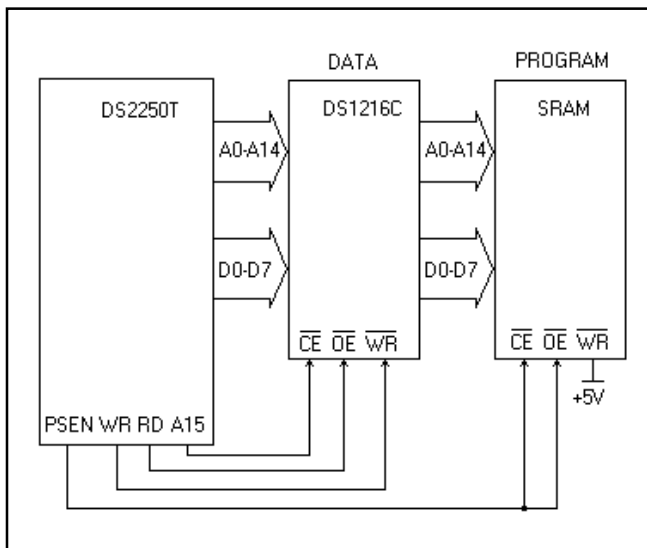


GENERAL DESCRIPTION

The DS1216 SmartWatch RAM and SmartWatch ROM sockets are 600-mil-wide DIP sockets with a built-in CMOS watch function, an NV RAM controller circuit, and an embedded lithium energy source. The sockets provide an NV RAM solution for memory sized from 2k x 8 to 512k x 8 with package sizes from 26 pins to 32 pins. When a socket is mated with a CMOS SRAM, it provides a complete solution to problems associated with memory volatility and uses a common energy source to maintain time and date. The SmartWatch ROM sockets use the embedded lithium source to maintain the time and date only. A key feature of the SmartWatch is that the watch function remains transparent to the RAM. The SmartWatch monitors V_{CC} for an out-of-tolerance condition. When such a condition occurs, an internal lithium energy source is automatically switched on and write protection is unconditionally enabled to prevent loss of watch and RAM data.

TYPICAL OPERATING CIRCUIT



FEATURES

- Keeps Track of Hundredths of Seconds, Seconds, Minutes, Hours, Days, Date of the Month, Months, and Years
- Converts Standard 2k x 8 Up to 512k x 8 CMOS Static RAMs into Nonvolatile Memory
- Embedded Lithium Energy Cell Maintains Watch Information and Retains RAM Data
- Watch Function is Transparent to RAM Operation
- Month and Year Determine the Number of Days in Each Month; Leap-Year Compensation Valid Up to 2100
- Lithium Energy Source is Electrically Disconnected to Retain Freshness Until Power is Applied for the First Time
- Proven Gas-Tight Socket Contacts
- Full $\pm 10\%$ Operating Range
- Operating Temperature Range: 0°C to $+70^{\circ}\text{C}$
- Accuracy Better Than ± 1 Minute/Month at $+25^{\circ}\text{C}$

ORDERING INFORMATION

PART	TEMP RANGE	PIN-PACKAGE
DS1216B	0°C to $+70^{\circ}\text{C}$	28 SmartWatch Socket
DS1216C	0°C to $+70^{\circ}\text{C}$	28 SmartWatch Socket
DS1216D	0°C to $+70^{\circ}\text{C}$	32 SmartWatch Socket
DS1216E	0°C to $+70^{\circ}\text{C}$	28 SmartWatch Socket
DS1216F	0°C to $+70^{\circ}\text{C}$	32 SmartWatch Socket
DS1216H	0°C to $+70^{\circ}\text{C}$	32 SmartWatch Socket

(See Figure 2 for letter suffix marking identification.)

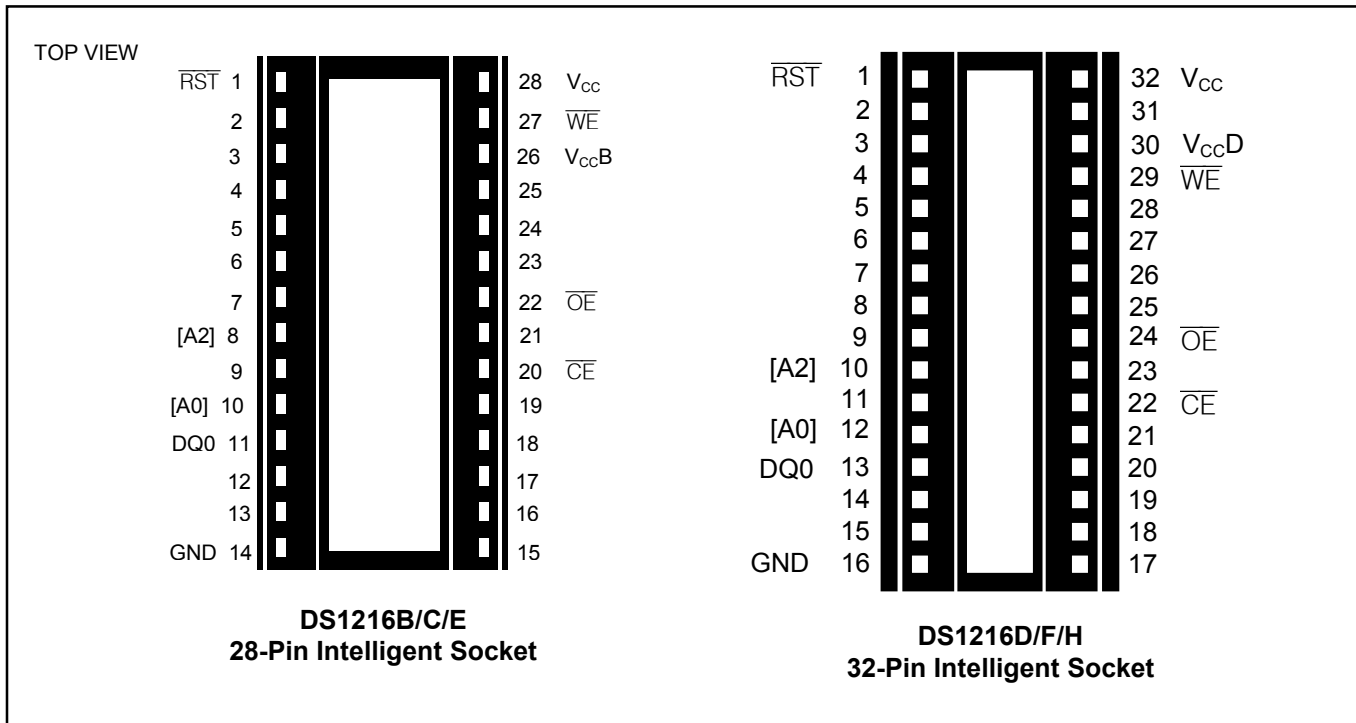
Selector Guide appears on page 2.

Note: Some revisions of this device may incorporate deviations from published specifications known as errata. Multiple revisions of any device may be simultaneously available through various sales channels. For information about device errata, click here: www.maxim-ic.com/errata.

PIN DESCRIPTION

$\overline{\text{RST}}$	- Reset, Active Low	$\overline{\text{OE}}$	- Output Enable, Active Low
DQ0	- Data Input/Output 0 (RAM)	$\overline{\text{WE}}$	- Write Enable, Active Low
A2	- Address Bit 2 (Read/Write [ROM])	V_{CC}	- Switched V_{CC} for 28-/32-Pin RAM
A0	- Address Bit 0 (Data Input [ROM])	V_{CCB}	- Switched V_{CC} for 24-Pin RAM
GND	- Ground	V_{CCD}	- Switched V_{CC} for 28-Pin RAM
$\overline{\text{CE}}$	- Conditioned Chip Enable, Active Low		

PIN CONFIGURATIONS



SELECTOR GUIDE

PART	RAM/ROM	RAM DENSITY	PC BOARD MODIFICATION REQUIRED FOR DENSITY UPGRADE?
DS1216B	RAM	16k/64k	No/Yes
DS1216C	RAM	64k/256k	No
DS1216D	RAM	256k/1M	No/Yes
DS1216E	ROM	64k/256k	No
DS1216F	ROM	64k/256k/1M	No
DS1216H	RAM	1M/4M	No