

## > SG5 SERIES CLIENT SSD

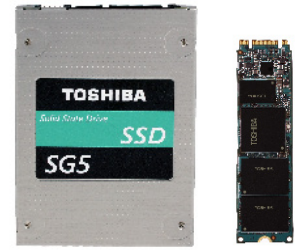
SG5 series are Client SSDs using Toshiba TLC NAND flash memory.

Delivering a storage capacity up to 1,024GB and a 6.0 Gbit/s SATA interface, the SG5 SSDs are engineered for desktop and notebook PCs.

Further features of the series include QSBC ECC technology from Toshiba for error correction and reliability.

The versatile SG5 SSD family is also available in thin, space saving M.2 2280 form factor and standard 2.5-inch type case.

## SSD



Product image may represent a design model

### > KEY FEATURES

- Capacities up to 1024GB
- 3-bit-per-cell NAND Flash Memory
- SATA 6.0 Gbit/s interface
- 2.5-inch and M.2 2280 form factor options
- Toshiba Proprietary Quadruple Swing-By Code (QSBC) ECC

### > APPLICATIONS

- Desktop PCs
- Notebook PCs

### > SPECIFICATIONS

Standard Models		2.5-inch	M.2 2280-S2 (Single-sided)	M.2 2280-D2 (Double-Sided)
Memory		TOSHIBA TLC NAND Flash Memory		
Interface		SATA revision 3.2		
Maximum Speed		6 Gbit/s, 3 Gbit/s, 1.5 Gbit/s		
Connector Type		Standard SATA	M.2 B-M	
Formatted Capacity <sup>1)</sup>		128/256/512/1024 GB	128/256/512 GB	1024 GB
Command		ACS-3		
Performance <sup>1),2)</sup>	Sequential Read	up to 545 MB/s {520 MiB/s}		
	Sequential Write	up to 387 MB/s {370 MiB/s}		
Sector Size		Advanced Format: 4K physical sectors with 512 byte emulation (512e)		
Supply Voltage		5.0 V ±5 %	3.3 V ±5 %	
Power Consumption		Active: 5.6 W typ. Idle: 70 mW typ.	Active: 4.0 W typ. Idle: 65 mW typ.	Active: 5.5 W typ. Idle: 65 mW typ.
Temperature		Operating: 0 °C - 70 °C (case temperature) Non-operating: -40 °C - 85 °C	Operating: 0 °C - 80 °C (components temperature) Non-operating: -40 °C - 85 °C	
Reliability <sup>3)</sup>		Mean Time to Failure (MTTF): 1,500,000 hours Product Life: Approximately 5 years		
Size		100.0 mm x 69.85 mm x 7.0 mm	80.0 mm x 22.0 mm x 2.23 mm	80.0 mm x 22.0 mm x 3.58 mm
Weight		48 - 51 g typ.	7 g typ.	8.7 g typ.
More Features		Toshiba's proprietary error-correction technology, QSBC support. Read only mode supported for emergency.		
Compliance		UL/cUL, TÜV, KC, FCC, BSMI, CE, RCM, ISED, VCCI		

Refer to the notes on the next page

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- 1) Definition of capacity: Toshiba defines a megabyte (MB) as 1,000,000 bytes, a gigabyte (GB) as 1,000,000,000 bytes and a terabyte (TB) as 1,000,000,000,000 bytes. A computer operating system, however, reports storage capacity using powers of 2 for the definition of 1GB =  $2^{30}$  = 1,073,741,824 bytes and therefore shows less storage capacity. Available storage capacity (including examples of various media files) will vary based on file size, formatting, settings, software and operating system, such as Microsoft Operating System and/or pre-installed software applications, or media content. Actual formatted capacity may vary.
- 2) A kibibyte (KiB) means  $2^{10}$ , or 1,024 bytes, a mebibyte (MiB) means  $2^{20}$ , or 1,048,576 bytes, and a gibibyte (GiB) means  $2^{30}$ , or 1,073,741,824 bytes.
- 3) MTTF (Mean Time to Failure) is not a guarantee or estimate of product life; it is a statistical value related to mean failure rates for a large number of products which may not accurately reflect actual operation. Actual operating life of the product may be different from the MTTF.

\* Product image may represent a design model.

\* Read and write speed may vary depending on the host device, read and write conditions, and file size.

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## > ORDERING INFORMATION

THN SX X XXXX X X X  
1 2 3 4 5 6 7

1. Model Name THN: Toshiba NAND drive
2. Model Type SN: Non-SED
3. Controller Type K: Type K
4. Capacity 128G / 256G / 512G / 1T02  
128G is 128 GB, 256G is 256 GB, 512G is 512 GB and 1T02 is 1024 GB  
(1 GB = 1,000,000,000 bytes)
5. Form Factor C: 2.5-inch (7.0 mm height)  
V: M.2 2280-S2 Module type (Single Side)  
D: M.2 2280-D2 Module type (Double Side)
6. Host I/F Type S: Standard SATA, N: M.2 B-M SATA type
7. NAND Type 8: TLC

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## > PRODUCT LINE UP

Model Number	Formatted Capacity	Interface	Function Note
THNSNK128GCS8	128 GB	2.5-inch Specification Revision	Non-SED
THNSNK256GCS8	256 GB		
THNSNK512GCS8	512 GB		
THNSNK1T02CS8	1024GB		
THNSNK128GVN8	128 GB	M.2 Type 2280-S2 <sup>1)</sup> -B-M module	
THNSNK256GVN8	256 GB		
THNSNK512GVN8	512 GB		
THNSNK1T02DN8	1024GB	M.2 Type 2280-D2 <sup>2)</sup> -B-M module	

1) Single Side, 2) Double Side

## > CAPACITY

Capacity	Total Number of User Addressable Sectors in LBA Mode
128 GB	250,069,680
256 GB	500,118,192
512 GB	1,000,215,216
1024 GB	2,000,409,264

Note: 1 GB (Gigabyte) = 1,000,000,000 bytes, Bytes per sector: 512 bytes

## > PERFORMANCE

	THNSNK128GCS8 THNSNK128GVN8	THNSNK256GCS8 THNSNK256GVN8 THNSNK512GVN8	THNSNK512GCS8 THNSNK1T02CS8 THNSNK1T02DN8
Interface Speed	6 Gbit/s max.		
Sequential Read <sup>1)</sup>	up to 545 MB/s {520 MiB/s}		
Sequential Write <sup>1)</sup>	up to 136 MB/s {130 MiB/s}	up to 262 MB/s {250 MiB/s}	up to 387 MB/s {370 MiB/s}

1) Under the condition of measurement with 128 KiB unit sequential access (1 KiB = 1024 bytes)

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## > SUPPLY VOLTAGE

	2.5-inch	M.2 2280 Module
Allowable voltage	5.0 V $\pm$ 5 %	3.3 V $\pm$ 5 %
Allowable noise/ripple	100 mV p-p or less	
Allowable supply rise time	2 –100 ms	

Note: These drives have over current protection circuit. (Rated current: 3.15A)

## > POWER CONSUMPTION

Operation (Ta <sup>1)</sup> =25°C)	2.5-inch			
	THNSNK128GCS8	THNSNK256GCS8	THNSNK512GCS8	THNSNK1T02CS8
Read <sup>2)</sup>	2.5 W typ.	2.5 W typ.	2.6 W typ.	2.7 W typ.
Write <sup>2)</sup>	2.8 W typ.	4.3 W typ.	5.5 W typ.	5.6 W typ.
Idle <sup>3) 4)</sup>	65 mW typ.	65 mW typ.	65 mW typ.	70 mW typ.
Standby <sup>3) 4)</sup>	60 mW typ.	60 mW typ.	65 mW typ.	70 mW typ.
Sleep <sup>3)</sup>	60 mW typ.	60 mW typ.	65 mW typ.	70 mW typ.
DevSleep	6 mW max.	6 mW max.	6 mW max.	6 mW max.

Operation (Ta <sup>1)</sup> =25°C)	M.2 2280 Module			
	THNSNK128GVN8	THNSNK256GVN8	THNSNK512GVN8	THNSNK1T02DN8
Read <sup>2)</sup>	2.3 W typ.	2.4 W typ.	2.5 W typ.	2.5 W typ.
Write <sup>2)</sup>	2.7 W typ.	3.8 W typ.	4.0 W typ.	5.5 W typ.
Idle <sup>3) 4)</sup>	65 mW typ.	65 mW typ.	65 mW typ.	65 mW typ.
Standby <sup>3) 4)</sup>	60 mW typ.	60 mW typ.	60 mW typ.	60 mW typ.
Sleep <sup>3)</sup>	60 mW typ.	60 mW typ.	60 mW typ.	60 mW typ.
DevSleep	5 mW max.	5 mW max.	5 mW max.	5 mW max.

1) Ambient Temperature

2) The values are specified at the condition causing maximum power consumption.

3) The values are based on using SATA power management features. The Slumber mode is used for the power consumption measurements.

4) The drive may internally write to NAND flash memory, while the drive is in idle or standby. Therefore, drive power consumption may temporarily change up to write power.

## ENVIRONMENTAL CONDITIONS

### > TEMPERATURE

Condition	Range		Gradient
	2.5-inch	M.2 2280 Module	
Operating <sup>1)</sup>	0 °C (Tc) – 70 °C (Tc)	0°C (Tc) – 80°C (Tc)	30 °C (Ta) / h maximum
Non-operating	-40 °C – 85 °C		30 °C / h maximum
Under Shipment <sup>2)</sup>	-40 °C – 85 °C		30 °C / h maximum

1) Ta: Ambient Temperature, Tc: Case or Components Temperature

2) Packaged in Toshiba's original shipping package

### > HUMIDITY

Condition	Range
Operating	8 % – 90 % R.H. (No condensation)
Non-operating	8 % – 95 % R.H. (No condensation)
Under Shipment <sup>1)</sup>	5 % – 95 % R.H.

1) Packaged in Toshiba's original shipping package

### > SHOCK

Condition	Range
Operating	14.709 km/s <sup>2</sup> {1500 G}, 0.5 ms, half sine wave
Non-operating	
Under Shipment <sup>1)</sup>	100 cm free drop

1) Apply shocks in each direction of the drive's three mutually perpendicular axes, one axis at a time.  
Packaged in Toshiba's original shipping package.

### > VIBRATION

Condition	Range
Operating	196 m/s <sup>2</sup> {20 G} Peak, 10 - 2,000 Hz (20 minutes per axis) x 3 axis
Non-operating	

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## COMPLIANCE

### > SAFETY / EMI STANDARDS

Title	Description	Region
UL (Underwriters Laboratories)	UL 60950-1	USA
cUL (Underwriters Laboratories of Canada)	CSA-C22.2 No.60950-1	Canada
TÜV (Technischer Überwachungs Verein)	EN 60950-1	EURO
KC	KN22, KN24	Korea
FCC	FCC part 15 Subpart B	USA
BSMI (Bureau of Standards, Metrology and Inspection)	CNS13438(CISPR Pub. 22)	Taiwan
CE	EN 55022, EN 55024	EURO
RCM	AS/NZS CISPR Pub. 22	Australia, New Zealand
ISED	ICES-003	Canada
VCCI	Class B	Japan

### > RELIABILITY

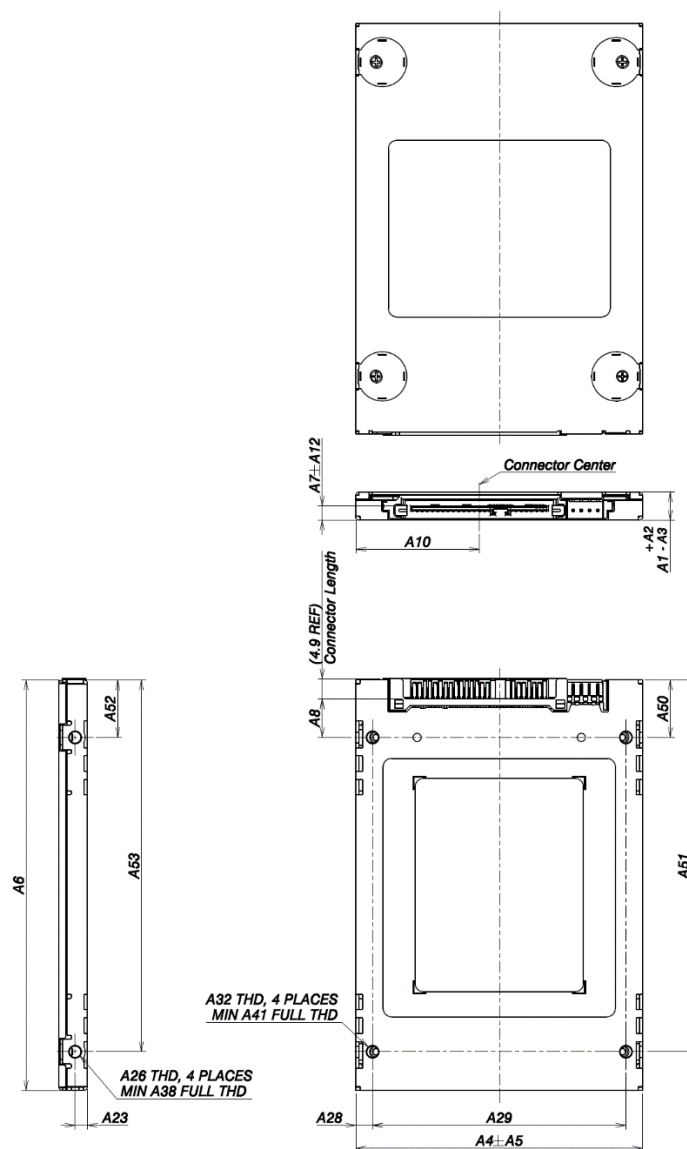
Parameter	Value
Mean Time to Failure	1,500,000 hours
Product Life	Approximately 5 years

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## MECHANICAL SPECIFICATIONS

### > 2.5-INCH

	Model	Weight	Width	Height	Length
7.0 mm	THNSNK128GCS8	48 g typ.	69.85 mm	7.0 mm	100.0 mm
	THNSNK256GCS8	50 g typ.			
	THNSNK512GCS8	51 g typ.			
	THNSNK1T02CS8				



**Figure 1: 2.5-inch Drive Dimension**

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## > 2.5-INCH DIMENSIONS

Dimension	SFF-8200 Rev3.2 <sup>1)</sup> SFF-8201 Rev3.3 SFF-8223 Rev2.5		Toshiba SG5 SSD (Differences only)	
	Millimeters	Inches	Millimeters	Inches
A1	7.00	0.276		
A2	0.20	0.008		
A3	0.50	0.020		
A4	69.85	2.750		
A5	0.25	0.010		
A6 <sup>2)</sup>	100.45 *	3.955 *	100.00 ± 0.41	3.937 ± 0.016
A7	3.5	0.138		
A8	9.40	0.370	9.40 ± 0.51	0.370 ± 0.020
A10 <sup>3)</sup>	-	-	30.125 ± 0.28	1.186 ± 0.011
A12	0.38	0.015		
A23	3.00	0.118	3.00 ± 0.20	0.118 ± 0.007
A26	M3	N/A		
A28	4.07	0.160	4.07 + 0.295/-0.305	0.060 +0.011/-0.012
A29	61.72	2.430	61.72 ± 0.25	2.430 ± 0.010
A32	M3	N/A		
A38	3 #	3 #		
A41	2.5 #	2.5 #		
A50 <sup>2)</sup>	14.00	0.551	14.00 ± 0.25	0.551 ± 0.010
A51 <sup>2)</sup>	90.60	3.567	90.60 ± 0.30	3.567 ± 0.012
A52 <sup>2)</sup>	14.00	0.551	14.00 ± 0.25	0.551 ± 0.010
A53 <sup>2)</sup>	90.60	3.567	90.60 ± 0.30	3.567 ± 0.012

\* = maximum

# = minimum number of threads

- 1) SFF-8200: Small Form Factor Standard
- 2) PCB, Connector not included
- 3) Connector center defined is the same as SFF-8223

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> M.2 2280 MODULE

Model	Weight	Width	Height	Length
THNSNK128GVN8	7.0 g typ.	22.0 mm	2.23 mm	80.0 mm
THNSNK256GVN8				
THNSNK512GVN8			3.58 mm	
THNSNK1T02DN8	8.7 g typ.			

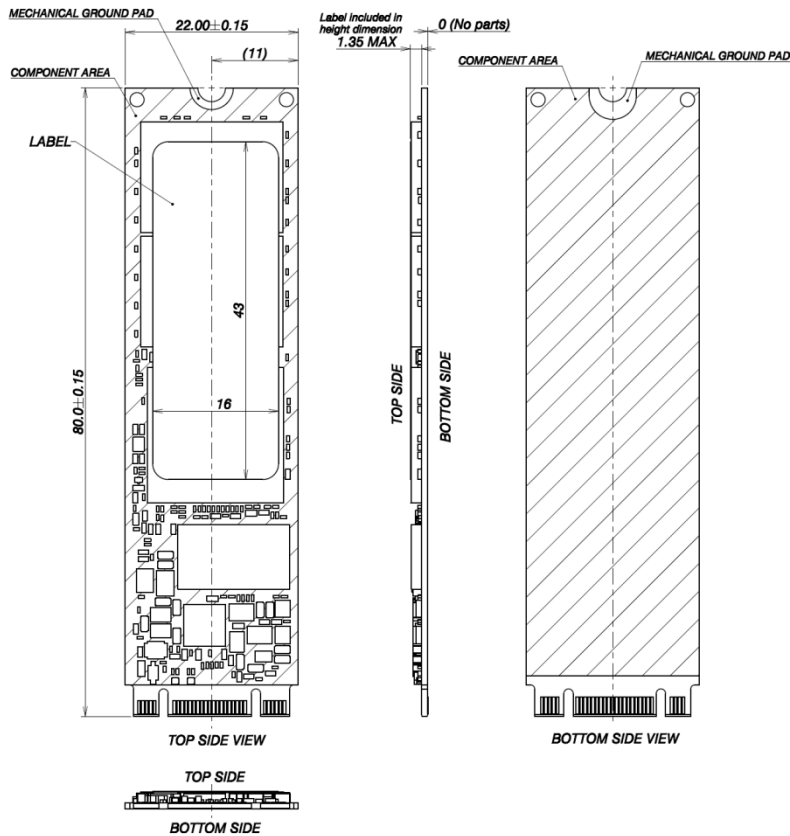
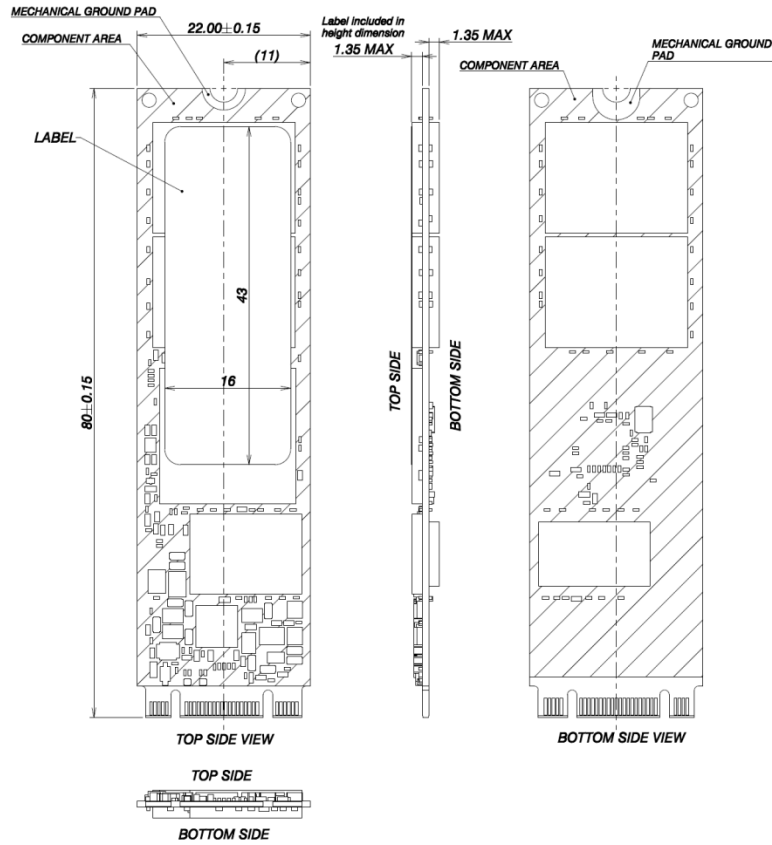


Figure 2: M.2 2280-S2 Module Dimension

Unit:mm

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**Figure 3: M.2 2280-D2 Module Dimension**

**Unit:mm**

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INTERFACE CONNECTOR

> 2.5-inch Case Serial ATA Interface Connector

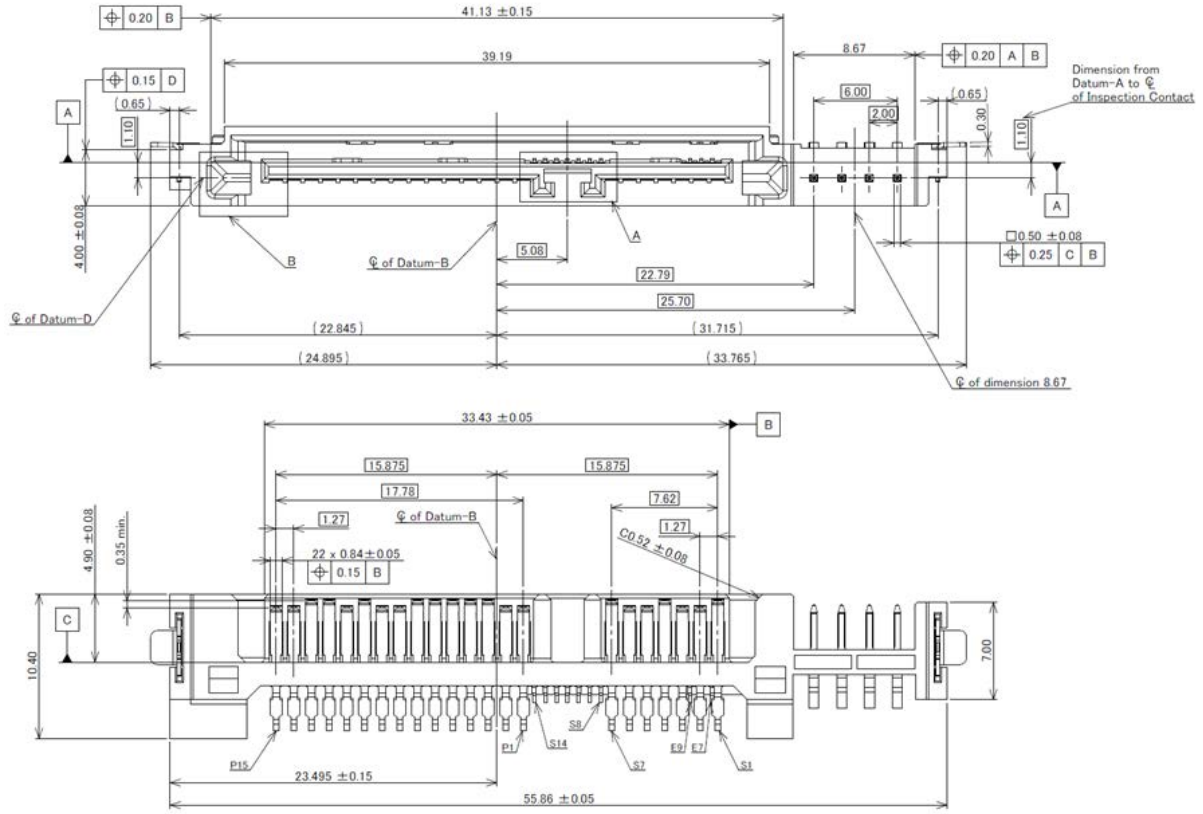


Figure 4: 2.5-inch Case Serial ATA Interface Connector

Unit:mm

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## > 2.5-INCH DRIVE CONNECTER PIN ASSIGNMENT<sup>1)</sup>

Segment	Pin Position	Name	Description
Signal Segment	S1	GND	2 <sup>nd</sup> Mate
	S2	A+	Differential Signal Pair A (Device Rx), 3 <sup>rd</sup> Mate
	S3	A-	
	S4	GND	2 <sup>nd</sup> Mate
	S5	B-	Differential Signal Pair B (Device Tx), 3 <sup>rd</sup> Mate
	S6	B+	
	S7	GND	2 <sup>nd</sup> Mate

Signal segment "L"

Central connector polarizer

Power segment "L"

Power Segment	P1	Retired <sup>2)</sup>	
	P2	Retired <sup>2)</sup>	
	P3	DEVSLP <sup>2)</sup>	Enter/Exit DevSleep
	P4	GND	1 <sup>st</sup> Mate
	P5	GND	2 <sup>nd</sup> Mate
	P6	GND	2 <sup>nd</sup> Mate
	P7	V5	5 V power, pre-charge <sup>3)</sup> , 2 <sup>nd</sup> Mate
	P8	V5	5 V power, 3 <sup>rd</sup> Mate
	P9	V5	5 V power, 3 <sup>rd</sup> Mate
	P10	GND	2 <sup>nd</sup> Mate
	P11	DAS/DSS	Drive Activity Signal / Disable Staggered Spin-up, 3 <sup>rd</sup> Mate
	P12	GND	1 <sup>st</sup> Mate
	P13	V12	12 V power, pre-charge, 2 <sup>nd</sup> Mate (Unused)
	P14	V12	12 V power (Unused), 3 <sup>rd</sup> Mate
	P15	V12	12 V power (Unused), 3 <sup>rd</sup> Mate

Power segment key

U1	N.C.	Not connected
U2	TX	For test use, Not connected
U3	UX	For test use, Not connected
U4	GND	

1) The Mate orders are for backplane usage. Hot-Plug and OS-Aware Hot Removal are supported when using with a backplane connector.

2) Previously, 3.3 V was assigned to pins P1, P2 and P3 by Serial ATA International Organization.

3) Direct connect to non pre-charge pins.

## > M.2 2280 MODULE INTERFACE CONNECTOR

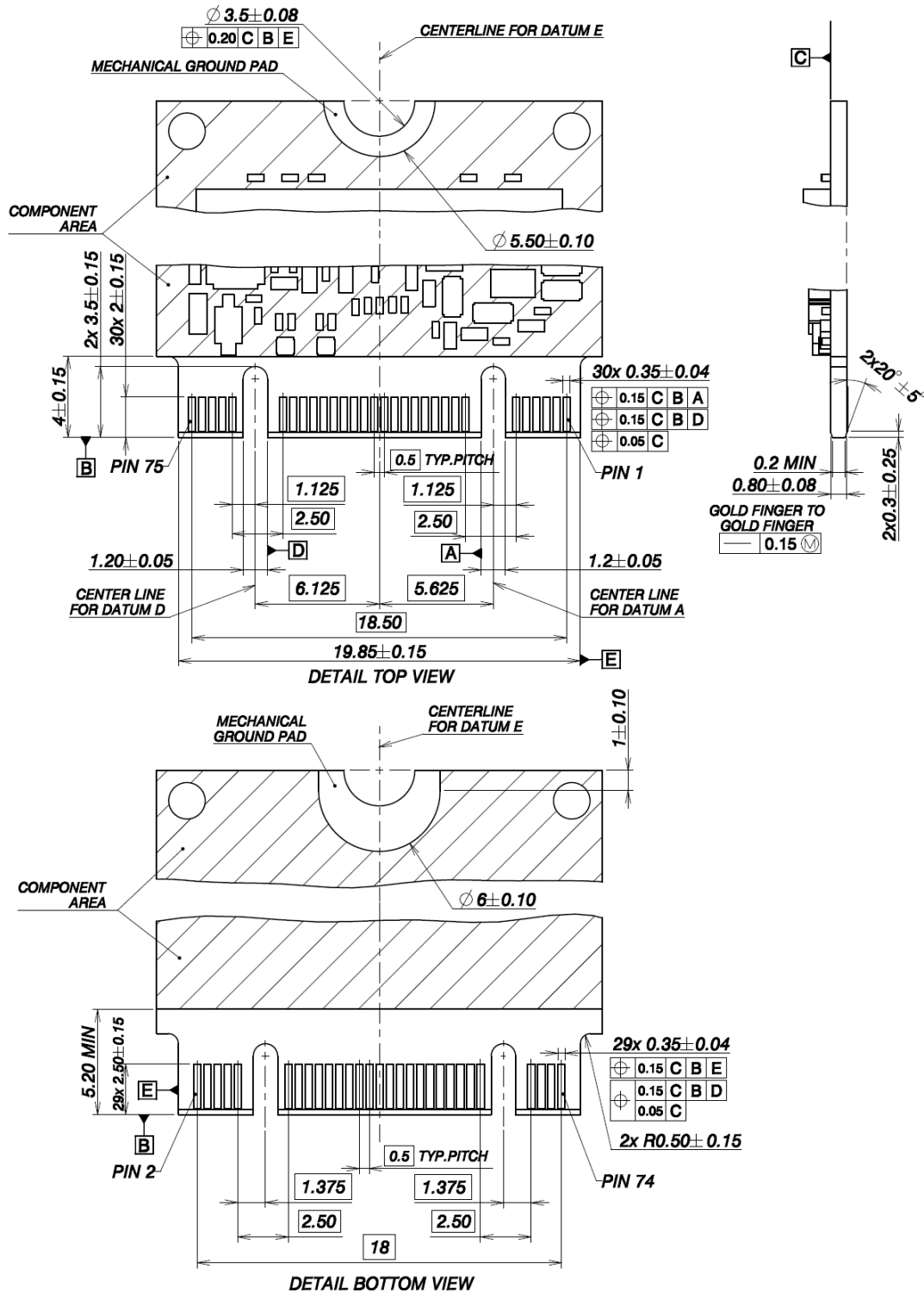


Figure 5: M.2 2280 Module Interface Connector

Unit:mm

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## > PIN ASSIGNMENT ON M.2 2280 MODULE CONNECTOR

Pin #	Name	Description
1	CONFIG_3	Defines module type(GND)
3	GND	GND
5	Reserved	NC
7	Reserved	NC
9	Reserved	NC
11	Reserved	NC
Notch		
21	CONFIG_0	Defines module type(GND)
23	Reserved	NC
25	Reserved	NC
27	GND	GND
29	Reserved	NC
31	Reserved	NC
33	GND	GND
35	Reserved	NC
37	Reserved	NC
39	GND	GND
41	B+	Host Receiver Differential Signal Pair
43	B-	
45	GND	GND
47	A-	Host Transmitter Differential Signal Pair
49	A+	
51	GND	GND
53	Reserved	NC
55	Reserved	NC
57	GND	GND
Notch		
67	Reserved	NC
69	CONGIG_1	Defines module type(GND)
71	GND	GND
73	GND	GND
75	CONGIG_2	Defines module type(GND)

Pin #	Name	Description
2	+3.3V	3.3 V Source
4	+3.3V	3.3 V Source
6	Reserved	NC
8	Reserved	NC
10	DAS/DSS	Drive Activity Signal / Disable Staggered Spin-up
Notch		
20	Reserved	NC
22	Reserved	NC
24	Reserved	NC
26	Reserved	NC
28	Reserved	NC
30	Reserved	NC
32	Reserved	NC
34	Reserved	NC
36	Reserved	NC
38	DEVSLP	DEVSLP signal
40	Reserved	NC
42	Reserved	NC
44	Reserved	NC
46	Reserved	NC
48	Reserved	NC
50	Reserved	NC
52	Reserved	NC
54	Reserved	NC
56	MFG1	Manufacturing pin. Must be a no-connect on the host board.
58	MFG2	
Notch		
68	Reserved	NC
70	+3.3V	3.3 V Source
72	+3.3V	3.3 V Source
74	+3.3V	3.3 V Source

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> **COMMAND TABLE**  
*ADMIN Command set*

Op-Code		Command Name
00h		NOP
06h		DATA SET MANAGEMENT
10h		RECALIBRATE
20h		READ SECTOR(S)
21h		READ SECTOR(S) without retries
24h		READ SECTOR(S) EXT
25h		READ DMA EXT
27h		READ NATIVE MAX ADDRESS EXT
29h		READ MULTIPLE EXT
2Fh		READ LOG EXT
30h		WRITE SECTOR(S)
31h		WRITE SECTOR(S) without retries
34h		WRITE SECTOR(S) EXT
35h		WRITE DMA EXT
37h		SET MAX ADDRESS EXT
39h		WRITE MULTIPLE EXT
3Dh		WRITE DMA FUA EXT
3Fh		WRITE LOG EXT
40h		READ VERIFY SECTOR(S)
41h		READ VERIFY SECTOR(S) without retries
42h		READ VERIFY SECTOR(S) EXT
45h		WRITE UNCORRECTABLE EXT
45h	55h	Create a pseudo-uncorrectable error with logging
45h	AAh	Create a flagged error without logging
47h		READ LOG DMA EXT
57h		WRITE LOG DMA EXT
5Bh		TRUSTED NON-DATA
5Ch		TRUSTED RECEIVE
5Dh		TRUSTED RECEIVE DMA
5Eh		TRUSTED SEND
5Fh		TRUSTED SEND DMA
60h		READ FPDMA QUEUED
61h		WRITE FPDMA QUEUED

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Op-Code		Feature Name	
70h		SEEK	
90h		EXECUTE DEVICE DIAGNOSTIC	
91h		INITIALIZE DEVICE PARAMETERS	
92h		DOWNLOAD MICROCODE	
92h	03h	Download with offsets and save microcode for immediate and future use	
92h	07h	Download and save microcode for immediate and future use	
92h	0Eb	Download with offsets and save microcode for future use	
92h	0Fb	Activate downloaded microcode	
93h		DOWNLOAD MICROCODE DMA	
93h	03h	Download with offsets and save microcode for immediate and future use	
93h	07h	Download and save microcode for immediate and future use	
93h	0Eb	Download with offsets and save microcode for future use	
93h	0Fb	Activate downloaded microcode	
B0h		SMART	
B0h	D0h	SMART READ DATA	
B0h	D1h	SMART READ ATTRIBUTE THRESHOLDS	
B0h	D2h	SMART ENABLE/DISABLE ATTRIBUTE AUTOSAVE	
B0h	D3h	SMART SAVE ATTRIBUTE VALUES	
B0h	D4h	SMART EXECUTE OFF-LINE IMMEDIATE	
B0h	D4h	00h	Execute SMART off-line routine in off-line mode
B0h	D4h	01h	Execute SMART Short self-test routine in off-line mode
B0h	D4h	02h	Execute SMART Extended self-test routine in off-line mode
B0h	D4h	04h	Execute SMART Selective self-test routine in off-line mode
B0h	D4h	7Fh	Abort off-line mode self-test routine
B0h	D4h	81h	Execute SMART Short self-test routine in captive mode
B0h	D4h	82h	Execute SMART Extended self-test routine in captive mode
B0h	D4h	84h	Execute SMART Selective self-test routine in captive mode
B0h	D5h	SMART READ LOG	
B0h	D6h	SMART WRITE LOG	
B0h	D8h	SMART ENABLE OPERATIONS	
B0h	D9h	SMART DISABLE OPERATIONS	
B0h	DAh	SMART RETURN STATUS	
B0h	DBh	SMART ENABLE/DISABLE AUTOMATIC OFF-LINE	
B1h		DEVICE CONFIGURATION OVERLAY	
B1h	C0h	DEVICE CONFIGURATION RESTORE	
B1h	C1h	DEVICE CONFIGURATION FREEZE LOCK	
B1h	C2h	DEVICE CONFIGURATION IDENTIFY	

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Op-Code		Feature Name	
B1h	C3h	DEVICE CONFIGURATION SET	
B1h	C4h	DEVICE CONFIGURATION IDENTIFY DMA	
B1h	C5h	DEVICE CONFIGURATION SET DMA	
B4h		SANITIZE DEVICE	
B4h	00h	SANITIZE STATUS EXT	
B4h	11h	CRYPTO SCRAMBLE EXT	
B4h	12h	BLOCK ERASE EXT	
B4h	20h	SANITIZE FREEZE LOCK EXT	
C4h		READ MULTIPLE	
C5h		WRITE MULTIPLE	
C6h		SET MULTIPLE MODE	
C8h		READ DMA	
C9h		READ DMA without retries	
CAh		WRITE DMA	
CBh		WRITE DMA without retries	
CEh		WRITE MULTIPLE FUA EXT	
E0h		STANDBY IMMEDIATE	
E1h		IDLE IMMEDIATE	
E2h		STANDBY	
E3h		IDLE	
E4h		READ BUFFER	
E5h		CHECK POWER MODE	
E6h		SLEEP	
E7h		FLUSH CACHE	
E8h		WRITE BUFFER	
E9h		READ BUFFER DMA	
EAh		FLUSH CACHE EXT	
EBh		WRITE BUFFER DMA	
ECh		IDENTIFY DEVICE	
EFh		SET FEATURES	
EFh	02h	Enable volatile write cache	
EFh	03h	Set transfer mode	
EFh	05h	Enable the APM feature set	
EFh	10h	Enable use of SATA feature set	
EFh	10h	02h	Enable DMA Setup FIS Auto-Activate optimization
EFh	10h	03h	Enable Device-initiated interface power state (DIPM) transitions
EFh	10h	06h	Enable Software Settings Preservation(SSP)

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Op-Code			Feature Name
EFh	10h	07h	Enable Device Automatic Partial to Slumber transitions
EFh	10h	09h	Enable Device Sleep
EFh		55h	Disable read look-ahead
EFh		66h	Disable reverting to power-on defaults
EFh		82h	Disable volatile write cache
EFh		85h	Disable the APM feature set
EFh		90h	Disable use of SATA feature set
EFh	90h	02h	Disable DMA Setup FIS Auto-Activate optimization
EFh	90h	03h	Disable Device-initiated interface power state (DIPM) transitions
EFh	90h	06h	Disable Software Settings Preservation(SSP)
EFh	90h	07h	Disable Device Automatic Partial to Slumber transitions
EFh	90h	09h	Disable Device Sleep
EFh		AAh	Enable read look-ahead
EFh		CCh	Enable reverting to power-on defaults
	F1h		SECURITY SET PASSWORD
	F2h		SECURITY UNLOCK
	F3h		SECURITY ERASE PREPARE
	F4h		SECURITY ERASE UNIT
	F5h		SECURITY FREEZE LOCK
	F6h		SECURITY DISABLE PASSWORD
	F8h		READ NATIVE MAX ADDRESS
	F9h		SET MAX ADDRESS
F9h		01h	SET MAX SET PASSWORD
F9h		02h	SET MAX LOCK
F9h		03h	SET MAX UNLOCK
F9h		04h	SET MAX FREEZE LOCK
F9h		05h	SET MAX SET PASSWORD DMA
F9h		06h	SET MAX UNLOCK DMA

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