



Very Low Power 8-Bit 32 kHz RTC Module with Digital Trimming, User RAM and Battery Switch-over

Features

- Built-in quartz with digital trimming for frequency tuning and temperature compensation facilities
- INTEL and MOTOROLA interface compatibility
- 15 ns typical access time at 5.0 V
- 1.2 μ A typical standby current at 3.0 V
- Wide supply voltage range, $2.0 \leq V_{DD} \leq 5.5$ V
- Integrated battery switch-over
- Battery voltage range, $2.0 \leq V_{BAT} \leq 4.0$ V
- No busy state
- No external components required
- BCD format
- Frequency measurements
- Time set lock mode
- Week number calculation
- Clock counts up to 99 years
- Leap year correction
- 12 or 24 hours data format
- Output programmable interrupts
- Alarm interrupt, programmable up to one month
- Timer interrupt, programmable up to 24 hours
- Time to 1/100 of a second
- To external time reference synchronisation
- 50 Hz or nearest s/min synchronisation
- Power fail input, \overline{PFI}
- Power fail output or Reset output, \overline{PFO}
- Tri-state bus capability when power fail ($\overline{PFI} = 0$)
- User RAM
- Temperature range -40 to $+85^\circ\text{C}$
- Packages DIP18 and SO28

Description

The V 3025 is a low power CMOS real time clock with an integrated battery switch-over. The standby current is typically 2.5 μ A and the access time is 50 ns. The interface is a multiplexed address and data 8 bits bus. Multiplexing of address and data is handled by the input line A/D. There are no busy flags in the V 3025, internal time update cycles are invisible to the user's software. Time data can be read from the V 3025 in 12 or 24 hour data formats. An external signal puts the V 3025 in standby mode. Even in standby, the V 3025 pulls the \overline{IRQ} pin active low on an internal alarm interrupt. Calendar functions include leap year correction and week number calculation. The V 3025 can be synchronized to an external 50 Hz signal or to the nearest second or minute. The integrated battery switch-over supply the real time clock part by V_{DD} as long as V_{DD} is higher than V_{BAT} . When V_{DD} decreases under V_{BAT} , the output \overline{PFO} comes active and the real time clock is supplied by the battery or the supercap.

Applications

- Industrial controllers
- Alarm systems with periodic wake up
- PABX and telephone systems
- Point of sale terminals
- Personal computers
- Automotive electronics

Typical Operating Configuration

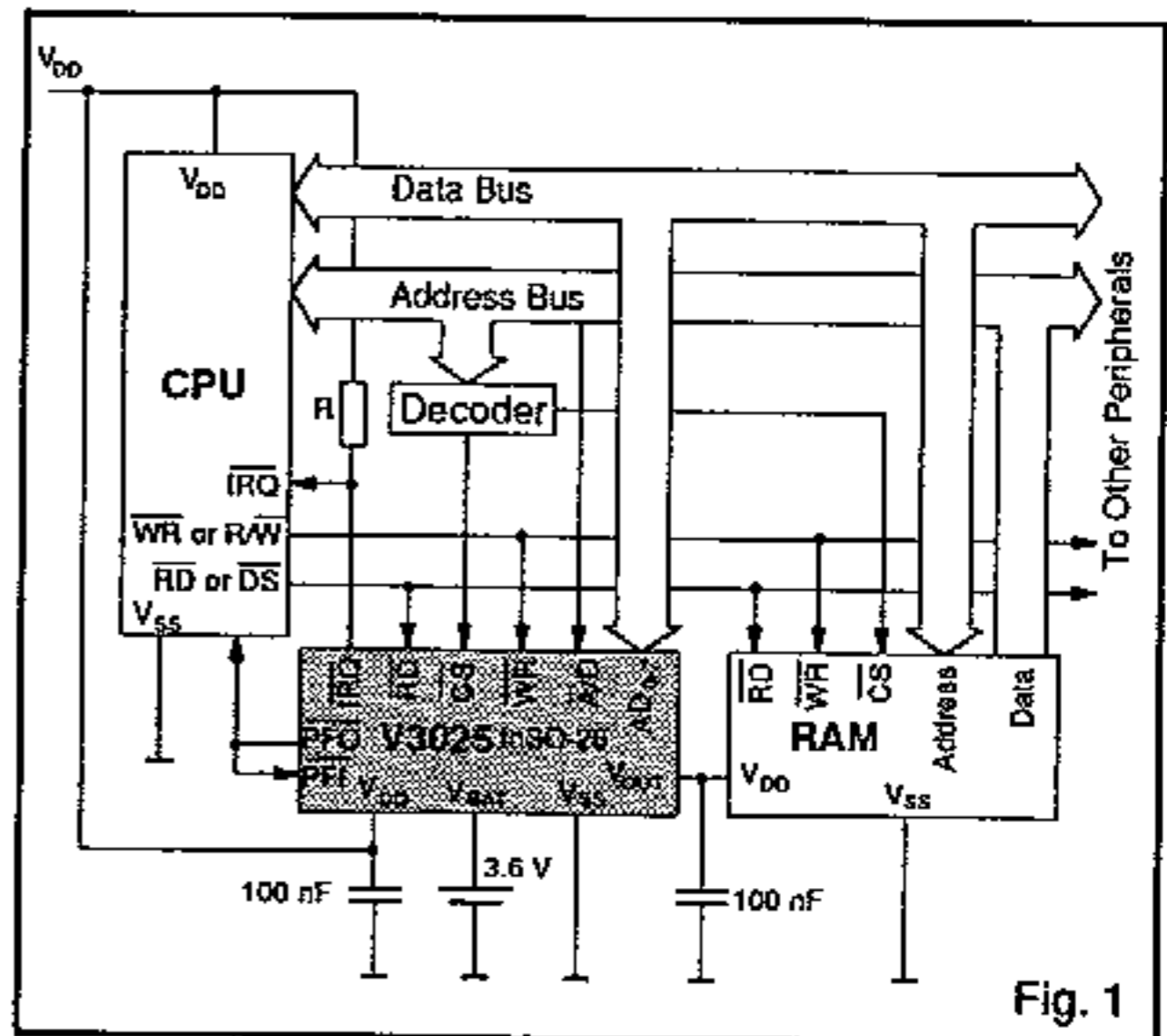


Fig. 1

Pin Assignment

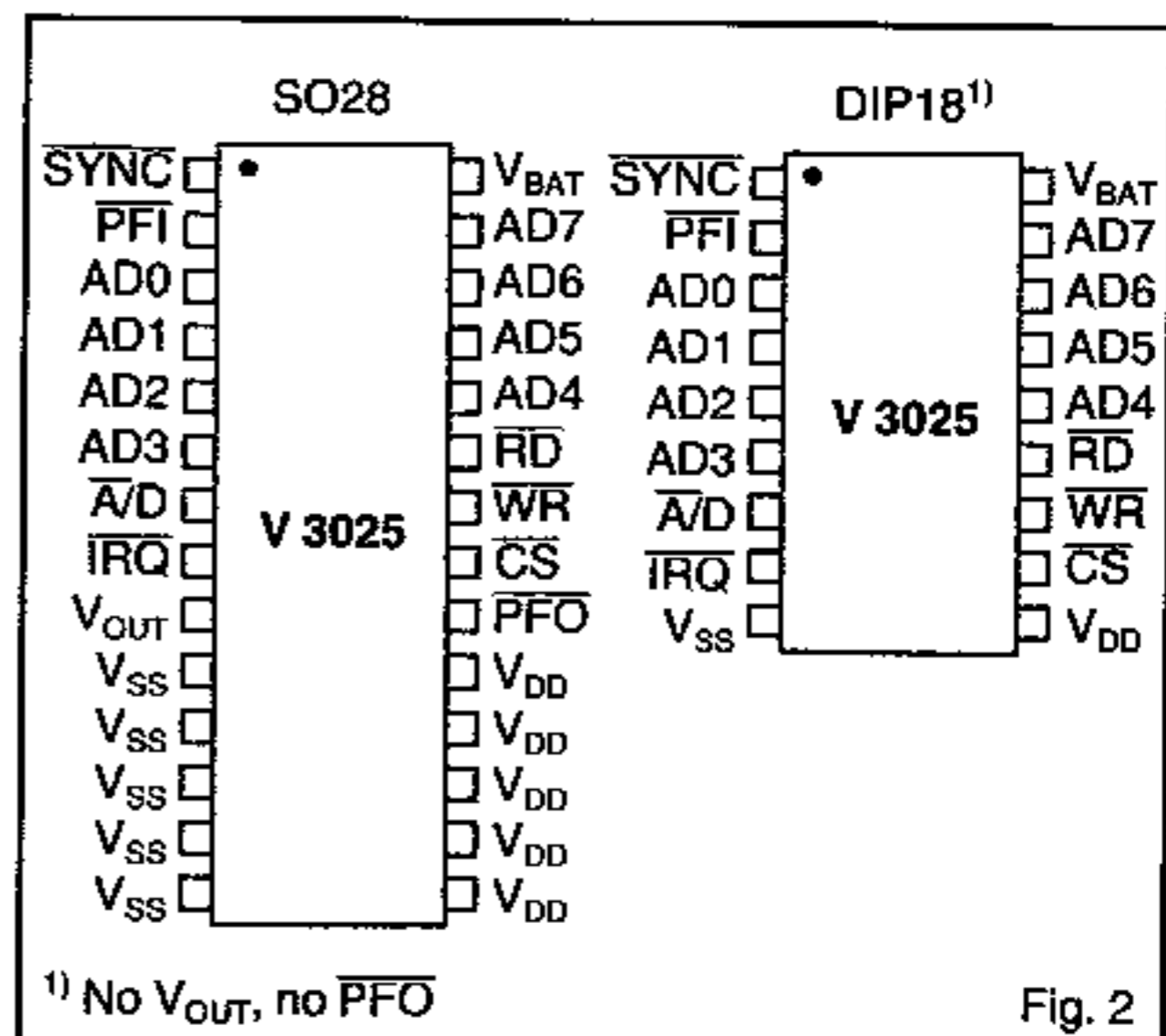


Fig. 2