

## Single Socket CardBus Controller with Dedicated Smart Card Socket

### FEATURES

- **PC Card Standard 8.1 Compliant**
- **PCI Bus Power Management Interface Specification 1.1 Compliant**
- **Advanced Configuration and Power Interface (ACPI) Specification 2.0 Compliant**
- **PCI Local Bus Specification Revision 2.3 Compliant**
- **PC 98/99 and PC2001 Compliant**
- **Windows Logo Program 2.0 Compliant**
- **PCI Bus Interface Specification for PCI-to-CardBus Bridges**
- **1.5-V Core Logic and 3.3-V I/O Cells with Internal Voltage Regulator to Generate 1.5-V Core  $V_{CC}$**
- **Universal PCI Interfaces Compatible with 3.3-V and 5-V PCI Signaling Environments**
- **Supports PC Card or CardBus with Hot Insertion and Removal**
- **Supports 132-MBps Burst Transfers to Maximize Data Throughput on Both the PCI Bus and the CardBus**
- **Supports Serialized IRQ with PCI Interrupts**
- **Programmable Multifunction Terminals**
- **Man Interrupt Modes Supported**
- **Serial ROM Interface for Loading Subsystem ID and Subsystem Vendor ID**
- **ExCA-Compatible Registers Are Mapped in Memory or I/O Space**
- **Intel 82365SL-DF Register Compatible**
- **Supports Ring Indicate,  $\overline{SUSPEND}$ , and PCI  $\overline{CLKRUN}$  Protocols and PCI Bus Lock ( $\overline{LOCK}$ )**
- **Provides VGA/Palette Memory and I/O, and Subtractive Decoding Options, LED Activity Terminals**
- **Compliant with Intel Mobile Power Guideline 2000**
- **PCI Power-Management D0, D1, D2, and D3 Power States**
- **Advanced Submicron, Low-Power CMOS Technology**

### DESCRIPTION

The Texas Instruments PCI6515A controller is an integrated, single-socket, PC Card controller and Smart Card controller. This high-performance integrated solution provides the latest in PC Card and Smart Card technology.

The PCI6515A controller is a two-function PCI controller compliant with *PCI Local Bus Specification*, Revision 2.3.

Function 0 provides an independent PC Card socket controllers compliant with the *PC Card Standard* (Release 8.1). The controller provides features that make it the best choice for bridging between the PCI bus and PC Cards, and supports 16-bit, CardBus, or USB custom card interface PC Cards, powered at 5 V or 3.3 V, as required.

All card signals are internally buffered to allow hot insertion and removal without external buffering. The controller is register compatible with the Intel 82365SL-DF ExCA controller. The internal data path logic allows the host to access 8-, 16-, and 32-bit cards using full 32-bit PCI cycles for maximum performance. Independent buffering and a pipeline architecture provide an unsurpassed performance level with sustained bursting. The controller can be programmed to accept posted writes to improve bus utilization.

Function 5 of the PCI6515A controller is a PCI-based Smart Card controller used for communication with Smart Cards inserted in PC Card adapters or the dedicated Smart Card socket. Utilizing Smart Card technology from Gemplus, this function provides compatibility with many different types of Smart Cards.



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Various implementation-specific functions and general-purpose inputs and outputs are provided through eight multifunction terminals. These terminals present a system with options in PCI  $\overline{\text{LOCK}}$ , serial and parallel interrupts, PC Card activity indicator LEDs, and other platform-specific signals. PCI-compliant general-purpose events may be programmed and controlled through the multifunction terminals, and an ACPI-compliant programming interface is included for the general-purpose inputs and outputs.

The controller is compliant with the latest *PCI Bus Power Management Specification*, and provides several low-power modes, which enable the host power system to further reduce power consumption.

The controller also has a three-pin serial interface compatible with the Texas Instruments TPS2228 (default), TPS2226, TPS2224, TPS2223A, and TPS2220 power switches. All five power switches provide power to the CardBus socket on the controller. The power to the dedicated Smart Card socket is controlled through a separate power control pin that can control an external 5-V power switch or it may be configured to source power through BVPP of a dual-socket PCMCIA power switch.

**NOTE:**

This product is for high-volume PC applications only. For a complete datasheet or more information contact [support@ti.com](mailto:support@ti.com).

**PACKAGING INFORMATION**

Orderable Device	Status <sup>(1)</sup>	Package Type	Package Drawing	Pins	Package Qty	Eco Plan <sup>(2)</sup>	Lead/Ball Finish	MSL Peak Temp <sup>(3)</sup>
PCI6515AGHK	ACTIVE	BGA MI CROSTAR	GHK	257		TBD	Call TI	Call TI
PCI6515AZHK	ACTIVE	BGA MI CROSTAR	ZHK	257	90	Green (RoHS & no Sb/Br)	SNAGCU	Level-3-260C-168 HR

<sup>(1)</sup> The marketing status values are defined as follows:

**ACTIVE:** Product device recommended for new designs.

**LIFEBUY:** TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

**NRND:** Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

**PREVIEW:** Device has been announced but is not in production. Samples may or may not be available.

**OBSOLETE:** TI has discontinued the production of the device.

<sup>(2)</sup> Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

**TBD:** The Pb-Free/Green conversion plan has not been defined.

**Pb-Free (RoHS):** TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

**Pb-Free (RoHS Exempt):** This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

**Green (RoHS & no Sb/Br):** TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

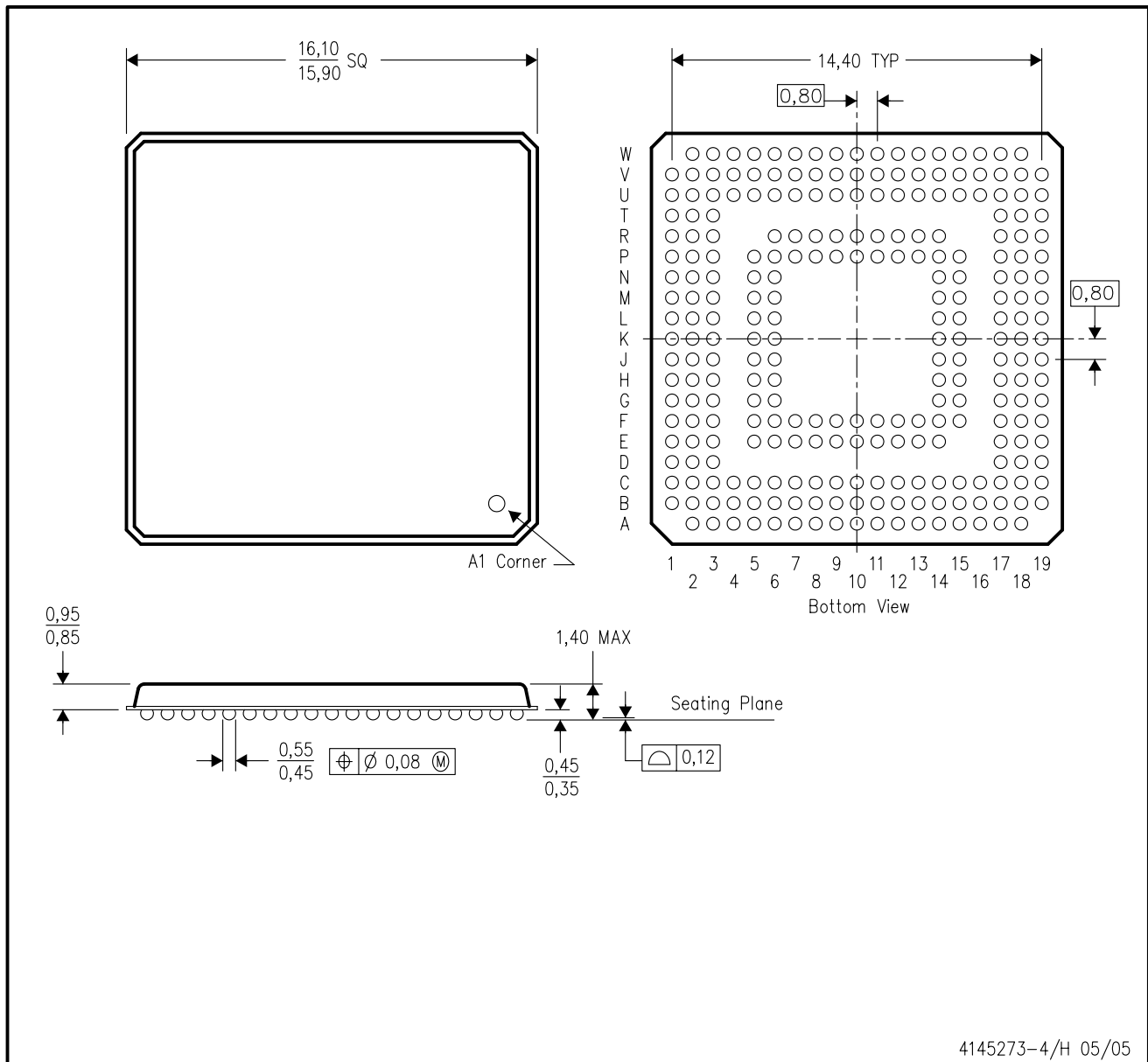
<sup>(3)</sup> MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

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GHK (S-PBGA-N257)

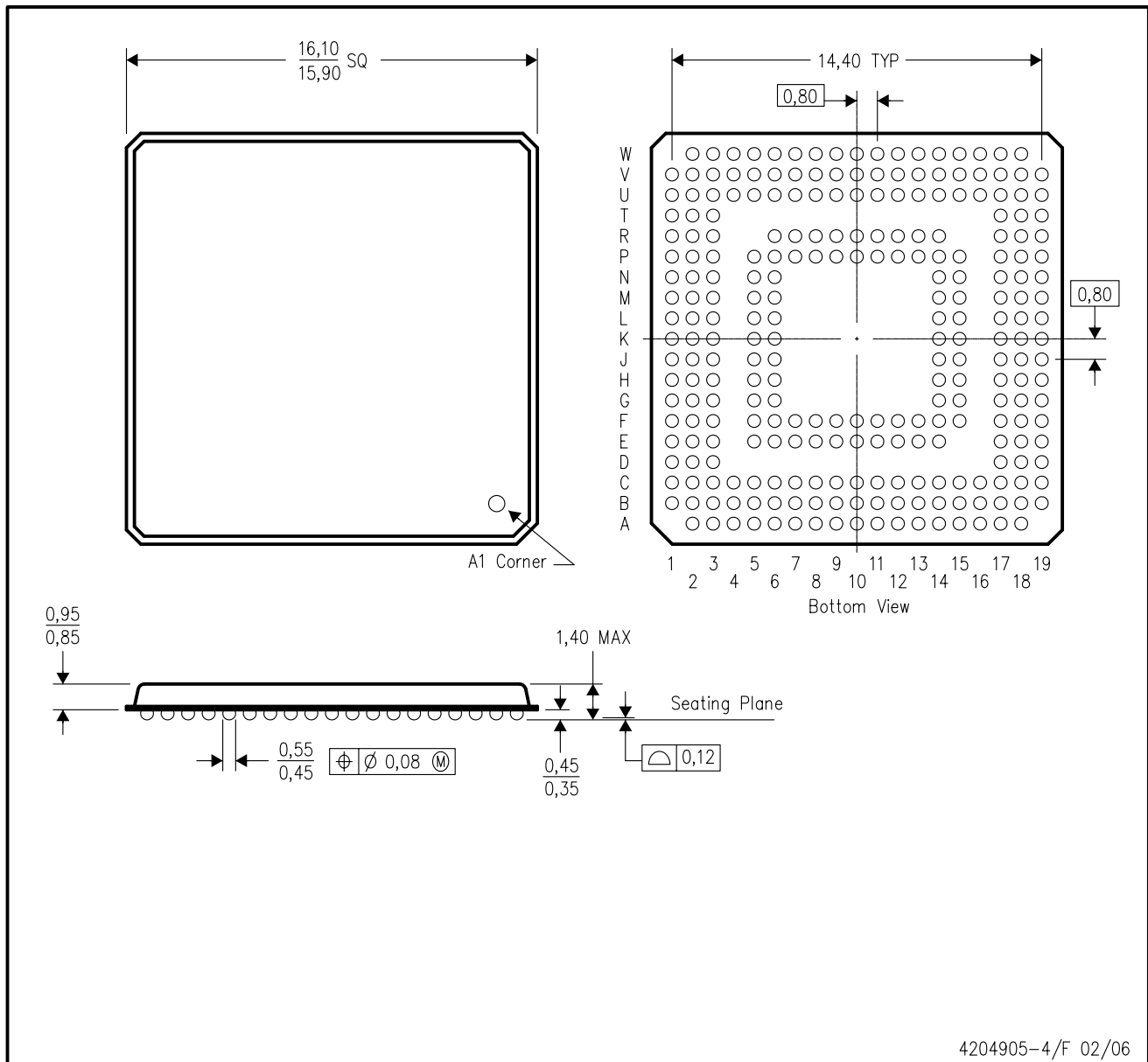
PLASTIC BALL GRID ARRAY



NOTES: A. All linear dimensions are in millimeters.  
 B. This drawing is subject to change without notice.

ZHK (S-PBGA-N257)

PLASTIC BALL GRID ARRAY



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- NOTES:
- A. All linear dimensions are in millimeters.
  - B. This drawing is subject to change without notice.
  - C. This is a lead-free solder ball design.

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
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