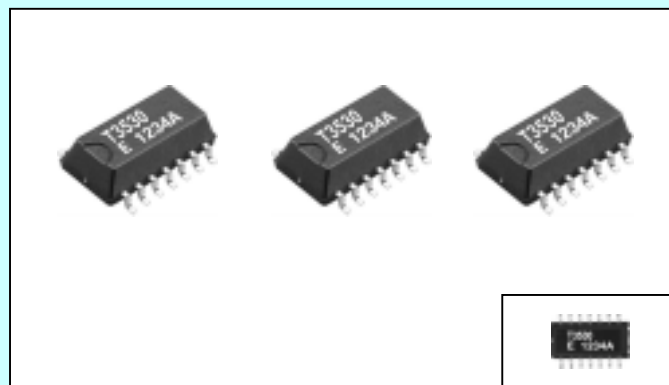


32 kHz TCXO

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

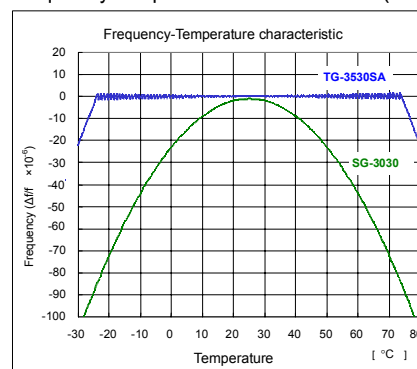


Actual size

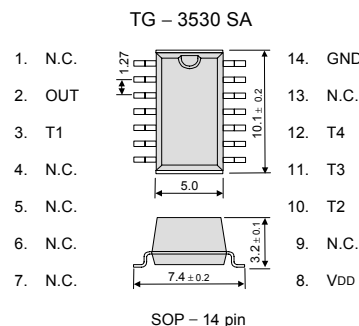
Specifications (characteristics)

| 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.) 3.0 μA (Typ.) | $V_{DD} = 5.0 \text{ V}$, No load condition |
| | | 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 | C_L | 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 % $V_{DD} \rightarrow 80 \%$ V_{DD} |
| Output fall time | t_{THL} | 200 ns Max. | CMOS load 80 % $V_{DD} \rightarrow 20 \%$ 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 |

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.) |

*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 $+85 \text{ }^\circ\text{C}$.

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

RX-4574 SG

Product Number (please refer to Application guide)
RX-4574 SG : Q414574Bxxxx00

- 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

