

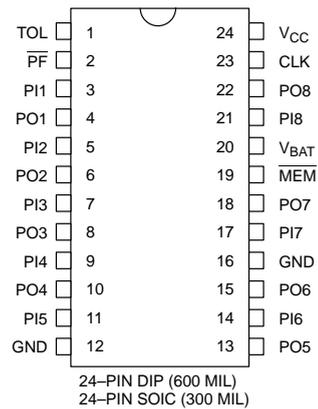
**DALLAS**  
SEMICONDUCTOR

**DS1380**  
RAMport

## FEATURES

- 2K x 8 static RAM
- 8-Bit transparent I/O port
- Battery connection provided for nonvolatility
- Multiplexed address/data bus reduces pin count
- 5% or 10%  $V_{CC}$  tolerance
- Power Fail output signal
- Low power CMOS
- 24-pin DIP package or optional 24-pin SOIC
- Ideally suited for microcontroller applications as add on memory

## PIN ASSIGNMENT



## PIN DESCRIPTION

PI1 – PI8	– Port Inputs ( $\mu$ P Ports)
PO1 – PO8	– Port Outputs (External Ports)
$\overline{PF}$	– Power Fail Output
CLK	– Clock
$\overline{MEM}$	– Memory Select
V <sub>BAT</sub>	– + Battery Connection
V <sub>CC</sub>	– +5 Volts
GND	– Ground

## DESCRIPTION

The DS1380 is a 2K x 8 nonvolatile static RAM designed to connect directly to the port pins of a microcontroller. Eight of ten port pins required to interface with the microcontroller are reproduced by the DS1380 for general purpose use. The reproduced port pins can be both inputs and outputs and will appear exactly the same as the pins on the attached microcontroller. The static RAM is read or written with three successive cycles con-

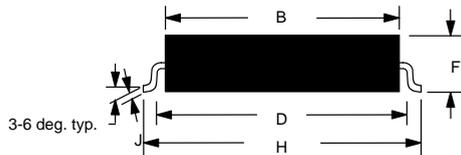
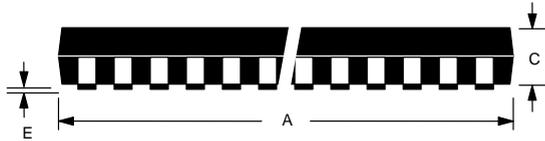
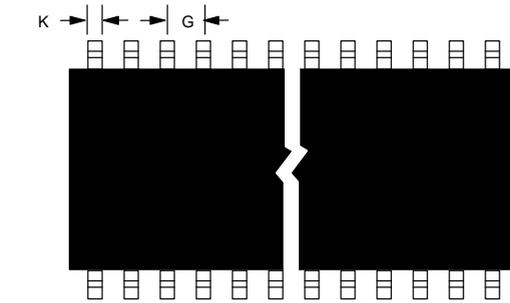
taining high order address, low order address and then data. Read, write and status information is passed to the DS1380 along with the high order address transfer. While transferring data to and from memory, the I/O status is locked and maintained. All data within the DS1380 can be made nonvolatile with direct connection of a 3-volt lithium battery. The DS1380 is controlled by only two signals: clock and memory select.

**OPERATION**

The DS1380 performs exactly to the specifications of the DS1381 with the exception of an external battery connection. The  $V_{BAT}$  pin is designed for a battery input voltage between 2.7 volts and 3.5 volts and requires a current of 100 nA at 25°C and 1  $\mu$ A at 60°C. If battery backup operation is not required, the  $V_{BAT}$  input must be

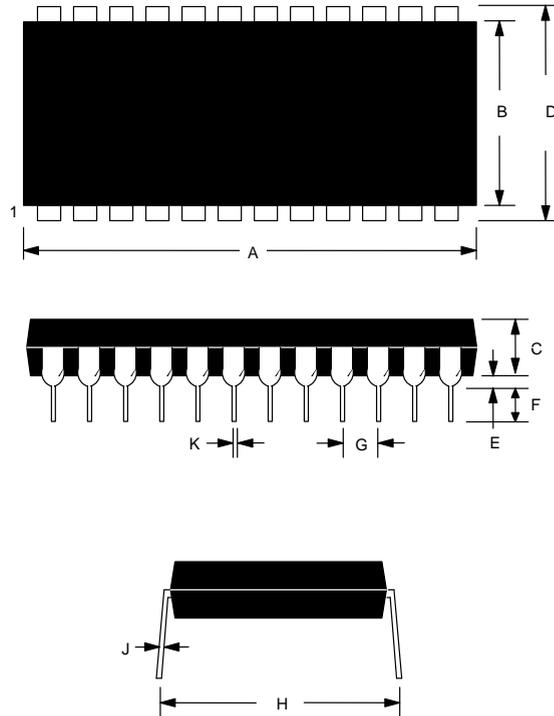
grounded. With the external battery connected, the DS1380 is nonvolatile and retains data in the absence of power. When the  $V_{BAT}$  input is grounded, the DS1380 is volatile and will not retain data without  $V_{CC}$ . For detailed operation and electrical specifications consult the DS1381 data sheet.

**DS1380S RAMPORT**



PKG	24-PIN	
	DIM	MIN
A IN.	0.602	0.612
MM	15.29	15.54
B IN.	0.290	0.300
MM	7.37	7.62
C IN.	0.089	0.095
MM	2.26	2.41
D IN.	0.325	0.330
MM	8.26	8.38
E IN.	0.008	0.012
MM	0.20	0.30
F IN.	0.097	0.105
MM	2.46	2.68
G IN.	0.046	0.054
MM	1.17	1.37
H IN.	0.400	0.410
MM	10.16	10.41
J IN.	0.006	0.011
MM	0.152	0.28
K IN.	0.013	0.019
MM	0.33	0.48

**DS1380 RAMPORT**



PKG	24-PIN	
DIM	MIN	MAX
A IN.	1.245	1.270
MM	31.62	32.25
B IN.	0.530	0.550
MM	13.46	13.97
C IN.	0.140	0.160
MM	3.56	4.06
D IN.	0.600	0.625
MM	15.24	15.88
E IN.	0.015	0.050
MM	0.380	1.27
F IN.	0.120	0.145
MM	3.05	3.68
G IN.	0.090	0.110
MM	2.29	2.79
H IN.	0.625	0.675
MM	15.88	17.15
J IN.	0.008	0.012
MM	0.20	0.30
K IN.	0.015	0.022
MM	0.38	0.56