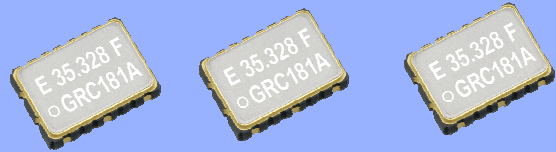


For HUAWEI  
VOLTAGE-CONTROLLED CRYSTAL OSCILLATOR (VCXO)

# VG7050CAN

- Frequency : 32.768 MHz
- Supply voltage : 3.3 V
- Pull range :  $\pm 100 \times 10^{-6}$  to  $\pm 200 \times 10^{-6}$
- External dimensions : 7.0 x 5.0 x 1.4 mm



Actual size



Important note: This datasheet is preliminary and subject to change. To get a final specification containing an Epson ordering code please contact your local Seiko Epson representative.

### Maximum ratings

Item	Symbol	Specifications	Remarks
Maximum supply voltage	Vcc	-0.3 V to 5.0 V	
Maximum control voltage	Vc	-0.3V to Vcc+0.3 V	

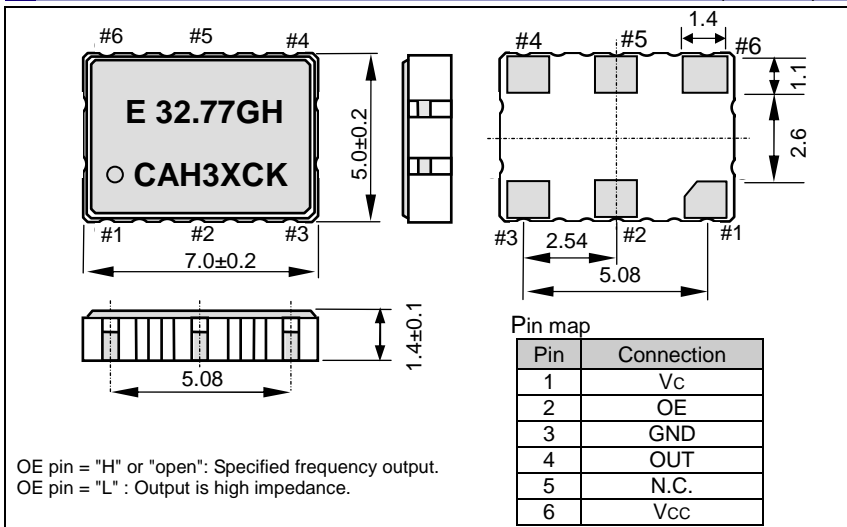
### Specifications (characteristics)

Item	Symbol	specification	Conditions / Remarks
Output frequency	f <sub>o</sub>	32.768 MHz	
Supply voltage	Vcc	3.3 V $\pm$ 0.17 V	
Control voltage	Vc	1.65 V $\pm$ 1.65 V	
Current consumption	I <sub>cc</sub>	20 mA Max.	No load
Storage temperature	T <sub>stg</sub>	-55 °C to +125 °C	Storage as single product.
Operating temperature	T <sub>use</sub>	-40 °C to +85 °C	
Initial tolerance	f <sub>tol</sub>	$\pm 20 \times 10^{-6}$ Max.	Vcc=3.3V, Vc=1.65 V, +25 °C. reference to f <sub>0</sub> .
Frequency tolerance	-	$\pm 20 \times 10^{-6}$ Max.	Includes temperature change, supply voltage change, load change and aging(+25 °C, 1year)V c=1.65 V reference to initial frequency
Frequency control range	F <sub>cont</sub>	$\pm 100 \times 10^{-6}$ to $\pm 200 \times 10^{-6}$	Vc=1.65 V $\pm$ 1.65 V, reference to frequency at Vc=1.65V
Modulation characteristics	BW	15 kHz Min.	$\pm 3$ dB (at 1 kHz)
Input resistance	R <sub>in</sub>	10 M $\Omega$ Min.	DC Level
Frequency change polarity	-	Positive polarity	
Symmetry	SYM	45 % to 55 %	CMOS load: 50 % Vcc level
Output voltage	V <sub>OH</sub>	90%Vcc V Min.	CL=30pF
	V <sub>OL</sub>	10%Vcc V Max.	
Rise time and Fall time	t <sub>r</sub> / t <sub>f</sub>	5 ns Max.	CMOS load: 20 % Vcc to 80 % Vcc level
Output load condition	L <sub>CMOS</sub>	30 pF Max.	CMOS load
Start-up time	t <sub>str</sub>	10 ms Max.	Time at 90 % Vcc to be 0s
SSB PHASE NOISE	-	-70dBc/Hz Typ.	at 10Hz offset
		-90dBc/Hz Typ.	at 100Hz offset
		-125dBc/Hz Typ.	at 1kHz offset
		-130dBc/Hz Typ.	at 10kHz offset
		-135dBc/Hz Typ.	at 100kHz offset
Phase jitter	-	1.5 ps Max.	12kHz to 20MHz
		1.0 ps Max.	50kHz to 20MHz

\* Please keep Vc pin open or ground while powering up Vcc.

### External dimensions

(Unit: mm)



### Footprint (Recommended)

(Unit: mm)

