DESCRIPTION

The 82S240 and 82S241 are mask programmable, and 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 82S240 and 82S241 devices are available in the commercial and military temperature ranges. For the commercial temperature range (0°C to +75°C) specify N82S240/241, F or N, and for the military temperature range (-55°C to +125°C) specify S82S240/241, F.

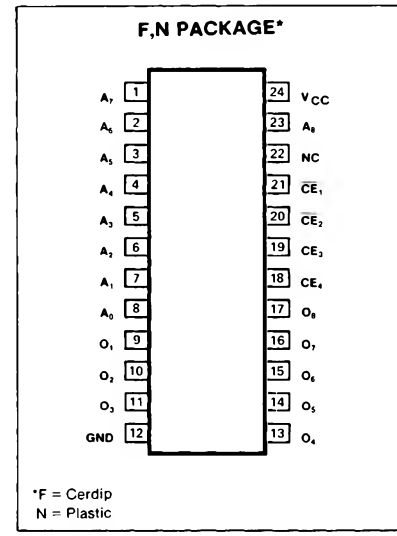
FEATURES

- **Address access time:**
  N82S240/241: 60ns max
  S82S240/241: 90ns max
- **Power dissipation: .17mW/bit typ**
- **input loading:**
  N82S240/241: -100μA max
  S82S240/241: -150μA max
- **On-chip address decoding**
- **Output options:**
  82S240: Open collector
  S82S241: Tri-state
- **Fully TTL compatible**

APPLICATIONS

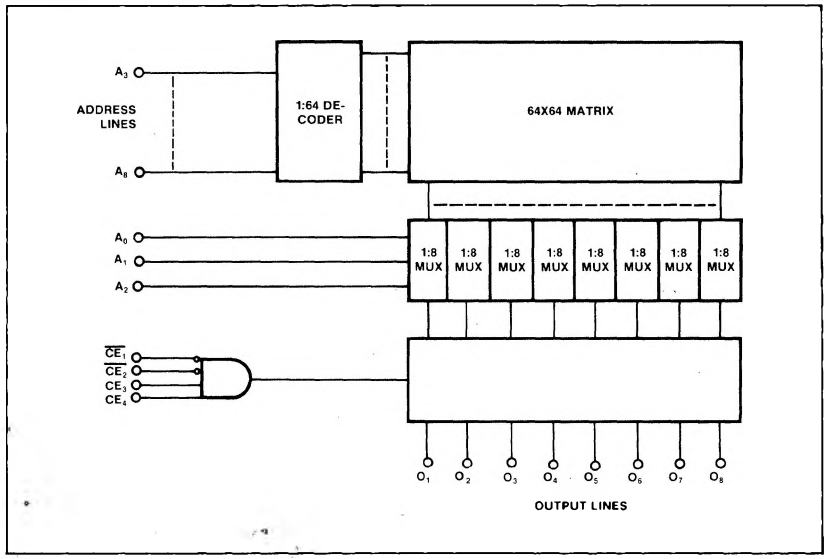
- **Volume production**
- **Sequential controllers**
- **Microprogramming**
- **Hardwired algorithms**
- **Control store**
- **Random logic**
- **Code conversion**

PIN CONFIGURATION



*F = Cerdip
N = Plastic

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 (82S240)	+5.5	
V_O	Off-state (82S241)	+5.5	
	Temperature range		°C
T_A	Operating		
	N82S240/241	0 to +75	
	S82S240/241	-55 to +125	
T_{STG}	Storage	-65 to +150	

DC ELECTRICAL CHARACTERISTICS

N82S240/241: $0°C \le T_A \le +75°C$, $4.75V \le V_{CC} \le 5.25V$
S82S240/241: $-55°C \le T_A \le +125°C$, $4.5V \le V_{CC} \le 5.5V$

PARAMETER		TEST CONDITIONS[1]	N82S240/241			S82S240/241			UNIT
			Min	Typ[2]	Max	Min	Typ[2]	Max	
	Input voltage								V
V_{IL}	Low				.85			.80	
V_{IH}	High		2.0			2.0			
V_{IC}	Clamp	I_{IN} = -18mA		-0.8	-1.2		-0.8	-1.2	
	Output voltage								V
V_{OL}	Low	I_{OUT} = 9.6mA			0.45			0.5	
V_{OH}	High (82S241)	CE_1 = Low, I_{OUT} = -2mA, CE_2 = Low, CE_3 = High, CE_4 = High, High stored	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_{OLK}	Leakage (82S240)	CE_1 = High, V_{OUT} = 5.5V, CE_2 = High, CE_3 = Low, CE_4 = Low			40			60	μA
$I_{O(OFF)}$	Hi-Z state (82S241)	CE_1 = High, V_{OUT} = 0.5V, CE_2 = High, CE_3 = Low, CE_4 = Low			-40			-60	μA
		CE_1 = High, V_{OUT} = 5.5V, CE_2 = High, CE_3 = Low, CE_4 = Low			40			60	
I_{OS}	Short circuit (82S241)	V_{OUT} = 0V	-20		-70	-15		-85	mA
I_{CC}	V_{CC} supply current			140	175		140	185	mA
	Capacitance	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

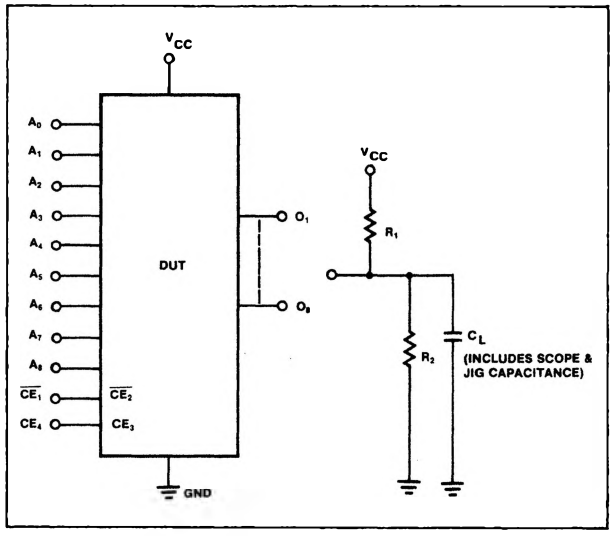
$R_1 = 470\Omega$, $R_2 = 1k\Omega$, $C_L = 30pF$
N82S240/241: $0°C \le T_A \le +75°C$, $4.75V \le V_{CC} \le 5.25V$
S82S240/241: $-55°C \le T_A \le +125°C$, $4.5V \le V_{CC} \le 5.5V$

PARAMETER	TO	FROM	N82S240/241			S82S240/241			UNIT
			Min	Typ[2]	Max	Min	Typ[2]	Max	
Access time									ns
T_{AA}	Output	Address		40	60		40	90	
T_{CE}	Output	Chip enable		20	40		20	50	
Disable time									ns
T_{CD}	Output	Chip disable		20	40		20	50	

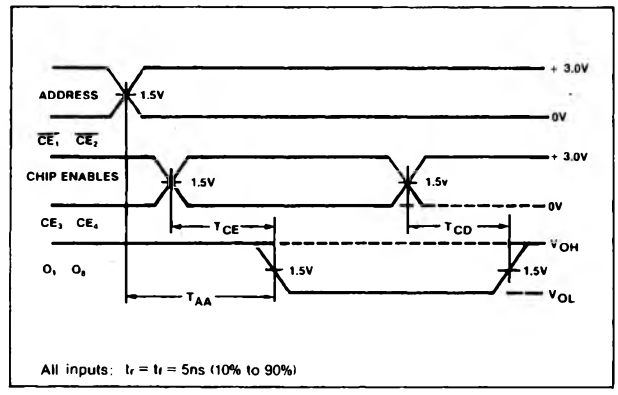
NOTES

1. Positive current is defined as into the terminal referenced.
2. Typical values are at V_{CC} = 5.0V, T_A = +25°C.

TEST LOAD CIRCUIT



VOLTAGE WAVEFORM



All inputs: $t_r = t_f = 5ns$ (10% to 90%)