



# REAL TIME CLOCK IC

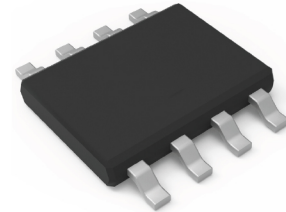
## REAL TIME CLOCK IC (Built-in Crystal Oscillator)

High-precision

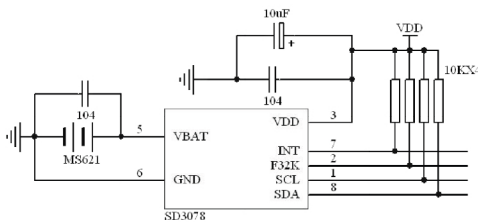


### ST3078

- Low power consumption: 0.8µA typical (VDD =3.0V, Ta=25°C).
- Operating voltage: 2.7V~5.5V.
- Operating temperature: -40°C~+105°C.
- AEC-Q100 certified
- Standard IIC bus interface, maximum speed 400KHz (4.5V~5.5V).
- Chip pin ESD>4KV
- CMOS Process
- Package Form:SOP8 (208mil).



#### Reference Circuit



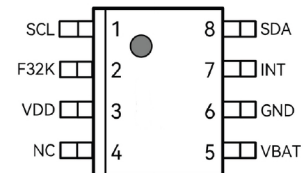
#### Overview

- Internal 70-byte general-purpose SRAM
- High frequency accuracy: ±3.8ppmat 25°C.
- Built-in software-controllable VBAT mode IIC bus communication disable function
- Built-in IIC bus 0.5 seconds automatic reset function
- Built-in 1/1024 second register
- Built-in communication verification function
- Built-in clock data write-protection function

#### Pin Function

#### Terminal connection

Name	Function	Feature
V <sub>BAT</sub>	Backup battery input pin, with built-in voltage regulator and selectable charging current charging circuit.	2.3V ~ 3.6V; connect to GND when not in use.
GND	Negative power supply (GND)	—
SDA	Serial data input/output pin, this pin is usually pulled up to VDD with a resistor, and connected to other devices with open drain or open collector outputs via wire-AND logic.	N-channel open-drain output ; CMOS input.
SCL	Serial clock input pin. Since signal processing occurs at the rising/falling edges of SCL, special attention must be paid to the rise/fall time of the SCL signal. The specifications should be strictly followed. To minimize the SCL rise time, the MCU port connected to SCL should be configured as CMOS output, not open-drain output.	CMOS input.
INT	Interrupt output pin for alarm. Its operating mode can be set via control register, and it can be disabled by rewriting the control register.	N-channel open-drain output
F32K	32kHz frequency output pin	Open-drain output
V <sub>DD</sub>	Positive power supply	2.7V ~ 5.5V



#### DC Characteristics

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
V <sub>DD</sub>	Main Power Supply		2.7		5.5	V	
V <sub>BAT</sub>	Battery Supply Voltage		2.3		3.6	V	
I <sub>DD1</sub>	Supply Current	V <sub>DD</sub> =5V		1.2	3.0	µA	
		V <sub>DD</sub> =3V		1.0	1.5	µA	
I <sub>DD2</sub>	Supply Current when IIC Active	V <sub>DD</sub> =5V	40	120	µA		
I <sub>DD3</sub>	Supply Current when charge enable	V <sub>DD</sub> =5V		80		µA	
I <sub>BAT</sub>	Battery Supply Current	V <sub>BAT</sub> =3V		0.8		µA	
I <sub>I1</sub>	Input Leakage Current On SCL			100		nA	
I <sub>L0</sub>	I/O Leakage Current On SDA			100		nA	
V <sub>BAT</sub> HYS	V <sub>BAT</sub> Hysteresis			300		mV	
INT V <sub>OL</sub>	Output Low Voltage	V <sub>DD</sub> =5V I <sub>OL</sub> =3mA			0.4	V	
		V <sub>DD</sub> =5V I <sub>OL</sub> =3mA			0.4	V	