

# 8192-BIT READ ONLY MEMORIES

The MCM66700 is a mask-programmable 8192-bit horizontal-scan (row select) character generator. It contains 128 characters in a 7 X 9 matrix, and has the capability of shifting certain characters that normally extend below the baseline such as j, y, g, p, and q. Circuitry is supplied internally to effectively lower the whole matrix for this type of character—a feature previously requiring external circuitry.

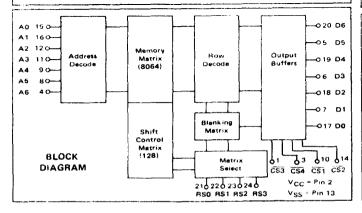
A seven-bit address code is used to select one of the 128 available characters. Each character is defined as a specific combination of logic 1s and 0s stored in a 7 X 9 matrix. When a specific four-bit binary row select code is applied, a word of seven parallel bits appears at the output. The rows can be sequentially selected, providing a nine-word sequence of seven parallel bits per word for each character selected by the address inputs. As the row select inputs are sequentially addressed, the devices will automatically place the 7 X 9 character in one of two preprogrammed positions on the 16-row matrix, with the positions defined by the four row select inputs. Rows that are not part of the character are automatically blanked.

The devices listed are preprogrammed versions of the MCM66700. They contain various sets of characters to meet the requirements of diverse applications. The complete patterns of these devices are contained in this data sheet.

- Fully Static Operation
- Fully TTL Compatible with Three-State Outputs
- CMOS and MPU Compatible, Single ± 10% 5 Volt Supply
- Shifted Character Capability

(Except MCM66720, MCM66730, and MCM66734)

- Maximum Access Time = 350 ns
- 4 Programmable Chip Selects (0, 1, or X)
- Pin-for-Pin Replacement for the MCM6570, Including All Standard Patterns



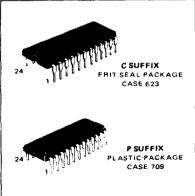
MCM66700 MCM66710 MCM66714 MCM66720 MCM66730 MCM66734 MCM66740 MCM66750 MCM66751 MCM66760 MCM66770 MCM66780 MCM66790

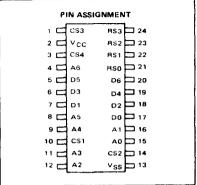
## MOS

(N-CHANNEL, SILICON-GATE)

**8K READ ONLY MEMORIES** 

HORIZONTAL-SCAN
CHARACTER GENERATORS
WITH SHIFTED CHARACTERS





## MCM66700 Series

## ABSOLUTE MAXIMUM RATINGS (See Note 1, Voltages Referenced to VSS)

Flating	Symbol	Value	Unit
Supply Voltages	Vcc	-0.3 to 7.0	Vdç
Input Voltage	V <sub>in</sub>	-0.3 to 7.0	Vdc
Operating Temperature Range	TA	0 to +70	°C
Storage Temperature Range	Tstg	-55 to +125	°c

NOTE 1: Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. Functional operation should be restricted to RECOMMENDED OPERATING CONDITIONS. Exposure to higher-than-recommended voltages for extended periods of time could affect device reliability.

## DC OPERATING CONDITIONS AND CHARACTERISTICS

(Full operating voltage and temperature range unless otherwise noted)

## RECOMMENDED DC OPERATING CONDITIONS (Referenced to VSS)

Parameter	Symbol	Min	Nom	Max	Unit
Supply Voltage	Vcc	4.5	5.0	5.5	Vdc
Input Logic "1" Voltage	VIH	2.0		Vcc	Vdc
Input Logic "0" Voltage	VIL	-0.3		0.8	Vdc

## DC CHARACTERISTICS

Characteristic	Symbol	Min	Тур	Max	Unit
Input Leakage Current (V <sub>IH</sub> = 5.5 Vdc, V <sub>CC</sub> ≈ 4.5 Vdc)	1ін		_	2.5	μAdc
Output Low Voltage (Blank) (IOL = 1.6 mAdc)	VOL	0	_	0.4	Vdc
Output High Voltage (Dot) (IOH = -205 µAdc)	∨он	2.4	-	_	Vdc
Power Supply Current	'cc			80	mAdc
Power Dissipation	PD	-	200	440	mW

## CAPACITANCE (Periodically sampled rather than 100% tested)

Input Capacitance (f = 1.0 MHz)	C <sub>in</sub>	-	4.0	7.0	pf
Output Capacitance (f = 1.0 MHz)	Cout	_	4.0	7.0	pF

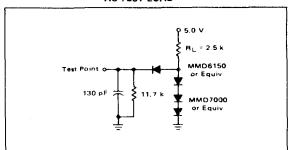
This device contains circuitry to protect the inputs against damage due to high static voltages or electric fields; however, it is advised that normal precautions be taken to avoid application of any voltage higher than maximum rated voltages to this high-impedance circuit.

## MCM66700 Series

## AC OPERATING CONDITIONS AND CHARACTERISTICS

(Full operating voltage and temperature range unless otherwise noted)

#### **AC TEST LOAD**

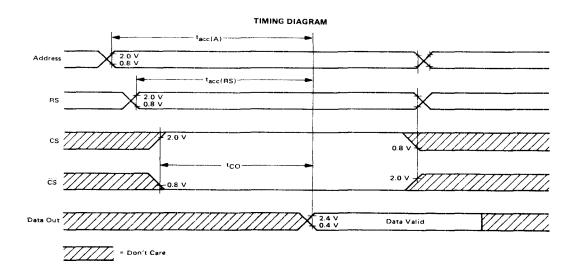


## **AC TEST CONDITIONS**

Condition	Value
Input Pulse Levels	0.8 V to 2.0 V
Input Rise and Fall Times	20 ns
Output Load	1 TTL Gate and C <sub>L</sub> = 130 pF

## AC CHARACTERISTICS

Characteristic	Symbol	Тур	Max	Unit
Address Access Time	t <sub>acc</sub> (A)	250	350	ns
Row Select Access Time	tacc(RS)	250	350	ns
Chip Select to Output Delay	tCO	100	150	ns



#### MEMORY OPERATION (Using Positive Logic)

Most positive level = 1, most negative level = 0.

#### Address

To select one of the 128 characters, apply the appropriate binary code to the Address inputs (A0 through A6).

#### Row Select

To select one of the rows of the addressed character to appear at the seven output lines, apply the appropriate binary code to the Row Select inputs (RS0 through RS3).

#### Shifted Characters

These devices have the capability of displaying characters that descend below the bottom line (such as lowercase letters j, y, g, p, and q). Internal circuitry effectively drops the whole matrix for this type of character. Any character

can be programmed to occupy either of the two positions in a 7 X 16 matrix. (Shifted characters are not available on MCM66720, MCM66730, or MCM66734.)

#### Output

For these devices, an output dot is defined as a logic 1 level, and an output blank is defined as a logic 0 level.

#### Programmable Chip Select

The MCM66700 has four Chip Select inputs that can be programmed with a 1, 0, or don't care (not connected). A don't care must always be the highest chip select pin or pins. All standard patterns have Don't Care Chip Select—except MCM66751.

#### DISPLAY FORMAT

Figure 1 shows the relationship between the logic levels at the row select inputs and the character row at the outputs. The MCM66700 allows the user to locate the basic 7 X 9 font anywhere in the 7 X 16 array. In addition, a shifted font can be placed anywhere in the same 7 X 16 array. For example, the basic MCM66710 font is established in rows R14 through R6. All other rows are automatically blanked. The shifted font is established in rows R11 through R3, with all other rows blanked. Thus, while any one character is contained in a 7 X 9 array, the MCM66710 requires a 7 X 12 array on the CRT screen to contain both normal and descending characters. Other

uses of the shift option may require as much as the full 7 X 16 array, or as little as the basic 7 X 9 array (when no shifting occurs, as in the MCM66720).

The MCM66700 can be programmed to be scanned either from bottom to top or from top to bottom. This is achieved through the option of assigning row numbers in ascending or descending count, as long as both the basic font and the shifted font are the same. For example, an up counter will scan the MCM66710 from bottom to top, whereas an up counter will scan the MCM66714 from top to bottom (see Figures 7 and 8 for row designation).

FIGURE 1 ~ ROW SELECT INPUT CODE AND SAMPLE CHARACTERS FOR MCM66710 AND MCM66720

	TR	IUTH 1	TABLE	•	MCM66710	MCM66720
RS3	RS2	RS1	RSO	OUTPUT	ROW	ROW
0	0	0	0	R0	NO.	NO.
0	0	0	1	R1		
0	0	1	0	R2	0000000 815 0000000 BERRED 814 000000	###### Ro 000000
0	_0	1	1	яз	######################################	
0	1	0	0	B4	800000 812 0000000	
0	1	0	1	<b>P</b> 15	800000 R11 80 88000	8 8 8 8 8 0 R4 6 8 0 0 0 0 8 0
0	1	1	0	P16	BESSED RIO WEDDING	
0	1	1	1	R7		=000000 R6 =000000
1	0	0	0	88	#000000 R8 #0000#0 #000000 R7 ##000#0	#000000 R7 #0000000
1	0	0	1	R9		D6 D0 D6 D
1	0	1	0	R10		08
1	0	1	1	R11	000000 A4 <b>8</b> 000000	
1	1	0	ם [	F12	DDDDDDD 83 <b>8</b> 000000	
1	1	0	1	F113		
1	1	1	0	R14	0000000 R1 0000000 0000000 R0 0000000	
1	1	1	1	R15	D6 D0 D6 D0	
		·		L	24 24 56 50	

#### CUSTOM PROGRAMMING FOR MCM66700

By the programming of a single photomask, the customer may specify the content of the MCM66700. Encoding of the photomask is done with the aid of a computer to provide quick, efficient implementation of the custom bit pattern while reducing the cost of implementation.

Information for the custom memory content may be sent to Motorola in the following forms, in order of preference:\*

- Hexadecimal coding using IBM Punch Cards (Figures 3 and 4)
- 2. Hexadecimal coding using ASCII Paper Tape Punch (Figure 5)

Programming of the MCM66700 can be achieved by using the follow sequence:

1. Create the 128 characters in a 7 X 9 font using the format shown in Figure 2. Note that information at output D6 appears in column one, D5 in column two, through D0 information in column seven. The dots filled in and programmed as a logic 1 will appear at the outputs as VOH; the dots left blank will be at VOL. (Blank formats appear at the end of this data sheet for your convenience:

they are not to be submitted to Motorola, however.)

- 2. Indicate which characters are shifted by filling in the extra square (dot) in the top row, at the left (column S).
- 3. Convert the characters to hexadecimal coding treating dots as 1s and blanks as 0s, and enter this information in the blocks to the right of the character font format. High order bits are at the left, in columns S and D3. For the bottom eight rows, the bit in Column S must be 0, so these locations have been omitted. For the top row, the bit in Column S will be 0 for an unshifted character, and 1 for a shifted character.
- 4. Transfer the hexadecimal figures either to punched cards (Figure 3) or to paper tape (Figure 5).
- 5. Assign row numbers to the unshifted font. These must be nine sequential numbers (values 0 through 15) assigned consecutively to the rows. The shifted font is similarly placed in any position in the 16 rows.
- 6. Provide, in writing, the information indicated in Figure 6 (a copy of Figure 10 may be used for this purpose). Submit this information to Motorola together with the punched cards or paper tape.

FIGURE	2	- CHAI	RACTER	FORMAT


FIGURE 3 -- CARD PUNCH FORMAT

		racter MSB	Numt	Der _	(Cv	LSB			epur)
۵	R 14			미			0	0	
Ø	R 15			밁			0	0	
•	R /2.			뮈	꿈	꿈	2	9	
Š	RIO			8	HH	7 <b>2</b>	3	Ť	
2	R 9		Z O	ŏl.	×	80	4	A	
1911/KS-NON	R 🖠	- 1	<b>3</b> 🗀 (	Ō۱			4	4	
3	R 7			미			4	A	
₹	R 🌢	s	□ <b>23</b> 1	<b>図</b> ! D4	□ 03	<b>⊠</b> □	3	4	
	Cha	ıracter	Numt	ber	(Cer	(om	ER	h	PWT )
		MSB				LSB			
	R JI	X			<b>20 23</b>			C	
٥	RJI RJ <b>O</b>				==		8	<u>د</u> 2	
9					==		2	د 2 د	
reo	R 10 R 1 R 1				οŏ		3 2	2202	
WISTED	R 10 R 1 R 1 R 7						3 2 2 2	02022	
SWIFTED	R 10 R 1 R 1 R 7 R 6				οŏ		3 2 2 3 2	626226	
SWIFTED	R 10 R 1 R 1 R 7						8 2 3 2 3 2 2	6262200	

Columns	
1 - 10	Blank
11	Asterisk (*)
12 29	Hex coding for first character
30	Slash (/)
31 48	Hex coding for second character
49	Slash (/)
50 67	Hex coding for third character
68	Slash (/)
69 - 76	Blank
77 78	Card number (starting 01; through 43)
79 80	Blank

Column 12 on the first card contains the hexadecimal equivalent of column S and D6 through D4 for the top row of the first character. Column 13 contains D3 through D0. Columns 14 and 15 contain the information for the next row. The entire first character is coded in columns 12 through 29. Each card contains the coding for three characters. 43 cards are required to program the entire 128 characters, the last card containing only two characters. The characters must be programmed in sequence from the first character to the last in order to establish proper addressing for the part. As an example, the first nine characters of the MCM66710 are correctly coded and punched in Figure 4.

Caluma

<sup>\*</sup>NOTE: Motorola can accept magnetic tape and truth table formats. For further information contact your local Motorola sales representative.

## FIGURE 4 - EXAMPLE OF CARD PUNCH FORMAT (First 9 Characters of MCM66710)

			ការបង្កើត នាងសត្ស () ការបានប្រទេស ។ () ។	\\
₩££££0££££05\$	बहुबरपहुँ को प्रमृत्हर	ารัฐมากรีรัฐมารา	रिक्री हुन्द्र न रहतु के निर्देश के राज्य किया	7
_				)
1 4 0 2 3 4 15 4 2 4 15 18 2 5	22 22 23 24 25 27 28 28 28 28 28 28 28 28 28 28 28 28 28	. 5 5 7 7 7 7 4 4 4 4 4 4 4 4 4	តែសត់តាតាទីប្សាស្ត្រស្នាស្តាស់សស្តាស់សស្តាស្តាប់ បាក	15 16 17 18 18 18
2222222222222	7 2 2 2 2 2 2 2 2 3 8 2 8 8	2 2 8 8 8 2 2 8 2 8 2	? ? ? ? ? ? ? ? ? <b>!</b> ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ? ?	272222
33333333333	3 3 3 3 3 3 1 1 3 3 3 1 3 3		<b>3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 </b>	333333
44844444444	B4	4444444444		44444
555555555555	555555555555	555555555555	555555555555555555555555555555	55555
				866466
		, 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 0 8 8
199999999999	9999999999999	19999999999999	9 9 9 9 9 9 9 3 9 9 9 9 9 9 9 9 9 9 9 9	999999
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1	

## FIGURE 5 - PAPER TAPE FORMAT

Frames		
		start of data entry. (Note that the tape cannot begin
Leader	Blank Tape	with a CR and/or LF, or the customer identification will
1 to M	Allowed for customer use (M ≤ 64)	be assumed to be programming data.)
M + 1, M + 2	CR; LF (Carriage Return; Line Feed)	Frame M + 3 contains the hexadecimal equivalent of column S and D6 thru D4 for the top row of the first
M + 3 to M + 66	First line of pattern information (64 hex figures per line)	character. Frame M + 4 contains D3 thru D0. Frames M + 5 and M + 6 program the second row of the first

M + 67, M + 68 CR: LF M + 69 to M + 2378 Remaining 35 lines of hex figures,

each line followed by a Carriage Return and Line Feed

Blank Tape

Frames 1 to M are left to the customer for internal identification, where M ≤ 64. Any combination of alphanumerics may be used. This information is terminated with a Carriage Return and Line Feed, delineating the

of st character. Frames M + 3 to M + 66 comprise the first line of the printout. The line is terminated with a CR and LF.

The remaining 35 lines of data are punched in sequence using the same format, each line terminated with a CR and LF. The total 36 lines of data contain 36 x 64 or 2304 hex figures. Since 18 hex figures are required to program each 7 x 9 character, the full 128 (2304 = 18) characters are programmed.

### FIGURE 6 - FORMAT FOR ORGANIZATIONAL DATA

· · · · · · · · · · · · · · · · · · ·	ATIONAL DATA READ ONLY MEMORY
Customer	
Customer Part No.	Rev
Row Number for top row of non-shifted font	
Row Number for bottom row of non-shifted font	
Row Number for top row of shifted font	
Programmable Chip Select information: 1 = Active	High 0 = Active Low X = Don't Care (Not Connected)
CS1 CS2 CS3 CS4	

FIGURE 7 - MCM66710 PATTERN

A\$	AP	0000	0001	0010	0011	0100	0101 -	8110	8111	1000	1001	1010	1011	1100	1101	1110	1111
M		D6 00	06 00	0606	9400	04 00	D4 . D9	D0 D0	D6 D6	D0 · · · D0	04 . 00	D6 D9	0000	D0 D0	06 00	D6 D0	06 04
•••	#14 ::									00000000 00000000 000000000 0000000000							
<b>90</b> 1	m14	0000000 0000000 0000000 00000000 000000		0000000		00000000000000000000000000000000000000											
016	R14	0000000 0000000 0000000 0000000 0000000		00000000 00000000 00000000 000000000 0000													
011	814 						00000000000000000000000000000000000000					0000000 0000000 0000000 0000000 0000000		00000000000000000000000000000000000000			
100	2 3											00000000 00000000 00000000 00000000 0000		0000000 0000000 0000000 0000000	000000 000000 000000 000000		
101	2 ··· 2																000000
110	# · · · •									#0000000 #0000000 #0000000 #0000000 #000000						00000000 0000000 0000000 0000000	503000 50300 5000 5000 50000 50000 5000 50000 50000 50000 50000 5000 5000 50000
111	A154			0000000 0000000 0000000 0000000 0000000			0000000 0000000 0000000 0000000 0000000										

FIGURE 8 - MCM66714 PATTERN

LAJ.	. A4	0000	0001	0010	0011	0100	0101	6110	0111	1000	1001	1010	1011	1100	1101	1110	1111
6A	\	D4 D0	D\$ D0	04 . 00	04 04	96 DB	D6 . D0	04 00	D6 - D6	04 00	04 - 00	06 00	06 . 00	D6 D0	04 06	D6 D0	06 DB *
900	~																
801	20 11 12 12			0000000 0000000 0000000 0000000 0000000													0000000 0000000 00000000 00000000 000000
018	20	0000000 0000000 0000000 0000000 0000000			000000000000000000000000000000000000000								330000000000000000000000000000000000000			00000000000000000000000000000000000000	
<b>8</b> 11	70														0000000 0000000 0000000 0000000 0000000		
180	20									88888 88888 638688				0000000 0000000 0000000 0000000			
101		000000 000000 0000000 0000000													000000000000000000000000000000000000000		
110	-				0000000 0000000 0000000 0000000 0000000					0000000 000000000000000000000000000000							
111	2																
<b>7</b> · s	ifted	character. Th	e character n	shifted three r	ows to R3 at	the top of the	fort and R11	at the bottor	n.								

FIGURE 9 - MCM66734 PATTERN\*

<u> </u>	. A6	0000	0001	0810	9611	91496	0101	9110	0111	1000	1001	1010	1011	1100	5101	1110	1111
<u>هه</u>	J	De D4	Dá DO	06 . ba	D0 00	D8 D8	D6 C7	D4 D0	D6 D9	D6 . D9	DS DO	D6 D6	D6 D8	D6 00	D6 00	06 00	06 04
•	8 8			000 000 000 000 000 000				00000000000000000000000000000000000000									
661	2 2											00000000 00000000 00000000 00000000				0000000 0000000 0000000 0000000 0000000	00000000 00000000 00000000 000000000
910	**												10000000000000000000000000000000000000				
911.	~																
140	2		U010000 B888888 U000000 0000000 00000000 00000000		10 30 00 00 00 00 00 00 00 00 00 00 00 00	01000000000000000000000000000000000000						00000000 0000000 0000000 0000000 000000	0000000 0000000 0000000 0000000 0000000				
191	~ ~												000000				
110	~						10 100 00 100 00 00 100		12300000	7 100 000 000 000 000 000 000 000 000 00		TRANSCORPE TRANSCORPE				00000000	0000000 0000000 0000000 0000000 0000000
131	~													1910390 3000000 1990000 0000000 0000000 1900000		0.00000	UUUGGGG GGCGGGG DGGCGGGG DGGCGGGG GGCGGGG GGCGGGG GGCGGGG GGCGGGGG GGCGGGGG
*Stuffe	d cha	actors are no	used, therefo	re, SCC • "0"	for all charac	ters.											

FIGURE 10 - MCM66720 PATTERN\*\*

<u>_</u>	3	40	0000	8891	0010	0011	0100	6161	8110	0111	1000	1001	1010	1811	1100	1101	1110	1111
w	~	⇃	DG DG	DI DO	D9 D9	0100	D4 D4	D4 D0	D4 . D6	D6 D0	04 00	06 00	D4 D9	D4 D8	D6 D0	95 Q6	D6 . D9	94 . pq
	,	~												00000000000000000000000000000000000000				
•	٠	~~ ::			0000000 0000000 0000000 0000000 0000000											00000000 00000000 00000000 00000000 0000		0000000 0000000 0000000 0000000 0000000
•**	•	** ::			00000000000000000000000000000000000000													
61	٠	~~														10000000 10000000 10000000 10000000 1000000		
164	•	-							00000000000000000000000000000000000000									
	•	~																
186	•	-																
"		** ::																
	nifte	s ah	rectors are n	ot used														

FIGURE 11 - MCM66730 PATTERN\*\*

A3.	. A0	0000	0001	9010	Q <b>0</b> 11	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
M M	`	0500	D8	(14 DB	· D4 · D4	96 DG	04	D6 D6	D6 D0	DB . D6	D8 D9	0400	D\$ . D0	D6 D8	D4 D8	D6 D6	D6 D6
900	R0 :	0000000 0000000 0000000 0000000 0000000			0000 00 000 0000 00 000 0000 00 000										00000000 00000000 00000000 00000000 0000		
801	R0 ::			0000000 0000000 0000000 0000000 0000000								00000000 00000000 00000000 00000000000					
910	#O			000000 000000 000000 000000 000000				######################################									
011	R0																
190	no 	0000000 0000000 00000000 00000000 000000															
101	~0																
110	R0		10000000	DOCACOO													
111	:											COLORODO UNA COLORODO UNA COLOR					
** Shif	ted d	haracters are n															

FIGURE 12 - MCM66740 PATTERN

711	3	***	0001	0810	0011	8166	0101	0116	0111	1000	1081	1010	1011	1100	1101	1110	1111
<u> </u>	$\overline{}$	D\$ D\$	0600	9690	06 06	04 04	04 00	06 D4	D4 D9	0400	D6 D8	DB DB	06	06 D9	D4 D4	D0 D0	0000
	₹ … ?																
<b>301</b>	₩														000000 000000 000000 000000		
918	2 2	00000000 00000000 00000000 00000000 0000			600 00000 600 00000 600 00000				000000000000000000000000000000000000000								
<b>6</b> 11	₹ … 2														0000000 0000000 0000000 0000000 0000000		00000000 00000000 00000000 00000000 0000
180	P40 ::									200000 200000 200000 200000 200000 200000							
•	2																00000000 00000000 00000000 00000000 0000
110	2 2																
111	~			00000000 00000000 0000000 0000000							00000000 00000000 000000000 0000000000	00000000000000000000000000000000000000				20000000000000000000000000000000000000	00000000 00000000 00000000 00000000 0000
F - 2N	1	character. Th	e cherecter is	shifted three s	ows to R3 at	the top of the	fort and R11	at the bottor	n.								

FIGURE 13 - MCM66750 PATTERN

<u> </u>	AQ	0800	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
	$\leq$	D6 . D0	D6 . D6	D6 D6	D4 00	DB . DO	D0 D0	D4 . D0	De 00	D6 . D0	D6 D0	D6 D0	D6 D0	D6 00	D6 D0	D6 D0	04 0
900	3 ··· 3																
001	70 :																
010	** ::												UCCOBRIGATION OF THE PROPERTY				
011	:		000000000000000000000000000000000000000									10000000000000000000000000000000000000					
100	RO :		00000000000000000000000000000000000000														
101	RO			######################################													
110	R0 ::																
111	P**		CRORGES	8888888		2200000		00000000 00000000 00000000 00000000 0000							0000000	3880000 8000000 0000000 0000000 0000000 000000	

MCM66751 - Same as MCM66750 except CS1 = 0, CS2 = 0, CS3 = X, and CS4 = X.

FIGURE 14 - MCM66760 PATTERN

<b>N3</b>	. AO	0000	0001	0010	0011	0100	0101	0110	0111	1000	1001	1010	1011	1100	1101	1110	1111
AS AA	_	D6 D0	04 00	D4 D0	06 00	D6 D0	D4 D0	D6 - D0	D6 D6	D4 D0	O6 D6	D6	D6 D8	D6 D0	DB DB	D4 D0	D8 D6
000	H0 :					00000001110 0000000000 000000000 0000000											
801	R0 ::										566666						
010	A C	000000000000000000000000000000000000000			2000000												
011	=0 ::						######################################										
100	₹				3000000 3000000 8000000		#0000000	######################################									
161	***	0000000 0000000 0000000 0000000 0000000															0000000 0000000 0000000 0000000 0000000
110	**	0000000 0000000 0000000 0000000 0000000			00000000 0000000 0000000 0000000 000000					#000000 #000000 #000000 #000000 #000000 #000000					40.34000		0000000 0000000 0000000 0000000 0000000
111	~			0000000 0000000 0000000 0000000 0000000	20000001 20000000 2000000 2000000 2000000 2000000			0000000 0000000 0000000 0000000 0000000		3905000 0000000 0000000 0000000 000000 00000	#0000#0 #0000#0 #0000#0 #0000#0 0000#0 00000#0 00000#0 00000#0 00000#0 00000#0					0000000 0000000 0000000 0000000 0000000	
<b>7</b> -s	u Pou	I character. T	he character h	s phytopol shree	nave to F3 e	the top of th	e font and R1	1 at the botto	om.							· · · · · · · · · · · · · · · · · · ·	

FIGURE 15 - MCM86770 PATTERN

∕ν.	. 40	****	8801	8610	8911	9100 .	9191	9110	9117	1000	1001	1010	1011	1100	1101	1110	1111
8A	$\geq$	DS DS	24 00	O4 D4	94 95	ENG . ENG	06. 00	96 96	204 . D4	94 94	D6 D6	04 00	04 04	204 000	04 94	84 . 20	25 25
_	**													3.186			
•	? ··· ?										DODGOOD		COGGGGC				
**	2 1			00000000000000000000000000000000000000													TRATE TO STATE OF THE STATE OF
611	2														HANDOOONS HANDOOONS HANDOONS HANDOONS HANDOONS HANDOOONS		OLONGO LI BOLCHOON BO
100	₹ ₹				00000000000000000000000000000000000000		00000000000000000000000000000000000000										TO SECURE STATE OF THE SEC
107					00000000000000000000000000000000000000											0000000 0000000 0000000 0000000 0000000	3000000 3000000 30000000 30000000 3000000
110	~										SALPSTANTO CERKETOLINE BOX PARKED CONSTRUCTO KINDIDINO	53585E					
111	7							DEMENDED OF THE PROPERTY OF TH		222222						12000000 12000000 120000000000000000000	

FIGURE 16 -- MCM66780 PATTERN

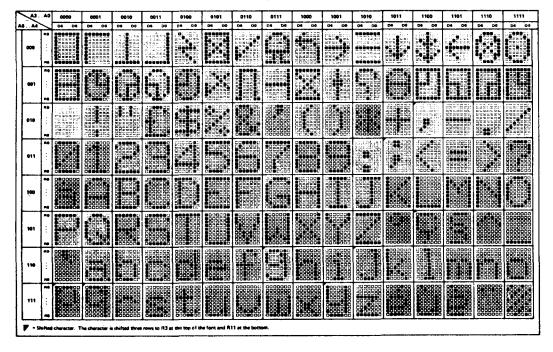
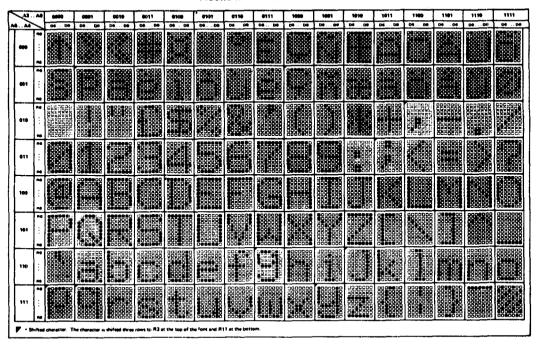
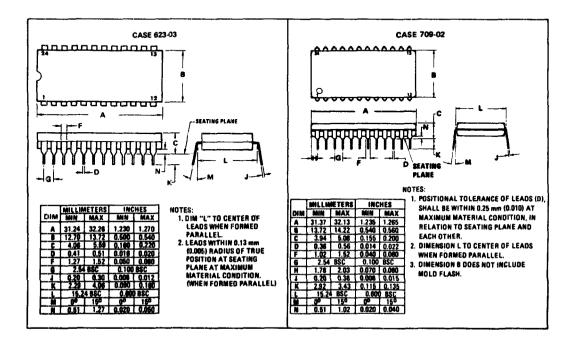


FIGURE 17 - MCM66790 PATTERN





			MCM6670 Pin Assig		MCM653 Pin Assi	
MCM6570 Series	MCM66700 Equivalent	Description	1 □ CS3	RS3 🗆 24	1 ⊏ √8B	RS3 =124
MCM6571	MCM66710	ASCII, shifted	2 □ ∨cc	AS2 🗀 23	² ⊏ ∨cc	RS2 123
MCM6571A	MCM66714	ASCII, shifted	3 □ C54	RS1 22	3 ⊏ VDD	R51 22
MCM6572	MCM66720	ASCII	4 🖂 A6	RS0 21	4 🗔 A6	RS0 -121
MCM6573	MCM66730	Japanese	5 🗖 D5	D6 🗀 20	5 🖂 05	D6 🗀 20
MCM6573A	MCM66734	Japanese	6 🗖 □3	04 🗀 19	6 🖂 □3	D4 🗀 19
MCM6574	MCM66740	Math Symbols	, C 01	02 🗖 18	, 뎌 더	D2 18
MCM6575	MCM66750	Alphanumeric Control	8 🗖 A5	D0 🗀 17	B 🖂 A5	00 🗀 17
MCM6576	MCM66760	British, shifted	9 □ 🗚	дз 🞞 16	9 □ 44	A1 🗀 16
MCM6577	MCM66770	German, shifted	10 🖂 CS1	A0 🗖 15	10 🖂 N C	A0 🗀 15
MCM6578	MCM66780	French, shifted	11 🗖 A3	CS2 14	11 🗂 A3	N C 14
MCM6579	MCM66790	European, shifted	12 C A2	V <sub>SS</sub> 🗀 13	12 C A2	∨ss 🗀 13

## **APPLICATIONS INFORMATION**

One important application for the MCM66700 series is in CRT display systems (Figure 18). A set of buffer shift registers or random access memories applies a 7-bit character code to the input of the character generator, which then supplies one row of the character according to the count at the four row select inputs. As each row is available, it is put into the TTL MC7495 shift registers. The parallel information in these shift registers is clocked

serially out to the Z-axis where it modulates the raster to form the character.

The MCM66700 series require one power supply of +5.0 volts. When powering this device from laboratory or system power supplies, it is important that the Absolute Maximum Ratings not be exceeded or device failure can result. Some power supplies exhibit spikes or glitches on their outputs when the ac power is switched on and off.

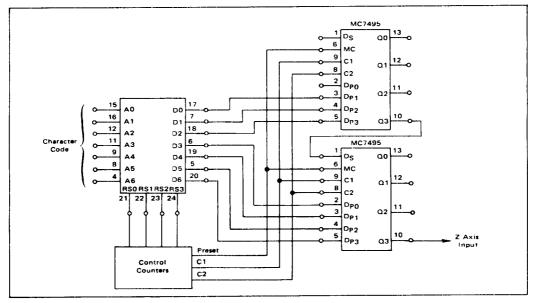


FIGURE 18 - CRT DISPLAY APPLICATION USING MCM66710

## MCM66700 Series

The formats below are given for your convenience in preparing character information for MCM66700 programming. THESE FORMATS ARE NOT TO BE USED TO TRANSMIT THE INFORMATION TO MOTOROLA. Refer to the Custom Programming instructions for detailed procedures.

	Character Number		Character Number		Character Number
B	MSB LSB HEX	R R R R R R R	MSB LSB HEX	***********	MSB LSB HEX
电 化 化 的 的 的 的 的	Character Number	* * * * * * * * *	Character Number  MSB	*********	Character Number
	Character Number	* * * * * * * * * *	Character Number	******	Character Number