

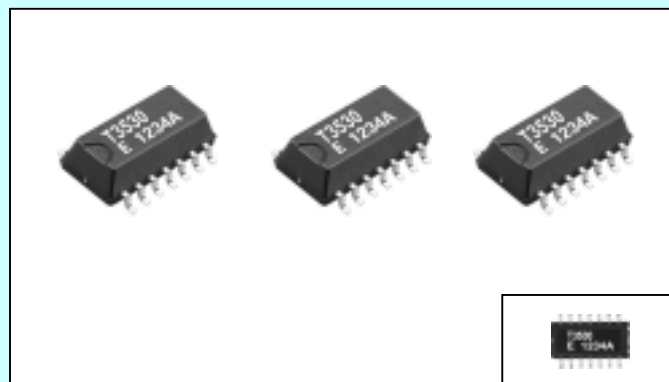
32 kHz TCXO

TG-3530 SA

Product Number (please contact us)

TG-3530 SA : Q3721SA01xxxx00

- Built-in 32.768 kHz crystal oscillator with high accuracy.
(adjustment-free efficient operation)
- Temperature compensated circuit : Frequency tolerance that stabilized irrespective of use temperature.
- Oscillation output voltage : 1.5 V to 5.5 V
- Temperature Compensated Voltage : 2.2 V to 5.5 V
- 32.768 kHz output : C-MOS output, output load : CL = 15 pF
- Comply with EU RoHS directive



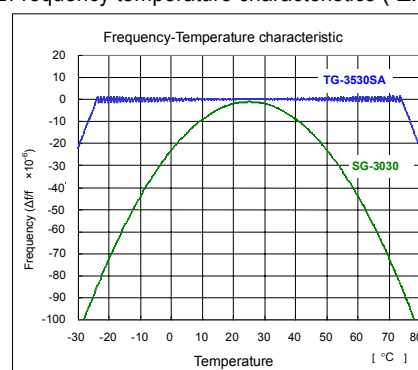
Actual size

■ Specifications (characteristics)

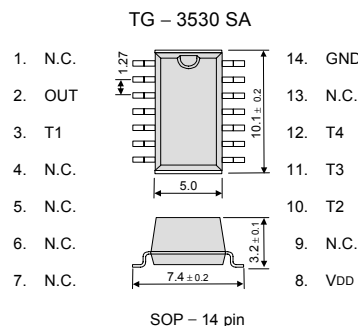
Item	Symbol	Specifications	Condition
Output frequency	f_o	32.768 kHz	
Max. supply voltage	$V_{DD} - GND$	-0.3 V to +7.0 V	
Oscillation output voltage	V_{DD}	1.5 V to 5.5 V	
Temperature compensated voltage	V_{DD}	2.2 V to 5.5 V	
Storage temperature	T_{STG}	-55 °C to +125 °C	Stored as bare product after unpacking
Operating temperature	T_{OPR}	-40 °C to +85 °C	Operating temperature
Frequency tolerance	$\Delta f / f$	$\pm 3.8 \times 10^{-6}$ * Equivalent to 10 seconds of monthly deviation	$T_a = -10 \text{ }^{\circ}\text{C}$ to $+60 \text{ }^{\circ}\text{C}$ $V_{DD} = 3.0 \text{ V}$
		$\pm 5.0 \times 10^{-6}$ * Equivalent to 13 seconds of monthly deviation	$T_a = -20 \text{ }^{\circ}\text{C}$ to $+70 \text{ }^{\circ}\text{C}$ $V_{DD} = 3.0 \text{ V}$
Frequency voltage characteristics	f / V	$\pm 1.0 \times 10^{-6} / \text{V}$ Max.	$T_a = +25 \text{ }^{\circ}\text{C}$ $V_{DD} = 2.2 \text{ V}$ to 5.5 V
Current consumption	I_{DD}	6.0 μA (Max.)	$V_{DD} = 5.0 \text{ V}$, No load condition
		3.0 μA (Typ.)	
		4.0 μA (Max.) 1.7 μA (Typ.)	$V_{DD} = 3.0 \text{ V}$, No load condition
Output voltage ("H" level)	V_{OH}	$V_{DD} - 0.4 \text{ V}$ Min.	$I_{OH} = -0.1 \text{ mA}$ $V_{DD} = 3.0 \text{ V}$
Output voltage ("L" level)	V_{OL}	0.4 V Max.	$I_{OL} = 0.1 \text{ mA}$ $V_{DD} = 3.0 \text{ V}$
Output load condition	CL	15 pF Max.	CMOS load
Duty	t_w / t	40 % to 60 %	$V_{DD} = 1.5 \text{ V}$ to 5.5 V 1 / 2 V_{DD} level
Output rise time	t_{TLH}	200 ns Max.	CMOS load 20 % $V_{DD} \rightarrow 80 \text{ } \%$ V_{DD}
Output fall time	t_{THL}	200 ns Max.	CMOS load 80 % $V_{DD} \rightarrow 20 \text{ } \%$ V_{DD}
Oscillation start-up time	t_{OSC}	1.0 s Max. ^{*1)}	$T_a = +25 \text{ }^{\circ}\text{C}$ $V_{DD} = 3.0 \text{ V}$
		3.0 s Max. ^{*1)}	$T_a = -40 \text{ }^{\circ}\text{C}$ to $+85 \text{ }^{\circ}\text{C}$ $V_{DD} = 3.0 \text{ V}$
Aging	f_a	$\pm 3.0 \times 10^{-6} / \text{year}$	$T_a = +25 \text{ }^{\circ}\text{C}$ $V_{DD} = 3.0 \text{ V}$, first year

*1) V_{DD} rise time < 10ms (10 % V_{DD} – 90 % V_{DD})*2) If not specifically indicated, $T_a = -40 \text{ }^{\circ}\text{C}$ to $+85 \text{ }^{\circ}\text{C}$.

■ Frequency temperature characteristics (Ex.)



■ Terminal connection



Signal Name	Input / Output	Function
V_{DD}	—	Connected to a positive power supply.
OUT	OUTPUT	32.768 kHz clock output pin (C-MOS).
GND	—	Connected to a ground.
T1, T2, T3, T4	—	* Used by the manufacture for testing. (Do not connect externally.)

REAL TIME CLOCK IC. of the TG-3530SA exclusive use

RX-4574 SG

Product Number (please refer to Application guide)

RX-4574 SG : Q414574Bxxxxx00

- By causing the high accuracy 32.768kHz clock (C-MOS input) such as TG-3530 SA input, the construction of the system of the high performance timekeeper is possible.
(Level adjustment by the C/R etc. at the time of the joint is unnecessary)
- Functions are compatible with RX-4574 LC and RTC-4574 series
(except 32 kHz oscillation function).
- Comply with EU RoHS directive

Note) RX-4574 SG is not including the crystal unit.

The external clock resources (C-MOS) of 32.768 kHz is necessary.
Please input it from a/the XIN terminal.

■ Terminal connection

