FUJITSU

PROGRAMMABLE CRT CONTROLLER

MB89321B
MB89322B
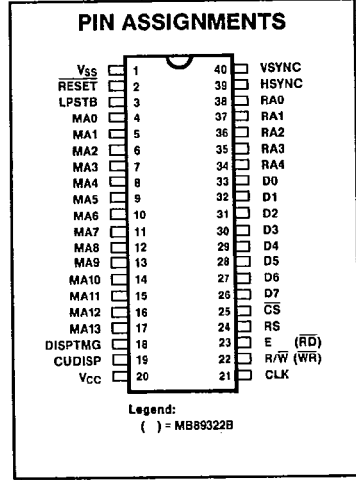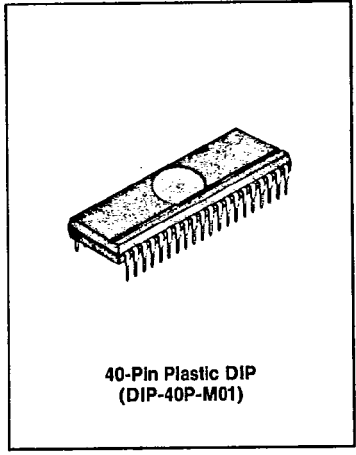
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DESCRIPTION

The Fujitsu MB89321B/MB89322B Programmable CRT Controllers are used to interface a CRT raster-scan display with a microcomputer system. The MB89321B is pin-for-pin compatible with the 6845 controller and is designed to interface with the 6800-series of microprocessors from Motorola. The MB89322B is designed to interface with the 8080-series of microprocessors from Intel; because the Intel bus requires separate read/write lines, the MB89322 is not a direct replacement for 6845.

Both devices refresh the CRT display by buffering information from main memory. Eighteen internal registers track the display position on the screen and provide a realtime presentation of the video data. The interface with most raster-scan CRT displays is simple and the hardware/software overhead is minimal.

Together, the MB89321A/MB89322A and MB89321B/MB89322B controllers provide design alternatives for the bus-interface requirements shown at the bottom of this page. The MB89321 and MB89322 can be ordered with or without enhancements. Non-enhanced versions (suffix B) contains all standard features of the 6845; enhanced versions (suffix A) provide all standard features of the 6845 plus smooth scroll, additional screen partitioning, independent scrolling of screen partitions, and other convenient features.

FEATURES

- Programmable screen and character formats
- Cursor control display: Form, Position, and Blink
- Three selectable scan modes: Interlace, Non-interlace, and Interlace with Video
- 14-bit refresh memory address output: 16K word refresh memory addressing capability
- 5-bit raster address output: Up to 32 rasters per character
- Light pen detection: Refresh memory address capture
- Flexible bus interface: 6800 compatible bus for MB89321B, 8080 compatible bus for MB89322B
- Up to 4 MHz clock rate
- Silicon gate CMOS process/TTL compatible I/O
- Single +5V power supply/40-pin plastic DIP (Suffix P)

40-Pin Plastic DIP (DIP-40P-M01)

PIN ASSIGNMENTS

	1	40	VSYNC
RESET	2	39	HSYNC
LPSTB	3	38	RA0
MA0	4	37	RA1
MA1	5	36	RA2
MA2	6	35	RA3
MA3	7	34	RA4
MA4	8	33	D0
MA5	9	32	D1
MA6	10	31	D2
MA7	11	30	D3
MA8	12	29	D4
MA9	13	28	D5
MA10	14	27	D6
MA11	15	26	D7
MA12	16	25	CS
MA13	17	24	RS
DISPTMG	18	23	E (RD)
CUDISP	19	22	R/W (WR)
Vcc	20	21	CLK

Legend:
( ) = MB89322B

Bus Interface	MB89321A	MB89322A	MB89321B	MB89322B	6845
8080 Bus Interface (Intel)		X		X	
6800 Bus Interface (Motorola)	X		X		X
Enhanced (Note)	X	X			
Non-Enhanced			X	X	X

Note:
The MB89321A and MB89322A provide all features of the 6845; however, both devices require that Registers 30 and 31 be cleared during initialization. The clearing command is not required for the 6845 or the non-enhanced (MB89321B/MB89322B) devices.

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.

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