

TOSHIBA



**TOSHIBA AMERICA INFORMATION SYSTEMS
STORAGE DEVICE DIVISION
IRVINE, CALIFORNIA**

**MK5002MAL (HDD1242)
1.8-INCH HARD DISK DRIVE
USER MANUAL**

Rev 02

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INTRODUCTION – MK5002MAL (HDD1242)

General Features

- 1.8" sized drive
- 1 Platter
- 5.007 Gigabytes*
- 5mm High
- 15ms Average Seek Time
- ATA (1 - 5) Interface
- Ultra 66 DMA Supported
- 1024KB Buffer
- Rotational speed of 4,200rpm
- MTTF 300,000 Hours

**Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.*

SETUP – MK5002MAL (HDD1242)



Caution: Your Hard Disk Drive is a precision device and even a small drop onto any surface can cause damage. Electronstatic discharge can also damage the drive. You should ground yourself prior to handling the drive.



Figure 1. MK5002MAL Side View

Installation Notes

- Do not apply any force to the top cover, except the screw areas on top cover. Maximum force to the specified area is 2N.



important Note: *Disconnect power from your computer system before beginning installation*

USING THE HARD DISK DRIVE – MK5002MAL (HDD1242)

Backing up Data Files

To avoid data loss, regularly back up the data files on the hard disk drive.

SPECIFICATIONS –MK5002MAL (HDD1242)

General

Model	MK5002MAL (HDD1242)
Interface	ATA-1/2/3/4/5

Functionality

Formatted Capacity	5.007GB*
Rotational Speed	4200rpm
Avg. Rotational Latency	7.14/ms
Spin-up Time	3.5sec (typical)
Buffer	1024KB
Seek Time	
Average	15
Maximum	26
Internal Transfer Rate	118 ~ 175.3 Mbits/sec (max)
Host Transfer Rate	
Ultra DMA mode	66.7Mbytes/sec
PIO Mode	16.6Mbytes/sec
Interleave Factor	1:1

*Toshiba defines a megabyte (MB) as 1,000,000 bytes and a gigabyte (GB) as 1,000,000,000 bytes.

Internal Drive Characteristics

Number of Disks	1
Number of Data Heads	2
Track Density (TPI)	1638 (41.6k)
Logical Cylinders	10,350
Logical Heads	16
Logical Sectors/track	63
Bytes per Sector	512
Logical Blocks (LBA)	9,780,750

Reliability

Preventative maintenance	None
Non-recoverable read errors	1 error per 10 ¹³ bits read

Electrical

Voltage	5V ±5%
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Power Consumption

Start	1.2W typ
Seek	1.3W typ
Read/Write	1.3W typ
Sleep	0.05W typ
Energy Consumption Efficiency	0.10W/GB avg

Shock

Operating	1,960m/s ² (200G)(2msec)
Non-Operating	9,800m/s ² (1000G)(1msec)

Physical

Height	0.2" (5.0mm)
Width	2.13" (54.0mm)
Depth	3.09" (78.5mm)
Weight	1.94oz (55g) typ

Regulatory

The drive satisfies the following standards:

Underwriters Laboratories (UL)	1950
Canadian Standard Association (CSA)	C22.2 No. 950
TUV Rheinland	EN 60 950
EMC - EN50081-1	EN50081-1: 1992
	EN55022: 1994 Class B
	EN61000-3-2: 1995
	EN61000-3-3: 1995
EMC - EN50082-1	EN61000-4-2: 1995
	EN61000-4-3: 1998
	ENV50204: 1995
	EN61000-4-4: 1995
	EN61000-4-5: 1995
	EN61000-4-6: 1996
	EN61000-4-11: 1994

DRIVE CONNECTORS –MK5002MAL (HDD1242)



Figure 1. MK5002MAL HDD - INTERFACE CONNECTOR

Interface Connector

Drive Side Connector

MCD-D50 Series by DDK Connectors

Recommended Host Side Connector

MCD-D50 Series by DDK Connectors

Interface Signals

DRIVE INTERFACE SIGNALS			
PIN	SIGNAL	PIN	SIGNAL
1	RESET	2	GROUND
3	DD 7	4	DD 8
5	DD 6	6	DD 9
7	DD 5	8	DD 10
9	DD 4	10	DD 11
11	DD 3	12	DD 12
13	DD 2	14	DD 13
15	DD 1	16	DD 14
17	DD 0	18	DD 15
19	GROUND	20	OPEN
21	DMARQ	22	GROUND
23	DIOW/STOP	24	GROUND
25	DIOR/ -DMARDY HSTROBE	26	GROUND
27	IORDY/ -DMARDY/ DSTROBE	28	CSEL
29	DMACK	30	GROUND
31	INTRQ	32	IOCS16
33	DA1	34	PDIAG
35	DA0	36	DA 2
37	CS0	38	CS1
39	DASP	40	GROUND
41	3.3V (LOGIC)	42	3.3V (MOTOR)
43	GROUND	44	RESERVED
<p><i>Note: Symbol () in front of signal indicates negative logic.</i></p>			