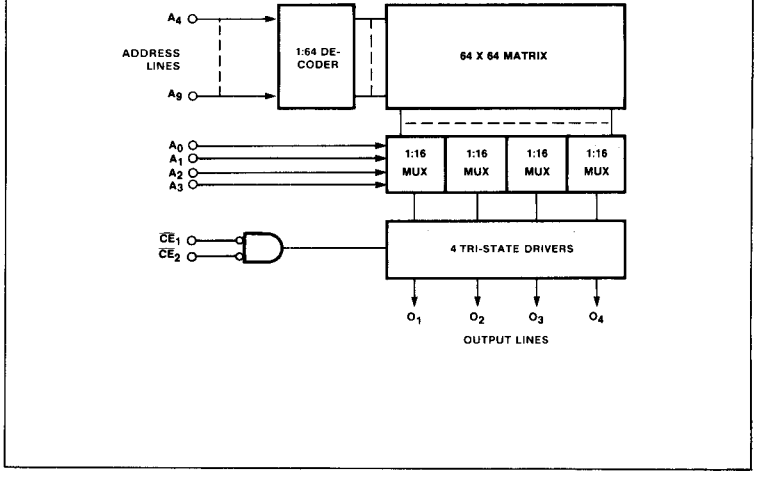
F,N,R PACKAGE*



TOP VIEW

*F = Cerdip
N = Plastic
R = Flat Pak

BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

PARAMETER		RATING	UNIT
V_{CC}	Supply voltage	+7	Vdc
V_{IN}	Input voltage	+5.5	Vdc
	Output voltage		Vdc
V_O	Off-state (82S137)	+5.5	
	Temperature range		°C
T_A	Operating		
	N82S137	0 to +75	
	S82S137	-55 to +125	
T_{STG}	Storage	-65 to +150	

4096-BIT BIPOLAR PROM (1024×4) 82S137 (T.S.)

DC ELECTRICAL CHARACTERISTICS

N82S137; N82S137A: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V
S82S137; S82S137A: -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5V

PARAMETER		TEST CONDITIONS[1,2]	N82S137/137A			S82S137/137A			UNIT
			Min	Typ	Max	Min	Typ	Max	
	Input voltage								V
V_{IL}	Low				.85			.80	
V_{IH}	High		2.0			2.0			
V_{IC}	Clamp	I_{IN} = -18mA			-1.2			-1.2	
	Output voltage	$\overline{CE}_{1,2}$ = Low							V
V_{OL}	Low	I_{OUT} = 16mA			0.45			0.5	
V_{OH}	High	I_{OUT} = -2mA	2.4			2.4			
	Input current								μA
I_{IL}	Low	V_{IN} = 0.45V			-100			-150	
I_{IH}	High	V_{IN} = 5.5V			40			50	
	Output current								
$I_{O(OFF)}$	Off-state	$\overline{CE}_{1,2}$ = High, V_{OUT} = 0.5V			40			60	μA
		$\overline{CE}_{1,2}$ = High, V_{OUT} = 5.5V			-40			-60	μA
I_{OS}	Short circuit[3]	$\overline{CE}_{1,2}$ = Low, V_{OUT} = 0V, Stored high	-20		40 -70	-15		60 -85	mA
I_{CC}	V_{CC} supply current				140			150	mA
	Capacitance	$\overline{CE}_{1,2}$ = High, V_{CC} = 5.0V							pF
C_{IN}	Input	V_{IN} = 2.0V		5			5		
C_{OUT}	Output	V_{OUT} = 2.0V		8			8		

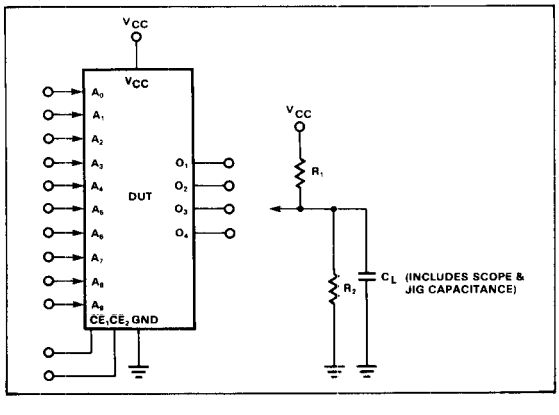
AC ELECTRICAL CHARACTERISTICS

R_1 = 270Ω, R_2 = 600Ω, C_L = 30pF
N82S137; N82S137A: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V
S82S137; S82S137A: -55°C ≤ T_A ≤ +125°C. 4.5V ≤ V_{CC} ≤ 5.5V

PARAMETER	TO	FROM	N82S137			S82S137		
			Min	Typ[5]	Max	Min	Typ	Max
Access time								
T_{AA}[4]	Output	Address		40	60			80
T_{CE}	Output	Chip enable		25	30			40
Disable time								
T_{CD}	Output	Chip disable		25	30			40

NOTES
1. Positive current is defined as into the terminal referenced.
2. All voltages with respect to network ground.
3. Duration of short circuit should not exceed 1 second.
4. Tested at an address cycle time of 1μsec.
5. Typical values are at V_{CC} = 5V, T_A = 25°C.

TEST LOAD CIRCUIT



VOLTAGE WAVEFORM