TCXO
32.768 kHz

TG-3530 SA

RoHS Compliant

Product Number
Q3721SA02000100

Actual size

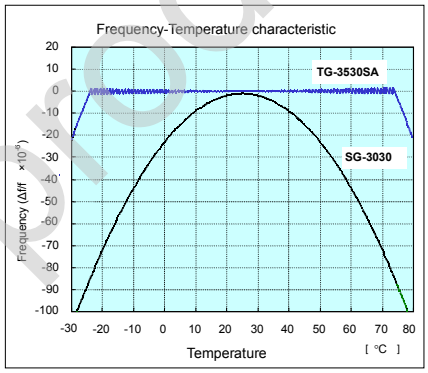
- Built-in 32.768 kHz crystal oscillator with high accuracy. (adjustment-free efficient operation)
- Temperature compensated circuit : Stabilized frequency tolerance at any operating temperature.
- Oscillation output voltage : 1.5 V to 5.5 V
- Temperature Compensated Voltage : 2.2 V to 5.5 V
- 32.768 kHz output : C-MOS output, load : 15 pF

Specifications (characteristics)

Item	Symbol	Specifications	Conditions / Remarks
Output frequency	f_o	32.768 kHz	
Oscillation output voltage	V_{CC}	1.5 V to 5.5 V	
Temperature compensated voltage	V_{CC}	2.2 V to 5.5 V	
Storage temperature	T_stg	–55 °C to +125 °C	Storage as single product.
Operating temperature	T_use	–40 °C to +85 °C	
Frequency temperature characteristic	fo-Tc	± 3.8 × 10^{-6} ∗ Equivalent to 10 seconds of monthly deviation	-10 °C to +60 °C V_{CC} = 3.0 V
		± 5.0 × 10^{-6} ∗ Equivalent to 13 seconds of monthly deviation	–20 °C to +70 °C V_{CC} = 3.0 V
Frequency voltage coefficient	fo-V_{CC}	± 1.0 × 10^{-6} / V Max.	+25 °C V_{CC} = 2.2 V to 5.5 V
Current consumption	I_{CC}	6.0 µA (Max.) 3.0 µA (Typ.)	V_{CC} = 5.0 V , No load condition
		4.0 µA (Max.) 1.7 µA (Typ.)	V_{CC} = 3.0 V , No load condition
Output voltage ("H" level)	V_{OH}	V_{CC} - 0.4 V Min.	I_{OH} = –0.1 mA V_{CC} = 3.0 V
Output voltage ("L" level)	V_{OL}	0.4 V Max.	I_{OL} = 0.1 mA V_{CC} = 3.0 V
Output load condition	L_CMOS	15 pF Max.	CMOS load
Symmetry	SYM	40 % to 60 %	V_{CC} = 1.5 V to 5.5 V 1 / 2 V_{CC} level
Rise time	t_r	200 ns Max.	CMOS load 20 % V_{CC} → 80 % V_{CC}
Fall time	t_f	200 ns Max.	CMOS load 80 % V_{CC} → 20 % V_{CC}
Start-up time	t_{str}	1.0 s Max. ∗1)	+25 °C V_{CC} = 3.0 V
		3.0 s Max. ∗1)	–40 °C to +85 °C V_{CC} = 3.0 V
Frequency aging	f_age	± 3.0 × 10^{-6} / year	+25 °C V_{CC} = 3.0 V , first year

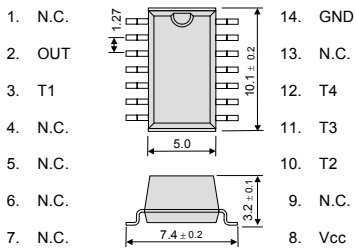
∗1) V_{CC} rise time< 10ms (10 % V_{CC} – 90 % V_{CC})
∗2) If not specifically indicated, –40 °C to +85 °C.

■Frequency temperature coefficient (Ex.)



■Terminal connection

TG – 3530 SA



SOP – 14 pin

Signal Name	Input / Output	Function
V_{CC}	—	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. For TG-3530SA

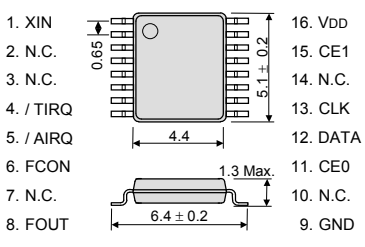
RX-4574 SG

- By combining TG-3530SA with RX-4574SG (real-time clock IC), it is possible to achieve a very high accuracy clock system.
- Functions are compatible with RX-4574 LC and RTC-4574 series (except 32 kHz oscillation function).
- Complies with EU RoHS directive

Note) RX-4574SG does not include the crystal unit.
The external clock resources (CMOS) of 32.768 kHz are necessary.
Please input it from the XIN terminal.

■Pin map

RX – 4574 SG



VSOP - 16 pin

PROMOTION OF ENVIRONMENTAL MANAGEMENT SYSTEM CONFORMING TO INTERNATIONAL STANDARDS

At Seiko Epson, all environmental initiatives operate under the Plan-Do-Check-Action (PDCA) cycle designed to achieve continuous improvements. The environmental management system (EMS) operates under the ISO 14001 environmental management standard.

All of our major manufacturing and non-manufacturing sites, in Japan and overseas, completed the acquisition of ISO 14001 certification.

ISO 14000 is an international standard for environmental management that was established by the International Standards Organization in 1996 against the background of growing concern regarding global warming, destruction of the ozone layer, and global deforestation.

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In order provide high quality and reliable products and services than meet customer needs,

Seiko Epson made early efforts towards obtaining ISO9000 series certification and has acquired ISO9001 for all business establishments in Japan and abroad. We have also acquired ISO/TS 16949 certification that is requested strongly by major automotive manufacturers as standard.

ISO/TS16949 is the international standard that added the sector-specific supplemental requirements for automotive industry based on ISO9001.

►Explanation of the mark that are using it for the catalog

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RoHS Compliant	►Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
For Automotive	►The products have been designed for high reliability applications such as Automotive.

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