

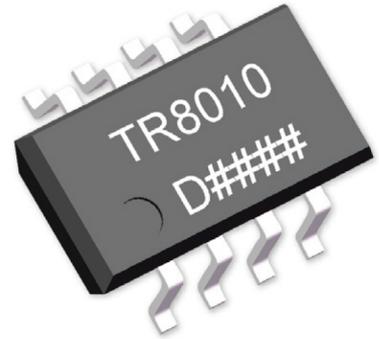
7.1 TR8010

Real Time Clock(I²C-Bus)
Low current consumption

Pb-Free



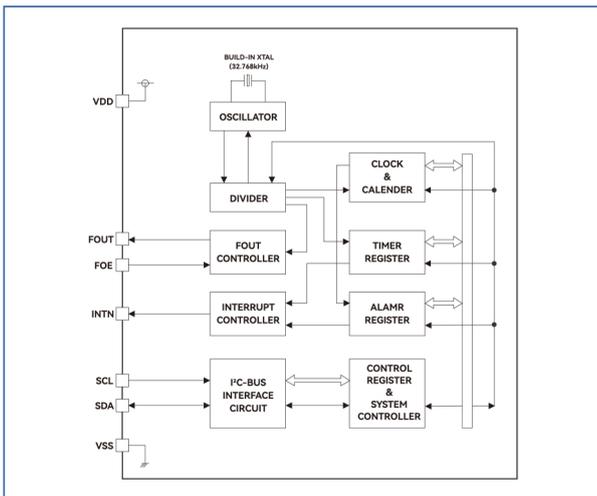
RoHS compliant



FEATURES AND APPLICATIONS

- Built-in 32.768kHz Crystal Unit
- Operating Voltage: 1.8~5.5 V
- Low current consumption: 2.2μA@3V (typical)
- Multiple functions such as calendar, alarms and time keeping.
- In accordance with SOP8 standard
- Interface Type: I²C(400kHz)
- Clock Circuit Voltage: 1.8~5.5 V
- Frequency Output Function: CMOS Output or Open Drain Output
- Automotive Leap Year Adjustment

STRUCTURE



OVERVIEW

- ◆ InterfaceType: High-speed I²C-bus standards (400kHz)
- ◆ Frequency Output Function: CMOS output and open drain output available; output frequency: 32.768kHz, 1024Hz, 1Hz available
- ◆ Timer: Setting range between 1/4096s to 65535 hours; Timing period: 1 hour, 1 minute, 64Hz, and 4096Hz
- ◆ Alarm: Week, day, hour, minute

EXTERNAL DIMENSIONS

Pin	I/ O	Function
1#	NC	No connection, keep floating state
2#	FOE	Input FOUT output enable
3#	INTN	Output Interrupt output, N-channel open-drain output
4#	VSS	GND Supply voltage ground connection
5#	SDA	Input/Output I ² C-Bus communication data transfer, N-channel open-drain output
6#	SDL	Input I ² C-Bus serial interface clock input
7#	F _{OUT}	Output 32.768kHz frequency output controlled by FOE. Output 32.768kHz when FOE=1; output high resistance when FOE=0
8#	V _{DD}	Power Supply voltage positive polarity connection

FREQUENCY CHARACTERISTICS

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit.
Frequency Tolerance	$\Delta f/f$	Ta=25°C V _{DD} =3.0V	5±23※			ppm
Start-up Time	t _{STA}	Ta=25°C V _{DD} =1.8V			0.9	S
		Ta=40°C~85°C V _{DD} =1.8V~5.5V			2.0	S

※ Equals to a monthly tolerance of ±1 minute per month

CURRENT CONSUMPTION CHARACTERISTICS

Item	Symbol	Condition	Minimum	Typical	Maximum	Unit.
Current Consumption	I _{DD1}	FOE=GND F _{out} =Hi-Z	V _{DD} =5V	2.6		μA
	I _{DD2}		V _{DD} =3V	2.5		
	I _{DD3}	FOE=V _{DD} F _{out} =32.768kHz CL=0pF	V _{DD} =5V	3.6		
	I _{DD4}		V _{DD} =3V	3.0		
	I _{DD5}	FOE=V _{DD} F _{out} =32.768kHz CL=30pF	V _{DD} =5V	7.5		
	I _{DD6}		V _{DD} =3V	6.2		