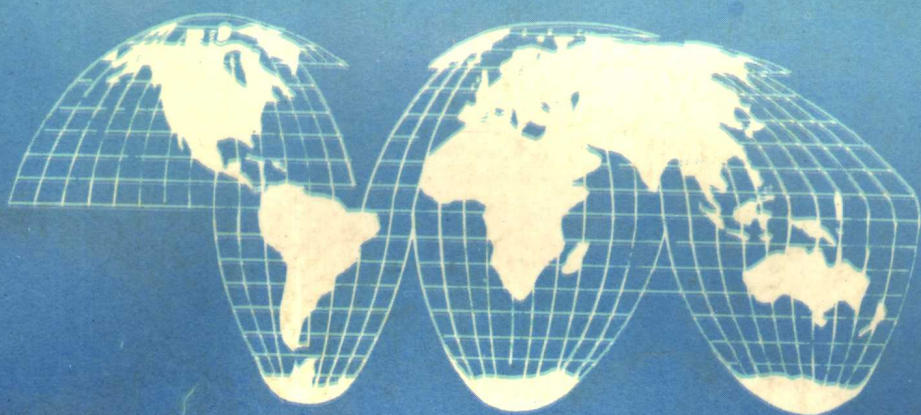


1985年



世界集成电路大全

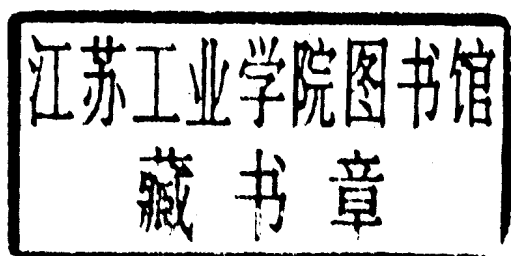


6

上海交通大学微机研究所·南洋电脑开发总公司

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6. 存储器



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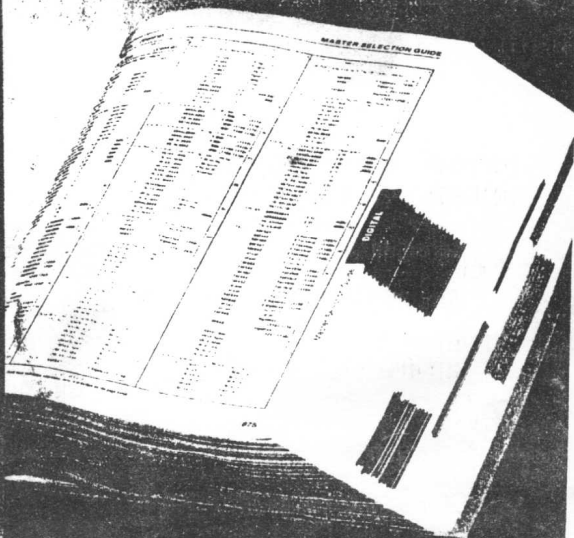
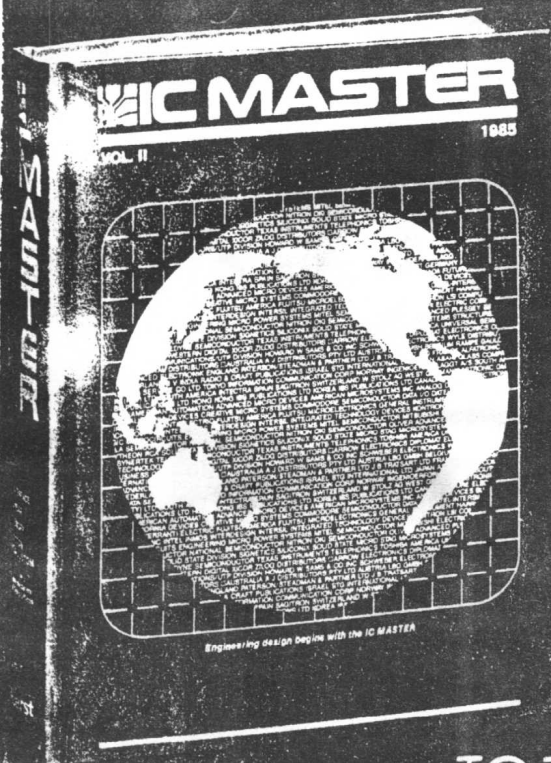
1985 年 10 月

1985

IC MASTER

VOLUME I

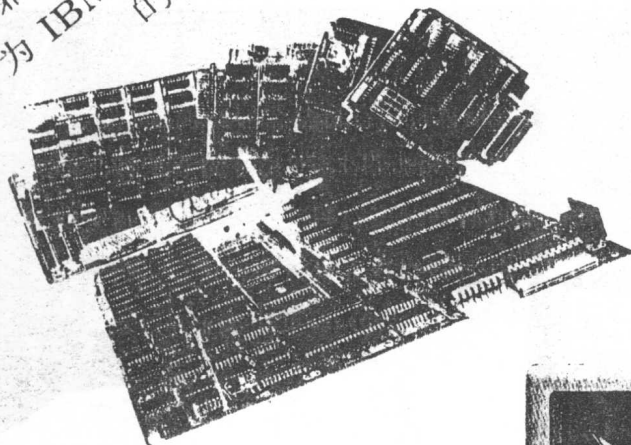
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TO THE 1985 IC MASTER

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IBM-PC/XT
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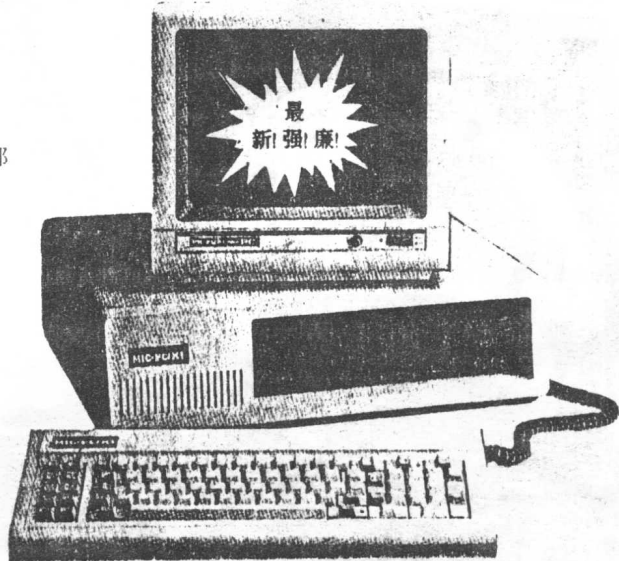
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存储器引言

《IC大全选择指南》充分提供了最初选择产品的信息，在本章节中出现的所有产品，无论是在《IC大全选择指南》中，还是在数据页中的，都包含在索引表里。索引表指出了产品在本书中的页号和引号。

存储器章节提供了最初选择信息和有关EPROM、RAM、ROM以及其它存储器的数据。在这些特殊章节中，器件由其结构（字和位/字）和存取时间来表示其特性。为了对存取时间进行比较，在器件的整个温度变化范围里（即商用器件是 0°C — 70°C ，军用器件是 -55°C — 125°C ）用毫微秒表示其存取时间，全部温度的毫微秒值都用“NSF”表示。不作特殊说明的话，那么在室内温度所用的毫微秒值就用“NSR”表示。在某些情况下，基准值没有建立，那么典型值就用“NS*”表示。典型值一般要比基准值快。所以快速存储器列在其它内容之前。

CATEGORY	
Character Generators	4107
Code Converters	4107
FIFOs, LIFOs	4108
E ² PROMS	4109
PROMs	
RAMs	4111
Bubble	4120
Dynamic	4120
Static	4123
ROMs	4137
Shift Registers	
Dynamic	4143
Static	4143

Detailed Product Information provided by:

Advanced Micro Devices	4301
Cypress Semiconductor	4340
Fairchild	4343
Fujitsu Microelectronics	4346
Fujitsu America	4350
Gould AMI	4352
Harris Semiconductor	4356
Hitachi America	4367
Inmos	4374
Integrated Device Technology	4382
Intel	4397
Intersil	4412
LMS Electronics	4413
Monolithic Memories Inc	4414
Mostek	4433
Motorola Semiconductor	4437
NCR Microelectronics	4445
OKI Semiconductor	4452
Panasonic	4454
Raytheon	4464
Sigmetics	4470
S-MOS Systems	4508
Solid State Scientific	4512
Texas Instruments	4515
Thomson CSF	4571
Tristar Semiconductor	4572
VLSI Technology	4575
Xicor	4583

The manufacturer's data sheet have provided the exact information on the test and rated conditions.

EINFÜHRUNG SPEICHER

Der Master Selection Guide für Speicher enthält alle Informationen, die Sie für die Erstauswahl Ihres Produkts benötigen. Die Bauteile, die in diesem Abschnitt erscheinen, sowohl im Selection Guide als auch auf den Datenblättern, sind in allen Master Indexes enthalten. Diese Register verweisen auf die Seite und Zeile, auf der das entsprechende Bauelement vorkommt.

Der Speicherteil besteht aus einem Selection Guide und Daten über PROMs, RAMs und ROMs sowie andere Speicher-Bauteile. In diesen einzelnen Abschnitten sind die Bauteile nach Organisation (Worte und Bits/Wort) und nach Zugriffszeiten eingeteilt. Um sicherzustellen, daß die Zugriffszeiten vergleichbar sind, wurden die Werte nach Möglichkeit in Nanosekunden für den vollen zugelassenen Temperaturbereich (d.h. 0° bis 70°C für kommerzielle Bauteile und -55° bis 125°C für militärische Bauteile) angegeben. Der nsec-Wert für den vollen Temperaturbereich ist mit "nsF" bezeichnet. Wenn dieser Wert nicht genannt ist, so ist der garantierte nsec-Wert bei Raumtemperatur mit "nsR" angegeben. In einigen Fällen wurde ein garantierter Wert nicht festgelegt. Dann wird der typische Wert mit einem nachfolgenden "ns*" markiert. "Typische" Werte sind durchwegs schneller als garantierte, so daß solche Eintragungen die Speicher weiter oben in der Liste erscheinen lassen als dies sonst der Fall wäre.

INTRODUCTION AUX MEMOIRES

Le Guide Général de Sélection fournit suffisamment de renseignements pour permettre des sélections initiales de produits. Tous les appareils énumérés dans cette section, tant dans le Premier Guide de Sélection que dans les feuilles de données, sont inclus dans tous les index. Ces index vous procurent la possibilité de retrouver à quelle page et à quelle ligne tel ou tel appareil a été mentionné.

La Section "Mémoires" contient des données et des renseignements de sélection initiale sur les PROMs, les RAMs et les ROMs, ainsi que sur d'autres appareils mémoires. Dans ces sous-sections, les appareils sont distingués par définition (mots et bit/mot) et par temps d'accès. Afin d'être sûr que les temps d'accès soient comparables, chaque fois que cela a été possible, les valeurs ont été indiquées en nanosecondes pour toute la fourchette de température (exemple: 0° à 70° pour les produits industriels, et -55°C à 125°C pour les produits militaires). La valeur entière de température en nanosecondes est désignée par "nsf". Lorsque cette valeur n'est pas donnée, une valeur garantie à température ambiante, exprimée en nanosecondes, est suivie par "nsR". Dans certains cas aucune valeur garantie en nanosecondes n'a pu être établie, la valeur "typique" est alors traduite par "ns". Les valeurs "typiques" sont invariablement beaucoup plus rapides que celles dites "garanties", de sorte que ces mémoires "typiques" apparaissent plus haut sur la liste qu'elles ne le seraient sur d'autres.

INTRODUCCIÓN A MEMORIA

La Guía Maestra de Selección provee suficiente información para hacer selecciones iniciales del producto. Todas las componentes que aparecen en esta sección, ya sea en la guía de selección inicial o en las páginas de datos, están incluidas en todos los otros índices. Estas listas de índices los conduce a la página y línea de aquella página donde se encuentra cada componente.

La Sección de Memoria provee información para la selección inicial y datos de PROMs, RAMs, and ROMs así como otras piezas de memoria. En estas secciones en particular, las componentes se caracterizan por organización (palabras y bits/palabras) y por tiempo de acceso. Con objeto de asegurar que los tiempos de acceso son comparables, cuando es posible, los valores aparecen en nanosegundos sobre el intervalo completo de temperatura para las componentes (en otras palabras, 0° to 70°C para piezas de uso comercial y -55° a 125°C para piezas de uso militar). El valor del intervalo completo de temperatura esta marcado "nsF". Cuando este valor no está especificado, el valor de nanosegundon está garantizado para temperatura ambiental y aparece seguido por "nsR". En algunos casos el valor no ha sido establecido; entonces el valor típico aparece seguido por "ns*". Valores "tipocos" son sin falta más rápido que los garantizados de tal manera que las listas ubica estas memorias antes que normalmente los mostraría.

メモリーへの案内

マスターセクションガイドは選択に取りかかる充分な資料を揃えています。セクションガイド、データ掲載ページにのっている製品は全てのインデックスに入っており、そのインデックスによりページ数、行数はすぐ見つけられます。

このセクションにはPROM, RAM, ROM 他のメモリーのデータが入っています。製品はその構成(ワード、ビット/ワード)とアクセスタイム毎に分類されています。アクセスタイムが同等であるかどうか確認する為可能な限り夫々の全温度範囲(一般0℃~70℃; ミリタリ-55℃~125℃)でのアクセスタイムをナノセカンドで表示しています。全温度範囲でのアクセスタイムは"ns F"と表示、規定されていないものすなわち室温での保証値は"ns R"となっています。保証値が決められていない場合は代表的値として"ns ★"がついています。"Typical"値は通常保証値よりも速くつけられるのでリスト上では他に記載されているものより高い場所に記載されています。

MASTER SELECTION GUIDE

MEMORY-Character Generators

MEMORY-Code Converters

Format	Number of Output Lines	Input Logic Levels	Supply Voltage, V	Device	Source	Line	Code Conversion From To	Bits In	Bits Out	Process	Supply Voltage, V	Device	Source	Line
Character Generators							Code Converters							
5x7	1	TTL	5	DM76S128	† National		BINARY-BCD	6	6	Bipolar	5	SN54185A	† TI (684)	
				DM76S64	† National							SN74185A	TI	
				DM8678	National		Degree-Sine					5088	† MMI (1165)	
				DM86S64	National							5087	† MMI (1165)	
												6086	MMI (1165)	
												6087	MMI (1165)	
	5	MOS	5	MM52116FDW	National	5	EBCDIC-ASCII	12	8	Bipolar	5	DM8576AAA	National	
		TTL	5	RO3-2513	GI		Binary-BCD	9	7	Bipolar	5	SN54S485A	† TI	
				MCM6670	Motorola (4440)							SN74S485A	TI	
				MCM6674	Motorola (4440)		BCD-BINARY	6	6	Bipolar	5	SN54184	† TI (684)	
	35	TTL	5	MSL9650	OKI (4452)							SN74184	TI	
5x7	1	TTL	5	DM86S128	National		BCD-Binary	7	9	Bipolar	5	SN54S484A	† TI	
6x10	7	MOS	5	MCH-01	Motorola	10						SN74S484A	TI	
7x9	1	TTL	5	DM76S128	† National									
				DM76S64	† National									
				DM8678	National									
				DM86S64	National									
	7	MOS	5	MM52116FDX	National	15								
		TTL	5	MCM66700	Motorola (4440)									
				MCM66710	Motorola	20								
				MCM66714	Motorola									
				MCM66720	Motorola									
				MCM66730	Motorola									
				MCM66734	Motorola									
				MCM66740	Motorola									
				MCM66750	Motorola									
				MCM66751	Motorola	25								
				MCM66760	Motorola									
				MCM66770	Motorola									
				MCM66780	Motorola									
				MCM66790	Motorola									
7x11	1	TTL	5	CRT7004	SMC	30								
				CRT8002	SMC									
7x9	1	TTL	5	DM86S128	National									
10x9	10	TTL	5	SCN2670	Signetics (1973)									
14 Segments	14	TTL	5	MSL9664	OKI (4452)	35								
				MSL9665	OKI (4452)									
16 Segments	16	TTL	5	MSL9662	OKI (4452)									
				MSL9663	OKI (4452)									
18x16 Japanese	16	TTL	5	MSM28101A	OKI									
				MSM28201A	OKI									

† Military Temperature Range: -55 to 125°C

* Typical Value

Bold face indicates additional data is provided on the page noted

Master Selection Guide

MEMORY

IC MASTER

MEMORY-FIFOS, LIFOs (Cont'd)

Words	Bits/ Word	Data Rate MHz (max)	Supply Voltage, V	Device	Source	Line	Words	Bits/ Word	Data Rate MHz (max)	Supply Voltage, V	Device	Source	Line		
First-in First-out													(Cont'd)		
16	4	8.0 *	3-15	CD40105B	† RCA (1210)	5	64	4	15.0	5	CY7C404-15M	Cypress	65		
				CD40105BE	NCA (1210)							67401A	MMI (1164)		
		10.0	5	54F403	† Fairchild							C67401A	MMI (1164, 1179)		
				74F403	Fairchild							DM775401A	† National		
				N9403	Sigetics (1959)				16.7	5		DM875401A	National	70	
		12.0	5	SN54LS222	† TI (688, 701)							67401B	MMI (1164)		
				SN54LS224	† TI (688, 888, 890, 701)				35.0	5		C67401B	MMI (1164, 1179)		
				SN74LS222	TI							57413A	† MMI (1164, 1180)		
				SN74LS224	TI							67413A	MMI (1164, 1180)		
		20.0	5	SN54LS227	† TI		10	5	5.0	5		67L402	MMI (1164)	75	
				SN54LS228	† TI				7.0	5		57402	† MMI (1164)		
				SN74LS227	TI							C57402	† MMI (1164, 1179)		
				SN74LS228	TI				10.0	5		CY7C402-10C	Cypress		
				SN74LS227	TI							CY7C404-10C	Cypress		
				SN74LS228	TI							57402A	† MMI (1164)	80	
		10.0	5	SN74S225	MMI (1164)							C57402A	† MMI (1164, 1179)		
				SN74S225	TI							C67402	MMI (1164, 1179)		
24	4	2.5	5-16	MS618	† RTC	15						DM775402	† National		
32	8	0.5	-12.5	AM2812C	AMD	20						DM875402	National		
				AM2812L	AMD				15.0	5		CY7C402-15C	Cypress	85	
				MJ2812	Plessey							CY7C404-15C	Cypress		
		1.0	-12.5	AM2812AC	AMD							CY7C404-15C	Cypress		
				AM2812AL	AMD							67402A	MMI (1164)		
				AM2813C	AMD							C67402A	MMI (1164, 1179)	90	
		0.5	-12.5	AM2813L	AMD							DM775402A	National		
				MJ2813	Plessey							DM875402A	National		
		1.0	-12.5	AM2813AC	AMD		25			16.7	5		67402B	MMI (1164)	
				AM2813AL	AMD							C67402B	MMI (1164, 1179)		
40	9	0.5	-12.5	FR1502-11	Western	30	132/128	9	15.0	5	TDC1030	TRW-LSI (1552)			
		1.0	-12.5	33512	Fairchild							WD1510-00	Western	95	
				3351M	† Fairchild							WD1510-01	Western		
				FR1502-10	Western										
		1.5	-12.5	3351-3	Fairchild										
		2.0	-12.5	3351-1	Fairchild										
64	4	0.7	-12.5	AM3341C	AMD		35	512	9	4.2	5	MX4501-20	Mostek (4433)		
				3341	Fairchild						5.7	5	MX4501-15	Mostek (4433)	
				3341M	† Fairchild								MXB4501-82	Mostek	
				AM2841C	AMD								IDT7201-120	IDT (1149)	100
				AM2841M	† AMD							IDT7201-125B	† IDT (1149)		
				3341A	Fairchild										
				MJ2841	Plessey										
		1.2	5	CY3341C	Cypress										
			-12.5	AM2841A	AMD	40									
		7.0	5	57401	MMI (1164)										
				C57401	† MMI (1164, 1179)	45	1024	9	7	5	IDT7202-120	IDT (1149)			
		8.0	5	9423C	Fairchild (1864)							IDT7202-125B	IDT (1149)		
				9423M	† Fairchild (1864)							IDT7202-80	IDT (1149)	105	
				DM775401	† National							IDT7201-50	IDT (1149)		
				DM875401	National							IDT7201-55B	IDT (1149)		
				CY7C401-10C	Cypress							IDT7202-120	IDT (1149)	110	
				CY7C401-10M	Cypress							IDT7202-85B	IDT (1149)		
				CY7C402-10C	Cypress							IDT7201-80	IDT (1149)		
				CY7C403-10C	Cypress							IDT7201-85B	IDT (1149)		
				CY7C403-10M	Cypress							IDT7201-50	IDT (1149)		
				CY7C404-10M	Cypress							IDT7201-55B	IDT (1149)		
				54F41A	† Fairchild	50									
				54F433	† Fairchild										
				74F411	Fairchild										
				74F433	Fairchild										
				57401A	† MMI (1164)										
				67401	MMI (1164)										
				C57401A	† MMI (1164, 1179)										
				C67401	MMI (1164, 1179)										
				CY7C401-15	Cypress										
				CY7C402-15M	Cypress										
				CY7C403-15	Cypress										
				CY7C401-15	Cypress		55								
				CY7C402-15M	Cypress										
				CY7C403-15	Cypress										
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				CY7C401-15	Cypress	80									
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				CY7C403-15	Cypress										
				CY7C401-15	Cypress	90									
				CY7C402-15M	Cypress							</			

MEMORY

Organization	Access Time (Max)	Type	Output Pins	Supply Voltage, V	Device	Source	Line
E² PROMs							
16x16	—	E ²	Serial 8	5	COP494 NMC9306	National National	
		NVRAM	Serial 8	5	X2444	Xicor (4584)	
0.4 μsF	E ²	Serial 8	5		FR59256	GI	
400 nsF	NVRAM	Serial 8	5		X2443	Xicor (4584)	
2000 nsF	E ²	Serial 8	5		MCR59306	MCR (4446, 4449)	
16x16	160 nsF	E ²	Serial 14	5	MCR52801	MCR (4446)	
32x8	450 nsF	E ²	TS 18	5	HNVM3300	† Hughes	
32x16	—	EA	Serial 18	28, 12	U3070	Telefunken	
1 μsF	EA	TS 28	—28.5		ER2051	GI	
2 μsF	EA	TS 28	—28.5		ER2051HR	† GI	
4 μsF	EA	TS 28	—29.5		NC7051	Nitron	
50x14	1000 nsF	EA	—	—30.5	ER1451	GI	
64x4	300 nsF	NVRAM	TS 18	5	MCR52210	MCR (4446, 4447)	
					X2210	Xicor (4583)	
					X2210M	Xicor (4583)	
64x8	4 μsF	EA	TS 22	—29.5	ER2055	GI	
					NC7055	Nitron	
	125 nsF	NVRAM	TS 24	5	R2000	Rockwell	
	300 nsF	NVRAM	TS 18	5	HNVM3500	† Hughes	
64x16	0.4 μsF	E ²	Serial 8	5	ER5911	GI	
	1 μsF	E ²	Serial 8	5	MCR59308	MCR (4446, 4450)	
	450 nsF	E ²	TS 16	5	COP495	National	
					NMC9346	National	
82x1	100 μsF	EA	TS 18	—30.5	ER0082	GI	
100x14	3400 nsF	EA	Serial 14	—35	ER1400	GI	
100x50	3400 nsF	EA	Serial 14	30.5	ER1451	GI	
128x4	300 nsF	NVRAM	TS 24	5	MCR52211	MCR (4446, 4447)	
128x8	0.4 μsF	E ²	Serial 8	5	ER5911	GI	
	250 nsF	E ²	Serial 8	5	PCD8572	GI	
	300 nsF	E ²	TS 24	5	ER5901	GI	
					ER5901HR	† GI	
		NVRAM	TS 24	5	MCR52001	MCR (4446, 4448)	
					X2001	Xicor (709, 4585)	
					X2001M	† Xicor (709, 4585)	
	450 nsF	NVRAM	TS 24	5	MCR62001M	MCR	
256x4	300 nsF	NVRAM	TS 18	5	MCR52212	MCR (4446, 4447)	
					X2212	Xicor (705, 4583)	
					X2212DM	† Xicor (705, 4583)	
256x8	E ²	Serial 8	5		X2402	Xicor (4586)	
	250 nsF	E ²	24	5	ER5902	GI	
	300 nsF	NVRAM	TS 24	5	MCR52002	MCR (4446, 4448)	
			28	5	X2002	Xicor (709, 4585)	
					X2002M	† Xicor (709, 4585)	
512x8	200 nsF	NVRAM	TS 28	5	2004.2	Intel	
	250 nsF	E ²	24	5	FR5904	GI	
			TS 24	5	X2804A.25	Xicor (706, 4587)	
		NVRAM	TS 28	5	2004	Intel	
	300 nsF	E ²	TS 24	5	X2804A	Xicor (706, 4587)	
					X2804AM	† Xicor (706, 4587)	
		NVRAM	TS 24	5	MCR52004	MCR (4446, 4448)	
			28	5	2004.1	Intel	
					MCR52004.28	MCR (4446, 4448)	
					X2004	Xicor (709, 4585)	
					X2004M	† Xicor (709, 4585)	
350 nsF	E ²	TS 24	5		X2804A.35	Xicor (706, 4587)	
					X2804AM.35	† Xicor (706, 4587)	
					(Continued)		

Organization	Access Time (Max)	Type	Output Pins	Supply Voltage, V	Device	Source	Line
512x8	450 nsF	E ²	TS 24	5	X2804A-45	Xicor (706, 4587)	
	650 nsF	E ²	TS 24	5	HNVM3004	Hughes	
1024x1	300 nsF	NVRAM	TS 18	5	X2201A	Xicor	
1024x4	900 nsF	EA	TS 22	—30, —12.5	ER3400	GI	
					NC7451	Nitron	
1024x8	650 nsF	E ²	TS 24	5	HNVM3008	Hughes	
					HNVM3108	† Hughes	
					HNVM3708	Hughes	
2048x4	1600 nsF	EA	TS 24	—24, —14.5	ER2810	GI	
					ER2810HR	† GI	
2048x8	55 nsF	E ²	TS 24	5	XL46C16.55	EXEL	
	70 nsF	E ²	TS 24	5	XL46C16.70	EXEL	
	200 nsF	E ²	TS 24	5	52B13.200	SEEQ	
				5.21	52B13H.200	SEEQ	
					XL2817A.200	EXEL	
					2817A.2	Intel (4405)	
					NMC9817.20	National	
					2817A.200	SEEQ	
					2817AH	SEEQ	
					5517A	SEEQ	
					5517AH	SEEQ	
		NVRAM (Bat.)	TS 24	5	NVR2	LMS (4413)	
250 nsF	E ²	TS 24	5		XL52816A.250	EXEL	
					2815	Intel	
					2816	Intel	
					2816A	Intel	
					M2816A	† Intel	
					NMC2816.25	National	
					NMC2816E.25	National	
					R2816A.25	Rockwell	
					R5213.25	Rockwell	
					R5516A.25	Rockwell	
					2816A.250	SEEQ	
					52B13.250	SEEQ	
					52B13H.250	SEEQ	
					5516A.250	SEEQ	
					5516A.300	SEEQ	
					XL2817A.250	EXEL	
					2817A	Intel (4405)	
					NMC9817.25	National	
					MSM2816	OKI	
					5517A.250	SEEQ	
300 nsF	E ²	TS 24	5		XL52816A.300	EXEL	
					R2816A.3	Rockwell	
					R5213.3	Rockwell	
					R5516A.3	Rockwell	
					2816A.300	SEEQ	
					5516A.300	SEEQ	
					M52B13.300	† SEEQ	
					M52B13H.300	† SEEQ	
					KM2816A	Tristar	
					X2816A	Xicor (707, 4587)	
					X2816AM	† Xicor (707, 4587)	
350 nsF	E ²	TS 24	5		XL52816A.350	EXEL	
					2815.3	Intel	
					2816.3	Intel	
					2816A.3	Intel	
					NMC2816.35	National	
					NMC2816E.35	National	
					R2816A.35	Rockwell	
					R5213.35	Rockwell	
					R5516A.35	Rockwell	
					2816A.350	SEEQ	
					(Continued)		

† Military Temperature Range -55 to 125 °C)

OC Open Collector

 $\text{Nanomoles (nmols)}^{-1} \text{ y pH}^{-1}$

nsf Nanoseconds over Full Temperature Range

IS Three State

250. Name(s) of Room Temperature

Room Temperature
Of Open Foams

IC MASTER

MEMORY-E² PROMs (Cont'd)

Organization	Access Time (Max)	Type	Output Pins	No. Supply Voltage, V	Device	Source	Line	Organization	Access Time (Max)	Type	Output Pins	No. Supply Voltage, V	Device	Source	Line
E² PROMs								(Cont'd)							
2048x8	350 nsF	E ¹	TS	24	5	(Cont'd)		8192x8	300 nsF	E ¹	TS	28	5	(Cont'd)	
				5.21	52B13H-350	SEEQ							52B33-3	SEEQ	
					52B16A-35	Xicor (707.4587)							52B33-300	SEEQ	
					52B16AM-35	† Xicor (707.4587)							52B33H-3	SEEQ	
													52B33H-300	SEEQ	
													X2864A	Xicor (708.4588)	65

† Military Temperature Range (-55 to 125 C.)

* Typical Value

Bold face indicates additional data is provided on the page noted

MASTER SELECTION GUIDE

MEMORY-PROMs

Organization	Access Time (Max)	Type	Output	No Pins	Supply Voltage	Device	Source	Line	Organization	Access Time (Max)	Type	Output	No Pins	Supply Voltage	Device	Source	Line
PROMs									256x4								
16x4	25 nsF	TTL	TS	16	5	DM85S47A	National		35 nsF	TTL	OC	18	5		HM7610B-5	Harris	(Cont'd)
	30 nsF	TTL	TS	16	5	DM75S07A	† National				TS	16	5		HM7611B-5	Harris	(4356)
	35 nsF	TTL	OC	16	5	DM85S06	National		40 nsF	TTL	OC	16	5		AM27S20AM	† AMD	
			TS	16	5	DM85S07	National				TS	16	5		AM27S21AM	† AMD	
	50 nsF	TTL	OC	16	5	DM75S06	† National								53S141A	† MMI	(4414)
			TS	16	5	DM75S07	† National		45 nsF	TTL	OC	16	5		AM27S20C	AMD	
32x8	15 nsF	TTL	OC	16	5	DM87S188	National								HM7610A-5	Harris	(4356)
			TS	16	5	63S081A	† MMI	(4414)							63S140	† MMI	(4414)
						DM87S288	National				TS	16	5		AM27S21C	AMD	
	20 nsF	TTL	OC	16	5	DM77S188	† National								HM7611A-5	Harris	
			TS	16	5	DM77S288	† National								63S141	† MMI	(4414)
	20 nsR	ECL	OE	16	-5.2	SN10139	TI		50 nsF	TTL	OC	16	5		HM7610B-2	† Harris	(4356)
	25 nsF	ECL	OE	16	5.2	MC10139	Motorola	(4443)							DM74S387	National	
			OC	16	5	AM27S18AC	AMD								W82S126	Signetics	(4476)
						63S080	† MMI	(4414)							HM7611B-2	† Harris	
			TS	16	5	AM27S19AC	AMD								DM74S287	National	
						53S081A	† MMI	(4414)	55 nsF	TTL	OC	16	5		53S140	† MMI	(4414)
						63S081	† MMI	(4414)							6300-1	MMI	
						MC1027S19	Motorola								53S141	† MMI	(4414)
	35 nsF	TTL	OC	16	5	AM27S18AM	† AMD								6301-1	MMI	
						53S080	† MMI	(4414)							TBP24S10	TI	
						DM74S188	National		60 nsF	TTL	OC	16	5		AM27S20M	† AMD	
			TS	16	5	AM27S19AM	† AMD								AM29760AM	AMD	
						53S081	† MMI	(4414)							HM7610-5	Harris	(4356)
						DM74S288	National								DM54S387	† National	
	40 nsF	TTL	OC	16	5	AM27S18C	AMD								AM27S21M	† AMD	
						TBP18SA30	TI				TS	16	5		HM7611-5	Harris	
			TS	16	5	AM27S19C	AMD								DM54S287	† National	
						TBP18SG30	TI		65 nsF	TTL	OC	16	5		HM7610A-2	† Harris	(4356)
	45 nsF	TTL	OC	16	5	DM54S188	† National								TBP24SA10	TI	
			TS	16	5	DM54S288	† National								TBP24SA10M	TI	
	50 nsF	TTL	OC	16	5	AM27LS18C	AMD								HM7611A-2	† Harris	
						AM27S18M	† AMD				TS	16	5		TBP24SA10M	TI	
						HM7602-5	Harris	(4356)	70 nsF	TTL	OC	16	5		S82S126	† Signetics	(4476)
						6330-1	MMI								S82S129	† Signetics	(4476)
						W82S23	Signetics	(4475)							HM7610-2	† Harris	(4356)
						TBP18SA030	† TI		75 nsF	TTL	OC	16	5		5300-1	† MMI	
						TBP18SA030M	† TI								TBP24A10M	† TI	
															HM7611-2	† Harris	
			TS	16	5	AM27LS19C	AMD								5301-1	† MMI	
						AM27S19M	† AMD		256x8	1 μ s *	Erasable	TS	24	5	CDP18042CD	RCA	
						HM7603-5	Harris			1 μ sF	Erasable	TS	24	9.5	AM1702A	AMD	
						6331-1	MMI								AM1702AL	AMD	
						W82S123	Signetics	(4475)							AM1702A-6	AMD	
						TBP18SG30M	† TI								MM702A-4	National	
	50 nsR	TTL	OC	16	5	SN54188A	† TI		15 μ sF	Erasable	TS	24	-9.5	AM1702A-6	AMD		
	60 nsF	TTL	OC	16	5	HM7602-2	† Harris	(4356)	2.3 μ sF	Erasable	TS	24	-9.5	MM702A-4	National		
						5330-1	† MMI		30 nsF	TTL	TS	20	5		63S281A	† MMI	(4414)
									35 nsF	NMOS	OC	20	5		MB7117H	Fujitsu	
											TS	20	5		MB7118H	Fujitsu	
			TS	16	5	HM7603-2	† Harris		40 nsF	TTL	TS	20	5		53S281A	† MMI	(4414)
						5331-1	† MMI		45 nsF	NMOS	OC	20	5		MB7117E	Fujitsu	
	65 nsF	TTL	OC	16	5	S82S23	† Signetics	(4475)							MB7118E	Fujitsu	
						AM27LS19M	† AMD								53S281	† MMI	(4414)
			TS	16	5	S82S123	† Signetics	(4475)	55 nsF	TTL	TS	20	5		53S281	† MMI	(4414)
256x4	10 nsF	ECL	OE	16	5.2	F102416A	Fairchild								63S280	† MMI	(4414)
	11 nsF	ECL	OE	16	5.2	F10416C	Fairchild								DM74LS47A	National	
	12 nsF	ECL	OE	16	5.2	GXB1049	Siemens								53S280	† MMI	(4414)
	15 nsF	ECL	OE	16	5.2	F1002416	Fairchild								6308-1	† MMI	(4414)
						F102416	Fairchild								TBP281A22	TI	
						MC10149A	Motorola	(4443)							6309-1	† MMI	(4414)
	20 nsR	ECL	OE	16	5.2	10149	Signetics	(1219)							DM54LS4	† National	
	24 nsF	ECL	OE	16	4.5	F100416C	Fairchild								TRP28L22	TI	
	25 nsF	ECL	OE	16	5.2	MC10149	Motorola	(4443)							6316	MMI	
	30 nsF	TTL	OC	16	5	AM27S20AC	AMD										
			TS	16	5	AM27S21AC	AMD										
						63S141A	† MMI	(4414)									

† Military Temperature Range 55 to 125 °C

OC Open Collector

ns Nanoseconds Typical

nsF Nanoseconds over Full Temperature Range

TS Three State

nsR Nanoseconds at Room Temperature

OE Open Emitter

IC MASTER

MEMORY-PROMs (Cont'd)

Organization	Access Time (Max)	Type	Output Pins	Supply Voltage, V	Device	Source	Line	Organization	Access Time (Max)	Type	Output Pins	Supply Voltage, V	Device	Source	Line			
PROMs								(Cont'd)										
256x8	80 nsF	TTL	OC 20	5	5308-1	MMI (4414)	5	512x8	27 nsF	Reg	TS 22	5	AM27S27C	AMD	65			
					TBP28LA22M	TI							AM27S25C	AMD				
	TS 20		5		5309-1	MMI (4414)			30 nsF	Reg	TS 22	5	AM27S27M	AMD				
					TBP28L22M	TI							AM27S25M	AMD				
	550 nsF	Erasable	TS 24	-9.5	AM1702A-1	AMD			TTL	TS 20	5	5	63S401A	MMI (4414)				
					AM1702AL-1	AMD							TBP28P42	TI				
	650 nsF	Erasable	TS 24	-9.5	AM1702A-2	AMD			35 ns	TTL	TS 20	5	TBP28P45	TI	70			
					AM1702AL-2	AMD							TBP28S45	TI				
	512x4	30 nsF	TTL	OC 16	5	AM27S12AC	AMD		10	35 nsF	CMOS	TS 24	5	CY7C229-35C	Cypress	75		
						AM27S13AC	AMD							DM87SR27	National			
OC 16		5		63S241A		MMI (4414)	TTL			OC 20	5	5	AM27S28AC	AMD				
				AM27S12AM		AMD							MB7123H	Fujitsu				
40 nsF		TTL	OC 16	5	HM7620B-5	Harris (4358)	Reg			24	5	5	AM27S30AC	AMD				
					AM27S13AM	AMD							DM87SR25	National				
45 nsF			TTL		OC 16	5	HM7621B-5			Harris	TS 20	5	5	5	DM87SR47A	National		
							63S241A			MMI (4414)					DM87SR47B	National		
50 nsF		TTL	OC 16	5	63S240	MMI (4414)	CMOS		TS 24	5	5	AM27S29AC	AMD	90				
					63S241	MMI (4414)						MB7124H	Fujitsu					
TS 16			5		AM27S12C	AMD	Reg		24	5	5	MCN27S29A	Motorola					
					HM7620A-5	Harris (4358)						DM74S47B	National					
512x8	55 nsF	TTL	OC 16	5	MB71230	Signetics (4477)	15		45 nsF	CMOS	TS 24	5	MCN27S27A	Motorola	85			
					AM27S13C	AMD							AM27S31AC	AMD				
	TS 16		5		HM7621A-5	Harris			24	5	5	5	MCN27S31A	Motorola				
					MCN7621A	Motorola (4443)							CY7C225-40C	Cypress				
	40 nsF	Reg	TS 24	5	MB71231	Signetics (4477)			TTL	Reg	24	5	CY7C225-40M	Cypress	90			
					MCN7641A	Motorola (4443)							DM77SR47A	National				
	512x8	55 nsF	TTL	OC 16	5	HM7620B-2			Harris (4358)	20	45 nsF	CMOS	TS 24	5	MCN27S25A	Motorola	95	
						63S240			MMI (4414)						DM77SR25	National		
		TS 16		5		DM74SS70	National		Reg		24	5	5	DM77SR47B	National			
						DM74SS70A	National							CY7C229-45C	Cypress	100		
60 nsF		TTL	OC 16	5	HM7621B-2	Harris	TTL		OC 20		5	5	AM27S28AM	AMD				
					63S241	MMI (4414)							MB7123E	Fujitsu				
65 nsF			TTL		OC 16	5	DM74SS71		National		Reg	24	5	5	DM74S473A	National		
							DM74SS71A		National						AM27S29AM	AMD		
512x8		70 nsF	TTL	OC 16	5	DM74SS71B	National		25	55 nsF	TTL	OC 20	5	MB7124E	Fujitsu	105		
						AM27S12M	AMD							AM27S30AM	AMD			
	TS 16			5		6305-1	MMI			TS 20	5	5	5	HM7649A-5	Harris			
						AM27S13M	AMD							63S480	MMI (4414)			
	75 nsF	TTL	OC 16	5	6306-1	MMI	CMOS			TS 24	5	5	AM27S29C	AMD	110			
					DM54SS70	National							AM27S29C	AMD				
	80 nsF	TTL	OC 16	5	DM54SS71A	National	TTL			TS 20	5	5	63S481	MMI (4414)		115		
					DM54SS71B	National							63S481	MMI (4414)				
	512x8	15 nsF	REG	TS 24	5	HM7620-5	Harris (4358)		30	50 nsF	CMOS	TS 24	5	CY7C229-50C	Cypress	120		
						HM7620A-2	Harris (4358)							55 nsF	TTL		OC 20	5
TS 16		5		MB71230		Signetics (4477)	Reg			24	5	5	AM27S30C					
				HM7621A-2		Harris							63S481	MMI (4414)				
20 nsF		Reg	TS 24	5	MCN7621	Motorola (4443)	TTL			TS 20	5	5	63S481	MMI (4414)	125			
					MB71231	Signetics (4477)							DM74S472A	National				
25 nsF		Reg	TS 24	5	AM27S12M	AMD	Reg			24	5	5	DM74S472B	National				
					AM27S25AM	AMD							MB7124F	Fujitsu				
512x8		25 nsF	Reg	TS 24	5	534A481	MMI	40	60 nsF	TTL	OC 20	5	DM74S473A	National	125			
						534A481	MMI						60 nsF	TTL		OC 20	5	DM74S473A
	TS 24			5		534A481	MMI		Reg	24	5	5						DM74S473A
						534A481	MMI						DM74S473A	National				

† Military Temperature Range (-55° to 125° C)

* Typical Value

Bold face indicates additional data is provided on the page noted

MASTER SELECTION GUIDE

MEMORY-PROMs (Cont'd)

Organization	Access Time (Max)	Type	Output	No Pins	Supply Voltage, V	Device	Source	Line	Organization	Access Time (Max)	Type	Output	No Pins	Supply Voltage, V	Device	Source	Line
PROMs									(Cont'd)								
512x8	60 nsF	TTL	OC	24	5	HM7640A-2	↑ Harris	5	512x8	300 nsF	CMOS Erasable	TS	24	10	IM6654A	Interall	(4412)
						DM54S475A	↑ National			450 nsF	CMOS Erasable	TS	24	5	IM6654-1	Interall	(4412)
						HM7649-5	↑ Harris	10		550 nsF	CMOS Erasable	TS	24	5	IM6654	Interall	(4412)
						DM54S472	↑ National			600 nsF	CMOS Erasable	TS	24	5	IM6654M	↑ Interall	(4412)
						DM54S472A	↑ National	15	1024x4	20 nsF	DOC	TS	24	5	83DA441	MMI	(4427)
						DM54S472B	↑ National			25 nsF	DOC	TS	24	5	83DA442	MMI	(4414)
						DM54S474A	↑ National	20							83DA441	↑ MMI	(4427)
						DM54S474B	↑ National								83DA442	↑ MMI	(4414)
						DM74S472	↑ National	25							AM27S65AC	AMD	(4301)
						TBP28S42	TI								AM27S65AM	↑ AMD	(4301)
						AM27S15C	AMD	30		30 nsF	Reg	TS	24	5	AM27S65C	AMD	(4301)
						HM7641A-2	↑ Harris			35 nsF	Reg	TS	24	5	AM27S65M	↑ AMD	(4301)
						HM7649A-2	↑ Harris	35							AM27S32AC	AMD	
						N82S115	Signetics								AM27S33AC	AMD	
						N82S141	Signetics	40							MB7121H	Fujitsu	
						TBP28S46	TI								AM27S33AC	AMD	
						AM27S28M	↑ AMD	45							MB7122H	Fujitsu	
						53S480	↑ MMI								63S441A	MMI	(4414)
						DM54S473	↑ National	50							DM74S573B	National	
						TBP28S42	TI								N82S137B	Signetics	(4480)
						DM54S475	↑ National	55							AM27S33AC	AMD	
						DM74S475	↑ National								MB7122E	Fujitsu	
						AM27S29M	↑ AMD	60							HM7643B-5	Harris	
						AM27S31M	↑ AMD								63S441	MMI	(4414)
						DM74S474	↑ National	65							DM74S573A	National	
						6348-1	MMI								DM87S181A	National	
						AM27S30M	↑ AMD	70							HM7642A-5	Harris	(4357)
						HM7640-5	↑ Harris								HM7643A-5	Harris	
						6340-1	MMI	75							63S441A	↑ MMI	(4414)
						5349-2	↑ MMI								HM7643A	↑ Motorola	(4443)
						6349-1	MMI	80							DM54S573B	↑ National	
						29623	Raytheon								AM27S32AM	↑ AMD	
						TBP28S42M	↑ TI	85							MB7121E	Fujitsu	
						TBP28S42M	TI								HM7642B-5	↑ Harris	(4357)
						HM7641-5	↑ Harris	90							63S440	MMI	(4414)
						5341-2	↑ MMI								DM74S572A	National	
						6341-1	MMI	95							AM27S33AM	↑ AMD	
						HM7641	↑ Motorola								MB7122E	Fujitsu	
						DM54S474	↑ National	100							HM7643B-5	Harris	
						TBP28S46M	↑ TI								63S441	MMI	(4414)
						5348-1	↑ MMI	105							DM74S573A	National	
						5340-1	↑ MMI								DM87S181A	National	
						HM7649-2	↑ Harris	110							HM7642A-5	Harris	(4357)
						5349-1	↑ MMI								HM7643A-5	Harris	
						5341-1	↑ MMI	115							63S441A	↑ MMI	(4414)
						TBP28S42M	↑ TI								HM7643A	↑ Motorola	(4443)
						HM7640-7	↑ Harris	120							DM54S573B	↑ National	
						TBP28S46M	↑ TI								AM27S32C	AMD	
						TBP28S42M	↑ TI	125							HM7642B-2	↑ Harris	(4357)
						TBP28S42M	TI								HN25044	Hitachi	
						HM7641-2	↑ Harris	130							63S440	↑ MMI	(4414)
						AM27S15M	↑ AMD								AM27S33C	AMD	
						58S115	↑ Signetics	135							HM7643B-2	↑ Harris	
						58S141	↑ Signetics								HN25045	Hitachi	
						TRF28146	↑ TI	140							63S441	↑ MMI	(4414)
						HM8641-2	↑ Harris								63S441	MMI	
						HM8641-8	↑ Harris	145							HM7642-5	↑ Harris	(4357)
						HM8641-9	↑ Harris								HM7642-5	↑ Harris	(4357)
						HM8641-9	↑ Harris	150							DM54S572A	↑ National	
						HM8641-9	↑ Harris								DM54S571A	↑ National	
						HM8641-9	↑ Harris	155							DM74S572	National	
						HM8641-9	↑ Harris								HM7643-1	↑ Harris	
						HM8641-9	↑ Harris	160							63S441	MMI	
						HM8641-9	↑ Harris								DM74S571	National	
						HM8641-9	↑ Harris	165							N82S137	Signetics	(4480)
						HM8641-9	↑ Harris								N82S137	Signetics	(4480)

Master Selection Guide

MEMORY

↑ Military Temperature Range: -55 to 125°C nsF: Nanoseconds Type A: Three State °C: Centigrade °F: Fahrenheit 10: Room Temperature H: High E: Emitter

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MEMORY-PROMs (Cont'd)

Organization	Access Time (Max)	Type	Output Pins	No. Supply Voltage, V	Device	Source	Line	Organization	Access Time (Max)	Type	Output Pins	No. Supply Voltage, V	Device	Source	Line	
PROMs								(Cont'd)								
1024x4								(Cont'd)								
65 nsF	TTL	OC	18	5	AM27532M	AMD	5	1024x8	50 nsF	TTL	TS	24	5	AM275181AM	AMD	65
					AM27533M	AMD								AM275281AM	AMD	
					S353-2	MMI								HM7681A-5	Harris	
														HN25089S	Hitachi	
														B2HS181	Intel	
														MCN7681A	Motorola	
70 nsF	TTL	OC	18	5	DM775181A	National	5		55 nsF	NMOS	TS	24	5	MB7132E-W	Fujitsu	70
					HM7642A-2	Harris								MB7131E	Fujitsu	
					HM7643A-2	Harris								S35880	MMI	
					MCN7643	Motorola								DM875180	National	
					S825137A	Signetics								DM875280	National	
75 nsF	TTL	OC	18	5	S352-1	MMI	10			TS	24	5	MB7132E	Fujitsu	75	
					DM545572	National							825181	Intel		
													S35881	MMI		
					S353-1	MMI							S35881	MMI		
					DM545573	National							S35881	MMI		
													S35881	MMI		
													S35881	MMI		
													S35881	MMI		
													S35881	MMI		
													S35881	MMI		
80 nsF	TTL	TS	18	5	S825137	Signetics	15			TS	24	5	AM275180C	AMD	80	
					HM7643-2	Harris							AM275280C	AMD		
													TBP28586A	TI		
													TBP28586A	TI		
550 nsF	CMOS Erasable	TS	24	5	IM6653-1	Interall	15						AM275181C	AMD	85	
													AM275281C	AMD		
													29631A	Raytheon		
													29631A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
600 nsF	CMOS Erasable	TS	24	5			15						825181	Signetics	80	
1024x8	TTL	TS	24	5	AM275181	AMD	20						AM275181C	AMD	85	
					AM275281	AMD							AM275281C	AMD		
					AM27535AC	AMD							29631A	Raytheon		
					AM27535AM	AMD							29631A	Raytheon		
					AM27535C	AMD							29633A	Raytheon		
					AM27535M	AMD							29633A	Raytheon		
					AM27537A	AMD							29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
15 nsF	REG	TS	24	5	S35881A	MMI	25						825181	Signetics	90	
20 ns *	Reg	TS	24	5	TBP28R85	TI	25						825181	Signetics	95	
20 nsF	REG	TS	24	5	S35881A	MMI	25						825181	Signetics	95	
30 nsF	Reg	TS	24	5	CY7C235-30C	Cypress	25						825181	Signetics	95	
35 ns *	TTL	TS	24	5	TBP28P85	TI	25						825181	Signetics	95	
35 nsF	CMOS	TS	24	5	CY7C281-35C	Cypress	25						825181	Signetics	95	
	Reg	TS	24	5	MCM27535A	Motorola	25						825181	Signetics	95	
	TTL	OC	24	5	MCM27537A	Motorola	25						825181	Signetics	95	
40 nsF	Reg	TS	24	5	AM275180AC	AMD	35						AM275181C	AMD	85	
													AM275281C	AMD		
													29631A	Raytheon		
													29631A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
													29633A	Raytheon		
40 nsF	Reg	TS	24	5	CY7C235-40C	Cypress	35						825181	Signetics	95	
45 nsF	TTL	OC	24	5	DM775181	National	35						825181	Signetics	95	
45 nsF	TTL	OC	24	5	932450	Fairchild	35						825181	Signetics	95	
50 nsF	TTL	OC	24	5	MB7132H	Fujitsu	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	932451	Fairchild	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	MB7132H	Fujitsu	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	S35881A	MMI	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	S35881	MMI	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	825181	Signetics	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	DM775181	National	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	932450	Fairchild	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	MB7132H	Fujitsu	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	S35881	MMI	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	825181	Signetics	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	DM775181	National	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	932450	Fairchild	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	MB7132H	Fujitsu	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	S35881	MMI	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	825181	Signetics	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	DM775181	National	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	932450	Fairchild	35						825181	Signetics	95	
50 nsF	CMOS	TS	24	5	MB7132H	Fujitsu	35						825181	Signetics	95	