TMS416100 16 777 216-BIT
TMS416400 4 194 304-WORD BY 4-BIT
TMS417400 4 194 304-WORD BY 4-BIT DYNAMIC RANDOM ACCESS MEMORIES

SMKS003–DECEMBER 1992

This Product Preview is Applicable to All TMS416100/P, TMS416400/P, and TMS417400/P Devices Symbolized With Revision "B" and Subsequent Revisions as Described on Page 4.

- **Organization:**
  16 777 216 × 1 TMS416100, TMS416100P
  4 194 304 × 4 TMS416400 , TMS416400P
  4 194 304 × 4 TMS417400, TMS417400P
- **High Reliability Plastic 300-Mil 24/26-Lead Surface Mount (SOJ) Package, 24/26-Lead Thin Small Outline Package, and Reverse Thin Small Outline Package**
- **Low Power Dissipation**
  - **500 μA CMOS Standby Current (TMS416100P, TMS416400P, TMS417400P)**
  - **500 μA Self-Refresh Current (TMS416100P, TMS416400P, TMS417400P)**
  - **500 μA Extended Refresh Battery Backup Current (TMS416100P, TMS416400P, TMS417400P)**
- **3-State Unlatched Output**
- **All Inputs, Outputs, and Clocks Are TTL Compatible**
- **Enhanced Page Mode Operation for Faster Memory Access**
- **Long Refresh Period**
  - **4096-Cycle Refresh in 64 ms (TMS416100, TMS416400)**
  - **2048-Cycle Refresh in 32 ms (TMS417400)**
  - **256 ms for Extended Refresh Version (TMS416100P, TMS416400P, TMS417400P)**
- **Single 5 V Power Supply (10% Tolerance)**
- **$\overline{\text{CAS}}$-Before-$\overline{\text{RAS}}$ Refresh**
- **Operating Free-Air Temperature Range 0°C to 70°C**
- **Performance Ranges:**

	ACCESS TIME t_{RAC} (MAX)	ACCESS TIME t_{CAC} (MAX)	ACCESS TIME t_{AA} (MAX)	READ OR WRITE CYCLE (MIN)	I_{CC1} OPERATING CURRENT (MIN)	I_{CC3} REFRESH CURRENT (MIN)
TMS416100/P-60	60 ns	15 ns	30 ns	110 ns	80 mA	80 mA
TMS416100/P-70	70 ns	18 ns	35 ns	130 ns	70 mA	70 mA
TMS416100/P-80	80 ns	20 ns	40 ns	150 ns	60 mA	60 mA
TMS416400/P-60	60 ns	15 ns	30 ns	110 ns	80 mA	80 mA
TMS416400/P-70	70 ns	18 ns	35 ns	130 ns	70 mA	70 mA
TMS416400/P-80	80 ns	20 ns	40 ns	150 ns	60 mA	60 mA
TMS417400/P-60	60 ns	15 ns	30 ns	110 ns	110 mA	110 mA
TMS417400/P-70	70 ns	18 ns	35 ns	130 ns	100 mA	100 mA
TMS417400/P-80	80 ns	20 ns	40 ns	150 ns	90 mA	90 mA

description

The TMS416100, TMS416400, TMS417400 series are high-speed, 16 777 216-bit dynamic random-access memories, organized as either 16 777 216 words of one bit each (TMS416100) or 4 194 304 words of four bits each (TMS416400, TMS417400).

The TMS416100P, TMS416400P, and TMS417400P series are high-speed, self-refresh and extended-refresh, 16 777 216-bit DRAMS, organized as either 16 777 216 words of one bit each (TMS416100P) or 4 194 304 words of four bits each (TMS416400P, TMS417400P).

The TMS416100/P, TMS416400/P, and TMS417400/P are offered in a 300-mil 24/26-lead plastic surface mount SOJ package (DJ suffix), a 24/26-lead plastic small outline package (DGA suffix), and a 24/26-lead plastic small outline package, reverse form (DGB suffix). All packages are characterized for operation from 0°C to 70°C.

PRODUCT PREVIEW

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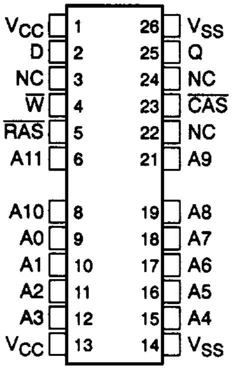
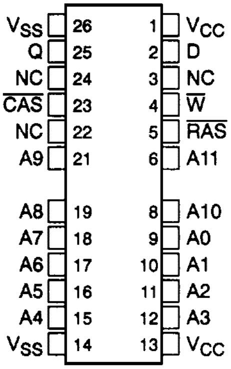
TMS416100

DJ, DGA PACKAGES†
(TOP VIEW)



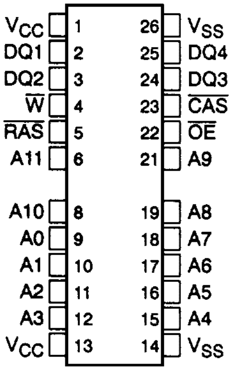
DGB PACKAGE†
(TOP VIEW)



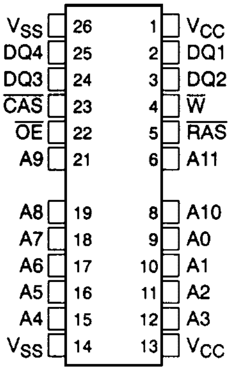
PIN NOMENCLATURE	
A0–A11	Address Inputs
CAS	Column-Address Strobe
D	Data In
NC	No Internal Connection
Q	Data Out
RAS	Row-Address Strobe
W	Write Enable
V_{CC}	5-V Supply
V_{SS}	Ground

TMS416400

DJ, DGA PACKAGES†
(TOP VIEW)



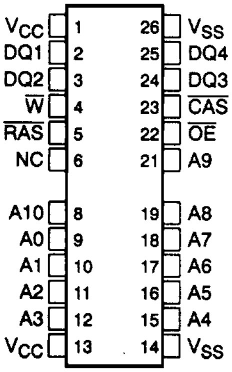
DGB PACKAGE†
(TOP VIEW)



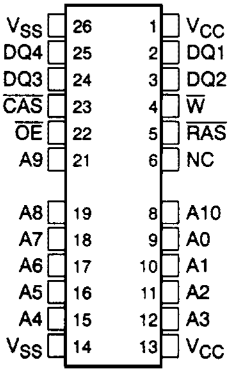
PIN NOMENCLATURE	
A0–A11	Address Inputs
CAS	Column-Address Strobe
DQ1–DQ4	Data In/Data Out
OE	Output Enable
RAS	Row-Address Strobe
W	Write Enable
V_{CC}	5-V Supply
V_{SS}	Ground

TMS417400

DJ, DGA PACKAGES†
(TOP VIEW)



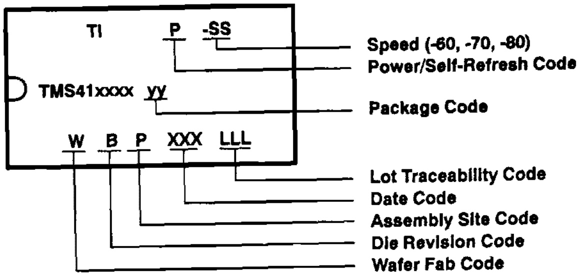
DGB PACKAGE†
(TOP VIEW)



PIN NOMENCLATURE	
A0–A10	Address Inputs
CAS	Column-Address Strobe
DQ1–DQ4	Data In/Data Out
NC	No Internal Connection
OE	Output Enable
RAS	Row-Address Strobe
W	Write Enable
V_{CC}	5-V Supply
V_{SS}	Ground

† The packages shown are for pinout reference only.

device symbolization



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