

***RoHS Compliant***

# **USB Flash Drive**

***EH353 Product Specifications***

**February 16, 2015**

***Version 1.0***



***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](http://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\***
  - Sustained read: up to 205 MB/s
  - Sustained write: up to 85 MB/s
- **Intelligent USB Module**
  - Built-in hardware ECC
  - Power saving implemented
- **Temperature ranges**
  - Operating:  
Standard: 0°C to 70°C  
Extended: -40°C to +85°C C
  - Storage: -40°C to +85°C
- **Power consumption (typical)\***
  - Active mode: 225 mA
  - Idle mode: 65 mA
  - Operating voltage: 5V
- **RoHS Compliant**
- **USB bus-powered capability**
- **NAND Flash Type: SLC/MLC**
- **Dimension: 59.0 x 18.4 x 9.1, unit: mm**

\*Performance and power consumption addressed here 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 205 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

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#### 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)

## 2. General Specifications

### 2.1 SLC

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

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

### 2.2 MLC

|                           |                                                                            |            |             |             |             |
|---------------------------|----------------------------------------------------------------------------|------------|-------------|-------------|-------------|
| <b>Interface</b>          | Super-speed USB3.0 compliant; backward compatible with USB 2.0 and USB 1.1 |            |             |             |             |
| <b>Performance*</b>       |                                                                            | <b>8GB</b> | <b>16GB</b> | <b>32GB</b> | <b>64GB</b> |
|                           | <b>Read (MB/s)</b>                                                         | 205        | 200         | 205         | 200         |
|                           | <b>Write (MB/s)</b>                                                        | 20         | 45          | 85          | 80          |
| <b>Temperature</b>        | 0 to 70°C                                                                  |            |             |             |             |
| <b>Power consumption*</b> | Active: 265 mA<br>Idle: 70 mA                                              |            |             |             |             |
| <b>MTBF</b>               | 1,000,000 hours                                                            |            |             |             |             |

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

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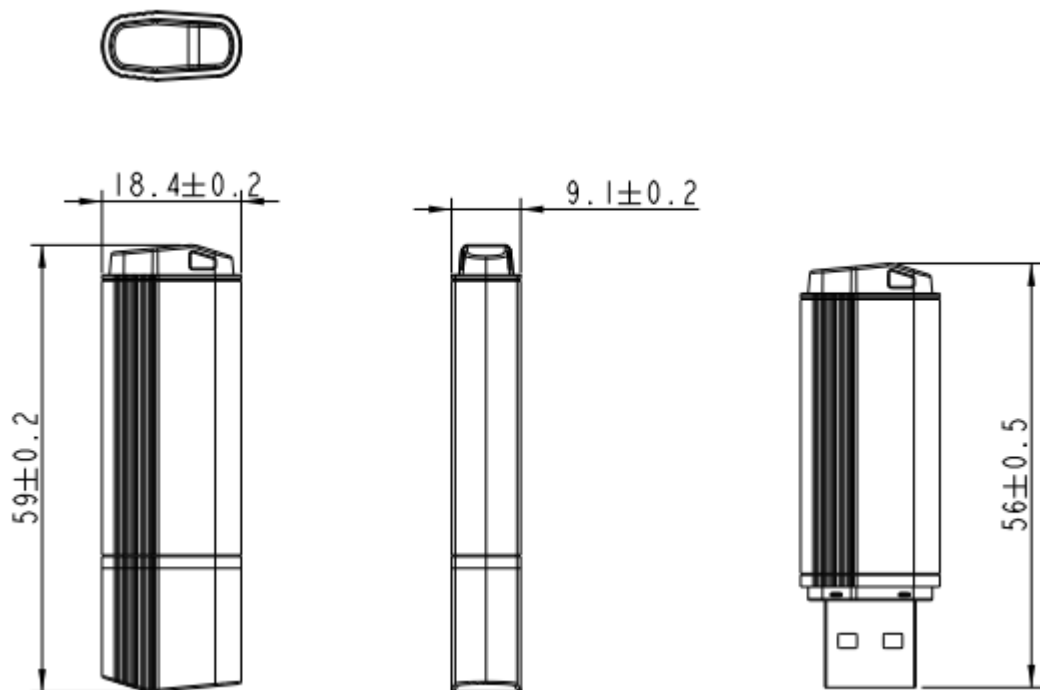
### 3. Absolute Maximum Rating

**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: Absolute Stress Rating

| Parameters            | Conditions                               |
|-----------------------|------------------------------------------|
| Required power supply | 4.5-5.5V                                 |
| Operating temperature | 0°C to 70°C;<br>-40°C to +85°C(extended) |
| Storage temperature   | -40°C to +85°C                           |

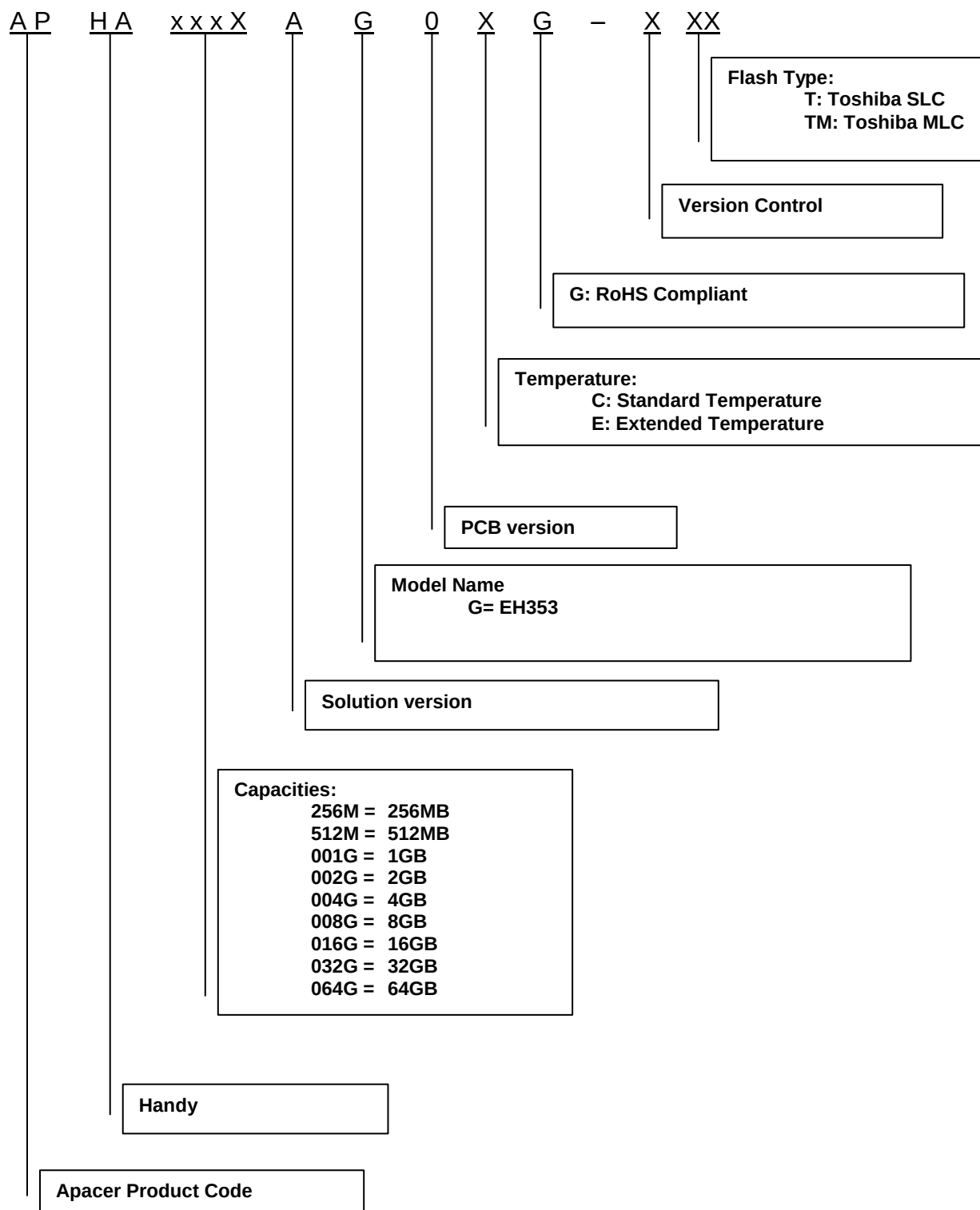
## 4. Physical Dimensions



Unit: mm

## 5. Product Ordering Information

### 5.1 Product Code Designations





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## 5.2 Valid Combinations

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### 5.2.1 EH353 (SLC)

| Capacity | Standard         | Extended         |
|----------|------------------|------------------|
| 256 MB   | APHA256MAG0CG-1T | APHA256MAG0EG-1T |
| 512 MB   | APHA512MAG0CG-1T | APHA512MAG0EG-1T |
| 1 GB     | APHA001GAG0CG-1T | APHA001GAG0EG-1T |
| 2 GB     | APHA002GAG0CG-1T | APHA002GAG0EG-1T |
| 4 GB     | APHA004GAG0CG-1T | APHA004GAG0EG-1T |
| 8 GB     | APHA008GAG0CG-1T | APHA008GAG0EG-1T |
| 16 GB    | APHA016GAG0CG-1T | APHA016GAG0EG-1T |
| 32 GB    | APHA032GAG0CG-1T | APHA032GAG0EG-1T |

### 5.2.2 EH353 (MLC)

| Capacity | Standard          | Extended          |
|----------|-------------------|-------------------|
| 8GB      | APHA008GAG0CG-1TM | APHA008GAG0EG-1TM |
| 16GB     | APHA016GAG0CG-1TM | APHA016GAG0EG-1TM |
| 32GB     | APHA032GAG0CG-1TM | APHA032GAG0EG-1TM |
| 64GB     | APHA064GAG0CG-1TM | APHA064GAG0EG-1TM |

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## Revision History

| Revision | Description      | Date      |
|----------|------------------|-----------|
| 1.0      | Official Release | 2/16/2015 |

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## Global Presence

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|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Taiwan (Headquarters)</b> | <b>Apacer Technology Inc.</b><br>1F., No.32, Zhongcheng Rd., Tucheng Dist.,<br>New Taipei City 236, Taiwan R.O.C.<br>Tel: 886-2-2267-8000<br>Fax: 886-2-2267-2261<br><a href="mailto:amtsales@apacer.com">amtsales@apacer.com</a>             |
| <b>U.S.A.</b>                | <b>Apacer Memory America, Inc.</b><br>386 Fairview Way, Suite102,<br>Milpitas, CA 95035<br>Tel: 1-408-586-1291<br>Fax: 1-408-935-9611<br><a href="mailto:sa@apacerus.com">sa@apacerus.com</a>                                                 |
| <b>Japan</b>                 | <b>Apacer Technology Corp.</b><br>5F, Matsura Bldg., Shiba, Minato-Ku<br>Tokyo, 105-0014, Japan<br>Tel: 81-3-5419-2668<br>Fax: 81-3-5419-0018<br><a href="mailto:jpservices@apacer.com">jpservices@apacer.com</a>                             |
| <b>Europe</b>                | <b>Apacer Technology B.V.</b><br>Science Park Eindhoven 5051 5692 EB Son,<br>The Netherlands<br>Tel: 31-40-267-0000<br>Fax: 31-40-267-0000#6199<br><a href="mailto:sales@apacer.nl">sales@apacer.nl</a>                                       |
| <b>China</b>                 | <b>Apacer Electronic (Shanghai) Co., Ltd</b><br>1301, No.251,Xiaomugiao Road, Shanghai,<br>200032, China<br>Tel: 86-21-5529-0222<br>Fax: 86-21-5206-6939<br><a href="mailto:sales@apacer.com.cn">sales@apacer.com.cn</a>                      |
| <b>India</b>                 | <b>Apacer Technologies Pvt. Ltd.</b><br>#143, 1st Floor, Raheja Arcade,<br>5th Block Kormangala Industrial Layout,<br>Bangalore - 560095, India<br>Tel: 91-80-4152-9061<br><a href="mailto:sales_india@apacer.com">sales_india@apacer.com</a> |