

## Mobile KBC with Super I/O, SFI, ADC and DAC with SMSC SentinelAlert!<sup>TM</sup>

### PRODUCT FEATURES

Data Brief

- 3.3V Operation with 5V Tolerant Buffers
- ACPI 1.0b/2.0 and PC99a/PC2001 Compliant
- LPC Interface with Clock Run Support
  - Serial IRQ Interface Compatible with Serialized IRQ Support for PCI Systems
  - 15 Direct IRQs
  - Three 8-Bit DMA Channels
  - ACPI SCI Interface
  - nSMI
  - Shadowed write only registers
- LPC/Firmware Hub Host Flash Interface
  - Single Byte FWH Memory Read and FWH Memory Write Support
  - FWH ID Support
  - 16MB FWH Flash and Register Addressing, 128K Legacy BIOS Addressing
  - Single Byte LPC Memory Read and LPC Memory Write Support
- Serial Peripheral Interface (SPI)
  - 3-pin Full Duplex serial communication interface.
  - Dual Ported Controller with Keeper Circuit
- 8 MByte Shared FlashROM Interface (SFI)
  - 8051/Host CPU Hardware Arbitrated Interface
  - 0.5 - 8MB - Host System BIOS & 8051 Keyboard
  - 8051 64KB Code Space Accessible as Separate 32KB Pages in Flash
  - Low-Power Flash Access Modes
  - 8051-Programmable Flash Access Protection
    - Read/Write/No-Access Protection
    - Variable Bank Sizes
- Host Flash Address Redirection for Recovery
- Serial Flash Programming Interface
- Two Power Planes
  - Low Standby Current in Sleep Mode
  - Intelligent Auto Power Management for Super I/O
  - Main powered blocks power supplied by standby power plane and controlled by power management signals
- 3-Port ACPI Embedded Controller Interface
- Configuration Register Set
  - Compatible with ISA Plug-and-Play Standard (Version 1.0a)
  - Four Pin Selectable Addressing Options
  - 8051-Programmable Base Address
- High-Performance Embedded 8051 Keyboard and System Controller
  - Provides System Power Management
  - System Watch Dog Timer (WDT)
  - 8042 Style Host Interface Relocatable to 480 Different Base I/O Addresses
  - Supports Interrupt and Polling Access
  - Interrupt Accelerator
  - 512 Bytes Data RAM
  - 2 Kilobytes Scratch ROM/RAM
  - On-Chip Memory-Mapped Control Registers
  - Up to 18x8 Keyboard Scan Matrix
  - Two 16 Bit Timer/Counters
  - Eleven 8051 Interrupt Sources
  - Thirty-Two 8-Bit, Host/8051 Mailbox Registers
  - Thirty-six Maskable Hardware Wake-Up Events
  - Fast GATEA20
  - Fast CPU\_RESET
  - Multiple Clock Sources and Operating Frequencies up to 32MHz
  - IDLE and SLEEP Modes
  - Low Power Fail-Safe Ring Oscillator  $\pm 10\%$  Accuracy
  - Hibernation Timer with programmable wake-up from 0.5ms to 128 minutes
  - 8051-Driven 16550A UART
    - 16-Byte Send/Receive FIFOs
    - External Baud Clock Option
  - Power-Fail Status Register
- Advanced Infrared Communications Controller (IRCC 2.0)
  - IrDA V1.2 (4Mbps), HPSIR, ASKIR, Consumer IR Support
  - Two IR Ports
  - Relocatable Base I/O Address

- Consumer Infrared Communications Controller (CIRCC2.0)
  - 96 Base I/O Address, 15 IRQ Options and 3 DMA Options
  - CIR supports NEC and RC5 framing
  - CIR supports RC6 framing under Philips license (p/n KBC1122P only)
  - 8051 access to RC6, RC5, and NEC received data
  - 8051/Host wakeup from specific RC5 and NEC received data
- Battery Backed Resources
  - 32KHz clock generator
  - 1 Week Wakeup timer
- Two 8584-Style SMBus Controllers
  - 8051 Host Interface Logic Allows Master or Slave Operation
  - Controllers are Fully Operational on Standby Power
  - One Controller with one Port
- Three independent Hardware Driven PS/2 Ports
  - Fully functional on Main and/or Suspend Power
  - PS/2 edge Wake Capable
  - Wake on specific mouse protocol
  - Wake on specific keyboard protocol
- 92 General Purpose I/O Pins
- Four Programmable Pulse-Width Modulator Outputs
  - Multiple clock Sources and Independent Clock Rates
  - 8 Bit Duty Cycle Granularity
- Three Fan Tachometer Inputs
- Four Programmable 16-bit Counter/Timers
- Serial Port
  - Host-Driven High-Speed 16C550A-Compatible UART with 16-Byte Send/Receive FIFOs
  - Programmable Baud Rate Generator
  - Modem Control Circuitry
  - Relocatable to 480 Different Base I/O Addresses
  - 15 IRQ Options
- Direct Battery Management with SMSC SentinelAlert!
  - Analog to Digital Converter with
    - 8 channels, 8b/10b conversion
    - 20ms conversion time for 8 channels
  - Digital to Analog Converter with SMSC SentinelAlert!
    - 3 channels, 8b conversion
    - 1.5ms conversion time for 3 channels
  - 2-GPIO's with SMSC SentinelAlert!
  - 2-Single pin SMSC BudgetBus Sensor Interface Ports
  - HW\_PROTECT# output thermal event indication
- MCU Serial Debug Port
- Integrated Standby Power Reset Generator
- 156 Pin DQFN Green, Lead-Free Package



**ORDER NUMBER(S): KBC1122-AJZS FOR 156 PIN, DQFN PACKAGE (GREEN, LEAD-FREE);  
KBC1122P-AJZS FOR 156 PIN, DQFN PACKAGE (GREEN, LEAD-FREE)**



80 Arkay Drive  
Hauppauge, NY 11788  
(631) 435-6000  
FAX (631) 273-3123

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## General Description

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The KBC1122 is an integrated Keyboard/System Management Controller which incorporates a high-performance 8051 Micro-Controller, an LPC Bus Interface which provides a Firmware Hub Interface and integrated Super I/O/LPC Resources. The KBC1122 is powered by two separate supply planes (VCC1, VCC0) to provide “instant on” and sophisticated system power management functions. The KBC1122 power control circuitry supports multiple low power-down modes.

The KBC1122 incorporates a Direct Battery Management (DBM) with SMSC SentinelAlert! accessible by the 8051. Together with external remote temperature sensor(s) can provide complete Analog Monitoring & Control System. The KBC1122 DBM includes an 8 channel ADC, a 3 channel DAC with SMSC SentinelAlert! and up to 2 SMSC SentinelAlert! GPIO's, two channel one-pin Temperature Sensor Communication Links, and a hardware protect output that requires no programming or 8051 intervention to operate.

The KBC1122 incorporates a Standby Power Reset Generator (RESGEN) which monitors the VCC1 power input and generates the internal VCC1 power on reset for the KBC1122. The KBC1122 also outputs VCC1RST# which can be used to reset the Flash memory on the Shared Flash Interface (SFI).

# Package Outline

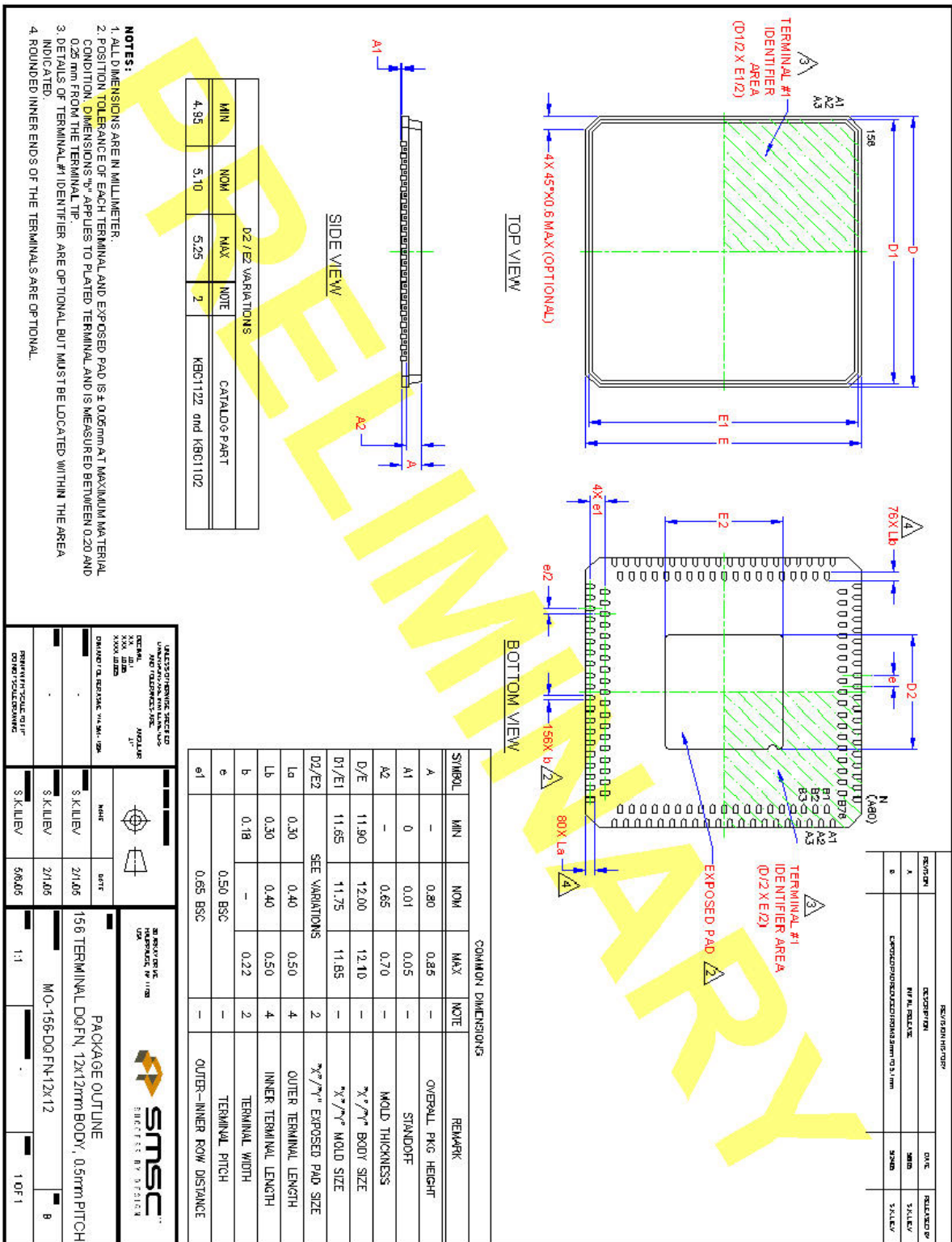


Figure 1 156 Pin DQFN Package Outline