

Product Brief



MicroBuddy™ The Family of Micro Companions



SEMTECH SYSTEM MANAGEMENT



MicroBuddy is now available in three combinations of microcontroller support functions, each in the same space-saving 3 x 3 x 0.9mm MLP package.

	FEATURE SETS		
	SH3000	SH3001	SH3002
Real Time Clock	✓	✓	
Watchdog Timer	✓		
Periodic Interrupt	✓	✓	✓
Spread Spectrum	✓	✓	✓
High Frequency Clock	✓	✓	✓
Brown-out Detect	✓		✓
Single Wire Interface	✓	✓	✓

MicroBuddy has expanded into a family of must-have micro-companion ICs - the original SH3000, and the newly introduced SH3001 and SH3002. Each device integrates a different suite of microcontroller support functions, allowing you to select the feature set that best supports your design.

Each of the three highly-integrated products is housed in the space-saving 3mm x 3mm x 0.9mm MLP package. And each device is aimed at simplifying

system design, lowering system cost, reducing circuit board real-estate, increasing functionality, and reducing power consumption.

MicroBuddy has broad application in a spectrum of micro-driven products including home automation and security systems, consumer products, portable/handheld devices, and industrial equipment.

Product Brief

SH3000, SH3001, and SH3002 MicroBuddy™

The family of micro companions

CPU SUPERVISOR

Low-VDD Reset Features

MicroBuddy provides low-VDD reset with both active-low and active-high outputs.

- Programmable from 2.3V to 4.4V in 33mV increments
- Stable to $\pm 0.25\%$ over full temperature range
- 50mV hysteresis typ.

Watchdog Timer Features

The programmable watchdog timer resets the processor if software runs out of control.

- Timeout programmable between 7.8ms and 1000ms
- Once set, the watchdog timer cannot be disabled

CLOCK MANAGEMENT SYSTEM

Clock Generation Features

MicroBuddy eliminates the need for high-frequency crystals.

- Primary clock from 32kHz or 62.5kHz to 16MHz in 256PPM maximum steps
- Totally self-contained, no external components, $\pm 0.5\%$ clock
- 32kHz crystal optional for higher accuracy
- Crystal frequency can be fine-tuned via software
- Add temperature sensor to create TCXO
- Adjustable spectrum spreading for EMI reduction
- Directly supports micro-controller STOP function
- Near instantaneous auto wake-up ($< 2\mu\text{s}$)
- Speed shift between multiple clock frequencies

REAL-TIME SUPPORT

Real-time Clock Features

MicroBuddy's built-in real-time clock has a provision for back-up via an external power source.

- Time of day and calendar values from sub-seconds to over 100 years
- Read or write via single pin serial interface

Wake-up Timer Features

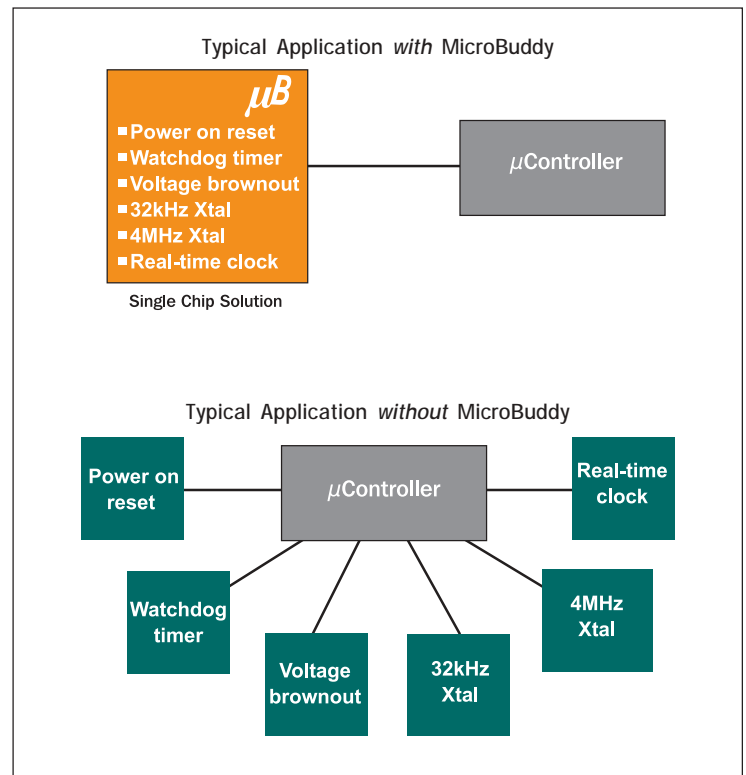
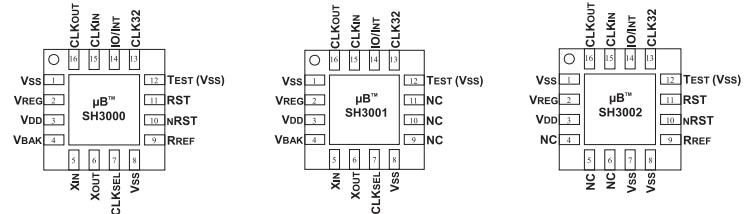
Software can invoke the processor's power-saving modes and the MicroBuddy can wake it after a programmable interval.

- Programmable from 30.5 μs to 36.4 hours
- Auto reload for next interval
- Reduces power consumption

Other Features

- Internal power-on reset (POR) with 6ms delay
- 32-bit scratchpad RAM
- Single-wire bi-directional serial interface and interrupt line
- Settings programmed nonvolatile or in real-time
- Operates from 2.3V to 5.5V
- I_{DD} is $< 850\mu\text{A}/2\text{MHz}$, $< 3\text{mA}/16\text{MHz}$, $< 10\mu\text{A}/\text{standby}$
- $< 50\text{nA } I_{BSB}$, $< 1.5\mu\text{A } I_{BUP}$ (battery standby, backup current)

Pin Configurations



Visit our website to locate most current product specifications, datasheets and contact information for your local Semtech Field Applications Engineer.