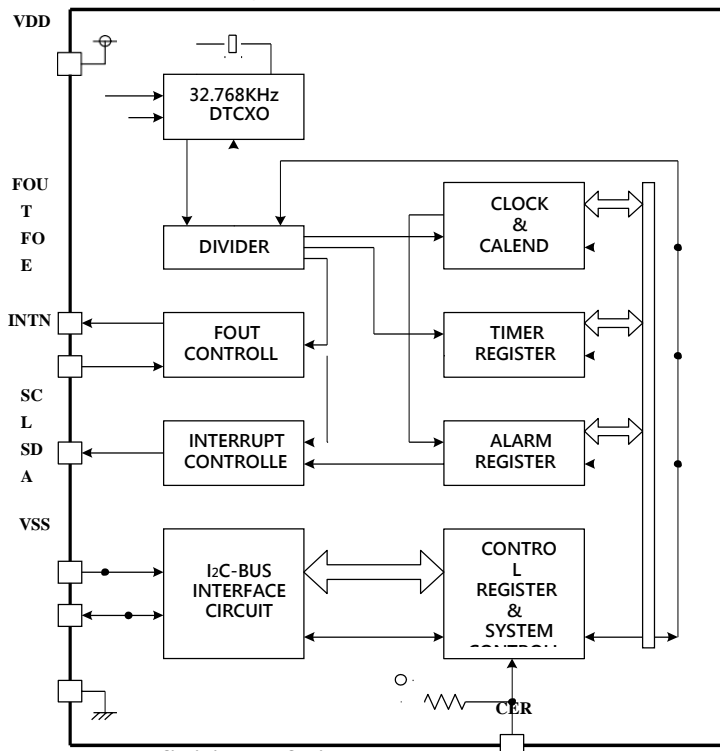


High stability real-time clock with I2C bus communication interface and built-in 32.768kHz D-TCXO

- Built-in high-precision 32.768KHz DTCXO, providing high-precision clock output in the temperature range of -40°C ~ 85°C
- It supports the high-speed I2C bus protocol (400KHz)
- Multiple interruption functions: including timing alarm interruption (settable parameters: week, day, hour, minute), fixed period interruption and time updating interruption
- Programming realization of 32.768kHz/1024Hz/1Hz clock output
- It supports complete calendar functions during 2000-2099, and supports automatic adjustment of leap year
- Temperature compensation circuit operating voltage range: 2.2V~5.5V
- Operating voltage range of clock circuit: 1.8V~5.5V
- Low current power consumption: 2.3μA@3V(Typ)

■ Block Diagram

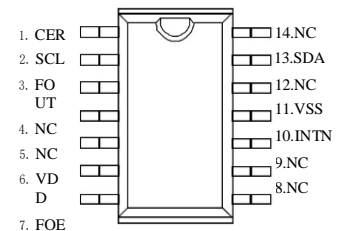


■ Definitions of pins

Pin name	I/O	Function
VDD	Power	Supply voltage
VSS	Ground	Grounding end
SCL	I	I ² C bus communication serial clock input end
SDA	I/O	I2C bus communication data transmission terminal, N-ch open-drain output
FOE	I	FOUT output enable
FOUT	O	32768Hz frequency output port, controlled by FOE, when FOE=1, output 32768Hz clock; when FOE=0, the output is high impedance
INTN	O	Interrupt output port, N-ch open-drain output
NC	--	No connection, keep floating

■ General Specifications

- Highly frequency stability:
 - 0~50°C: < 3ppm; (monthly deviation less than 7.8s)
 - -40~85°C: < 5ppm; (monthly deviation less than 13s)
- Programmable to realize different frequency output functions:
 - FOUT pin can drive 30pF capacitor load
 - Optional output frequency: 32.768kHz, 1024Hz, 1Hz
- Abundant interruption functions:
 - Fixed period interruption: set any period interruption between 1/4096s and 4095
 - Timed alarm interruption: alarm interruption events can be generated at the set week, day, hour, and minute
 - Timing alarm interruption: Can generate alarm interruption events in set week, day, hour or minute.
- Automatic leap year adjustment function
- Wide working voltage ranges
 - Temperature compensation operating voltage range: 2.2V ~ 5.5V
 - Clock Hold Operating Voltage Range: 1.8V ~ 5.5V

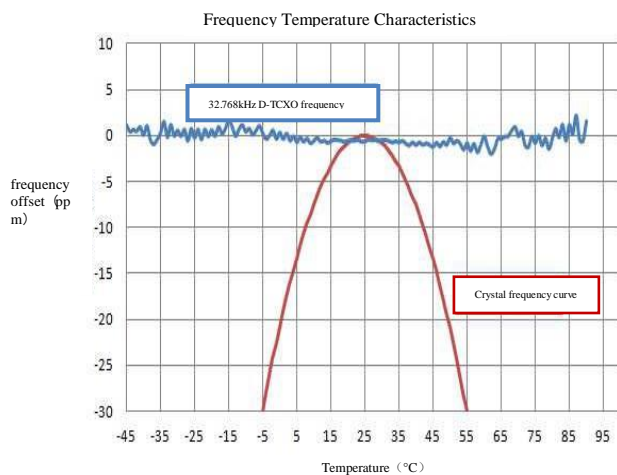


Indicator features

Electrical characteristics

Item	Symbol	Condition		Min.	Typ.	Max.	Unit
Current power consumption	I _{DD1}	Disable FOUT	V _{DD} =3V		2.3	2.6	μA
	I _{DD2}		V _{DD} =5V		2.4	2.7	
	I _{DD3}	FOUT=32.768KHz	V _{DD} =3V		2.9	3.3	
	I _{DD4}	Cl _{oad} =0pF	V _{DD} =5V		3.6	4.0	
Low level input voltage	V _{IL}	FOE, SCL, SDA Pins		0		0.3V _{DD}	V
High level input voltage	V _{IH}			0.7V _{DD}		V _{DD}	
Low level output voltage	V _{OL}	FOUT, INTN, SDA pins	I _{OH} =-1 mA	0		0.3	V
High level output voltage	V _{OH}	FOUT pin	I _{OL} = 1 mA	V _{DD} -0.3		V _{DD}	
Frequency Stability	Δf/f	V _{DD} =2.2V~5V	T _a = 0 ~50 °C			3	×10 ⁻⁶
			T _a = -40 ~85 °C				
Frequency voltage coefficient	Δf/f/V	V _{DD} =2.2V~5.5V				1.0	×10 ⁻⁶ /V
SCL clock period	f _{SCL}	V _{DD} =2.2V~5.5V				400	KHz
CLKOUT duty ratio	δ _{CLKOUT}	V _{DD} =1.8V~5.5V				50	%
Crystal ESR	R _s					70	KΩ
Crystal shunt load capacitor	C _L					12.5	pF

Frequency Temperature Characteristics of D-TCXO at 32.768kHz (Sample)



Package Specification

