IS42S16400D-DIE

1 Meg Bits x 16 Bits x 4 Banks (64-MBIT) SYNCHRONOUS DYNAMIC RAM

PRELIMINARY INFORMATION
DECEMBER 2006

FEATURES

- Clock frequency: 166, 143 MHz
- Fully synchronous; all signals referenced to a positive clock edge
- Internal bank for hiding row access/precharge
- Single 3.3V power supply
- LVTTL interface
- Programmable burst length
  – (1, 2, 4, 8, full page)
- Programmable burst sequence: Sequential/Interleave
- Self refresh modes
- 4096 refresh cycles every 64 ms
- Random column address every clock cycle
- Programmable $\overline{\text{CAS}}$ latency (2, 3 clocks)
- Burst read/write and burst read/single write operations capability
- Burst termination by burst stop and precharge command
- Byte controlled by LDQM and UDQM

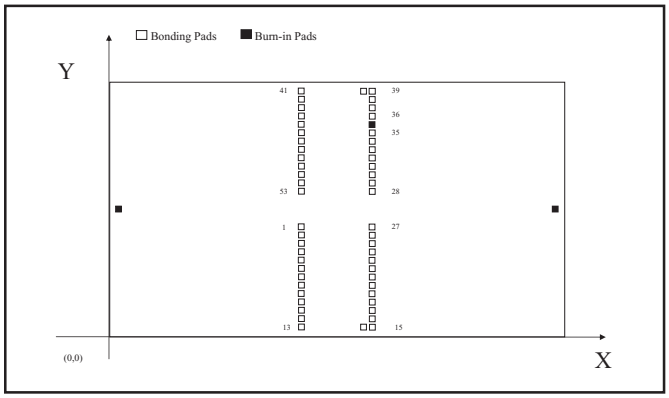
OVERVIEW

ISSI's 64Mb Synchronous DRAM IS42S16400D is organized as 1,048,576 bits x 16-bit x 4-bank for improved performance. The synchronous DRAMs achieve high-speed data transfer using pipeline architecture. All inputs and outputs signals refer to the rising edge of the clock input. Note: This is a summary datasheet specific to the die format. Please refer to the IS42S16400D for complete device specifications.

KEY TIMING PARAMETERS

Parameter	-6	-7	Unit
Clk Cycle Time			
$\overline{\text{CAS}}$ Latency = 3	6	7	ns
$\overline{\text{CAS}}$ Latency = 2	7.5	7.5	ns
Clk Frequency			
$\overline{\text{CAS}}$ Latency = 3	166	143	Mhz
$\overline{\text{CAS}}$ Latency = 2	133	133	Mhz
Access Time from Clock			
$\overline{\text{CAS}}$ Latency = 3	5	5.4	ns
$\overline{\text{CAS}}$ Latency = 2	6	6	ns

BONDING DIAGRAM



PIN DESCRIPTIONS

A0-A11	Address Input
BA0, BA1	Bank Select Address
DQ0 to DQ15	Data I/O
CLK	System Clock Input
CKE	Clock Enable
$\overline{\text{CS}}$	Chip Select
$\overline{\text{RAS}}$	Row Address Strobe Command
$\overline{\text{CAS}}$	Column Address Strobe Command
$\overline{\text{WE}}$	Write Enable
LDQM	Lower Bye, Input/Output Mask
UDQM	Upper Bye, Input/Output Mask
V_{DD}	Power
GND	Ground
V_{DDQ}	Power Supply for DQ Pin
GND_Q	Ground for DQ Pin
NC	No Connection