VCXO VG7050CDN

SEIKO EPSON CORPORATION

Product name VG7050CDN 122.880000MHz CJGHBA
Product code / Ordering code X1G0048610008xx
Please refer to the 8.Packing information about xx (last 2 digits)

Output waveform CMOS
Complies with EU RoHS directive
Reference weight Typ.169mg

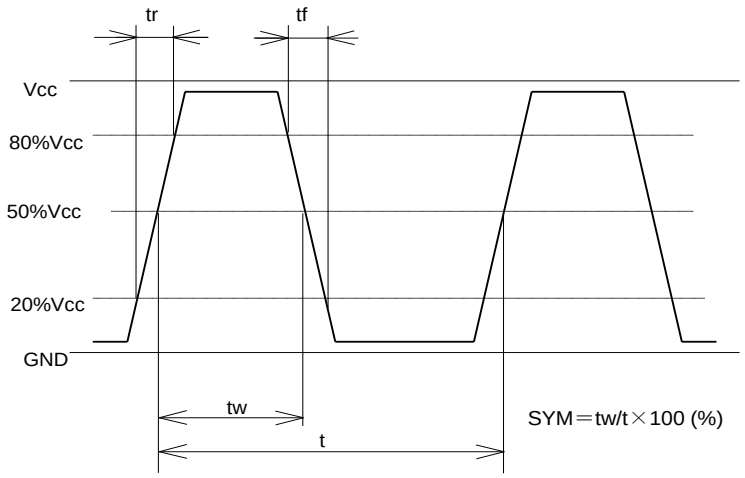
**1.Absolute maximum ratings**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions / Remarks |
|---|---|---|---|---|---|---|
| Maximum supply voltage | Vcc-GND | -0.3 | - | +5 | V | - |
| Storage temperature | T_stg | -55 | - | +125 | ºC | Storage as single product after unpacking. |
| Input voltage | Vin | -0.3 | - | Vcc+0.3 | V | Vc traminal |

**2.Specifications(characteristics)**

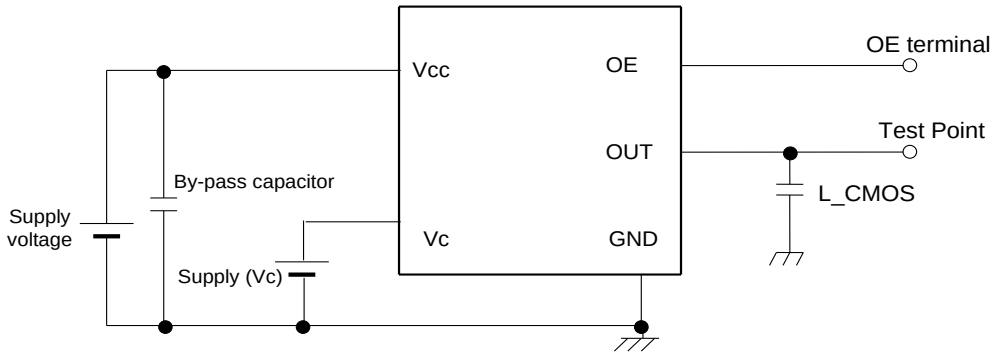
| Parameter | Symbol | Min. | Typ. | Max. | Unit | Conditions / Remarks |
|---|---|---|---|---|---|---|
| Output frequency | f0 | | 122.8800 | | MHz | |
| Supply voltage | Vcc | 3.135 | 3.3 | 3.465 | V | - |
| Control voltage | Vc | 0 | 1.65 | 3.3 | V | Vc=1.65V+/-1.65V |
| Operating temperature | T_use | -40 | - | +85 | ºC | - |
| Frequency tolerance | f_tol | -50 | - | +50 | $x10^{-6}$ | T_Use |
| Current consumption | Icc | - | - | 30 | mA | - |
| Disable current | I_dis | - | - | - | mA | OE=GND |
| Frequency control range | f_cont | +/-100 | - | - | $x10^{-6}$ | - |
| Absolute pull range | APR | +/-50 | - | - | $x10^{-6}$ | - |
| Modulation characteristics | BW | 10 | - | - | kHz | +/-3dB |
| Input resistance | Rin | 10 | - | - | MΩ | Vc terminal |
| Linearity | $F_{LIN}$ | - | - | +/-10 | % | - |
| Frequency change polarity | - | | Positive | | – | - |
| Symmetry | SYM | 45 | - | 55 | % | 50%Vcc level |
| Output voltage | $V_{OH}$ | 90%Vcc | - | - | V | - |
| | $V_{OL}$ | - | - | 10%Vcc | V | - |
| Output load condition | L_CMOS | - | - | 15 | pF | - |
| Input voltage | $V_{IH}$ | 70%Vcc | - | - | V | - |
| | $V_{IL}$ | - | - | 30%Vcc | V | - |
| Rise time | tr | - | - | 2 | ns | 20%Vcc to 80%Vcc level |
| Fall time | tf | - | - | 2 | ns | 80%Vcc to 20%Vcc level |
| Start-up time | t_str | - | - | 10 | ms | t=0 at 90%Vcc |
| Phase jitter | tPJ | - | - | 1 | ps | Offset frequency:12 kHz to 20 MHz |
| Frequency aging | f_aging | - | - | - | $x10^{-6}$ | Included in frequency tolerance |

## 3.Timing chart

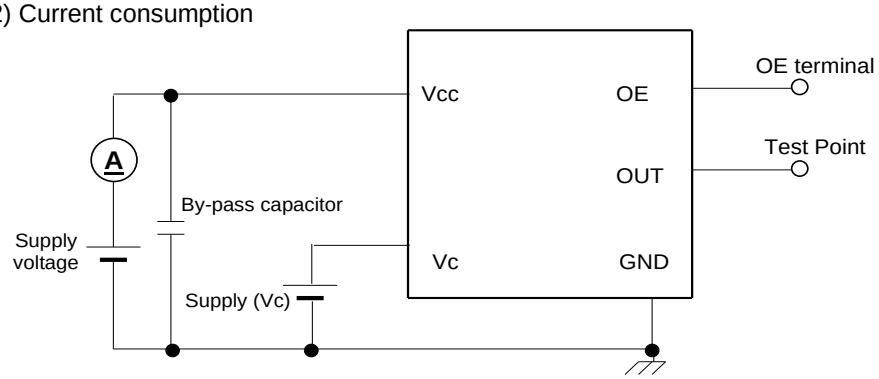



## 4.Test circuit

1) C-MOS load CL=15 pF



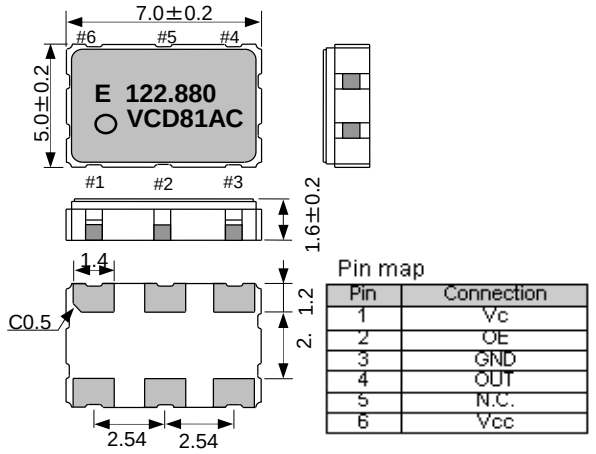

2) Current consumption




3) Condition

1. Oscilloscope
   Bandwidth should be 5 times higher than DUT's output frequency.
   Probe ground should be placed closely from test point and lead length should be as short as possible.
2. L_CMOS includes probe capacitance.
3. By-pass capacitor (0.1 µF + 10 µF) is placed closely between Vcc and GND.
4. Use the current meter whose internal impedance value is small.
5. Power Supply
   ・Start up time (0 %Vcc→90 %Vcc) of power source should be more than 150 µs.
   ・Impedance of power supply should be as low as possible.

## 5.External dimensions (Unit: mm)

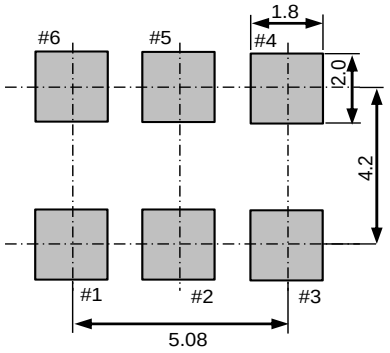



Pin map

| Pin | Connection |
|---|---|
| 1 | Vc |
| 2 | OE |
| 3 | GND |
| 4 | OUT |
| 5 | N.C. |
| 6 | Vcc |

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

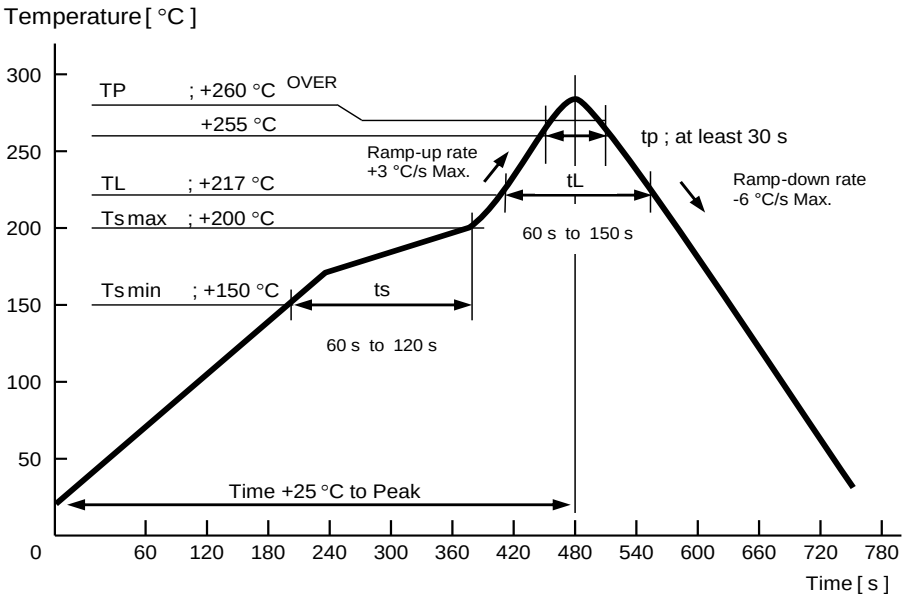
## 6.Footprint(Recommended) (Unit: mm)




To maintain stable operation, provide a 0.1µF + 10µF by-pass capacitor at a location as near as possible to the power source terminal of the crystal product (between Vcc - GND).

## 7.Reflow profile

JEDEC STD-020D.01




## 8.Packing information

[ 1 ]Product number last 2 digits code(xx) description The recommended code is "00"

X1G0048610008xx

| Code | Condition |
|---|---|
| 00 | 1000pcs / Reel |
| 01 | Any Q'ty vinyl bag(Tape cut) |
| 11 | Any Q'ty / Reel |

[ 2 ] Taping specification

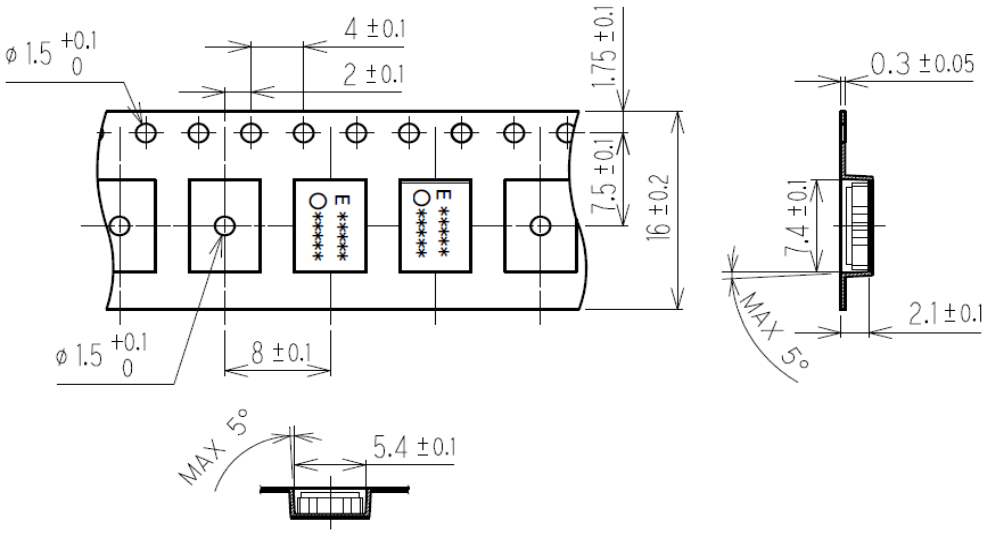
Subject to EIA-481 & IEC-60286

(1) Tape dimensions

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

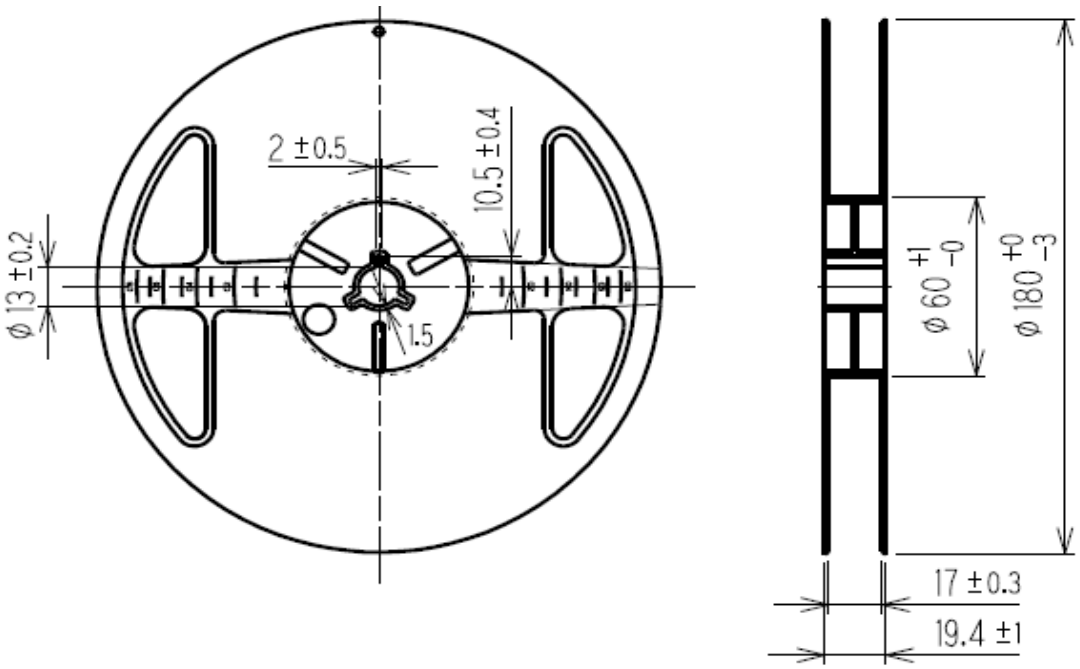
Unit: mm




(2) Reel dimensions

Material of the Reel : PS

Unit: mm



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