

ROHS COMPLIANT

APPROVAL SHEET

Customer : _____
 Part Number: _____
 Part No.: 11414020000.0015
 Holder : OCXO-14
 Frequency: 20MHz
 Manufacturer: _____
 Date: 2023-03-22

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

(For Customer Use)

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

1. Scope

This document describes technical guidelines of product [11414020000.0015](#)

2. Electrical Characteristics

| HCMOS OUTPUT OCXO-14 | | | | | | |
|---------------------------------|----------|---|------|-------|-----------|---------|
| PARAMETER | SYMBOL | CONDITIONS | MIN | TYPE | MAX | UNIT |
| Normal Frequency | F_n | | | 20 | | MHz |
| Absolute maximum ratings | | | | | | |
| Maximum Supply Range | V_{cc} | - | -0.3 | | +5.5 | V |
| Operating Temperature range | T_A | - | -40 | | 85 | °C |
| Storage Temperature range | | | -55 | | 125 | °C |
| Power | | | | | | |
| Operating Supply Voltage | V_{cc} | | 4.75 | 5 | 5.25 | V |
| Turn-On Current | | Nom V_{cc} | | | 2.5 | W |
| Steady state Current | | $T_A=25^\circ\text{C}$ | | | 1 | W |
| Frequency Stability | | | | | | |
| Calibration | | $T_A=25^\circ\text{C}$ | | | ± 0.5 | ppm |
| Freq VS Temperature | T_S | -40°C to 85°C | | | ± 20 | ppb |
| Freq VS Time (Aging) | | 1st year | | | ± 1.5 | ppm |
| | | 10 years | | | ± 4 | ppm |
| Warm up time | | time to ± 0.5 of F_n | | | 3 | minutes |
| 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 | | -110 | | dBc/Hz |
| | | 100Hz | | -130 | | dBc/Hz |
| | | 1KHz | | -140 | | dBc/Hz |
| | | 10KHz | | -148 | | dBc/Hz |

3. Construction

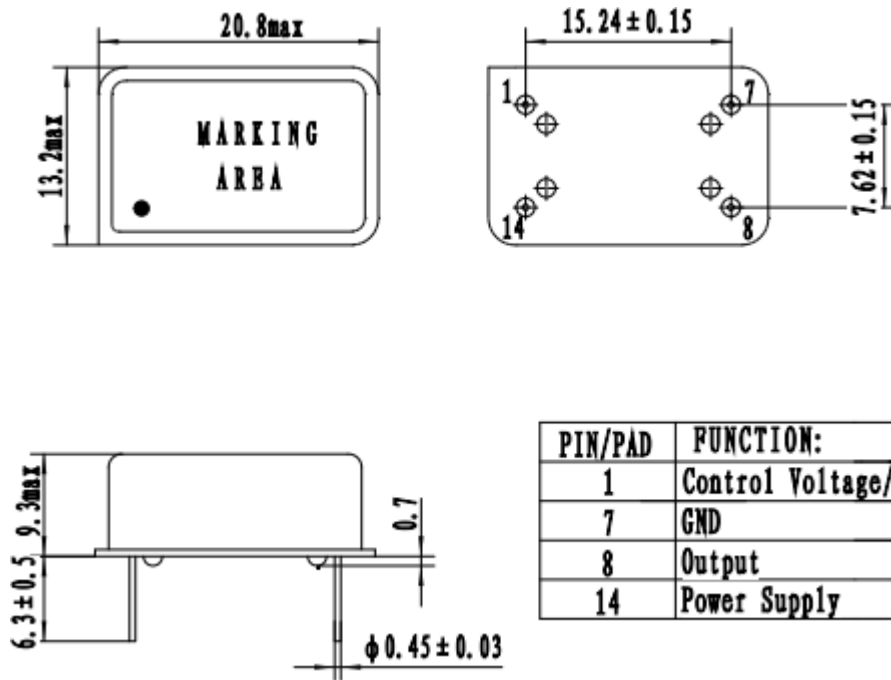
1. Oscillator enclosure seal:

Seam seal resistance weld cold weld

2. crystal enclosure medium

nitrogen vacuum dry air

4.Dimension:

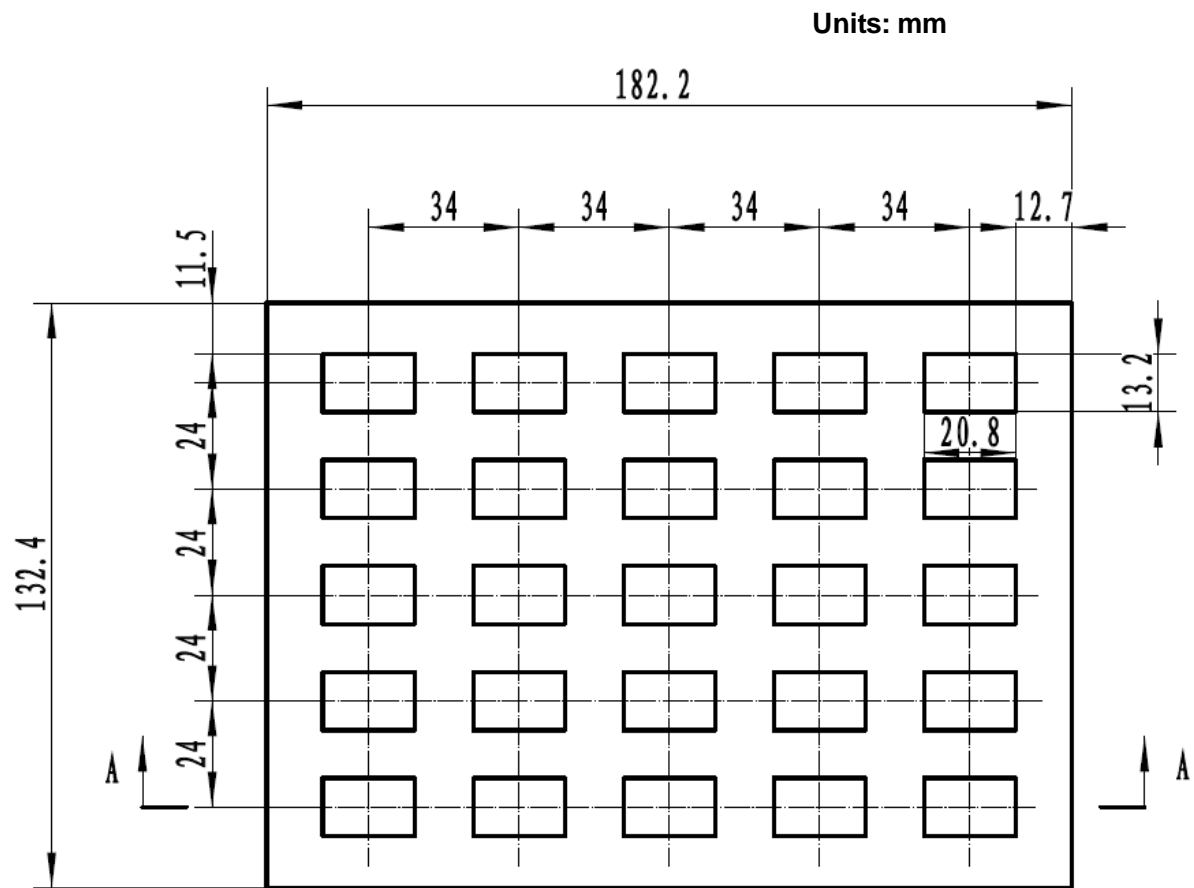


5. Marking

Laser Marking

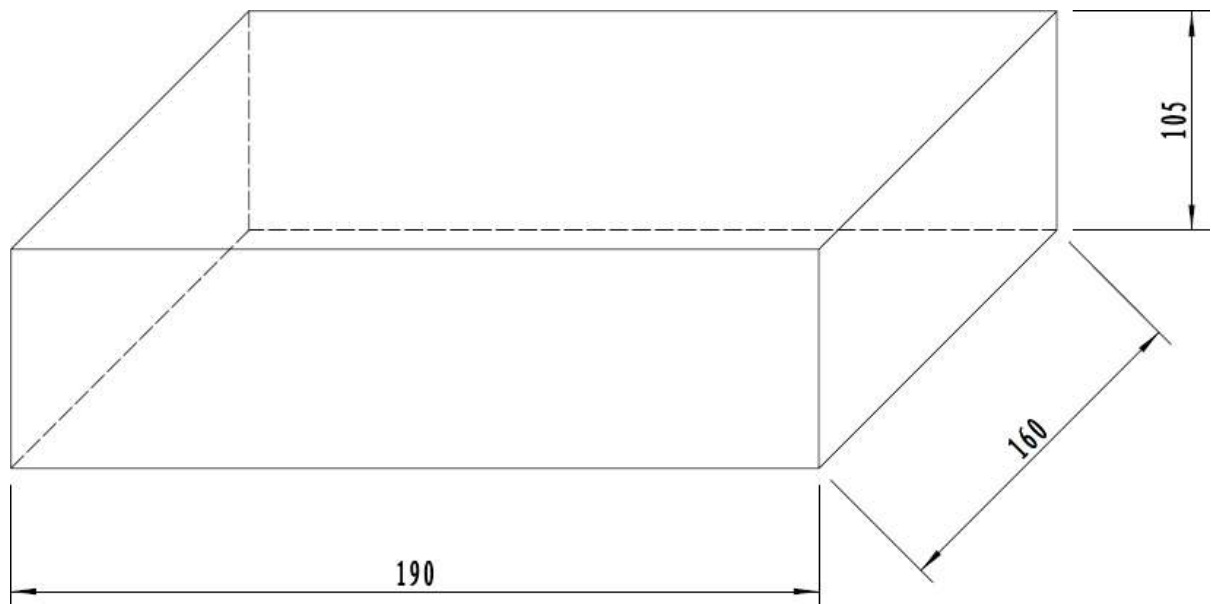
Ink Marking

6. Packing Instruction



Tray Material: ESD plast.

25 units per tray.



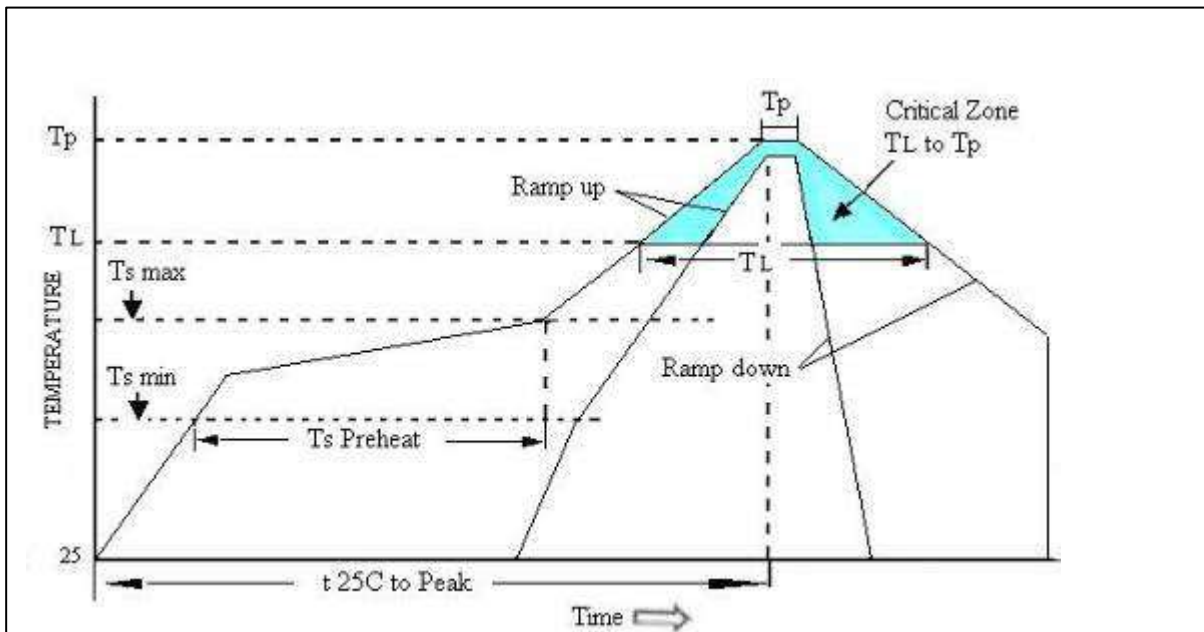
100 unites max per box.

7. Reliability characteristic:

| | Item | Condition | Specifications |
|-----|-------------------|--|---|
| 7.1 | Reflow Simulation | 3X 240°C Peak 20 secs max above 240°C | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 7.2 | Power Cycl | 100 Cycles -40°C, 30 minutes no power (off) and 30 minutes powered (on) -- Test product for functionality -- Continue for another 250 cycles -- Test product for functionality -- Intenal visual and mechanical inspection | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 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 GJB 360A-96 Method 107. | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 7.4 | Mechanical Shock | IEC 68-2-27 Test Ea | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 7.5 | Vibration | IEC 68-2-06 Test Fc | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 7.6 | Free drop | Drop from 10cm height on 3cm hard wooden board for 6 times GB2423.8-1995 (idt IEC 68-2-32:1990) Method Ed. | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 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 TL(Ramp-up Rate) | 3°C/second max |
| Preheat | |
| Temperature Min(Ts Min) | 150°C |
| Temperature Typical(Ts Typ) | 175°C |
| Temperature Max.(Ts Max) | 200°C |
| Time(ts) | 60-180 seconds |
| Ram-up Rate(TL to Tp) | 3°C/second Max |
| Time Maintained Above: | |
| --Temperature(TL) | 217°C |
| --Time(TL) | 60-150seconds |
| Peak Temperature (Tp) | 260°C Max for 10 seconds |
| Time within 5°C of actual peak(tp) | 20-40 seconds |
| Ramp-down Rate | 6°C/seconds Max |
| Tune 25°C 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°C Max for 5 seconds Max, 2 times Max