

Real Time Clock Module with I²C Bus

FEATURES

- Ultra-small ceramic package
- Integrated 32.768kHz crystal
- I²C Interface, address: D0h
- Frequency-offset Trimming Register
- Programmable Alarm and Interrupt
- Oscillator Fail Detection
- Watchdog Timer
- Programmable Clock Output
- Time-keeping Mode down to 1.0V

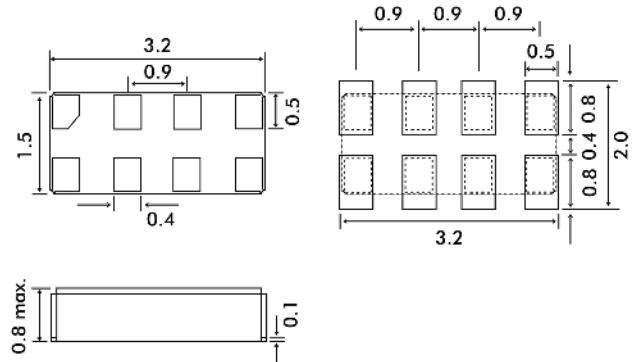


DESCRIPTION

This very small SMD-packaged RTC module combines a 32.768kHz crystal with a CMOS-based oscillator and real-time clock circuitry. The clock function provides tenths/hundredths of seconds, seconds, minutes and hours. The calendar function tracks date, month, year and century with automatic leap year compensation. Programmable CLKOUT frequencies, alarm settings and watchdog function increase flexibility.

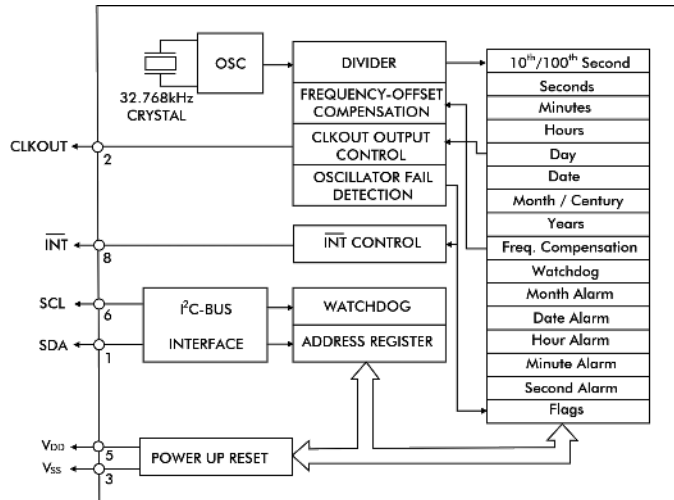
The parts are available on 12mm tape and 178mm (7") reel with either 1000 or 3000 pieces per reel.

OUTLINE & DIMENSIONS

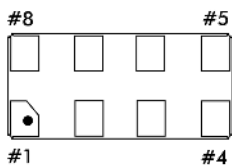


All dimensions in mm, typical

BLOCK DIAGRAM



PAD CONNECTIONS (Top view)



Pad	Connection
1	SDA Serial Data
2	CLKOUT Freq. Output
3	V _{SS} Ground
4	NC Not connected
5	V _{DD} Supply Voltage
6	INT Interrupt Output
7	NC Not connected
8	SCL Serial Clock input

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SPECIFICATION (at 25°C)

	Symbol	Condition	Min.	Typ.	Max.	Unit
Supply Voltage	V _{DD}	I2C Bus Active	1.3		4.4	V
Supply Voltage	V _{DD}	Timekeeping	1		4.4	V
Current consumption during access	I _{DD}	f _{sci} =400 kHz V _{DD} 3V		35		μA
		f _{sci} =400 kHz V _{DD} 2V		20		μA
Current consumption Timekeeping mode	I _{DDO}	f _{sci} =0 Hz V _{DD} 3V		350	500	nA
		f _{sci} =0 Hz V _{DD} 2V		270	400	nA
CLKOUT frequency		PROGRAMMABLE	32.768 . . . to . . . 1			Hz
Frequency tolerance	ΔF/F	@25°C	±20			ppm
Ageing first year	ΔF/F	@25°C	±3			ppm
Frequency vs. temp.	ΔF/F _o	20 ≤ T _o ≤ 30	-0.035ppm/°C(T-T _o) ² ±10%			ppm

ENVIRONMENTAL

	Symbol	Conditions	Max. Dev.
Storage temp. range		-55 to +125°C	
TA Operating temp. range		-40 to +85°	
Shock resistance	ΔF/F	5000g, 0.3ms ½ sine	±5ppm
Vibration resistance	ΔF/F	20g / 10~2000 Hz	±5ppm

TERMINATIONS & PROCESSING

Package Type	Termination	Processing
Ceramic 8-pin Metal lid	For SMD mounting AU plated pads	Reflow soldering 260°C / 20s max.

FREQUENCY/TEMPERATURE CHARACTERISTICS
