TS1GSSD25H-S   TS2GSSD25H-S
TS4GSSD25H-S   TS8GSSD25H-S

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Half-Slim SATA Solid State Disk

Description

Compatible with SATA II 3.0Gb/s standard, due to smaller size, high speed, low power consumption, and great reliability, Transcend's Half-Slim SATA Solid State Disk is the perfect storage device for tablet PC, laptop, and industrial PC.
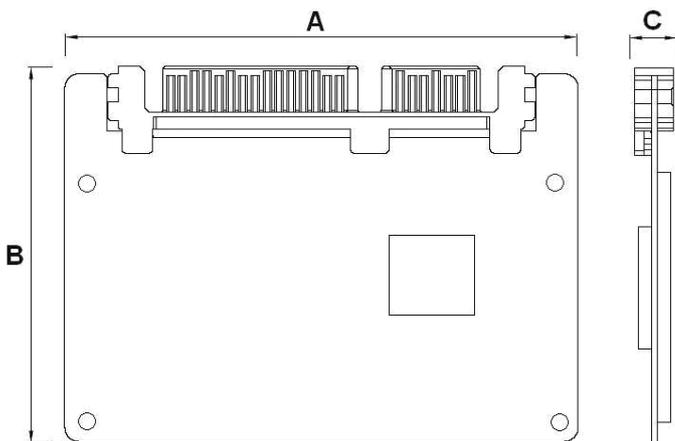
Features

- Fully compatible with devices and OS that support the SATA II 3.0Gb/s standard

- Non-Volatile Flash Memory (SLC) for outstanding data retention and reliability

- Global Wear-Leveling and Block management for reliability

- Built-in ECC (Error Correction Code) functionality

- Shock resistance

- Power Shield to prevent data loss when sudden power off

- Support Security Command

- Compliant with JEDEC MO-297

- RoHS compliant

Placement

Dimensions

Side	Millimeters	Inches
A	54.00 ± 0.15	2.130 ± 0.006
B	39.80 ± 0.30	1.570 ± 0.012
C	4.10 ± 0.15	0.160 ± 0.006

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TS4GSSD25H-S   TS8GSSD25H-S

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**Half-Slim SATA
Solid State Disk**

Specifications

Physical Specification		
Form Factor		2.5'' Half-Slim SATA (JEDEC MO-297)
Storage Capacities		1GB / 2GB / 4GB / 8GB
Dimensions (mm)	**Length**	54.00 ± 0.15
	Width	39.80 ± 0.30
	Height	4.10 ± 0.15
Input Voltage		5V ± 5%
Weight		10 g
Connector		SATA 7+15 pins combo connector

Environmental Specifications		
Operating Temperature		0 ℃ to 70 ℃
Storage Temperature		- 40 ℃ to 85 ℃
Humidity	**Operating**	0% to 95% (Non-condensing)
	Non-Operating	0% to 95% (Non-condensing)

Performance								
	ATTO		**CrystalDiskMark**				**IOmeter**	
Model P/N	**Max. Read** *	**Max. Write** *	**Sequential Read** ***	**Sequential Write** ***	**Random Read** (4KB QD32) ***	**Random Write** (4KB QD32) ***	**IOPS Random Read** (4KB QD32) ****	**IOPS Random Write** (4KB QD32) ****
TS1GSSD25H-S	50	15	50	15	13	0.2	4000	270
TS2GSSD25H-S	95	30	95	30	15	0.7	4000	260
TS4GSSD25H-S	95	60	95	55	15	1.9	4000	510
TS8GSSD25H-S	95	85	95	80	16	2.1	4000	470

Note: Maximum transfer speed recorded
* 25 C, test on ASUS Z87-Pro , 4GB, Windows® 7 with AHCI mode, benchmark utility ATTO (version 2.41), unit MB/s
** 25 C, test on ASUS Z87-Pro, 4GB, Windows® 7 with AHCI mode, benchmark utility CrystalDiskMark (version 3.0), copied file 1000MB, unit MB/s
*** Random read/write performance based on IOmeter2008 with 4K file size and queue depth of 32, unit IOPs
**** The recorded performance is obtained while the SSD is not operating as an OS disk

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TS4GSSD25H-S   **TS8GSSD25H-S**

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Half-Slim SATA
Solid State Disk

Actual Capacity	
Model P/N	**LBA**
TS1GSSD25H-S	1,974,672
TS2GSSD25H-S	3,928,176
TS4GSSD25H-S	7,835,184
TS8GSSD25H-S	15,649,200

Power Consumption		
Input Voltage	5V ± 5%	
Model P/N / Power Consumption		**Typical (mA)**
TS1GSSD25H-S	**Read**	80
	Write	79
	Idle	68
TS2GSSD25H-S	**Read**	105
	Write	106
	Idle	69
TS4GSSD25H-S	**Read**	115
	Write	146
	Idle	70
TS8GSSD25H-S	**Read**	119
	Write	184
	Idle	72

*Tested with IOmeter running sequential reads/writes and idle mode

Reliability		
Data Reliability	Supports BCH ECC 1 bit per 528-byte	
Data Retention	10 years	
MTBF	1,000,000 hours	
Endurance (Terabytes Written)	1GB	30 TBW
	2GB	65 TBW
	4GB	120 TBW
	8GB	215 TBW

Vibration	
Operating	3.0G, 5 - 800Hz
Non-Operating	5.0G, 5 - 800Hz

* Reference to IEC 60068-2-6 Testing procedures; Operating-Sine wave, 5-800Hz/1 oct., 1.5mm, 3g, 0.5 hr./axis, total 1.5 hrs.

Shock	
Operating	1500G, 0.5ms
Non-Operating	1500G, 0.5ms

* Reference to IEC 60068-2-27 Testing procedures; Operating-Half-sine wave, 1500g, 0.5ms, 3 times/dir., total 18 times.

Regulations	
Compliance	CE, FCC and BSMI

Reliability

Global Wear Leveling – Advanced algorithm to enhance the Wear-Leveling Efficiency

There are 3 main processes in global wear leveling approaches:

(1) Record the block erase count and save in the wear-leveling table.

(2) Find the static-block and save it in wear-leveling pointer.

(3) Check the erase count when the block popped from spare pool. If the block erase count is bigger than WEARCNT, then swapped the static-block and over-count-block. After actual test, global wear leveling successfully even the erase count of every block; hence, it can extend the life expectancy of Flash product.

Bad-block management

When the flash encounters ECC failed, program fail or erase fail, the controller will mark the block as bad block to prevent the used of this block and caused data lost later on.

Power Shield

The controller uses intelligent internal power shield logic to prevent data loss when sudden power off or power failure.

Package Dimensions

Below figure illustrates the Transcend Half-Slim Solid State Disk. All dimensions are in mm.

Dimension	Millimeter	Dimension	Millimeter
A1	0.15	A7	54.00
A2	44.93	A8	27.30
A3	4.10	A9	25.00
A4	1.00	A10	2.30
A5	0.80	A11	49.40
A6	39.00	A12	Ø 1.6

MAX GR) RING AREA – 4X

KEEP OUT AREA – K3 DIA. – 4X
(AROUND MOUNTING HOLE)

GROUND RING – K1 DIA. – 4X

MOUNTING HOLE – (K2) DIA. – 4X

B RADIUS – 4X
OPTIONAL

DETAIL U

Symbol	Minimum	Normal	Maximum
K1	2.6	-	2.7
K2	1.6	-	1.7
K3	4.45	4.6	4.75

※ **Compliant with JEDEC MO-297**

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TS4GSSD25H-S   TS8GSSD25H-S

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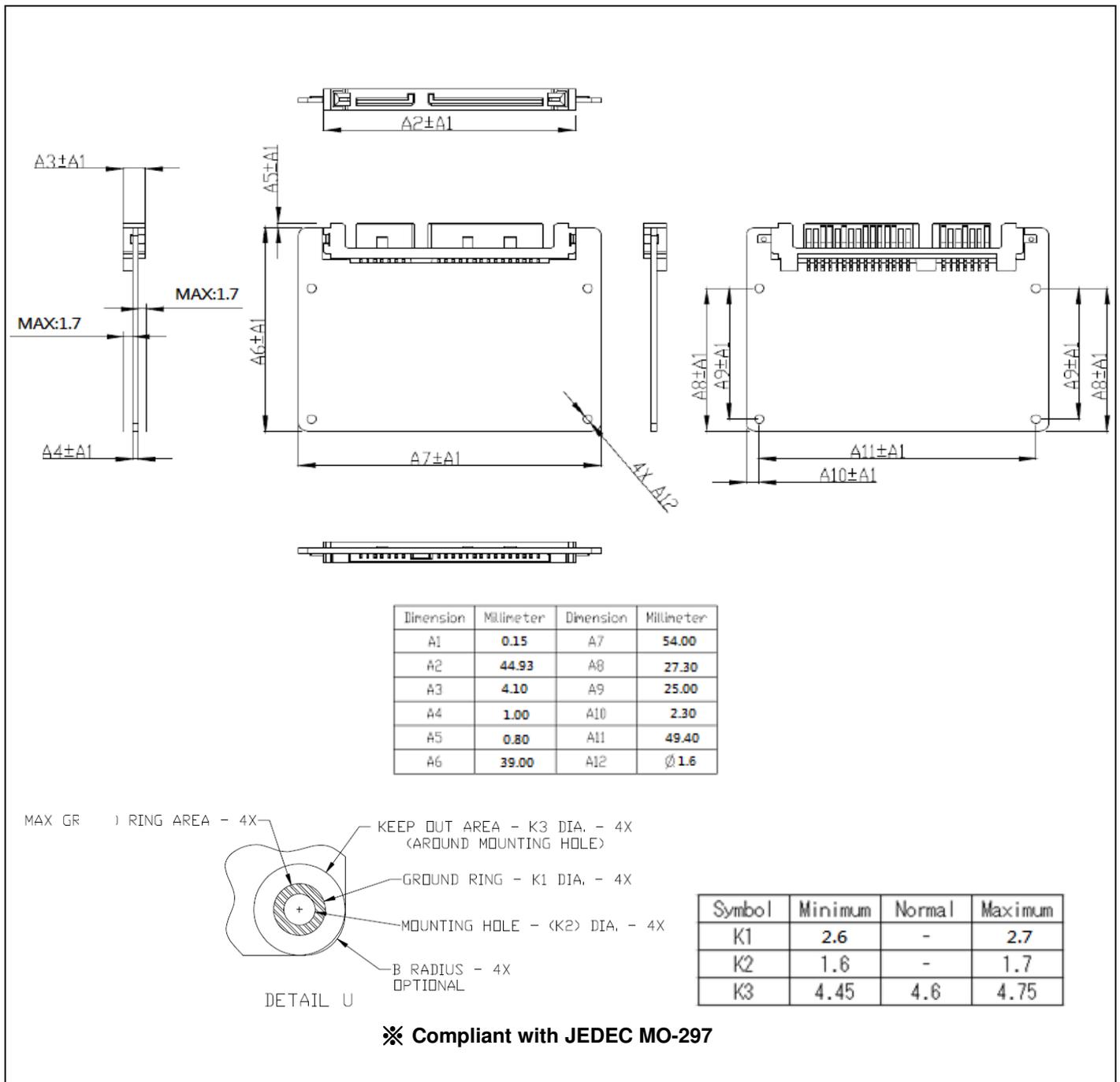
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Solid State Disk**

Pin Assignments

Pin No.	Pin Name	Pin No.	Pin Name
01	GND	02	A+
03	A-	04	GND
05	B-	06	B+
07	GND	08	NC
09	NC	10	NC
11	GND	12	GND
13	GND	14	5V
15	5V	16	5V
17	GND	18	GND
19	GND	20	NC
21	NC	22	NC

Pin Layout
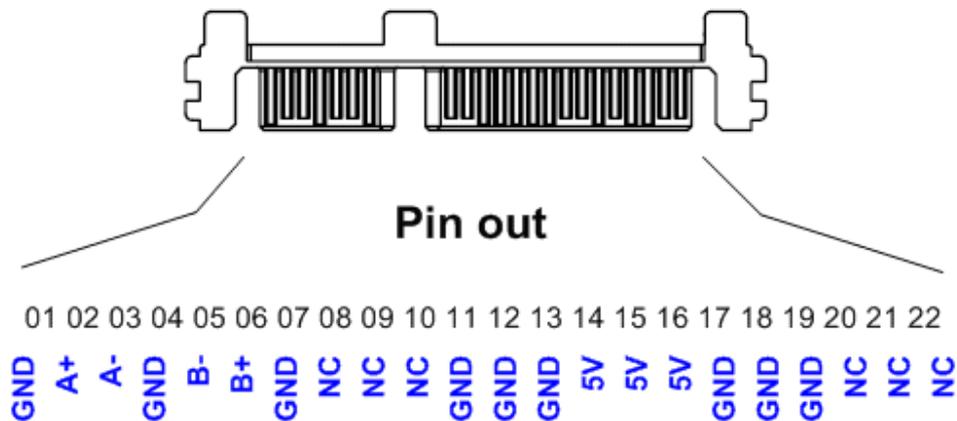
Pin out

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22

GND A+ A- GND B- B+ GND NC NC NC GND GND GND 5V 5V 5V GND GND GND NC NC NC

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Half-Slim SATA
Solid State Disk

Block Diagram

```
                    ┌─────────────────────────────────┐
                    │            SATA Host             │
                    └─────────────────────────────────┘
                                  ↕
        ┌───────────────────────────────────────────────────┐
        │   ┌───────────────────────────────────────────┐   │
        │   │            SATA Interface                  │   │
        │   └───────────────────────────────────────────┘   │
        │                SSD Controller                      │
        │   ┌───────────────────────────────────────────┐   │
        │   │            Flash Interface                 │   │
        │   └───────────────────────────────────────────┘   │
        │      ↕           ↕           ↕           ↕         │
        │  ┌───────┐   ┌───────┐   ┌───────┐   ┌───────┐     │
        │  │ NAND  │   │ NAND  │   │ NAND  │   │ NAND  │     │
        │  │ Flash │   │ Flash │   │ Flash │   │ Flash │     │
        │  └───────┘   └───────┘   └───────┘   └───────┘     │
        └───────────────────────────────────────────────────┘
```

TS1GSSD25H-S   **TS2GSSD25H-S**
TS4GSSD25H-S   **TS8GSSD25H-S**
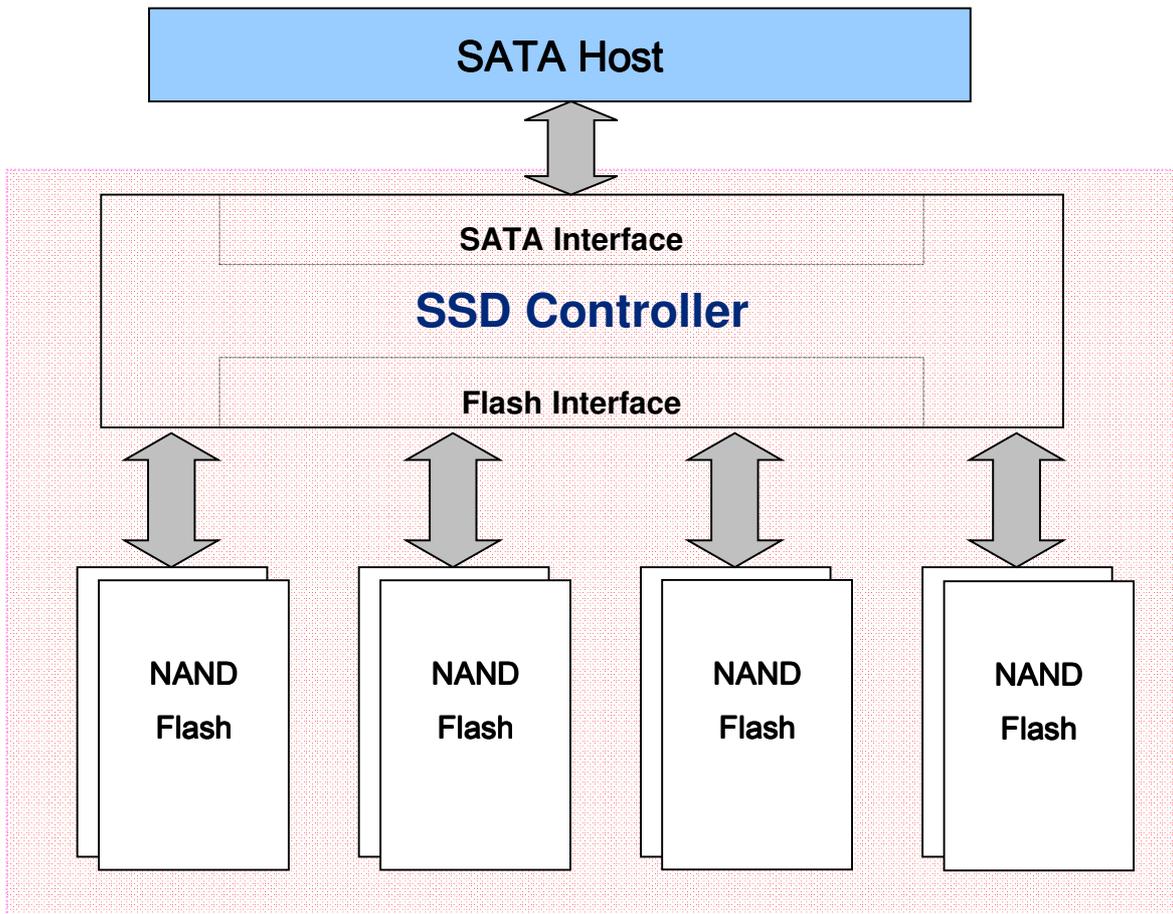
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**Half-Slim SATA
Solid State Disk**

Power Sequence

Below figure illustrates the Transcend Half-Slim SSD power sequence.

1. Shut down the input power.

2. Power on reset pull low.

3. Wait for the drive to static state.

4. Turn on the input power.

5. Power on to ready pull high.
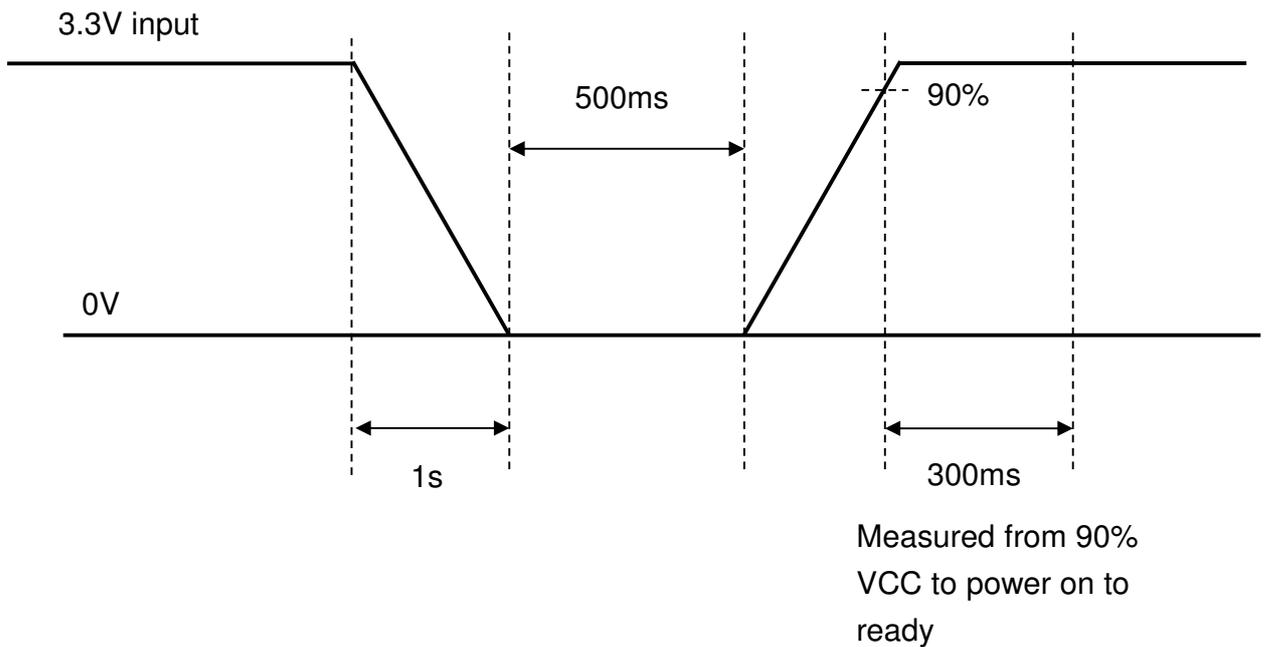
*The actual value may vary depend on device capacity and system environment.

ATA command register

This table with the following paragraphs summarizes the ATA command set.

Support ATA/ATAPI Command	Code	Protocol
General Feature Set		
EXECUTE DIAGNOSTICS	90h	Device diagnostic
FLUSH CACHE	E7h	Non-data
IDENTIFY DEVICE	ECh	PIO data-In
READ DMA	C8h	DMA
READ MULTIPLE	C4h	PIO data-In
READ SECTOR(S)	20h	PIO data-In
READ VERIFY SECTOR(S)	40h or 41h	Non-data
SET FEATURES	EFh	Non-data
SET MULTIPLE MODE	C6h	Non-data
WRITE DMA	CAh	DMA
WRITE MULTIPLE	C5h	PIO data-out
WRITE SECTOR(S)	30h	PIO data-out
NOP	00h	Non-data
READ BUFFER	E4h	PIO data-In
WRITE BUFFER	E8h	PIO data-out
Power Management Feature Set		
CHECK POWER MODE	E5h or 98h	Non-data
IDLE	E3h or 97h	Non-data
IDLE IMMEDIATE	E1h or 95h	Non-data
SLEEP	E6h or 99h	Non-data
STANDBY	E2h or 96h	Non-data
STANDBY IMMEDIATE	E0h or 94h	Non-data
Security Mode Feature Set		
SECURITY SET PASSWORD	F1h	PIO data-out
SECURITY UNLOCK	F2h	PIO data-out
SECURITY ERASE PREPARE	F3h	Non-data
SECURITY ERASE UNIT	F4h	PIO data-out
SECURITY FREEZE LOCK	F5h	Non-data
SECURITY DISABLE PASSWORD	F6h	PIO data-out
SMART Feature Set		
SMART Disable Operations	B0h	Non-data
SMART Enable/Disable Autosave	B0h	Non-data
SMART Enable Operations	B0h	Non-data
SMART Return Status	B0h	Non-data
SMART Execute Off-Line Immediate	B0h	Non-data
SMART Read Data	B0h	PIO data-In
Host Protected Area Feature Set		
Read Native Max Address	F8h	Non-data
Set Max Address	F9h	Non-data
Set Max Set Password	F9h	PIO data-out
Set Max Lock	F9h	Non-data
Set Max Freeze Lock	F9h	Non-data

Set Max Unlock	F9h	PIO data-out
48-bit Address Feature Set		
Flush Cache Ext	EAh	Non-data
Read Sector(s) EXt	24h	PIO data-In
Read DMA Ext	25h	DMA
Read Multiple Ext	29h	PIO data-In
Read Native Max Address Ext	27h	Non-data
Read Verify Sector(s) Ext	42h	Non-data
Set Max Address Ext	37h	Non-data
Write DMA Ext	35h	DMA
Write DMA FUA Ext	3Dh	DMA
Write Multiple Ext	39h	PIO data-out
Write Multiple FUA Ext	CEh	PIO data-out
Write Sector(s) Ext	34h	PIO data-out

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TS4GSSD25H-S   **TS8GSSD25H-S**

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Half-Slim SATA
Solid State Disk

ATA Command Specifications

FLUSH CACHE (E7h)

This command is used by the host to request the device to flush the write cache. If there is data in the write cache, that data shall be written to the media. The BSY bit shall remain set to one until all data has been successfully written or an error occurs.

IDENTIFY DEVICE (ECh)

This commands read out 512Bytes of drive parameter information. Parameter Information consists of the arrangement and value as shown in the following table. This command enables the host to receive the Identify Drive Information from the device.

READ DMA (C8h)

Read data from sectors during Ultra DMA and Multiword DMA transfer. Use the SET FEATURES command to specify the mode value. A sector count of zero requests 256 sectors.

READ MULTIPLE (C4h)

This command performs similarly to the Read Sectors command. Interrupts are not generated on each sector, but on the transfer of a block which contains the number of sectors defined by a Set Multiple command.

READ SECTOR(S) (20h)

This command reads 1 to 256 sectors as specified in the Sector Count register from sectors which is set by Sector number register. A sector count of 0 requests 256 sectors. The transfer beings specified in the Sector Number register.

READ VERIFY SECTOR(S) (40h/41h)

This command verifies one or more sectors on the drive by transferring data from the flash media to the data buffer in the drive and verifying that the ECC is correct. This command is identical to the Read Sectors command, except that DRQ is never set and no data is transferred to the host.

SET FEATURES (EFh)

This command set parameter to Features register and set drive's operation. For transfer mode, parameter is set to Sector Count register. This command is used by the host to establish or select certain features.

SET MULTIPLE MODE (C6h)

This command enables the device to perform READ MULTIPLE and WRITE MULTIPLE operations and establishes the block count for these commands.

WRITE DMA (CAh)

Write data to sectors during Ultra DMA and Multiword DMA transfer. Use the SET FEATURES command to specify the mode value.

WRITE MULTIPLE (C5h)

This command is similar to the Write Sectors command. Interrupts are not presented on each sector, but on the transfer of a block which contains the number of sectors defined by Set Multiple command.

WRITE SECTOR(S) (30h)

Write data to a specified number of sectors (1 to 256, as specified with the Sector Count register) from the specified address. Specify "00h" to write 256 sectors.

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TS4GSSD25H-S   **TS8GSSD25H-S**

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NOP (00h)

The device shall respond with command aborted. For devices implementing the Overlapped feature set, subcommand code 00h in the Features register shall abort any outstanding queue. Subcommand codes 01h through FFh in the Features register shall not affect the status of any outstanding queue.

READ BUFFER (E4h)

The READ BUFFER command enables the host to read a 512-byte block of data.

WRITE BUFFER (E8h)

This command enables the host to write the contents of one 512-byte block of data to the device's buffer.

Power Management Feature Set

CHECK POWER MODE (E5h or 98h)
The host can use this command to determine the current power management mode.

IDLE (E3h or 97h)

This command causes the device to set BSY, enter the Idle mode, clear BSY and generate an interrupt. If sector count is non-zero, the automatic power down mode is enabled. If the sector count is zero, the automatic power mode is disabled.

IDLE IMMEDIATE (E1h or 95h)
This command causes the device to set BSY, enter the Idle(Read) mode, clear BSY and generate an interrupt.

SLEEP (E6h or 99h)
This command causes the device to set BSY, enter the Sleep mode, clear BSY and generate an interrupt.

STANDBY (E2h or 96h)
This command causes the device to set BSY, enter the Sleep mode (which corresponds to the ATA "Standby" Mode), clear BSY and return the interrupt immediately.

STANDBY IMMEDIATE (E0h or 94h)
This command causes the drive to set BSY, enter the Sleep mode (which corresponds to the ATA "Standby" Mode), clear BSY and return the interrupt immediately.

TS1GSSD25H-S   **TS2GSSD25H-S**

TS4GSSD25H-S   **TS8GSSD25H-S**

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Security Mode Feature Set

SECURITY SET PASSWORD (F1h)

This command set user password or master password. The host outputs sector data with PIO data-out protocol to indicate the information defined in the following table.

Security set Password data content1

Word	Content		
0	Control word		
	Bit 0	Identifier	0=set user password
			1=set master password
	Bits 1-7	Reserved	
	Bit 8	Security level	0=High
			1=Maximum
	Bits 9-15	Reserved	
1-16	Password (32 bytes)		
17-255	Reserved		

SECURITY UNLOCK (F2h)

This command disables LOCKED MODE of the device. This command transfers 512 bytes of data from the host with PIO data-out protocol. The following table defines the content of this information

Security Unlock information2

Word	Content		
0	Control word		
	Bit 0	Identifier	0=compare user password
			1=compare master password
	Bits 1-15	Reserved	
1-16	Password (32 bytes)		
17-255	Reserved		

SECURITY DISABLE PASSWORD (F6h)

Disables any previously set user password and cancels the lock. The host transfers 512 bytes of data, as shown in the following table, to the drive. The transferred data contains a user or master password, which the drive compares with the saved password. If they match, the drive cancels the lock. The master password is still saved. It is re-enabled by issuing the SECURITY SET PASSWORD command to re-set a user password.

SECURITY ERASE PREPARE (F3h)

This command shall be issued immediately before the Security Erase Unit command to enable erasing and unlocking. This command prevents accidental loss of data on the drive.

SECURITY ERASE UNIT (F4h)

The host uses this command to transfer 512 bytes of data, as shown in the following table, to the drive. The transferred data contains a user or master password, which the drive compares with the saved password. If they match, the drive deletes user data, disables the user password, and cancels the lock. The master password is still saved. It is re-enabled by issuing the SECURITY SET PASSWORD command to re-set a user password.

SECURITY FREEZE LOCK (F5h)

Causes the drive to enter Frozen mode. Once this command has been executed, the following commands to update a lock result in the Aborted Command error:

• SECURITY SET PASSWORD

• SECURITY UNLOCK

• SECURITY DISABLE PASSWORD

• SECURITY ERASE PREPARE

• SECURITY ERASE UNIT

The drive exits from Frozen mode upon a power-off or hard reset. If the SECURITY FREEZE LOCK command is issued when the drive is placed in Frozen mode, the drive executes the command, staying in Frozen mode.

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**Half-Slim SATA
Solid State Disk**

Identify Device Information Default Value

Word Address	Default Value	Total Bytes	Data Field Type Information
0	044Ah	2	General configuration
1	XXXXh	2	Default number of cylinders
2	0000h	2	Reserved
3	00XXh	2	Default number of heads
4	0000h	2	Obsolete
5	0240h	2	Obsolete
6	XXXXh	2	Default number of sectors per track
7-8	XXXXh	4	Number of sectors per card (Word 7 = MSW, Word 8 = LSW)
9	0000h	2	Obsolete
10-19	XXXXh	20	Serial number in ASCII (Right Justified)
20	0002h	2	Obsolete
21	0002h	2	Obsolete
22	0004h	2	Obsolete
23-26	XXXXh	8	Firmware revision in ASCII. Big Endian Byte Order in Word
27-46	XXXXh	40	Model number in ASCII (Left Justified) Big Endian Byte Order in Word
47	8001h	2	Maximum number of sectors on Read/Write Multiple command
48	0000h	2	Reserved
49	0F00h	2	Capabilities
50	4000h	2	Capabilities
51	0200h	2	PIO data transfer cycle timing mode
52	0000h	2	Obsolete
53	0007h	2	Field Validity
54	XXXXh	2	Current numbers of cylinders
55	00XXh	2	Current numbers of heads
56	XXXXh	2	Current sectors per track
57-58	XXXXh	4	Current capacity in sectors (LBAs)(Word 57 = LSW, Word 58 = MSW)
59	01XXh	2	Multiple sector setting
60-61	XXXXh	4	Total number of sectors addressable in LBA Mode
62	0000h	2	Reserved
63	0007h	2	Multiword DMA transfer. Supports MDMA Mode 0,1,and 2
64	0003h	2	Advanced PIO modes supported
65	0078h	2	Minimum Multiword DMA transfer cycle time per word. In PC Card modes this value shall be 0h
66	0078h	2	Recommended Multiword DMA transfer cycle time. In PC Card modes this value shall be 0h
67	0078h	2	Minimum PIO transfer cycle time without flow control

Word Address	Default Value	Total Bytes	Data Field Type Information
68	0078h	2	Minimum PIO transfer cycle time with IORDY flow control
69-74	0000h	12	Reserved
75	0000h	2	Queue depth
76	0006h	2	Serial ATA capacities · Support Serial ATA Gen1 · Support Serial ATA Gen2
77	0000h	2	Reserved
78	0008h	2	Device supports initiating interface power management
79	0000h	2	Reserved
80	0080h	2	Major version number (ATA8-ACS)
81	0000h	2	Minor version number
82	742Bh	2	Command sets supported 0
83	5500h	2	Command sets supported 1
84	4002h	2	Command sets supported 2
85-87	XXXXh	6	Features/command sets enabled
88	407Fh	2	Ultra DMA Mode Supported and Selected
89	0003h	2	Time required for Security erase unit completion
90	0000h	2	Time required for Enhanced security erase unit completion
91	0000h	2	Current Advanced power management value
92	FFFEh	2	Master Password Revision Code
93-127	0000h	70	Reserved
128	0001h	2	Security status
129-159	0000h	64	Vendor unique bytes
160	0000h	2	Power requirement description
161	0000h	2	Reserved
162	0000h	2	Key management schemes supported
163	0000h	2	CF Advanced True IDE Timing Mode Capability and Setting
164-216	0000h	106	Reserved
217	0001h	2	Non-rotating media (SSD)
218-255	0000h	140	Reserved

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TS4GSSD25H-S   **TS8GSSD25H-S**

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**Half-Slim SATA
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SMART Command Support

Value	Command	Value	Command
D0h	Read Data	D5h	Reserved
D1h	Read Attribute Threshold	D6h	Reserved
D2h	Enable/Disable Autosave	D8h	Enable SMART Operations
D3h	Save Attribute Values	D9h	Disable SMART Operations
D4h	Execute OFF-Line Immediate	DAh	Return Status

If the reserved size is below a threshold, status can be read from the Cylinder Register using the Return Status command (DAh).

SMART DATA Structure

BYTE	F / V	Description
0-1	X	Revision code
2-361	X	Vendor specific
362	V	Off-line data collection status
363	X	Self-test execution status byte
364-365	V	Total time in seconds to complete off-line data collection activity
366	X	Vendor specific
367	F	Off-line data collection capability
368-369	F	SMART capability
370	F	Error logging capability 7-1 Reserved 0 1=Device error logging supported
371	X	Vendor specific
372	F	Short self-test routine recommended polling time (in minutes)
373	F	Extended self-test routine recommended polling time (in minutes)
374	F	Conveyance self-test routine recommended polling time (in minutes)
375-385	R	Reserved
386-395	F	Firmware Version/Date Code
396-397	F	Reserved
398-399	F	Reserved
400-406	F	'SMI2244LT'

Half-Slim SATA
Solid State Disk

407-415	X	Vendor specific
416	F	Reserved
417	F	Program/write the strong page only
418-419	V	Number of spare block
420-423	V	Average Erase Count
424-510	X	Vendor specific
511	V	Data structure checksum

F=the content of the byte is fixed and does not change.

V=the content of the byte is variable and may change depending on the state of the device or the commands
   executed by the device.

X=the content of the byte is vendor specific and may be fixed or variable.

R=the content of the byte is reserved and shall be zero.

* 4 Byte value : [MSB] [2] [1] [LSB]

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**Half-Slim SATA
Solid State Disk**

SMART Attributes

Attribute ID (hex)	Raw Attribute Value						Attribute Name
01	MSB	00	00	00	00	00	Read Error Rate
05	LSB	MSB	00	00	00	00	Reallocated sectors count
09	LSB	MSB	00	00	00	00	Reserved
0C	LSB	MSB	00	00	00	00	Power Cycle Count
A0	LSB			MSB	00	00	Uncorrectable sectors count when read/write
A1	LSB	MSB	00	00	00	00	Number of valid spare blocks
A2	LSB	MSB	00	00	00	00	Number of Child pair
A3	LSB	MSB	00	00	00	00	Number of initial invalid blocks
A4	LSB			MSB	00	00	Total erase count
A5	LSB			MSB	00	00	Maximum erase count
A6	LSB			MSB	00	00	Minimum erase count
A7	LSB			MSB	00	00	Average erase count
C0	LSB			MSB	00	00	Power-off retract Count
C2	MSB	00	00	00	00	00	Controlled temperature
C3	LSB			MSB	00	00	Hardware ECC recovered
C4	LSB			MSB	00	00	Reallocation event count
C6	LSB			MSB	00	00	Reserved
C7	LSB	MSB	00	00	00	00	UltraDMA CRC Error Count
F1	LSB			MSB	00	00	Total LBA written (each write unit = 32MB)
F2	LSB			MSB	00	00	Total LBA read (each read unit = 32MB)

TS1GSSD25H-S   **TS2GSSD25H-S**
TS4GSSD25H-S   **TS8GSSD25H-S**

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Half-Slim SATA
Solid State Disk

Ordering Information

TS XG SSD 25H - S

Transcend Product

Capacity
1GB to 8GB

Solid State Disk

Form Factor
25H=Half-Slim SATA

SLC flash
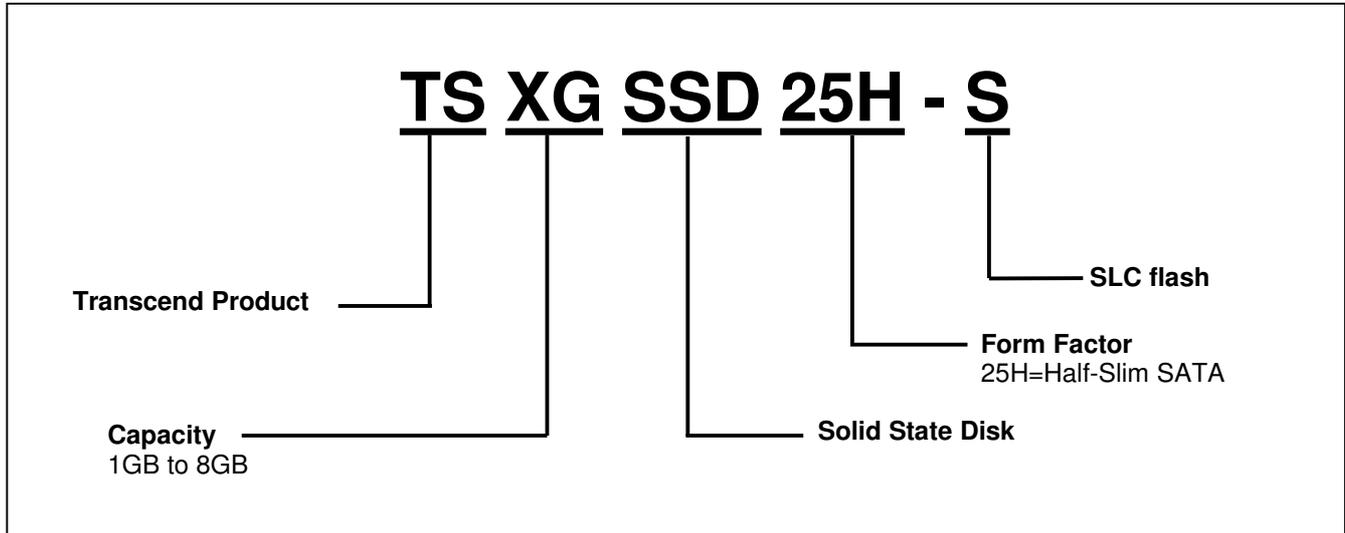
The above technical information is based on industry standard data and has been tested to be reliable. However, Transcend makes no warranty, either expressed or implied, as to its accuracy and assumes no liability in connection with the use of this product. Transcend reserves the right to make changes to the specifications at any time without prior notice.

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TS1GSSD25H-S   **TS2GSSD25H-S**

TS4GSSD25H-S   **TS8GSSD25H-S**

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**Half-Slim SATA
Solid State Disk**

Revision History			
Version	**Date**	**Modification Content**	**Modified Page**
V2.0	2014/06/06	Initial release	
V2.1	2015/06/04	1.Change SMART DATA structure byte400-406 to 'SMI2244LT' 2.Add SMART attributes	P17 P18~P19
V2.2	2015/06/10	1.Update ID table/SMART table 2.Modify ECC bits	P4~P19