

# IS42S16100E-DIE

## 512K Words x 16 Bits x 2 Banks (16-MBIT) SYNCHRONOUS DYNAMIC RAM

ADVANCED INFORMATION  
JULY 2007

### FEATURES

- Clock frequency: 166, 143 MHz
- Power supply: 3.3V
- Fully synchronous; all signals referenced to a positive clock edge
- Two banks can be operated simultaneously and independently
- Dual internal bank controlled by A11 (bank select)
- Programmable burst length – (1, 2, 4, 8, full page)
- Programmable burst sequence: Sequential/Interleave
- 2048 refresh cycles every 32 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
- Pads located along edges

### PIN DESCRIPTIONS

A0-A11	Address Input
A0-A10	Row Address Input
A11	Bank Select Address
A0-A7	Column Address Input
DQ0 to DQ15	Data DQ
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

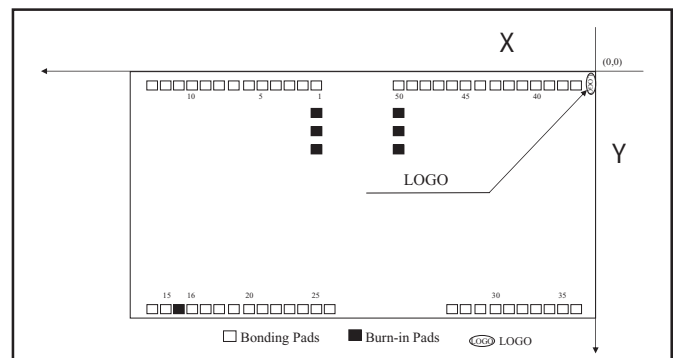
### DESCRIPTION

ISSI's 16Mb Synchronous DRAM IS42S16100E is organized as a 524,288-word x 16-bit x 2-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 IS42S16100E for complete device specification.

### KEY TIMING PARAMETERS

Parameter	-7	-6	Unit	
Clock Cycle Time	$\overline{\text{CAS}}$ Latency = 3	7	6	ns
	$\overline{\text{CAS}}$ Latency = 2	8	8	ns
Clock Frequency	$\overline{\text{CAS}}$ Latency = 3	143	166	MHz
	$\overline{\text{CAS}}$ Latency = 2	125	125	MHz
Access Time from Clock	$\overline{\text{CAS}}$ Latency = 3	5.5	5.5	ns
	$\overline{\text{CAS}}$ Latency = 2	6.0	6.0	ns

### BONDING DIAGRAM



LDQM	Lower Byte, Input/Output Mask
UDQM	Upper Byte, Input/Output Mask
VDD	Power
GND	Ground
VDDQ	Power Supply for DQ Pin
GNDQ	Ground for DQ Pin
NC	No Connection

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