

# ARTC3000B-HAS-PF



RTC module, I<sup>2</sup>C -Bus interface, 3.7 x 2.5 x 0.9mm

## Features:

- Miniature SMT package
- Extremely accurate temperature Compensated RTC
- Automotive qualified, according to AEC-Q200 options
- ± 8ppm max ( ± 0.70 s/day ) over -40°C to +125°C



## Description:

The RTC is an ultra miniature Real-Time-Clock Module with embedded Crystal. This RTC has an I<sup>2</sup>C Bus (2-wire Serial Interface) and offers temperature compensated time. The STC-Smart Temperature Compensation is calibrated in the factory and leads to a very high time-accuracy of ± 6ppm from -40°C to +85°C

Beside standard RTC functions, it includes a Backup-Battery Input with internal switchover function, a programmable Trickle-charge circuitry, an integrated Temperature Sensor with digital-output and offers 8 Bytes RAM and 2 Bytes EEPROM for customer's application.

The calendar function tracks year and leap -year flags. The clock tracks second, minute and hour in 24-hour format. Programmable alarm setting and universal timer functions increase flexibility.

### Electrical characteristics at 25°C

| Parameter             | Symbol            | Min.   | Typ. | Max.   | Unit  | Test condition       |
|-----------------------|-------------------|--|------|--------|-------|----------------------|
| Supply voltage        | V <sub>DD</sub>   | 1.3  |      | 5.5    | V     | Time keeping         |
| Supply voltage        | V <sub>DD</sub>   | 1.8  |      | 5.5    | V     | Temp. Comp.          |
| Current consumption   | I <sub>DDO</sub>  |  | 800  | 1000   | nA    | V <sub>DD</sub> = 3V |
| CLKOUT frequency      |                   | 32.768/1024/32/1                                     |      |        | Hz    | Programmable         |
| Frequency tolerance   | ΔF/F              |  | ±10  | ±20    | ppm   | @ 25°C               |
| Aging first year max. | ΔF/F              | ±3   |      |        | ppm   | @ 25°C               |
| Frequency vs. temp.   | ΔF/F <sub>0</sub> | -0.035 ppm/°C <sup>2</sup> (T-To) <sup>2</sup> ± 10% |      |        | ppm   | 20 ≤ To ≤ 30         |
| Time accuracy         | Δt/t              |  |      | ± 0.26 | s/day | @ 25°C               |
|                       |                   |  |      | ± 0.70 | s/day | -40 to +125°C        |

### Environmental characteristics

|                       |             |     |                       |
|-----------------------|-------------|-----|-----------------------|
| Storage temp. Range   | -55 to +125 | °C  |                       |
| Operating temp. Range | -40 to +125 | °C  |                       |
| Shock resistance      | Max ±5.0    | ppm | 5000 g, 0.3ms, ½ sine |
| Vibration resistance  | Max ±5.0    | ppm | 20 g/10-2000Hz        |

### Other information

|                           |                                   |  |  |
|---------------------------|-----------------------------------|--|--|
| Package-type              | SON 10-pin                        |  |  |
| Termination               | For SMD mounting Au plated pads   |  |  |
| Processing                | Reflow soldering 260°C / 20 s max |  |  |
| Packaging (tape and reel) | 1kpcs/reel, 3kpcs/reel            |  |  |

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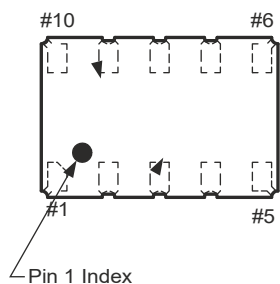
RTC module, I<sup>2</sup>C -Bus interface, 3.7 x 2.5 x 0.9mm



## Mechanical dimensions and Pin functions

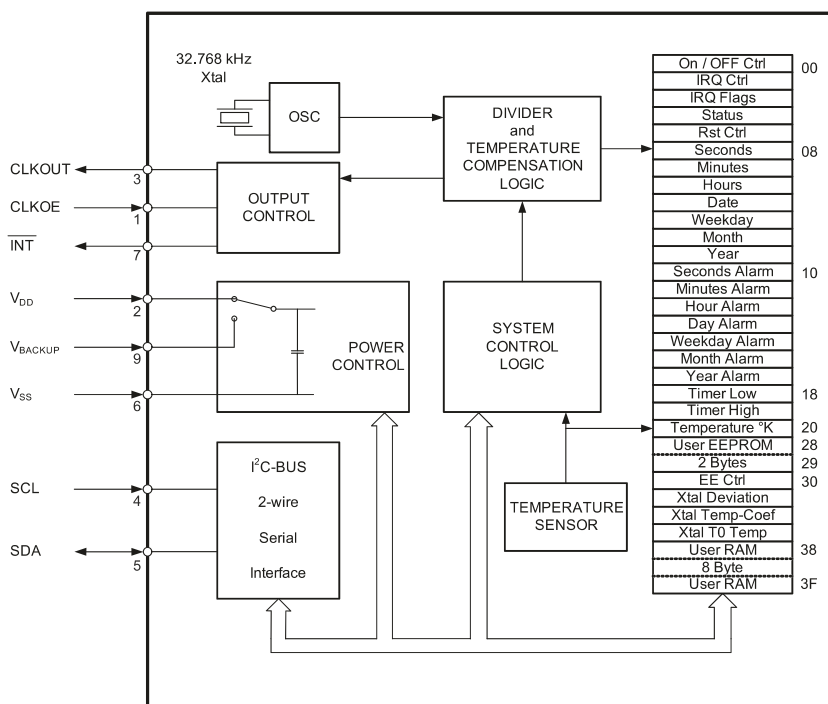


All dimensions in mm typical



| Pin | Connection                                |
|-----|---|
| 1   | CLKOE CLK Output Enable                   |
| 2   | V <sub>DD</sub> Supply Voltage            |
| 3   | CLKOUT Clock Output                       |
| 4   | SCL Serial Clock Input                    |
| 5   | SDA Serial Data                           |
| 6   | V <sub>SS</sub> Ground                    |
| 7   | INT Interrupt Output                      |
| 8   | N.C. not connected                        |
| 9   | V <sub>BACKUP</sub> Backup Supply Voltage |
| 10  | N.C. not connected                        |

## Block diagram



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RTC module, 3.7 x 2.5 x 0.9mm

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Drawing control: (Internal use only)  
Commodity code: 9110 9000  
Issue number : N1  
Date : 01/06/2018  
Internal reference : M1

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**ACT (A wholly owned Acal BFi Company)**  
**+44 (0) 118 978 8878 | [sales@act.co.uk](mailto:sales@act.co.uk) | [www.act.co.uk](http://www.act.co.uk)**  
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