CRYSTAL OSCILLATOR (SPXO)

OUTPUT : CMOS

HIGH-STABILITY

HG - 2150CA series

- Frequency range : 1 MHz to 60 MHz
- Supply voltage : 3.3 V Typ. / 5.0 V Typ.
- Frequency tolerance : $\pm 15 \times 10^{-6}$ / -20 ℃ to +70 ℃
- Function : Output enable (OE)
- External dimensions : 7.0 × 5.0 × 1.4 mm

Pb Free RoHS Compliant

Product Number (please contact us)
Q3514CA00xxxx00

Actual size

Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks
		SVH / BXH	SVC / BXC	
Output frequency range	f_0	1.000 MHz to 60.000 MHz		Please contact us about available frequencies.
Supply voltage	V_{CC}	H:5.0 V ±0.5 V	C:3.3 V ±0.3 V	
Storage temperature	T_stg	-40 °C to +125 °C		Storage as single product.
Operating temperature	T_use	V:-20 °C to +70 °C	X:-40 °C to +85 °C	
Frequency tolerance	f_tol	S: $\pm 15 \times 10^{-6}$ *1		-20 °C to +70 °C
		B: $\pm 25 \times 10^{-6}$ *1		-40 °C to +85 °C
Current consumption	I_{CC}	30 mA Max.	25 mA Max.	No load condition, OE = V_{CC}
Disable current	I_dis	15 mA Max.	12 mA Max.	OE=GND
Symmetry	SYM	45 % to 55 %		50 % V_{CC} level
Output voltage	V_{OH}	V_{CC}-0.4 V Min.		I_{OH}=-4 mA
	V_{OL}	0.4 V Max.		I_{OL}= 4 mA
Output load condition	L_CMOS	15 pF Max.		CMOS load
Input voltage	V_{IH}	70 % V_{CC} Min.		OE terminal
	V_{IL}	30 % V_{CC} Max.		
Rise time / Fall time	t_r / t_f	4 ns Max.		20 % V_{CC} to 80 % V_{CC} level
Start-up time	t_str	10 ms Max.		Time at minimum supply voltage to be 0 s.
Frequency aging	f_aging	±10 × 10^{-6} Max. *2		+25 °C, 10 years

*1 Frequency tolerance includes variation in reflow soldering drift, operating temperature range, supply voltage range and load change.
*2 50 MHz < $f_0 \leq$ 60 MHz: $\pm 15 \times 10^{-6}$ Max.

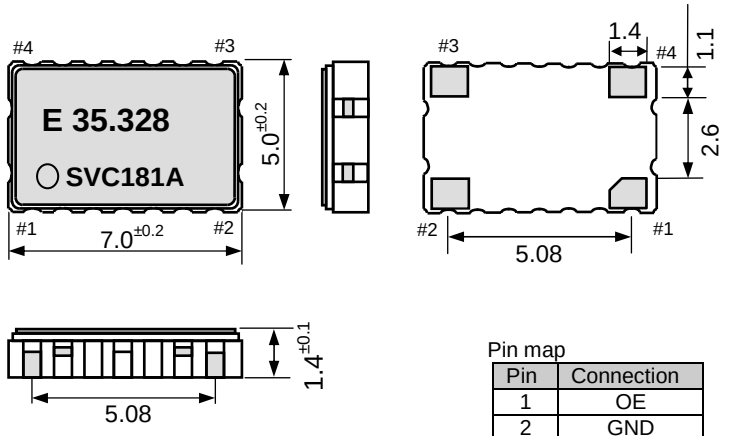
Product Name (Standard form): HG-2150CA 35.328000MHz S V H
① ② ③④⑤
①Model ②Frequency ③Frequency tolerance ④Operating temperature ⑤Supply voltage

③Frequency tolerance	
S	±15 × 10^{-6} / -20 to +70℃
B	±25 × 10^{-6} / -40 to +85℃

④Operating temperature	
V	-20 to +70℃
X	-40 to +85℃

⑤Supply voltage	
C	3.3 V Typ.
H	5.0 V Typ.

External dimensions (Unit:mm)

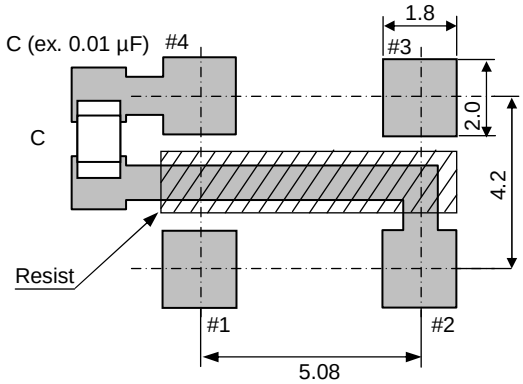


Pin map

Pin	Connection
1	OE
2	GND
3	OUT
4	V_{CC}

Note.
OE Pin
OE pin = "H" or "open" : Specified frequency output.
OE pin = "L" : Output is high impedance

Footprint (Recommended) (Unit:mm)



To maintain stable operation, provide a 0.01uF to 0.1uF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

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.

WORKING FOR HIGH QUALITY

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

Pb Free	►Pb free.
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	►Designed for automotive applications such as Car Multimedia, Body Electronics, Remote Keyless Entry etc.
Automotive Safety	►Designed for automotive applications related to driving safety (Engine Control Unit, Air Bag, ESC etc).

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