

4096-BIT BIPOLAR PROM (512 × 8)

82S140 (O.C.)/82S141 (T.S.)

DESCRIPTION

The 82S140 and 82S141 are field programmable, which means that custom patterns are immediately available by following the fusing procedure given in this data manual. The standard 82S140 and 82S141 are 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 4 chip enable inputs for ease of memory expansion. They feature either open collector or tri-state outputs for optimization of word expansion in bused organizations.

Both 82S140 and 82S141 devices are available in the commercial and military temperature ranges. For the commercial temperature range (0°C to +75°C) specify N82S140/141, F or N and for the military temperature range (-55°C to +125°C) specify S82S140/141, F, or R.

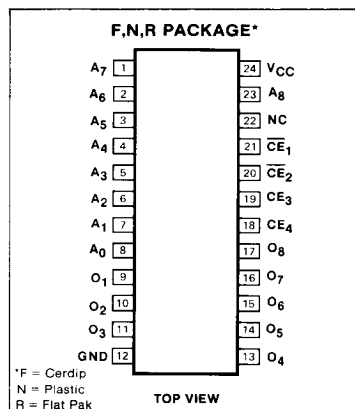
FEATURES

- **Address access time:**
N82S140/141: 60ns max
S82S140/141: 90ns max
- **Power dissipation:** .17mW/bit typ
- **Input loading:**
N82S140/141: -100µA max
S82S140/141: -150µA max
- **On-chip address decoding**
- **Output options:**
82S140: Open collector
82S141: Tri-state
- **No separate fusing pins**
- **Unprogrammed outputs are low level**
- **Fully TTL compatible**

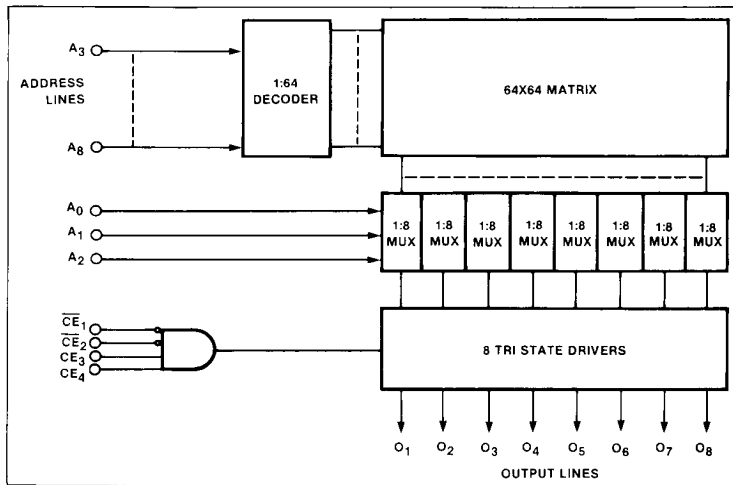
APPLICATIONS

- Prototyping/volume production
- Sequential controllers
- Microprogramming
- Hardwired algorithms
- Control store
- Random logic
- Code conversion

PIN CONFIGURATION



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 _{OH} High (82S140)	+ 5.5	
V _O Off-state (82S141)	+ 5.5	
Temperature range		°C
T _A Operating		
N82S140/141	0 to + 75	
S82S140/141	- 55 to + 125	
T _{STG} Storage	- 65 to + 150	

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DC ELECTRICAL CHARACTERISTICS

N82S140/141: 0°C ≤ T_A ≤ 75°C, 4.75V ≤ V_{CC} ≤ 5.25V
 S82S140/141: -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5V

PARAMETER	TEST CONDITIONS ^{1,2}	N82S140/141			S82S140/141			UNIT
		Min	Typ ⁵	Max	Min	Typ ²	Max	
V _{IL} V _{IH} V _{IC}	Input voltage Low High Clamp	I _{IN} = -12mA						V
V _{OL} V _{OH}	Output voltage Low High (82S141)	I _{OUT} = 9.6mA C _{E1} = Low, I _{OUT} = -2mA, C _{E2} = Low, C _{E3} = High, C _{E4} = High, High stored						V
I _{IL} I _{IH}	Input current Low High	V _{IN} = 0.45V V _{IN} = 5.5V						μA
I _{OLK}	Output current Leakage (82S140)	C _{E1} = High, V _{OUT} = 5.5V, C _{E2} = High, C _{E3} = Low, C _{E4} = Low			40			μA
I _{OZ}	Hi-Z state (82S141)	C _{E1} = High, V _{OUT} = 0.5V, C _{E2} = High, C _{E3} = Low, C _{E4} = Low			-40			μA
I _{OS}	Short circuit (82S141) ³	C _{E1} = High, V _{OUT} = 5.5V, C _{E2} = High, C _{E3} = Low, C _{E4} = Low V _{OUT} = 0V			-15			mA
I _{CC}	V _{CC} supply current	V _{CC} = Max			140 175			mA
C _{IN} C _{OUT}	Capacitance Input Output	V _{CC} = 5.0V V _{IN} = 2.0V V _{OUT} = 2.0V			5 8			pF

AC ELECTRICAL CHARACTERISTICS

R₁ = 470Ω, R₂ = 1kΩ, C_L = 30pF

N82S140/141: 0°C ≤ T_A ≤ +75°C, 4.75V ≤ V_{CC} ≤ 5.25V

S82S140/141: -55°C ≤ T_A ≤ +125°C, 4.5V ≤ V_{CC} ≤ 5.5V

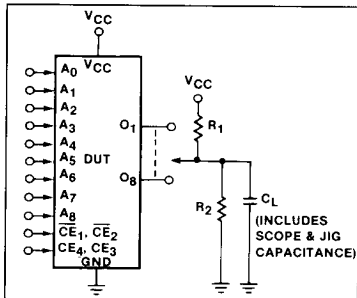
PARAMETER	TO	FROM	N82S140/141			S82S140/141			UNIT
			Min	Typ ⁵	Max	Min	Typ ⁵	Max	
T _{AA} ⁴ T _{CE}	Access time Output Output	Address Chip enable		40 20	60 40		40 20	90 50	ns
T _{CD}	Disable time Output	Chip disable		20	40		20	50	ns

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

