



# DS1216F

## SmartWatch/ROM 64K/256K/1M

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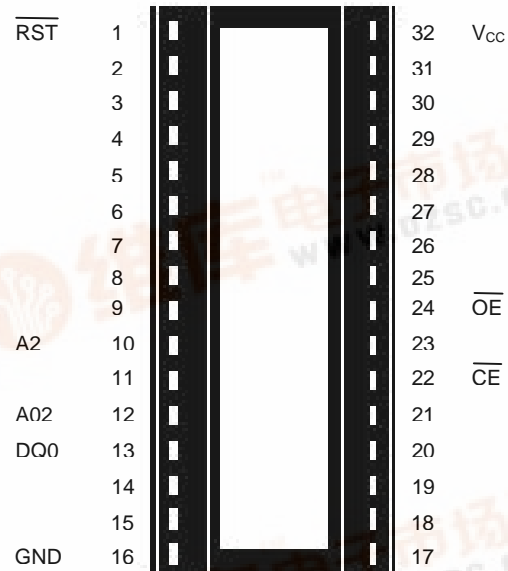
### FEATURES

- Adds timekeeping to any 32-pin JEDEC bytewise memory location
- Embedded lithium energy cell maintains calendar time for more than 10 years in the absence of power
- Timekeeping function is transparent to memory 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  $\pm 10\%$   $V_{CC}$  operating range
- Operating temperature range  $0^{\circ}\text{C}$  to  $70^{\circ}\text{C}$
- Accuracy is better than  $\pm 1$  minute/month @  $25^{\circ}\text{C}$

### ORDERING INFORMATION

DS1216F      5 volt operation  
 DS1216F-3    3 volt operation

### PIN ASSIGNMENT



32-Pin Intelligent Socket

### PIN DESCRIPTION

- Pin 1  $\overline{\text{RST}}$  - RESET
  - Pin 10 A2 - Address Bit 2(READ/ $\overline{\text{WRITE}}$ )
  - Pin 12 A0 - Address Bit 0 (Data Input)
  - Pin 13 DQ0 - I/O<sub>0</sub> (Data Output)
  - Pin 16 GND - Ground
  - Pin 22  $\overline{\text{CE}}$  - Conditioned Chip Enable
  - Pin 24  $\overline{\text{OE}}$  - Output Enable
  - Pin 32  $V_{CC}$  - Power Supply Input
- All pins pass through to the socket except 22.

### DESCRIPTION

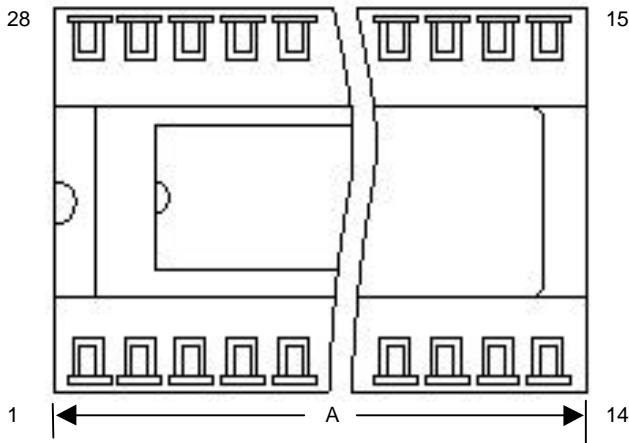
The DS1216F SmartWatch/ROM is a 32-pin, 600-mil wide DIP socket with a built-in CMOS timekeeper and an embedded lithium energy source to maintain time and date. It accepts any 32-pin bytewise ROM or volatile RAM. A key feature of the SmartWatch is that the timekeeping function remains transparent to the memory device placed above. The SmartWatch monitors  $V_{CC}$  for an out-of-tolerance condition. When such a condition occurs, an internal lithium energy source automatically switches on to prevent loss of time and calendar data.



Using the SmartWatch saves PC board space since the combination of SmartWatch and the mated memory device takes up no more area than the memory alone. The SmartWatch uses pins 1, 10, 12, 13, 22, and 24 for timekeeper control. All pins pass through to the socket receptacle except for pin 22 (CE), which is inhibited during the transfer of time information.

See the DS1216E SmartWatch/ROM/64/256K data sheet for technical details.

### DS1216F SMARTWATCH



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

