

Description

The μPB10A484 is a very high-speed 10K interface ECL RAM organized as 4,096 words by 4 bits with noninverted, open-emitter outputs. Two versions with access times of 5 ns and 7 ns maximum are available. The μPB10A484 is packaged in a hermetic, 400-mil, 28-pin cerdip or 28-pin ceramic flatpack.

Features

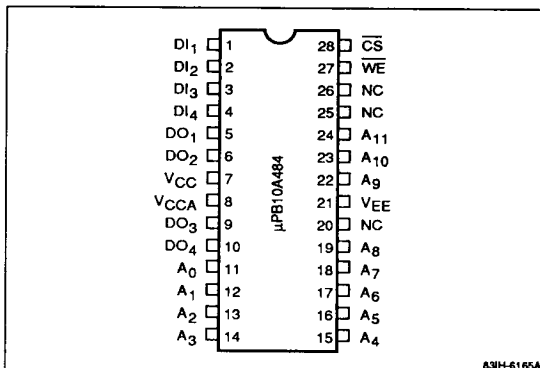
- 4,096-word x 4-bit organization
- 10K ECL interface
- Noninverted, open-emitter outputs
- Fast access times of 5 and 7 ns maximum
- 400-mil, 28-pin cerdip or ceramic flatpack packaging
- Center power pins

Ordering Information

Part Number	Access Time (max)	Package
μPB10A484D-5	5 ns	28-pin cerdip
D-7	7 ns	
μPB10A484BH-5	5 ns	28-pin ceramic flatpack
BH-7	7 ns	

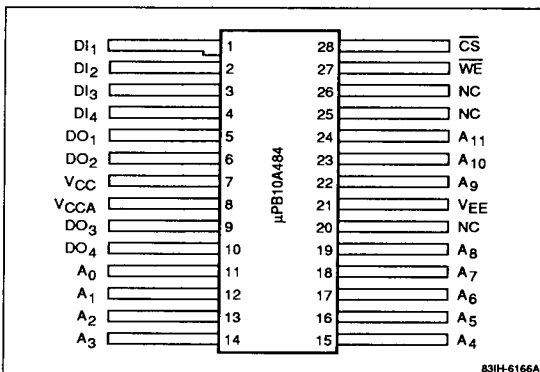
Pin Configurations

28-Pin Cerdip



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28-Pin Ceramic Flatpack



Pin Identification

Symbol	Function
A ₀ - A ₁₁	Address Inputs
DI ₁ - DI ₄	Data Inputs
DO ₁ - DO ₄	Data outputs
WE	Write enable (active low)
CS	Chip select (active low)
V _{CC}	Power supply (current switches and bias driver)
V _{CCA}	Power supply (output devices)
V _{EE}	-5.2-volt power supply
NC	No connection

Capacitance

f = 1 MHz

Parameter	Symbol	Min	Typ	Max	Unit
Input capacitance	C _{IN}		4		pF
Output capacitance	C _{OUT}		6		pF

Absolute Maximum Ratings

V_{CC} = V_{CCA} = 0 V

Supply voltage, V _{EE}	-7.0 to +0.5 V
Input voltage, V _{IN}	V _{EE} to +0.5 V
Output current, I _{OUT}	-30 to +0.1 mA
Storage temperature, T _{STG}	-65 to +150°C
Storage temperature under bias, T _{STG} (bias)	-55 to +125°C

Exposure to Absolute Maximum Ratings for extended periods may affect device reliability; exceeding the ratings could cause permanent damage. The device should be operated within the limits specified under DC and AC Characteristics.

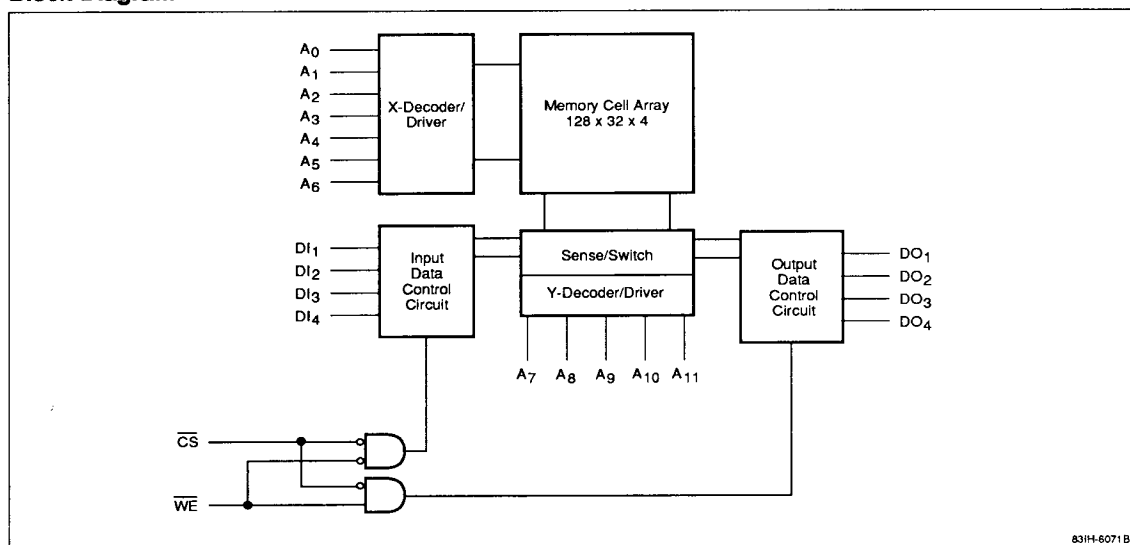
Truth Table

Function	CS	WE	D _{IN}	Output
Not selected	H	X	X	L
Write 0	L	L	L	L
Write 1	L	L	H	L
Read	L	H	X	D _{OUT}

Notes:

(1) X = don't care.

Block Diagram



DC Characteristics

$T_A = 0$ to $+75^\circ\text{C}$; $V_{EE} = -5.2\text{ V}$; output load = $50\ \Omega$ to -2.0 V ; $V_{CC} = V_{CCA} = 0\text{ V}$

Parameter	Symbol	Min	Typ	Max	Unit	Test Conditions
Output voltage, high	V_{OH}	-1000		-840	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 0^\circ\text{C}$
		-960		-810	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 25^\circ\text{C}$
		-900		-720	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 75^\circ\text{C}$
Output voltage, low	V_{OL}	-1870		-1665	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 0^\circ\text{C}$
		-1850		-1650	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 25^\circ\text{C}$
		-1830		-1625	mV	$V_{IN} = V_{IH}$ max or V_{IL} min; $T_A = 75^\circ\text{C}$
Output threshold voltage, high	V_{OHC}	-1020			mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 0^\circ\text{C}$
		-980			mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 25^\circ\text{C}$
		-920			mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 75^\circ\text{C}$
Output threshold voltage, low	V_{OLC}			-1645	mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 0^\circ\text{C}$
				-1630	mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 25^\circ\text{C}$
				-1605	mV	$V_{IN} = V_{IH}$ min or V_{IL} max; $T_A = 75^\circ\text{C}$
Input voltage, high	V_{IH}	-1145		-840	mV	For all inputs: $T_A = 0^\circ\text{C}$
		-1105		-810	mV	For all inputs: $T_A = 25^\circ\text{C}$
		-1045		-720	mV	For all inputs: $T_A = 75^\circ\text{C}$
Input voltage, low	V_{IL}	-1870		-1490	mV	For all inputs: $T_A = 0^\circ\text{C}$
		-1850		-1475	mV	For all inputs: $T_A = 25^\circ\text{C}$
		-1830		-1450	mV	For all inputs: $T_A = 75^\circ\text{C}$
Input current, high	I_{IH}			220	μA	$V_{IN} = V_{IH}$ max
Input current, low	I_{IL}	0.5		170	μA	For CS: $V_{IN} = V_{IL}$ min
		-50			μA	For all others: $V_{IN} = V_{IL}$ min
Supply current	I_{EE}	320			mA	All inputs and outputs open

Notes:

- (1) The device under test is mounted in a test socket and measured at a thermal equilibrium established with a transverse air flow maintained at greater than 2.0 m/s.

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μPB10A484

AC Characteristics

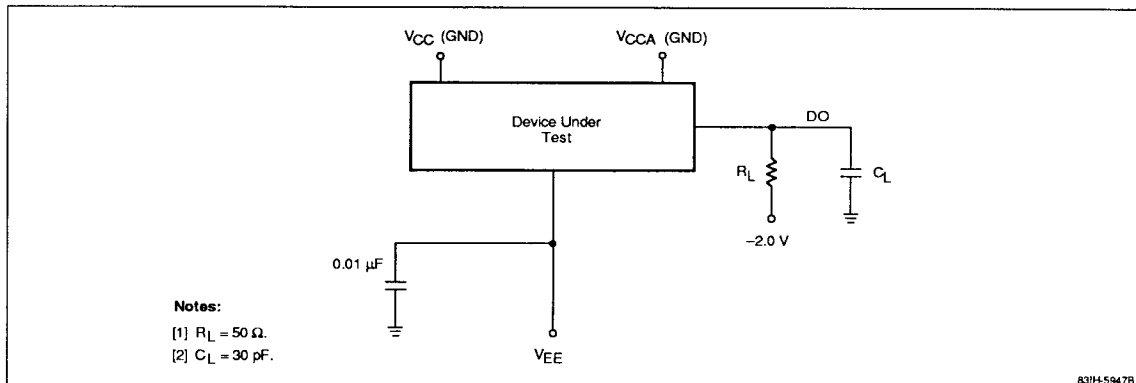
$T_A = 0$ to $+75^\circ\text{C}$; $V_{EE} = -5.2\text{ V} \pm 5\%$; output load = $50\ \Omega$ to -2.0 V ; $V_{CC} = V_{CCA} = 0\text{ V}$

Parameter	Symbol	μPB10A484-5			μPB10A484-7			Unit	Test Conditions
		Min	Typ	Max	Min	Typ	Max		
Read Operation									
Address access time	t _{AA}			5			7	ns	
Chip select recovery time	t _{RCS}			3.5			4	ns	
Chip select access time	t _{ACS}			3.5			4	ns	
Write Operation									
Write pulse width	t _W	6			8			ns	
Data setup time	t _{WSD}	1			1			ns	
Data hold time	t _{WHD}	2			2			ns	
Address setup time	t _{WSA}	1			1			ns	
Address hold time	t _{WHA}	2			2			ns	
Chip select setup time	t _{WSCS}	1			1			ns	
Chip select hold time	t _{WHCS}	2			2			ns	
Write disable time	t _{WS}			3.5			5	ns	
Write recovery time	t _{WR}			7			9	ns	
Output Rise and Fall Times									
Output rise time	t _R		2			2		ns	
Output fall time	t _F		2			2		ns	

Notes:

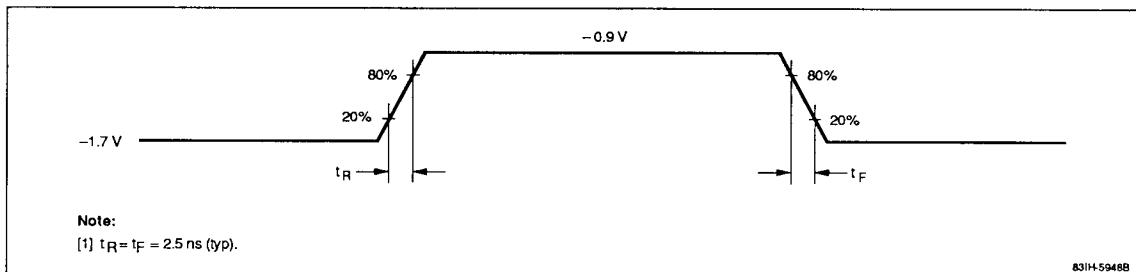
- (1) The device under test is mounted in a test socket and measured at a thermal equilibrium established with a transverse air flow maintained at greater than 2.0 m/s.
- (2) Input pulse levels = -1.7 to -0.9 V ; Input rise and fall times (measured between 20% and 80% or 80% and 20%) = 2.5 ns; input and output timing reference level = 50%.

Figure 1. Loading Conditions Test Circuit



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Figure 2. Input Pulse



Chip Select Access Cycle

