Real Time Clock, Ultra Low Power
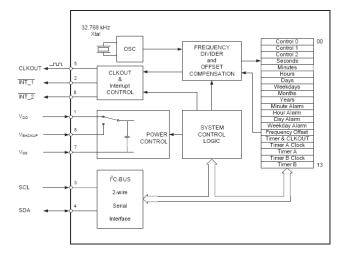
RV8523C3

RoHS 2011/65/EU

Pb LeadFree

Dimensions

3.70 (typ)

2.50 (typ)

0.90 (max)

SOLDER PAD LAYOUT

0.80

0.60

1 10 5 6

0.30

3.00

0.80

0.50 0.80

TOP VIEW

PAD	CONNECTION	PAD	CONNECTION
1	Supply (VDD)	6	Interrupt 2 output ($\overline{INT2}$)
2	Interrupt 1 output ($\overline{INT1}$)	7	Ground (VSS)
3	Serial clock input (SCL)	8	Backup supply voltage
4	Serial data (SDA)	9	Not connected
5	Clock output (CLKOUT)	10	Not connected

Specifications

Parameters	Product RV8523C3	Option Codes
Frequencies (programmable): 32.768kHz ~ 1Hz	■	
Frequency tolerance: ±10ppm	□	A
±20ppm	■	B
Other	□	specify
Turnover temperature (T_0): +25°C ±5°C	■	
Frequency / temp coefficient: -0.035ppm/°C^2 ±10%	■	
Operating temperature range: -40 to +85°C	■	
-40 to +125°C	□	E
Storage temperature range: -55 to +125°C	■	
Supply voltage (V_{DD}): I^{2}C bus active 1.6 ~ 5.5V	■	
Power management 1.8 ~ 5.5V	■	
Time-keeping mode 1.2 ~ 5.5V	■	
Supply current (during access): 100/200μA typ/max (fscl=1MHz)	■	
50/100μA typ/max (fscl=100kHz)	■	
Supply current (time-keeping): 130/180nA typ/max (fscl=0Hz, V_{DD}=3V)	■	
110/160nA typ/max (fscl=0Hz, V_{DD}=2V)	■	
Ageing: ±3ppm max first year	■	
Shock and vibration resistance: ±5ppm, 5,000g, 0.3ms, ½ sine	■	
±5ppm, 20g, 10.0 ~ 2,000Hz	■	
Soldering condition: Reflow, 260°C, 20 sec max	■	

■ Standard. □ Optional - Please specify required code(s) when ordering

Features

⫸ **Ultra low power consumption (130nA)**

⫸ **AEC Q200 Rev C compliant**

⫸ **Compliant with I^{2}C-Bus interface (400kHz)**

⫸ **Backup battery input (internal switchover)**

⫸ **Programmable alarm, timer and interrupt**

Ordering Information

Product + option code
eg: **RV8523C3/B**   ±20ppm
Option code X (eg RV8523C3/X) denotes a custom spec.

♦ Available on T&R - 1k or 3k pcs per reel
♦ Evaluation / development board & manual available on request
♦ The I^{2}C-Bus is a trademark of Philips Electronics NV

Description

This RTC IC has been specially designed to achieve an ultra-low power consumption of typically 130nA @ VDD 3.0V in time-keeping mode. It combines a 32.768kHz crystal unit with a CMOS based oscillator and real-time clock circuit.

The calendar function tracks year, month, date and day of the week with built-in century and leap-year flags. The clock function tracks minutes and seconds in 24-hour format. Programmable alarm setting, dual timer functions and integrated switchover circuitry increase flexibility.

Block Diagram

MICRO CRYSTAL SWITZERLAND

♦ Manufactured by Micro Crystal
♦ Stocked & distributed by Golledge