ROHS COMPLIANT

# APPROVAL SHEET

Customer :

Part Number:

Part No.: 114140110000.0002

Holder : OCXO-14

Frequency: 11MHz

Manufacturer:

Date: 2023-03-22

| Prepared | Checked | Approved |
|---|---|---|
| | | |

**(For Customer Use)**

| Acceptable | Non-Acceptable |
|---|---|
| | |

# Revision History

| No. | Revised Date | Change Content | Approved | Remark |
|---|---|---|---|---|
| 1.0 | 2023-3-22 | Initial Release | | |
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## 1. Scope

This document describes technical guidelines of product **11414011000.0002**

| HCMOS OUTPUT OCXO-14 | | | | | | |
|---|---|---|---|---|---|---|
| **PARAMETER** | **SYMBOL** | **CONDITIONS** | **MIN** | **TYPE** | **MAX** | **UNIT** |
| Normal Frequency | $F_n$ | AT | | 11 | | MHz |
| **Absolute maximum ratings** | | | | | | |
| Maximum Supply Range | Vcc | – | -0.3 | | +5.5 | V |
| Operating Temperature range | TA | – | -20 | | 70 | ℃ |
| Storage Temperature range | | | -55 | | 100 | ℃ |
| **Power** | | | | | | |
| Operating Supply Voltage | $V_{cc}$ | | 4.75 | 5 | 5.25 | V |
| Turn-On | | Nom Vcc | | | 2.5 | W |
| Steady state | | Ta=25℃ | | | 1 | W |
| **Frequency Stability** | | | | | | |
| Calibration | | $T_A$=25℃ | | ±0.3 | ±0.5 | ppm |
| Freq VS Temperature | $T_S$ | -20℃ to 70℃ | | | ±200 | ppb |
| Freq VS Time (Aging) | | Per day | | | ±50 | ppb |
| | | 1st year | | | ±1.5 | ppm |
| | | 10 years | | | ±4 | ppm |
| Warm up time | | time to ±0.5 of $F_n$ | | | 3 | minutes |
| **Electrical Frequency Control** | | | | | | |
| Control Voltage Range | $V_c$ | VC Transfer is positive monotonic | 0 | | 5 | V |

| | | | | | | |
|---|---|---|---|---|---|---|
| Control Voltage at f0 | $V_{CfO}$ | 25℃ at time of shipment | | 2.5 | | V |
| Pulling Range | | | | ±5 | | ppm |
| Input impedance (Zi) | | | 50 | | | KΩ |
| EFC Linearity | | | | | 10 | % |
| **Output parameters** | | | | | | |
| Output signal | | - | | HCMOS | | |
| Output load | | Output to ground | 13.5 | 15 | 16.5 | pF |
| Output Level | $V_{OH}$ | High Level | 4.5 | | | V |
| | $V_{OL}$ | Low Level | | | 0.5 | V |
| Duty Cycle | | | 45 | 50 | 55 | % |
| Rise time/ Fall time | | | | | 6 | ns |
| Phase noise | | 10Hz | | -80 | | dBc/Hz |
| | | 100Hz | | -110 | | dBc/Hz |
| | | 1KHz | | -140 | | dBc/Hz |
| | | 10KHz | | -145 | | dBc/Hz |

## 3. Construction

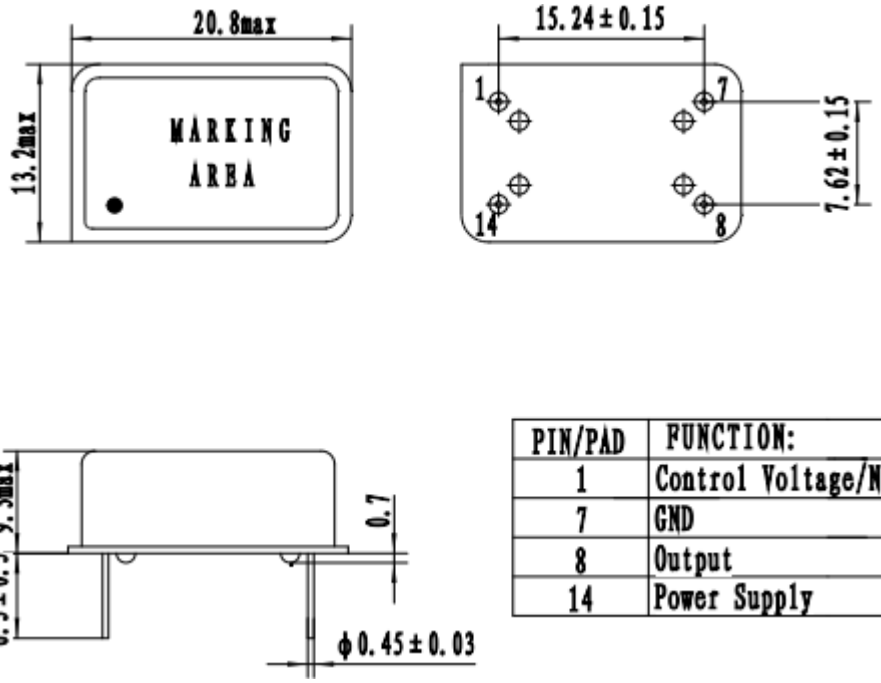
1. Oscillator enclosure seal:

☐Seam seal ■resistance weld ☐cold weld

2. crystal enclosure medium

☐nitrogen ■vacuum ☐dry air

**4.Dimension:**



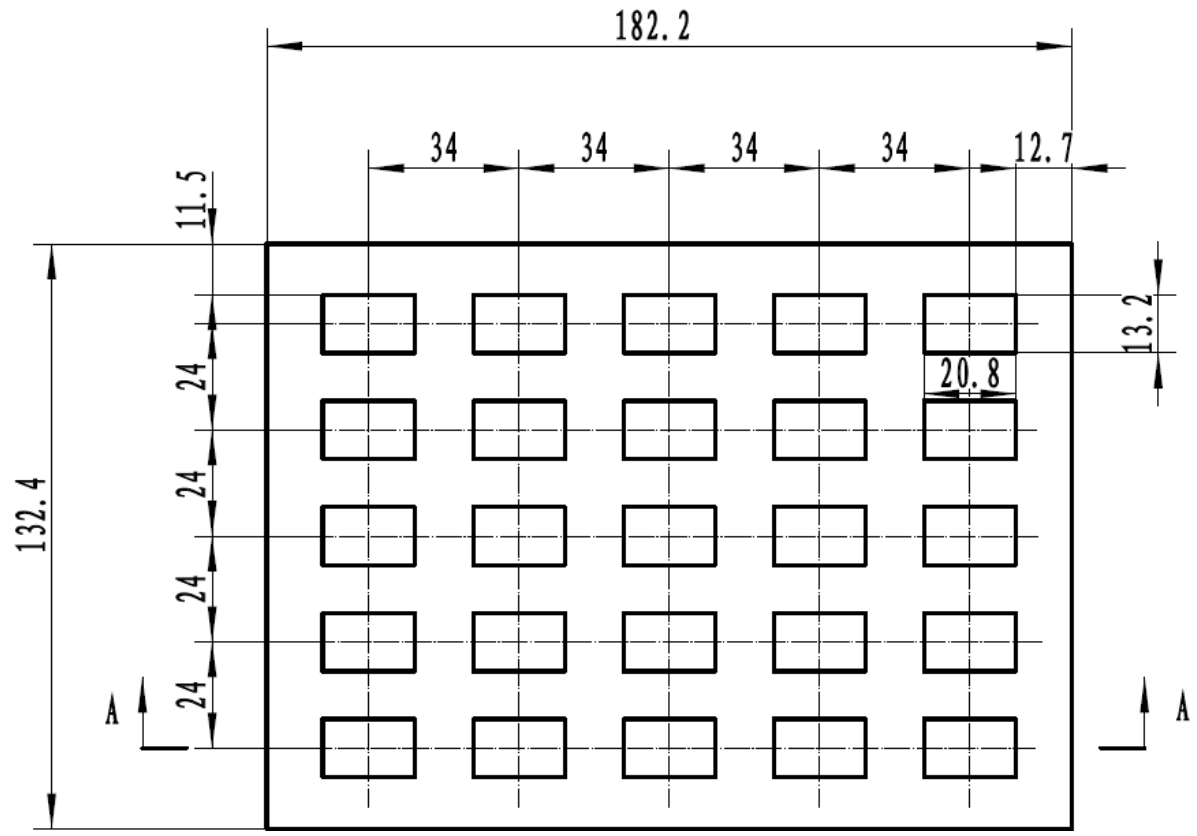

| PIN/PAD | FUNCTION: |
|---|---|
| 1 | Control Voltage/NC |
| 7 | GND |
| 8 | Output |
| 14 | Power Supply |

**5. Marking**

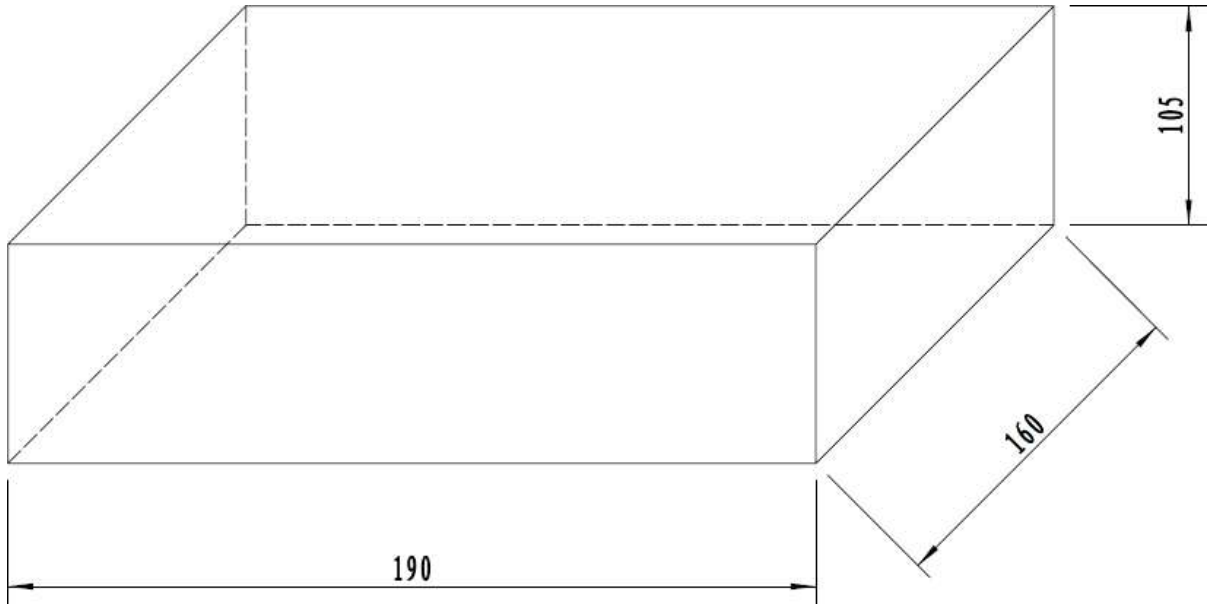
■ Laser Marking ☐ Ink Marking

## 6. Packing Instruction

**Units: mm**




Tray Material: ESD plast. 25 units per tray.



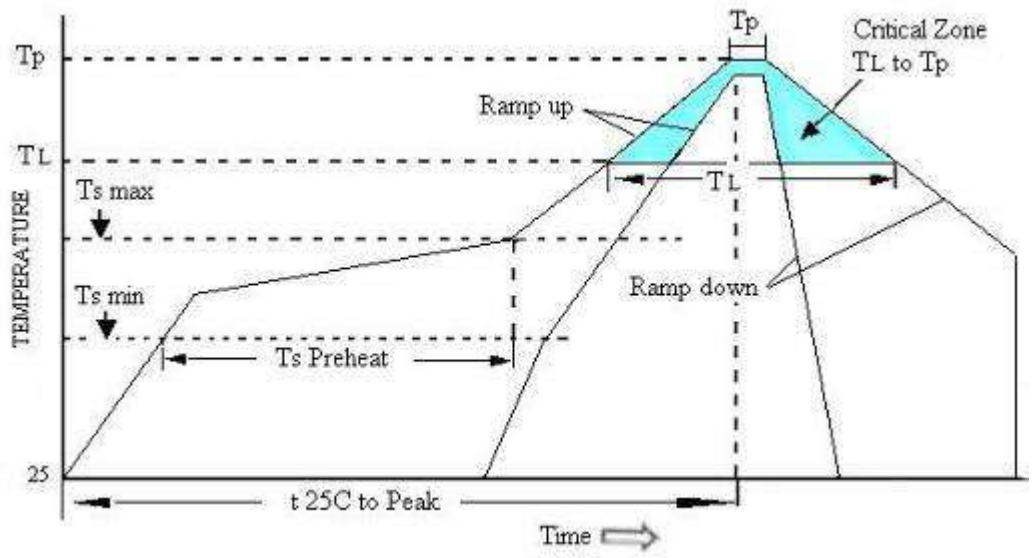

100 unites max per box.

## 7.Reliability characteristic:

| | Item | Condition | Specifications |
|---|---|---|---|
| 7.1 | Reflow Simulation | 3X 240°C Peak<br>20 secs max above 240°C | ΔF≤±0.2ppm |
| 7.2 | Power Cycl | 100 Cycles<br>-40°C, 30 minutes no power (off) and 30 minutes powered (on)<br>-- Test product for functionality<br>-- Continue for another 250 cycles<br>-- Test product for functionality<br>-- Intenal visual and mechanical inspection | ΔF≤±0.2ppm |
| 7.3 | Thermal Shock | Subject samples to temperature extremes of –40 and +125C, 30 minute soaks at the temperature extremes, 10 seconds maximum transition time between extremes. The test duration is 10 Cycles<br>GJB 360A-96 Method 107. | ΔF≤±0.2ppm |
| 7.4 | Mechanical Shock | IEC 68-2-27 Test Ea | ΔF≤±0.2ppm |
| 7.5 | Vibration | IEC 68-2-06 Test Fc | ΔF≤±0.2ppm |
| 7.6 | Free drop | Drop from 10cm height on 3cm hard wooden board for 6 times<br>GB2423.8-1995（idt IEC 68-2-32:1990）Method Ed。 | ΔF≤±0.2ppm |
| 7.7 | Aging | Bias oscillators at nominal voltage and subject oscillators to 25C for 1008 hours. Readings are to be taken with oscillator at 25C twice per day. Determine aging (frequency shift post 1008 hours minus initial frequency). Use the results to predict long-term aging. | Per. Spec. |
| 7.8 | Solderability | Precondition parts by steaming (over boiling water) for 8 hours OR age the parts at 150C for 16 hours | A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed. |

## 8.All products are RoHs compliant

## 9. Reflow Profile




High Temperature Infrared /Convection

Note:Temperature shown are applied to body of device

| | |
|---|---|
| Ts max to $T_L$(Ramp-up Rate) | 3℃/second max |
| Preheat<br>Temperature Min(Ts Min)<br>Temperature Typical( Ts Typ)<br>Temperature Max.(Ts Max)<br>Time(ts) | <br>150℃<br>175℃<br>200℃<br>60-180 seconds |
| Ram-up Rate($T_L$ to Tp) | 3℃/second Max |
| Time Maintained Above:<br>--Temperature($T_L$)<br>--Time($T_L$) | <br>217℃<br>60-150seconds |
| Peak Temperature (Tp) | 260℃ Max for 10 seconds |
| Time within 5℃ of actual peak($t_p$) | 20-40 seconds |
| Ramp-down Rate | 6℃/seconds Max |
| Tune 25℃ to Peak Temperature(t) | 8 minutes Max |
| Moisture Sensitivity Level | Level 1 |

High Temperature Manual Soldering

Note:Temperature shown are applied to body of device

260℃ Max for 5 seconds Max, 2 times Max