IDT 1337, 1338 & 1339 I²C Serial Real-Time Clocks

Low-power, flexible and reliable clock devices enable efficient and cost-effective designs

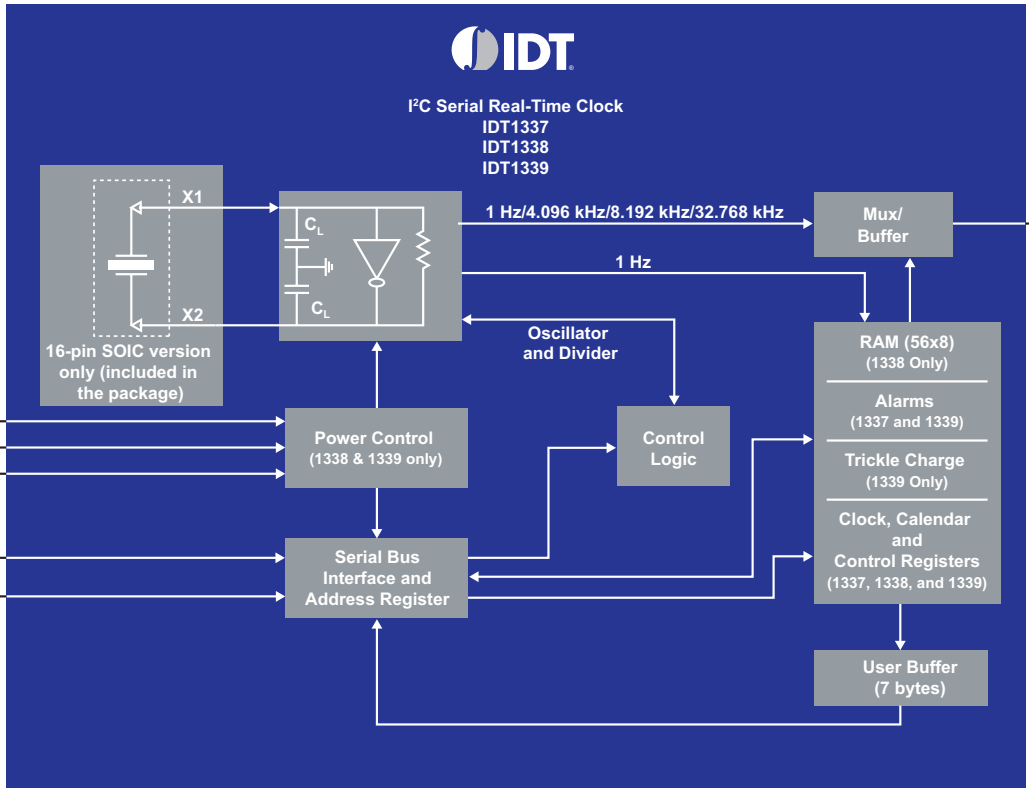
Applications

- Handhelds (GPS, POS terminals, MP3 players)
- Consumer Electronics (set-top box, digital recording)
- Office (fax, printers, copiers)
- Medical (glucometer, medicine dispensers)
- Telecom (routers, switches, servers, network applications)
- Other (thermostats, vending machines, modems, utility meters, digital photo frames, white goods)

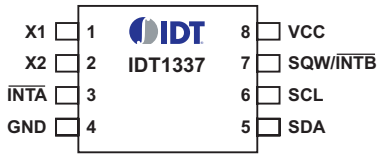
General Description

Integrated Device Technology Inc. introduces its first series of ultra low-power real-time clocks (RTC): **IDT1337**, **IDT1338**, and **IDT1339**. All three devices offer fast and standard I²C interface, time and date function, and are available in a variety of packages, making them cost-effective. These devices are suitable for applications that require minimum board space. By offering high noise immunity, low current consumption, 12/24 hour mode of operation, auto correction for leap year and programmable square wave output — they are ideal for a wide range of design applications. IDT RTC devices operate over an extended supply voltage range of 1.8V to 5.5V, a temperature range of -40°C to +85°C, and consume less than 1 µA current, thus enabling long battery life. The lowest time keeping voltage is 1.3V. The chart below provides an overview of additional features and benefits of the IDT1337, IDT1338 and IDT1339 real-time clocks.

Benefits	Features	1337	1338-18 1338-31	1339-2 1339-31
Ideal for wide range of design applications	Real-Time Clock (RTC) counts seconds, minutes, hours, day, date, month, and year with leap-year compensation valid up to 2100 (auto correction for leap year)	✔	✔	✔
	12/24 hour mode of operation with AM/PM indicator	✔	✔	✔
	End of month date adjusted for months fewer than 31 days, including corrections for leap years	✔	✔	✔
	High noise immunity	✔	✔	✔
	Programmable square-wave output (on 1337, defaults to 32 kHz on power-up)	✔	✔	✔
	Full binary-coded decimal (BCD) clock/calendar	✔	✔	✔
	Two programmable time-of-day alarms	✔		✔
	Oscillator Stop-Flag	✔	✔	✔
Package	Available in a variety of packages: 8-pin MSOP, 8-pin SOIC, or 16-pin SOIC (surface-mount package with an integrated crystal)	✔	✔	✔
Enables long battery life	Consumes less than 1 µA current	✔	✔	✔
	Low power, low current consumption clock/date device	✔	✔	✔
VCC operating voltage range	1.8V to 5.5V	✔	1338-18	1339-2
	2.7V to 5.5V		1338-31	1339-31
Time keeping voltage	1.3V minimum	✔	✔	✔
Operating temperature	Industrial temperature range (-40°C to +85°C)	✔	✔	✔
Suitable for wide range of applications where minimal board space is essential	I²C Serial bus interface	✔	✔	✔
Integrated 32 kHz crystal	16 pin SOIC package only	✔	✔	✔
Battery backup and data storage	Automatic power-fail detect and switch circuitry (backup battery to the main VCC), maintaining time/date operation		✔	✔
	56-byte battery-backed NV SRAM for data storage to main VCC		✔	
	Trickle charge capability			✔



PIN Assignment



(8-pin MSOP and SOIC)

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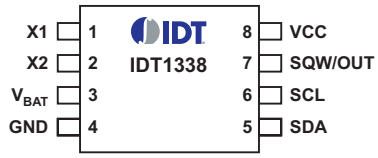

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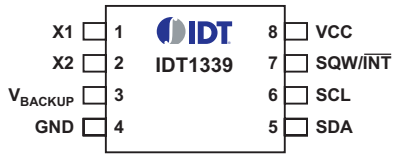

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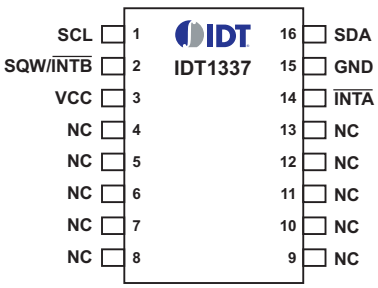

(16-pin SOIC, 300 mil)

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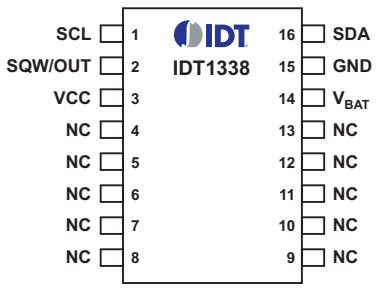

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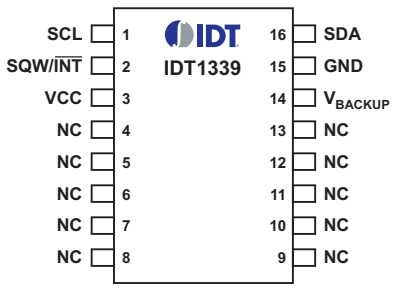

(16-pin SOIC, 300 mil)

Discover what IDT know-how can do for you.

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