HyperRAM™
DRAM Based Memory with HyperBus™ Interface

Features:
- Hidden Refresh operation
- Very Low Bus Signal Count:
  - 12 pins for 1.8V (with CK, CK#)
  - 11 pins for 3.0V (CK only)
- Max. Frequency:
  - 166MHz at VDD = 1.8V
  - 100MHz at VDD = 3.0V
- Low Power Consumption:

<table>
<thead>
<tr>
<th>Density</th>
<th>64Mb</th>
<th>128Mb</th>
<th>256Mb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burst Op. Current @ 166MHz, 1.8V</td>
<td>60</td>
<td>75</td>
<td>75</td>
</tr>
<tr>
<td>Standby Current @ 105°C, 1.8V</td>
<td>300</td>
<td>1200</td>
<td>1200</td>
</tr>
<tr>
<td>Deep Power Down Current @ 105°C, 1.8V</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

Package:
- KGD/KTD
- 24-pin BGA

HyperRAM™ Pin-Outs (In evaluation):
- 24-pin (5 x 5 ball array)
- PKG Body Size: 6 mm x 8 mm
- Ball Pitch: 1.0mm

Densities:
- 64Mb [8Mb x 8], 32Mb [4Mb x 8],
- 128Mb [16Mb x 8], 256Mb [32Mb x 8],
- 512Mb [64Mb x 8]

Availability:
- 64Mb, 128Mb, 256Mb
  - Production Now!
- 512Mb
  - Call Factory

Automotive Temperature Grades:
- Automotive, A1 [-40°C to 85°C]
- Automotive, A2 [-40°C to 105°C]
- Automotive, A3 [-40°C to 125°C]
  Note: A3 grade is for 128Mb only

Applications:
- Infotainment
- Advanced Driver Assistance Systems
- Smart Appliance
- Factory Automation
- Medical
- LED Projector
- D-SLR Camera
- Auto-Cluster
HyperRAM™ Interface

Low Signal Pin Count for HyperBus™:
- 12 signals for 1.8V Device (with CK, CK#)
- 11 signals for 3.0V Device (with CK only)
- *RESET# is not included in the HyperBus™ signal.
- Differential Clock [CK, CK#] for 1.8V device & Single Ended Clock [CK only] for 3.0V device
- Up to 166MHz Double-Data-Rate [DDR] 8-bit I/O bus for high throughput: 333 MB/s bandwidth

• Read Write Data Strobe [RWDS] to:
  - Indicate Refresh Collision
  - Edge Aligned with Read Data for Read Operations
  - Byte mask for write operations
• Clocks [CK, CK#] are not required to be free-running