DALLAS SEMICONDUCTOR CORP   50E D   ■ 2614130 0004696 6 ■ DAL
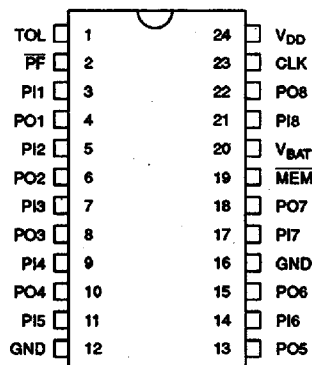
DALLAS
SEMICONDUCTOR

DS1380, DS1380S
RAMport

T-46-23-37

FEATURES

- 2K X 8 Static RAM

- 8-Bit Transparent I/O Port

- Battery connection provided for nonvolatility

- Multiplexed address/data bus reduces pin count

- Write protection for both RAM and port status at either 5% or 10% of power supply voltage

- Power Fail Interrupt Output

- Low Power CMOS

- 24 Pin Dip Package or optional 24 pin SOIC

- Ideally suited for microcontroller applications as add on memory

PIN ASSIGNMENT

TOL	1	24	V_{DD}
$\overline{PF}$	2	23	CLK
PI1	3	22	PO8
PO1	4	21	PI8
PI2	5	20	V_{BAT}
PO2	6	19	$\overline{MEM}$
PI3	7	18	PO7
PO3	8	17	PI7
PI4	9	16	GND
PO4	10	15	PO6
PI5	11	14	PI6
GND	12	13	PO5

24 PIN DIP OR 24 PIN SOIC

PIN DESCRIPTION

|		
$\overline{PF}$	-	Power Fail Output
PI1 - PI8	-	Port Inputs (μP Ports)
PO1 - PO8	-	Port Outputs (External Ports)
GND	-	Ground
V_{CC}	-	+5 Volts
CLK	-	Clock
$\overline{MEM}$	-	Memory Select
V_{BAT}	-	+ Battery Connection

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 use in the identical manner as previously intended. The reproduced port pins can be both inputs and outputs and will appear as exactly the same I/O structure on the attached microcontroller. The content of memory is read or written with three successive cycles containing 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; the port clock and memory select inputs.

DALLAS SEMICONDUCTOR CORP   50E D   ▪▪ 2614130 0004697 8 ▪▪DAL

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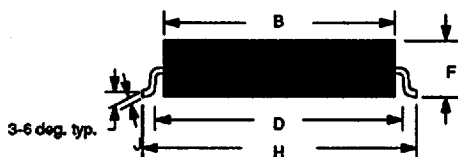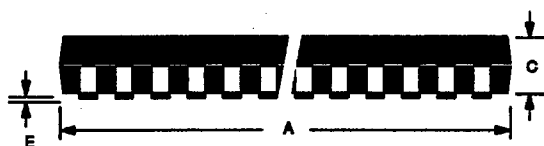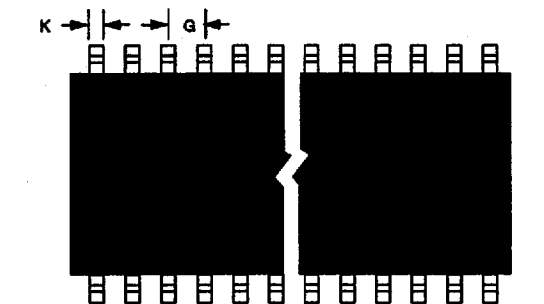
PKG	24-PIN	
DIM	MIN	MAX
A IN.	0.602	0.612
MM	15.29	15.54
B IN.	0.290	0.300
MM	7.37	7.62
C IN.	0.089	0.095
MM	2.26	2.41
D IN.	0.325	0.330
MM	8.26	8.38
E IN.	0.008	0.012
MM	0.20	0.30
F IN.	0.097	0.105
MM	2.46	2.68
G IN.	0.046	0.054
MM	1.17	1.37
H IN.	0.400	0.410
MM	10.16	10.41
J IN.	0.006	0.011
MM	0.152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

022291 2/3

DALLAS SEMICONDUCTOR CORP   50E D ▣▣ 2614130 0004698 T ▣▣DAL

DS1380 RAMPORT

T-46-23-37
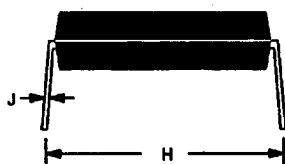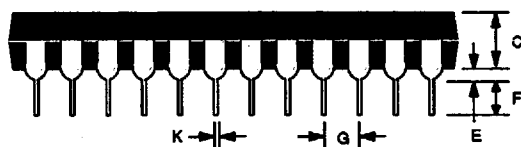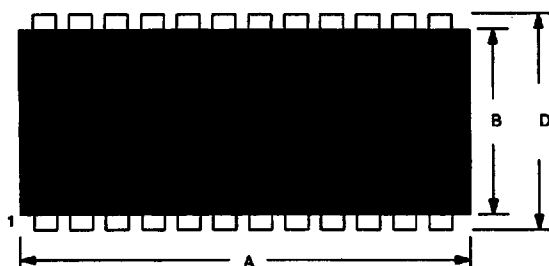
PKG	24-PIN	
DIM	MIN	MAX
A IN.	1.245	1.270
MM	31.62	32.25
B IN.	0.530	0.550
MM	13.46	13.97
C IN.	0.140	0.160
MM	3.56	4.06
D IN.	0.600	0.625
MM	15.24	15.88
E IN.	0.015	0.050
MM	0.380	1.27
F IN.	0.120	0.145
MM	3.05	3.68
G IN.	0.090	0.110
MM	2.29	2.79
H IN.	0.625	0.675
MM	15.88	17.15
J IN.	0.008	0.012
MM	0.20	0.30
K IN.	0.015	0.022
MM	0.38	0.56

4

022291 3/3