CMOS STATIC RAM PLASTIC MODULES 256K (16K x 16-BIT) & 128K (8K x 16-BIT)

Integrated Device Technology, Inc.

FEATURES:

- High-density 256K/128K CMOS static RAM modules
- 16K x 16 organization (IDT8MP656) with 8K x 16 option (IDT8MP628)
- Upper byte (I/O$_{9-16}$) and lower byte (I/O$_{1-8}$) separated control
  — Flexibility in application
- Equivalent to JEDEC standard for future monolithic 16K x 16/8K x 16 static RAMs
- Fast access times
  — 50ns (max.) over commercial temperature range
- Low-power consumption
  — Active: less than 1W (typ. in 16K x 16 organization)
  — Standby: less than 1mW (typ.)
- Cost-effective plastic surface mounted RAM packages on an epoxy laminate (FR4) substrate
- Offered in both DIP and SIP (single in-line) packages for maximum space-saving flexibility
- Utilizes IDT7164s — high-performance 64K static RAMs produced with advanced CEMOS™ technology
- CEMOS process virtually eliminates alpha particle soft error rates (with no organic die coating)
- Single 5V (±10%) power supply
- Inputs and outputs directly TTL-compatible

DESCRIPTION:

The IDT8MP656/IDT8MP628 are 265K/128K-bit high-speed CMOS static RAMs constructed on an epoxy laminate substrate using four IDT7164 8K x 8 static RAMs (IDT8MP656) or two IDT7164 static RAMs (IDT8MP628) in plastic surface mount packages.

Functional equivalence to proposed monolithic static RAMs is achieved by utilization of an on-board decoder that interprets the higher order address A$_{13}$ to select one of the two 8K x 16 RAMs as the by-16 output and using $\overline{LB}$ and $\overline{UB}$ as two extra chip select functions for lower byte (I/O$_{1-8}$) and upper byte (I/O$_{9-16}$) control, respectively. (On IDT8MP628 8K x 16 option, A$_{13}$ needs to be externally grounded for proper operation.) Extremely high speeds are achievable by the use of IDT7164s, fabricated in IDT's high-performance, high-reliability CEMOS technology. This state-of-the-art technology, combined with innovative circuit design techniques, provides the fastest 256K/128K static RAMs available.

The IDT8MP656/IDT8MP628 are available with access times as fast as 50ns over the commercial temperature range, with maximum operating power consumption of only 1.8W (IDT8MP656 16K x 16 option). The module also offers a full standby mode of 440mW (max.).

The IDT8MP656/IDT8MP628 are offered in both a 40-pin plastic SIP, as well as a 40-pin plastic DIP which conform to JEDEC standard pinouts for future monolithic devices.

All inputs and outputs of the IDT8MP656/IDT8MP628 are TTL-compatible and operate from a single 5V supply. (NOTE: Both V$_{CC}$ pins need to be connected to the 5V supply and both GND pins need to be grounded for proper operation.) Fully asynchronous ciruitry is used requiring no clocks or refreshing for operation and provides equal access and cycle times for ease of use.
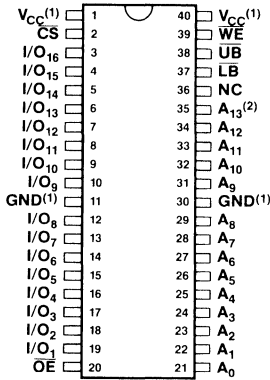
FUNCTIONAL BLOCK DIAGRAM
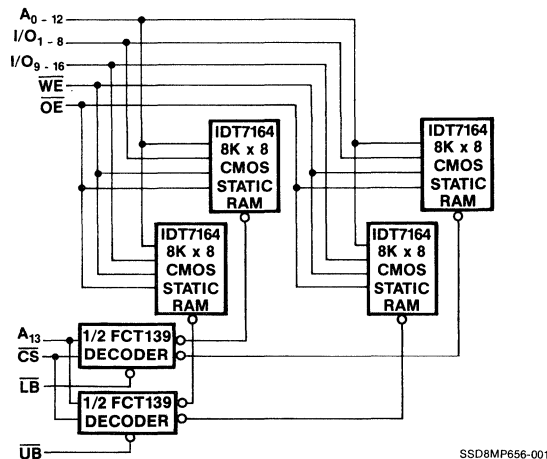
SSD8MP656-001

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COMMERCIAL TEMPERATURE RANGE   **JULY 1986**

PIN CONFIGURATIONS

$V_{CC}^{(1)}$	1
$\overline{CS}$	2
I/O$_{16}$	3
I/O$_{15}$	4
I/O$_{14}$	5
I/O$_{13}$	6
I/O$_{12}$	7
I/O$_{11}$	8
I/O$_{10}$	9
I/O$_9$	10
GND$^{(1)}$	11
I/O$_8$	12
I/O$_7$	13
I/O$_6$	14
I/O$_5$	15
I/O$_4$	16
I/O$_3$	17
I/O$_2$	18
I/O$_1$	19
$\overline{OE}$	20

40	$V_{CC}^{(1)}$
39	$\overline{WE}$
38	$\overline{UB}$
37	$\overline{LB}$
36	NC
35	$A_{13}^{(2)}$
34	A_{12}
33	A_{11}
32	A_{10}
31	A_9
30	GND$^{(1)}$
29	A_8
28	A_7
27	A_6
26	A_5
25	A_4
24	A_3
23	A_2
22	A_1
21	A_0

**DIP
TOP VIEW**

SSD8MP656-002

PIN NAMES

A_{0-16}	Addresses
I/O$_{1-8}$	Data Input/Output
$\overline{CS}$	Chip Select
V_{CC}	Power
$\overline{WE}$	Write Enable
$\overline{OE}$	Output Enable
GND	Ground
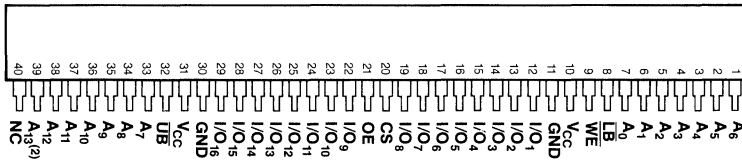
**SIP
SIDE VIEW**

SSD8MP656-003

NOTES:

1. Both V_{CC} pins need to be connected to the 5V supply, and both GND pins need to be grounded for proper operation.
2. A_{13} (pin 39 – SIP; pin 35 – DIP) requires external grounding for IDT8MP628 128K (8K x 16-Bit) option.

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