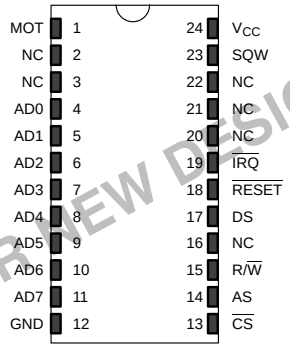
DALLAS SEMICONDUCTOR

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.