

# MB81P161622A-673,-672,-843

## CMOS 2 x 512K x 16 SYNCHRONOUS DRAM

### CMOS 2 BANKS OF 524,288-WORD x 16-BIT SYNCHRONOUS DYNAMIC RANDOM ACCESS MEMORY FOR PCs

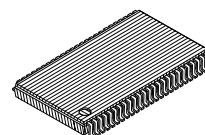
The Fujitsu MB81P161622A is a CMOS Synchronous Dynamic Random Access Memory for PCs (SDRAM for PCs) containing 16,777,216 memory cells accessible in a 16-bit format. The MB81P161622A features a fully synchronous operation to a positive edge clock whereby all operations are synchronized at a clock input enables high performance and simple user interface coexistence. The MB81P161622A SDRAM is designed to reduce the complexity of using a standard dynamic RAM (DRAM) which requires many control signal timing constraints, and improve data bandwidth of memory as several times more than that of a standard DRAM.

The MB81P161622A is ideally suited for Personal computers, workstations, laser printers, high resolution graphic adapters, accelerators and other application where an extremely large memory and bandwidth are required and where a simple interface is needed.

Parameters	MB81P161622A-673	MB81P161622A-672	MB81P161622A-843
Clock Frequency	67MHz max. (CL=3) 50MHz max. (CL=2)	67MHz max. (CL=2)	84MHz max. (CL=3)
Burst Mode Cycle Time	15ns min. (CL=3) 20ns min. (CL=2)	15ns min. (CL=2)	12ns min. (CL=3)
RAS Access Time	70ns max. (CL=3) 70ns max. (CL=2)	54ns max. (CL=2)	61ns max. (CL=3)
CAS Access Time	30ns max. (CL=3) 30ns max. (CL=2)	24ns max. (CL=2)	26ns max. (CL=3)
Output Valid From Clock	9ns min. (CL=3) 10ns min. (CL=2)	9ns min. (CL=2)	8ns min. (CL=3)
Operating Current (Two banks active)	110mA max	110mA max	120mA max
Power Down Mode Current	1mA max		

- Single +3.3V Supply  $\pm 10\%$  tolerance
- LVTTTL compatible I/O interface
- 4096 refresh cycles every 65.6 ms
- Dual banks operation
- Programmable burst type
- Programmable burst length(1 and 4 only)
- Programmable CAS latency (2 and 3 for -673 version only)
- Auto and Self-refresh
- CKE power down mode
- Output Enable and Input Data Mask

Marking side



**FPT-50P-M05**  
(Normal Bend)

**Plastic TSOP Package**

### ABSOLUTE MAXIMUM RATINGS (See NOTE.)

Parameters	Symbol	Value	Unit
Voltage of VCC supply relative to VSS	VCC	-0.5 to +4.6	V
Voltage at any pin relative to VSS	VIN/VOUT	-0.6 to +4.6	V
Short Circuit Output Current	IOUT	$\pm 50$	mA
Power Dissipation	PD	1.3	W
Storage Temperature	TSTG	-55 to +125	°C

**Note:** Permanent device damage may occur if the above **Absolute Maximum Ratings** are exceeded. Functional operation should be restricted to the conditions as detailed in the operational sections of this data sheet. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

### Package and Ordering Information

-50-pin plastic (400mil) TSOP-II with normal bend leads, order as MB81P161622A-xxxFN

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.