

# ARTC300A-HAS-PF



RTC module, SPI-Bus, 3.7 x 2.5 x 0.9mm

## Features:

- Extremely Accurate temperature compensated RTC Module
- Automotive qualified AEC-Q200 compliant option
- ± 6ppm max ( ± 0.52 s/day ) over -40°C to +85°C



## Description:

This RTC is an ultra miniature Real-Time-Clock Module with embedded Crystal. This RTC has a SPI Bus (4-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 Opt. A	Δt/t			± 0.26	s/day	@ 25°C
				± 0.52	s/day	-40 to +85°C

## Environmental characteristics

Storage temp. Range	-55 to +125	°C	
Operating temp. Range	-40 to +85	°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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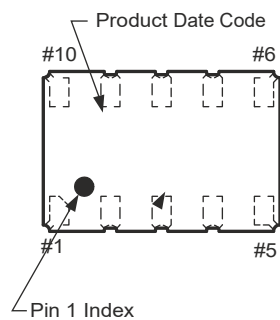
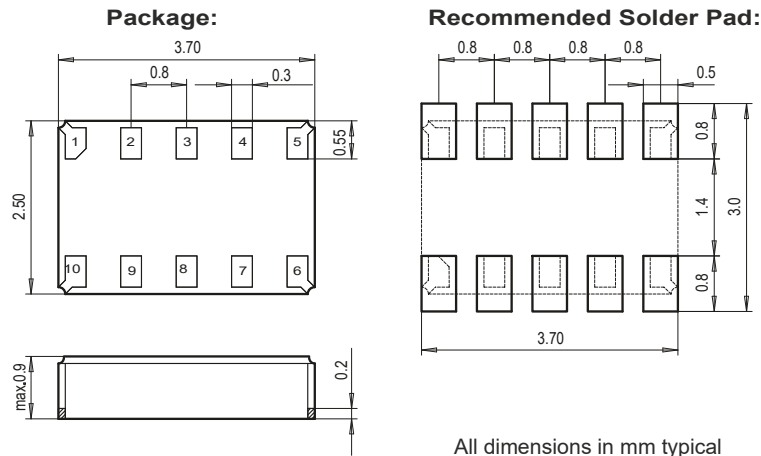
Specifications subject to change without notification

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RTC module, SPI-Bus, 3.7 x 2.5 x 0.9mm

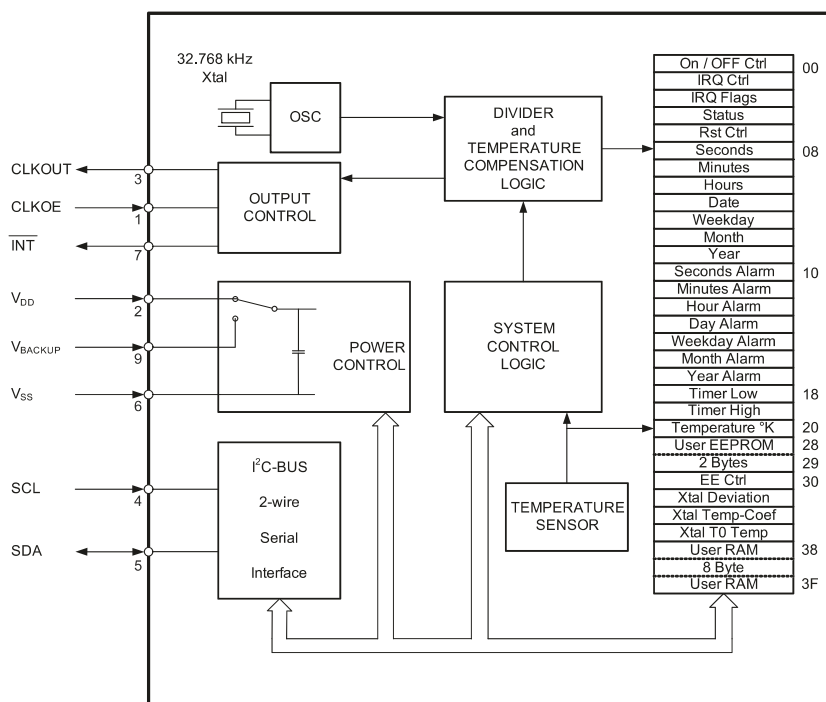


## Mechanical dimensions and Pin functions



Pin	Connection
1	CLKOE CLK Output Enable
2	V <sub>DD</sub> Supply Voltage
3	CLKOUT Clock Output
4	SCL Serial Clock Input
5	SDO Serial Data output
6	V <sub>SS</sub> Ground
7	INT Interrupt Output
8	CE Chip enable
9	V <sub>BACKUP</sub> Backup Supply Voltage
10	SDI Serial data input

## Block diagram



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Drawing control: (Internal use only)  
Commodity code: 9110 9000  
Issue number : N1  
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Internal reference : M1

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