

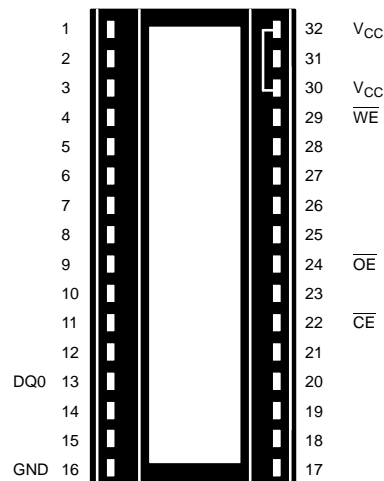
**DALLAS**  
SEMICONDUCTOR

**DS1216D**  
SmartWatch/RAM 256K/1M

## FEATURES

- Converts standard 8K x 8, 32K x 8, 128K x 8, and 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
- Keeps track of hundredths of seconds, seconds, minutes, hours, days, date of the month, months, and years
- 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°C
- Accuracy is better than  $\pm 1$  min./month @ 25°C

## PIN ASSIGNMENT



32-PIN INTELLIGENT SOCKET

## PIN DESCRIPTION

All pins pass through except 22, 30 and 32.

Pin 1	$\overline{RST}$	– RESET
Pin 13	DQ0	– Data Input/Output 0
Pin 16	GND	– Ground
Pin 22	$\overline{CE}$	– Conditioned Chip Enable
Pin 24	$\overline{OE}$	– Output Enable
Pin 29	$\overline{WE}$	– Write Enable
Pin 30	$V_{CC}$	– Switched $V_{CC}$ for 28-pin RAM
Pin 32	$V_{CC}$	– Switched $V_{CC}$ for 32-pin RAM

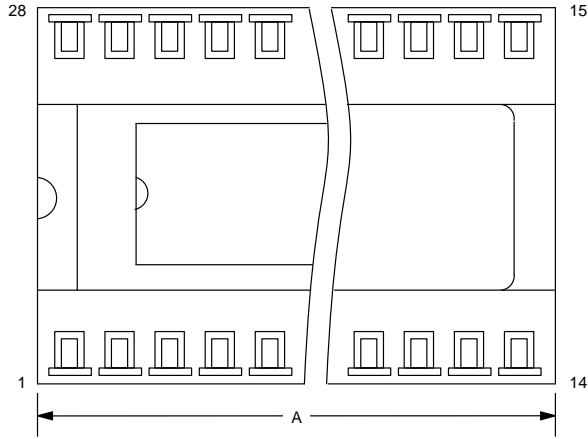
## DESCRIPTION

The DS1216D SmartWatch/RAM 256K/1M is a 32-pin, 600 MIL wide DIP socket with a built-in CMOS watch function, a nonvolatile RAM controller circuit, and an embedded lithium energy source. It accepts either an 8K x 8, 32K x 8, 128K x 8, or 512K x 8 JEDEC byte-wide CMOS static RAM. When the socket is mated with a CMOS SRAM, it provides a complete solution to prob-

lems associated with memory volatility and uses a common energy source to maintain time and date. A key feature of the SmartWatch is that the watch function remains transparent to the RAM.

See the DS1216B SmartWatch/RAM 16/64K data sheet for technical details.

**DS1216D SMARTWATCH**



PKG	28-PIN		32-PIN	
	MIN	MAX	MIN	MAX
<b>A IN.</b> <b>MM</b>	1.390 35.31	1.420 36.07	1.580 40.13	1.620 41.14
<b>B IN.</b> <b>MM</b>	0.690 17.53	0.720 18.29	0.690 17.53	0.720 18.29
<b>C IN.</b> <b>MM</b>	0.420 10.67	0.470 11.94	0.400 10.16	0.470 11.94
<b>D IN.</b> <b>MM</b>	0.035 0.89	0.065 1.65	0.035 0.89	0.065 1.65
<b>E IN.</b> <b>MM</b>	0.055 1.39	0.075 1.90	0.055 1.39	0.075 1.90
<b>F IN.</b> <b>MM</b>	0.120 3.04	0.160 4.06	0.120 3.04	0.160 4.06
<b>G IN.</b> <b>MM</b>	0.090 2.29	0.110 2.79	0.090 2.29	0.110 2.79
<b>H IN.</b> <b>MM</b>	0.590 14.99	0.630 16.00	0.590 14.99	0.630 16.00
<b>J IN.</b> <b>MM</b>	0.008 0.20	0.012 0.30	0.008 0.20	0.012 0.30
<b>K IN.</b> <b>MM</b>	0.015 0.38	0.021 0.53	0.015 0.38	0.021 0.53
<b>L IN.</b> <b>MM</b>	0.380 9.65	0.420 10.67	0.380 9.65	0.420 10.67

