

**OSHIBA****INTEGRATED CIRCUIT****TECHNICAL DATA**

TOSHIBA MOS DIGITAL INTEGRATED CIRCUIT

TC524256J-10 , TC524256J-12

SILICON GATE CMOS

262,144 WORDS x 4 BITS MULTIPORT DYNAMIC RAM

PRELIMINARY

**DESCRIPTION**

The TC524256J is a CMOS Multiport memory equipped with a 262,144-word  $\times$  4 bit dynamic random access memory(RAM) port and a 512-word  $\times$  4 bit static serial access memory(SAM) port. In addition to the conventional DRAM operation modes, the TC524256J features a write-per-bit function on the RAM port; Bi-directional transfer capability between the DRAM memory array and the SAM data register and a high speed serial read/write capability on the SAM port. The RAM port and the SAM port can be accessed independently except when data is being transferred between them internally. The TC524256J is fabricated using TOSHIBA's CMOS silicon gate process technology as well as advanced circuitry to provide low power dissipation and wide operating margin. Multiplied address inputs and a common input/output organization allow the TC524256J to be housed in a standard 32-pin, 400-mil wide plastic SOJ. System oriented features include a single 5V $\pm$ 10% power supply operation and compatibility with high performance schottky TTL logic.

**FEATURES**

ITEM	TC524256J	
	-10	-12
t <sub>RAC</sub> RAS Access Time (Max.)	100ns	120ns
t <sub>CAC</sub> CAS Access Time (Max.)	50ns	60ns
t <sub>RC</sub> Cycle Time (Min.)	190ns	220ns
t <sub>PC</sub> Page Mode Cycle Time(Min.)	90ns	105ns
t <sub>SCA</sub> Serial Access Time (Max.)	25ns	35ns
t <sub>SCC</sub> Serial Cycle Time (Min.)	30ns	40ns
I <sub>CC1</sub> RAM Operating Current (SAM: Standby)	60mA	55mA
I <sub>CC2A</sub> SAM Operating Current (RAM: Standby)	40mA	35mA
I <sub>CC2</sub> RAM/SAM Standby Current	3mA	

**PIN NAMES**

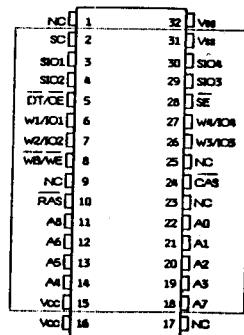
A0 ~ A8	Address Inputs
RAS	Row Address Strobe
CAS	Column Address Strobe
DT/OE	Data Transfer/Output Enable
WB/WE	Write Per Bit/Write Enable
W1/I01 ~ W4/I04	Write Mask/Data IN, OUT
SC	Serial Clock
SE	Serial Enable
SIO1 ~ SIO4	Serial Input Output
VCC	Power (+5V)
VSS	Ground
N.C.	No Connection

**Organization**RAM port: 262,144 words  $\times$  4 bitsSAM port: 512 words  $\times$  4 bits

- Single power supply of 5V $\pm$ 10% with a built-in V<sub>BG</sub> generator
- Read-Modify-Write, CAS before RAS refresh, Hidden refresh, Page mode, Write-Per-Bit, Read transfer, Write transfer, Serial read, Serial Write capability
- All inputs and outputs TTL compatible
- 512 refresh cycle/8ms
- Package TC524256J: 0.4 inches 32 pins standard Plastic SOJ

**PIN CONNECTION (TOP VIEW)**

Plastic SOJ



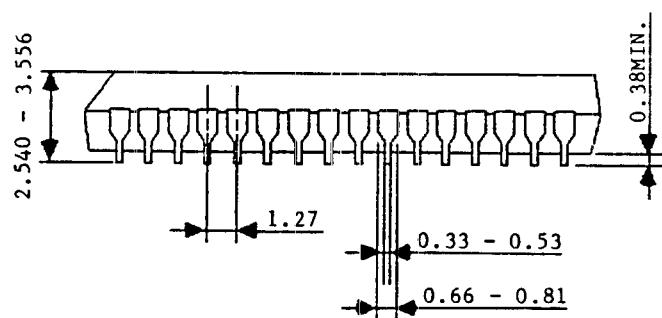
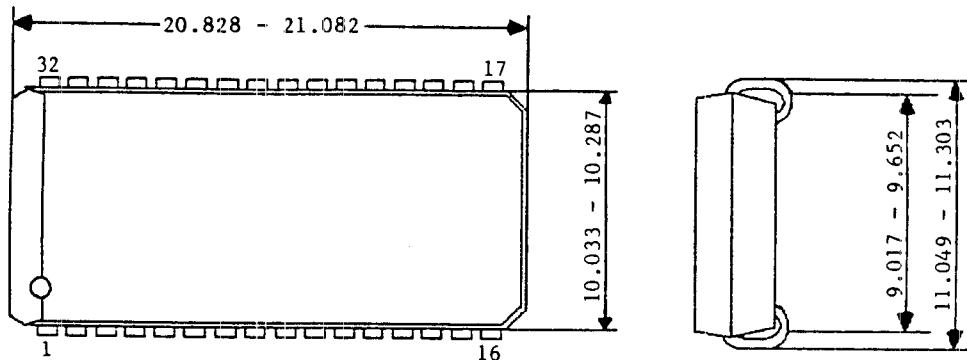
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## OUTLINE DRAWINGS

- Plastic SOJ

Unit in mm



Note: Each lead pitch is 1.27mm.

All dimensions are in millimeters.