

RoHS Compliant

USB Flash Drive

EH322 Product Specifications

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Version 1.3



Apacer
Access the best

Apacer Technology Inc.

1F, No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City, Taiwan, R.O.C

Tel: +886-2-2267-8000 Fax: +886-2-2267-2261

www.apacer.com

FEATURES:

- **USB3.0 Super Speed compatible, and backward compatible with USB2.0 & interface**
 - USB3.0 max. transfer rate: 5.0 Gbps
 - Backward compatible with 480Mbps & 12 Mbps
- **Capacity**
 - SLC: 256, 512 MB
1, 2, 4, 8, 16, 32 GB
 - MLC: 8, 16, 32, 64 GB
- **Performance***
 - SLC**
 - Sustained read: up to 80 MB/s
 - Sustained write: up to 70 MB/s
 - MLC**
 - Sustained read: up to 195 MB/s
 - Sustained write: up to 95 MB/s
- **Flash Management**
 - Built-in hardware ECC
 - Power saving implemented
 - S.M.A.R.T.
 - Power Failure Management
- **Temperature Range**
 - Operating:
 - Standard: 0°C to 70°C
 - Extended: -40°C to 85°C
 - Storage: -40°C to 85°C
- **Power Consumption***
 - Operating voltage: 5V
 - SLC**
 - Active mode: 225 mA
 - Idle mode: 65 mA
 - MLC**
 - Active mode: 275 mA
 - Idle mode: 80 mA
- **RoHS Compliant**
- **USB Bus-Powered Capability**
- **NAND Flash Type: SLC/MLC**
- **Dimensions: 59.0 x 18.4 x 9.1, unit: mm**

*Varies from capacities. Performance and power consumption addressed here are typical and vary from configurations and platforms.

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1. General Description

Apacer USB3.0 Handy FLASH Drive EH353 is ultra high-performance flash disk drive designed offering portable storage solutions or external memory expansion. This new generation USB flash drive is compatible with the latest USB specification – USB3.0 Super Speed, with a maximum transfer rate of 5.0 Gbps. The connector is backward employable with USB2.0 and USB1.1 interfaces as well. With compliance with USB3.0 specification, this USB drive can deliver up to 195 MB/s outstanding performance. Reliability wise, the USB comes with built-in hardware ECC to ensure data integrity. This product is well suited for portable flash storage applications while operating at minimal power consumption.

1.1 Performance-optimized USB Controller

1.1.1 Power Saving Implemented

The internal controller of the USB model is designed with power saving implementations, allowing the device to operate at low power consumption.

1.1.2 Program RAM Architect

The internal Program RAM implementation allows the host to upgrade firmware codes anytime when needed.

1.1.3 Error Correction Code (ECC)

The UFD utilizes 1-bit Error Detection Code (EDC) and Error Correction Code (ECC).

1.1.4 S.M.A.R.T.

S.M.A.R.T. is an abbreviation for Self-Monitoring, Analysis and Reporting Technology, a self-monitoring system that provides indicators of drive health as well as potential disk problems. It serves as a warning for users from unscheduled downtime by monitoring and displaying critical drive information. Ideally, this should allow taking proactive actions to prevent drive failure and make use of S.M.A.R.T. information for future product development reference.

1.1.5 Power Failure Management

Power disruption may occur when users are storing data into the SSD. In this urgent situation, the controller would protect firmware table and the data written to flash from data loss in the event of power off. Apacer power failure management maintains data correctness and increases the reliability of the data stored in the NAND Flash memory.

2. General Specifications

2.1 SLC

Interface	Super-speed USB3.0 compliant; backward compatible with USB 2.0 and USB 1.1								
Performance* (MB/s)		256MB	512MB	1GB	2GB	4GB	8GB	16GB	32GB
	Read (MB/s)	60	60	65	65	65	80	80	80
	Write (MB/s)	10	21	40	40	50	65	70	70
Temperature	0 to 70°C ;								
Power consumption*	Active: 225 mA Idle: 65 mA								
MTBF	2,000,000 hours								

*Results may vary from flash configurations or host system settings.

2.2 MLC

Interface	Super-speed USB3.0 compliant; backward compatible with USB 2.0 and USB 1.1				
Performance*		8GB	16GB	32GB	64GB
	Read (MB/s)	95	195	190	195
	Write (MB/s)	28	55	49	95
Temperature	0 to 70°C				
Power consumption*		8GB	16GB	32GB	64GB
	Active	165	270	265	275
	Idle	75	85	80	80
MTBF	1,000,000 hours				

*Results may vary from flash configurations or host system settings.

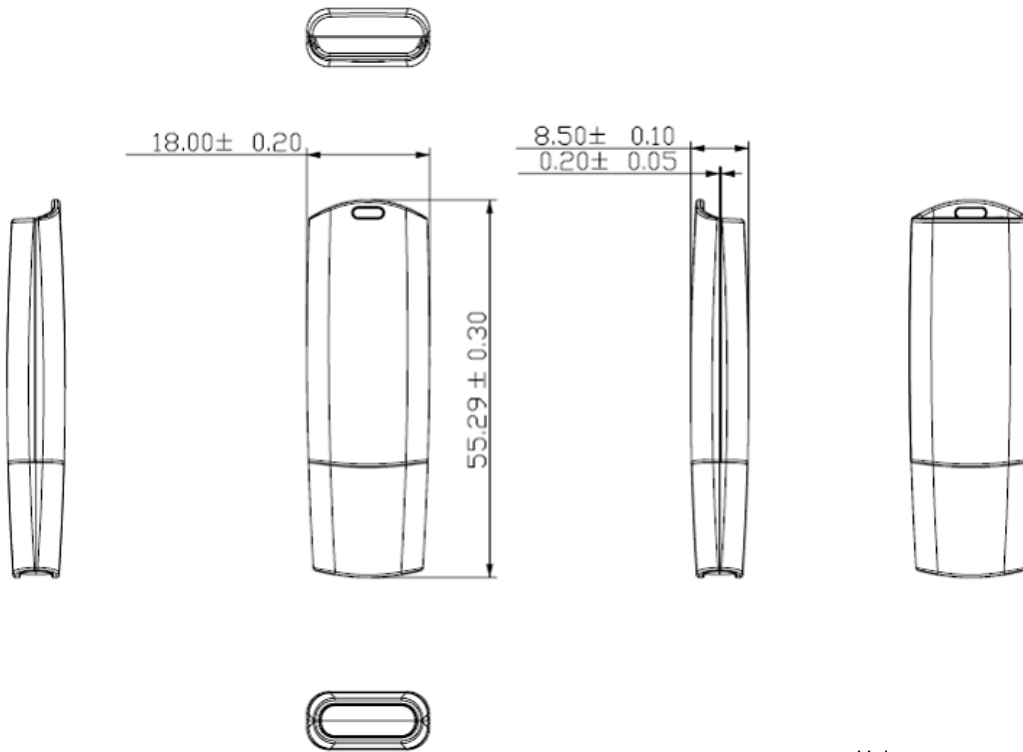
3. Absolute Maximum Rating

Caution: Absolute Maximum Stress Ratings – Applied conditions greater than those listed under “Absolute Maximum Stress Ratings” may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these conditions or conditions greater than those defined in the operational sections of this data sheet is not implied. Exposure to absolute maximum stress rating conditions may affect device reliability.

Table 3-1 Absolute Stress Rating

Parameters	Conditions
Required power supply	4.5-5.5V
Operating temperature	0°C to 70°C (Standard) -40°C to 85°C (Extended)
Storage temperature	-40°C to 85°C

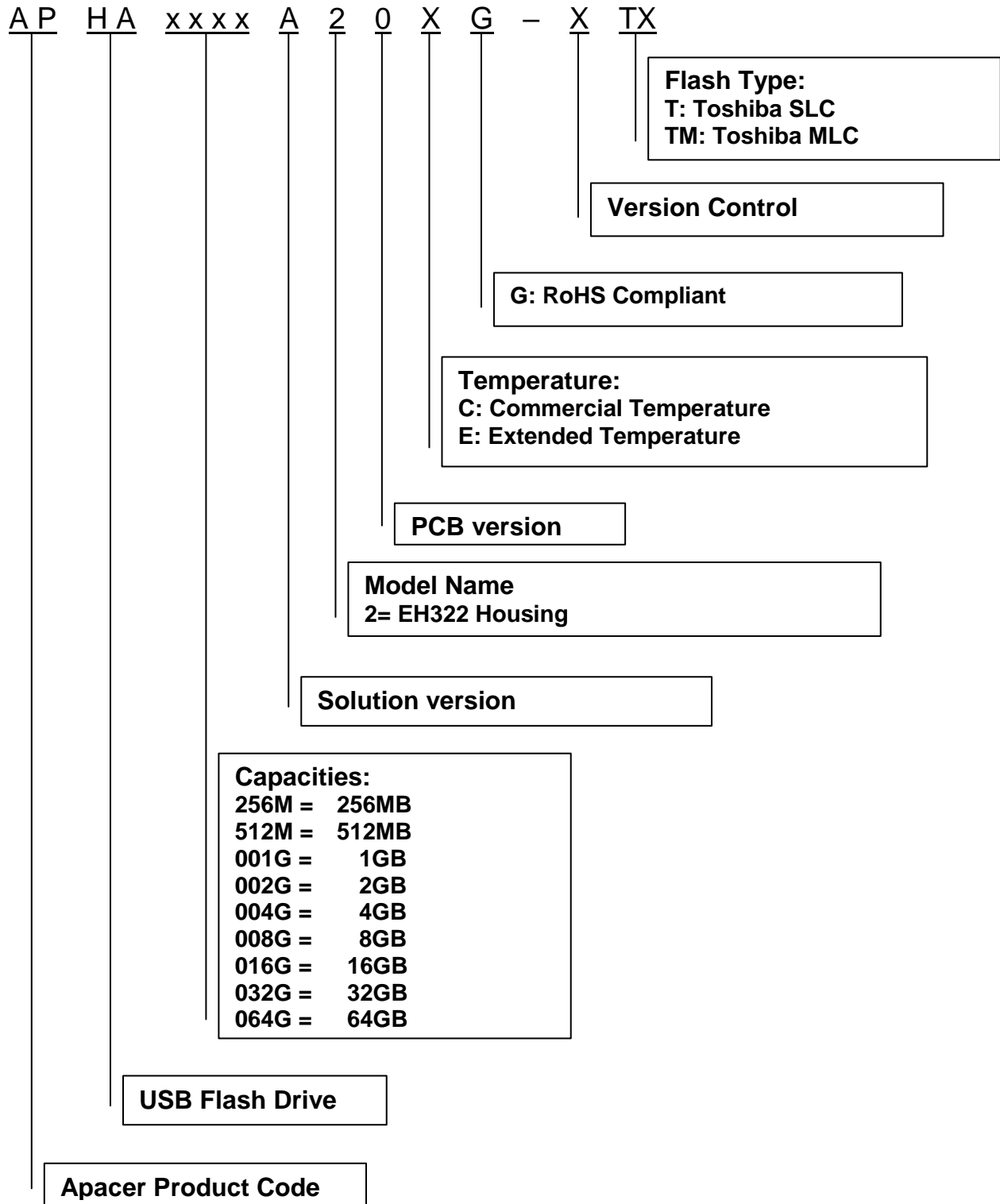
4. Physical Dimensions



Unit: mm

5. Product Ordering Information

5.1 Product Code Designations



5.2 Valid Combinations

5.2.1 EH322 (SLC)

Capacity	Standard	Extended
256MB	APHA256MA20CG-2T	APHA256MA20EG-2T
512MB	APHA512MA20CG-2T	APHA512MA20EG-2T
1GB	APHA001GA20CG-2T	APHA001GA20EG-2T
2GB	APHA002GA20CG-2T	APHA002GA20EG-2T
4GB	APHA004GA20CG-2T	APHA004GA20EG-2T
8GB	APHA008GA20CG-2T	APHA008GA20EG-2T
16GB	APHA016GA20CG-2T	APHA016GA20EG-2T
32GB	APHA032GA20CG-2T	APHA032GA20EG-2T

5.2.2 EH322 (MLC)

Capacity	Standard	Extended
8GB	APHA008GA20CG-3TM	APHA008GA20EG-3TM
16GB	APHA016GA20CG-3TM	APHA016GA20EG-3TM
32GB	APHA032GA20CG-3TM	APHA032GA20EG-3TM
64GB	APHA064GA20CG-3TM	APHA064GA20EG-3TM

Revision History

Revision	Description	Date
1.0	First Release	04/20/2015
1.1	<ul style="list-style-type: none">● Modified performance and power consumption data for MLC models.● Updated valid combinations for SLC and MLC models.	09/17/2015
1.2	<ul style="list-style-type: none">● Revised model name from AH322 to EH322.● Revised product ordering information.	10/14/2015
1.3	Added S.M.A.R.T. and Power Failure Management to Features	10/3/2016

Global Presence

Taiwan (Headquarters)	Apacer Technology Inc. 1F., No.32, Zhongcheng Rd., Tucheng Dist., New Taipei City 236, Taiwan R.O.C. Tel: 886-2-2267-8000 Fax: 886-2-2267-2261 amtsales@apacer.com
U.S.A.	Apacer Memory America, Inc. 46732 Lakeview Blvd., Fremont, CA 94538 Tel: 1-408-518-8699 Fax: 1-510-249-9551 sa@apacerus.com
Japan	Apacer Technology Corp. 5F, Matsura Bldg., Shiba, Minato-Ku Tokyo, 105-0014, Japan Tel: 81-3-5419-2668 Fax: 81-3-5419-0018 jpservices@apacer.com
Europe	Apacer Technology B.V. Science Park Eindhoven 5051 5692 EB Son, The Netherlands Tel: 31-40-267-0000 Fax: 31-40-267-0000#6199 sales@apacer.nl
China	Apacer Electronic (Shanghai) Co., Ltd Room D, 22/FL, No.2, Lane 600, JieyunPlaza, Tianshan RD, Shanghai, 200051, China Tel: 86-21-6228-9939 Fax: 86-21-6228-9936 sales@apacer.com.cn
India	Apacer Technologies Pvt Ltd, Unit No.201, "Brigade Corner", 7 th Block Jayanagar, Yediyur Circle, Bangalore – 560082, India Tel: 91-80-4152-9061 Fax: 91-80-4170-0215 sales_india@apacer.com