UFS – Universal Flash Storage

High Performance Mass Storage
Toshiba’s Flash memories with an integrated controller provide error correction, wear leveling, bad-block management, etc. They have an interface compliant with JEDEC/UFS Version 2.1, eliminating the need for users to perform NAND-specific control. The new full duplex serial high speed interface offers superior performance.

FEATURES
- 32 GB – 256 GB
- BiCS Flash™ Technology (3D NAND)
- Conforms to JEDEC Version 2.1
- Integrated memory management:
  - Error correction code
  - Bad block management
  - Wear-leveling
  - Garbage collection
  - Standard temperature range
  - 153 ball BGA FBGA package
- High Speed Serial interface

ADVANTAGES
- High speed up to 1160 MB/sec
- Managed memory
- Package, interface, features, commands etc. are standard
- Utilizing high quality Toshiba BiCS Flash™ memory in combination with a Toshiba origin developed controller
- Produced in the world’s largest, leading edge technology flash factory

BENEFITS
- Easy to integrate storage solution due to established standards
- Cost efficient design
- Optimal relation between price, density and performance
- Reliable storage solution based on high quality NAND memory and optimized controller
- Extended production capacity to fulfill customers demand

APPLICATIONS
- Consumer Electronics
- Multimedia Applications
- Industrial Applications

SPECIFICATIONS

<table>
<thead>
<tr>
<th>FEATURES</th>
<th>UFS – UNIVERSAL FLASH STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>32 GB – 256 GB</td>
</tr>
<tr>
<td>Technology</td>
<td>BiCS 3D NAND</td>
</tr>
<tr>
<td>JEDEC Version</td>
<td>2.1 (UniPro 1.6 / M-PHY 3.0)</td>
</tr>
<tr>
<td>Temperature</td>
<td>-25 °C to 85 °C</td>
</tr>
<tr>
<td>Package</td>
<td>153 ball FBGA (11.5 x 13 mm²)</td>
</tr>
</tbody>
</table>

UFS – PRODUCT LIST

<table>
<thead>
<tr>
<th>DENSITY</th>
<th>PART NUMBER</th>
<th>TECHNOLOGY</th>
<th>JEDEC STANDARD</th>
<th>TEMPERATURE</th>
<th>PACKAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 GB</td>
<td>THGAF8G8T23BAIL</td>
<td>BiCS 3D NAND</td>
<td>JEDEC 2.1</td>
<td>-25 °C to 85 °C</td>
<td>153FBGA 11.5 x 13</td>
</tr>
<tr>
<td>64 GB</td>
<td>THGAF8G9T43BAIL</td>
<td>BiCS 3D NAND</td>
<td>JEDEC 2.1</td>
<td>-25 °C to 85 °C</td>
<td>153FBGA 11.5 x 13</td>
</tr>
<tr>
<td>128 GB</td>
<td>THGAF8T0T43BAIL</td>
<td>BiCS 3D NAND</td>
<td>JEDEC 2.1</td>
<td>-25 °C to 85 °C</td>
<td>153FBGA 11.5 x 13</td>
</tr>
<tr>
<td>256 GB</td>
<td>THGAF8T1T83BAIL</td>
<td>BiCS 3D NAND</td>
<td>JEDEC 2.1</td>
<td>-25 °C to 85 °C</td>
<td>153FBGA 11.5 x 13</td>
</tr>
</tbody>
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