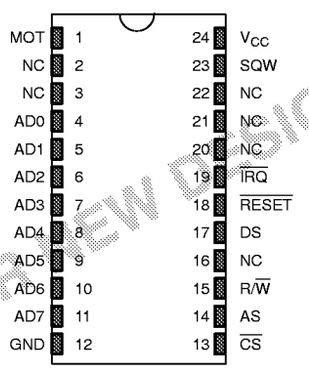
DALLAS SEMICONDUCTOR

DS1287
Real Time Clock

FEATURES

- Drop-in replacement for IBM AT computer clock/calendar
- Pin compatible with the MC146818A
- Totally nonvolatile with over 10 years of operation in the absence of power
- Self-contained subsystem includes lithium, quartz, and support circuitry
- Counts seconds, minutes, hours, day of the week, date, month, and year with leap year compensation
- Binary or BCD representation of time, calendar, and alarm
- 12- or 24-hour clock with AM and PM in 12-hour mode
- Daylight Savings Time option
- Selectable between Motorola and Intel bus timing
- Multiplex bus for pin efficiency
- Interfaced with software as 64 RAM locations
  - 14 bytes of clock and control registers
  - 50 bytes of general purpose RAM
- Programmable square wave output signal
- Bus-compatible interrupt signals ($\overline{IRQ}$)
- Three interrupts are separately software-maskable and testable
  - Time-of-day alarm once/second to once/day
  - Periodic rates from 122 µs to 500 ms
  - End of clock update cycle

PIN ASSIGNMENT



24 PIN ENCAPSULATED PACKAGE

PIN DESCRIPTION

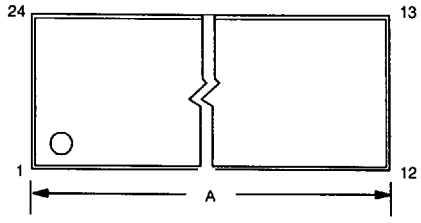
AD0–AD7	-	Multiplexed address/data bus
NC	-	No connection
MOT	-	Bus type selection
$\overline{CS}$	-	Chip select
AS	-	Address strobe
R/$\overline{W}$	-	Read/write input
DS	-	Data strobe
$\overline{RESET}$	-	Reset input
$\overline{IRQ}$	-	Interrupt request output (open drain)
SQW	-	Square wave output
V_{CC}	-	+5 volt supply
GND	-	Ground

DESCRIPTION

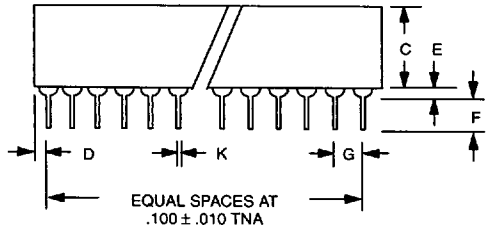
The DS1287 Real Time Clock is designed to be a direct replacement for the MC146818A. For a complete description of operating conditions, electrical and mechanical characteristics, bus timing, and pin descriptions see the DS12887 data sheet.

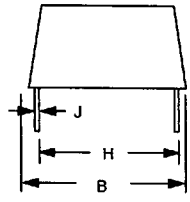
16- AND 24- PIN ENCAPSULATED PACKAGE (FLUSH BOTTOM – 450 MIL.)

Includes:
DS1290
DS1292



NOTE: On 16–pin package, pins 1 and 16 are missing by design. On 24–pin package, pins 1 and 24 are missing by design.





PKG	16-PIN		24-PIN	
DIM	MIN	MAX	MIN	MAX
A IN. MM	0.820 20.83	0.840 21.34	1.310 33.27	1.330 33.78
B IN. MM	0.440 11.18	0.460 11.68	0.440 11.18	0.460 11.68
C IN. MM	0.330 8.38	0.370 9.40	0.330 8.38	0.370 9.40
D IN. MM	0.180 4.57	0.210 5.33	0.215 5.46	0.245 6.22
E IN. MM	0.020 0.51	0.040 1.02	0.020 0.51	0.040 1.02
F IN. MM	0.110 2.79	0.140 3.56	0.110 2.79	0.140 3.56
G IN. MM	0.090 2.29	0.110 2.79	0.090 2.29	0.110 2.79
H IN MM	0.330 8.38	0.380 9.65	0.330 8.38	0.380 9.65
J IN MM	0.008 0.20	0.012 0.31	0.008 0.20	0.012 0.31
K IN. MM	0.015 0.38	0.021 0.53	0.015 0.38	0.021 0.53