

Pb

APPROVAL SHEET

Customer : _____
 Part Number: _____
 Part No.: 11436016000.0001
 Holder : OCXO-36
 Frequency: 16MHz
 Manufacturer: _____
 Date: 2023-03-22

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

(For Customer Use)

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

1. Scope

This document describes technical guidelines of product [11436016000.0001](#)

2. Electrical Characteristics

| HCMOS OUTPUT OCXO-36 | | | | | | |
|---|----------|--|------------|-----------|-----------|---------|
| PARAMETER | SYMBOL | CONDITIONS | MIN | TYPE | MAX | UNIT |
| Normal Frequency | F_n | SC | - | 16 | - | MHz |
| Absolute maximum ratings | | | | | | |
| Maximum Supply Range | V_{cc} | - | -0.5 | - | +5.5 | V |
| Operating Temperature range | T_A | - | -40 | | 75 | °C |
| Storage Temperature | | | -55 | | 100 | °C |
| Power | | | | | | |
| Operating Supply Voltage | V_{cc} | | 2.97 | 3.3 | 3.63 | V |
| Turn-On Power | - | Nom Vcc | - | - | 4.0 | W |
| Steady state Power | - | Nom Vcc $T_a=25^\circ\text{C}$ | - | - | 1.4 | W |
| Frequency Stability | | | | | | |
| Calibration | | $T_A=25^\circ\text{C}$ | | | ± 100 | ppb |
| Freq VS Temperature | TS | -40°C to 75°C (ref to 25°C) | | | ± 20 | ppb |
| Freq. VS Voltage | | $V_{cc}=3.3\text{V} \pm 5\%$ | | | ± 2 | ppb |
| Freq. VS Load | | Load = $15\text{pF} \pm 10\%$ | | | ± 2 | ppb |
| Freq VS Time (Aging) | - | Per day | | | ± 2 | ppb |
| | | Per years | | | ± 200 | ppb |
| Warm up time | | Time to within 0.1ppm | | | 5 | minutes |
| Short Term Stability ADEV(in still air) | | @1.0 sec | - | - | 0.05 | ppb |
| Electrical Frequency Control | | | | | | |
| Control Voltage Range | V_c | VC Transfer is positive monotonic | 0 | | 3 | V |
| Pulling Range | | | ± 0.35 | ± 0.5 | | ppm |

| | | | | | | |
|--------------------------|-----|-----------------------|-------|------|------|------------|
| Center voltage | | | | 1.5 | | V |
| Input impedance (Zi) | | | 100 | | | K Ω |
| EFC Linearity | | | | | 10 | % |
| Output parameters | | | | | | |
| Output signal | | - | HCMOS | | | - |
| Output load | CL | Output to ground | 13.5 | 15pF | 16.5 | pF |
| Amplitude | VOH | Load=15pF | 2.97 | - | - | V |
| | VOL | Load=15pF | - | - | 0.33 | V |
| Output Duty Cycle | DC | @ 50% of output level | 45 | - | 55 | % |
| Rise & fall Time | - | 10%c to 90% Vout | - | - | 10 | nS |
| Phase noise | | Offset = 1Hz | | -100 | | dBc/Hz |
| | | 10Hz | | -120 | | |
| | - | 100Hz | | -135 | | |
| | - | 1KHz | | -145 | | |
| | - | 10KHz | | -150 | | |

3. Construction

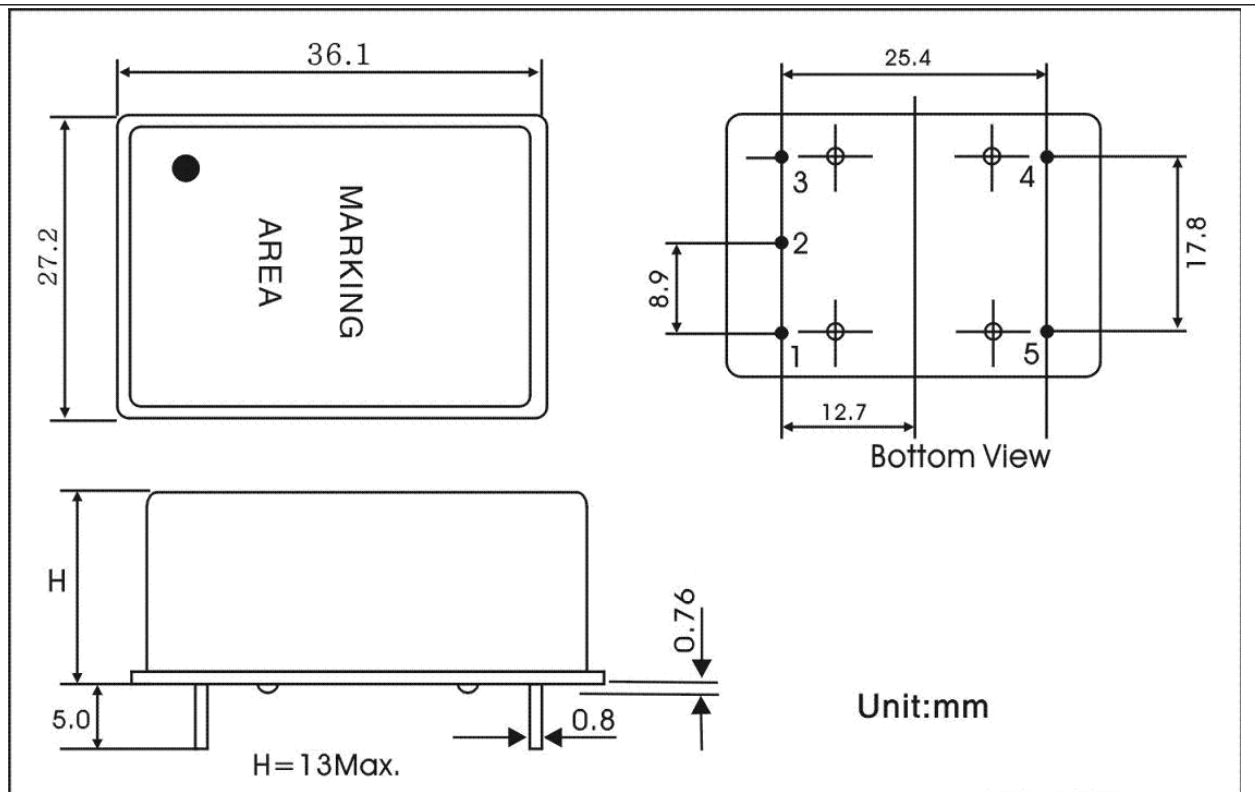
1. Oscillator enclosure seal:

Seam seal resistance weld cold weld

2. crystal enclosure medium

nitrogen vacuum dry air

4.Dimension:



| PIN | SYMBOL | FUNCTION |
|------|---------|-------------------|
| PIN1 | Vc | Voltage control |
| PIN2 | Vref/NC | Reference voltage |
| PIN3 | VCC | Supply voltage |
| PIN4 | Output | RF output |
| PIN5 | GND | Ground |

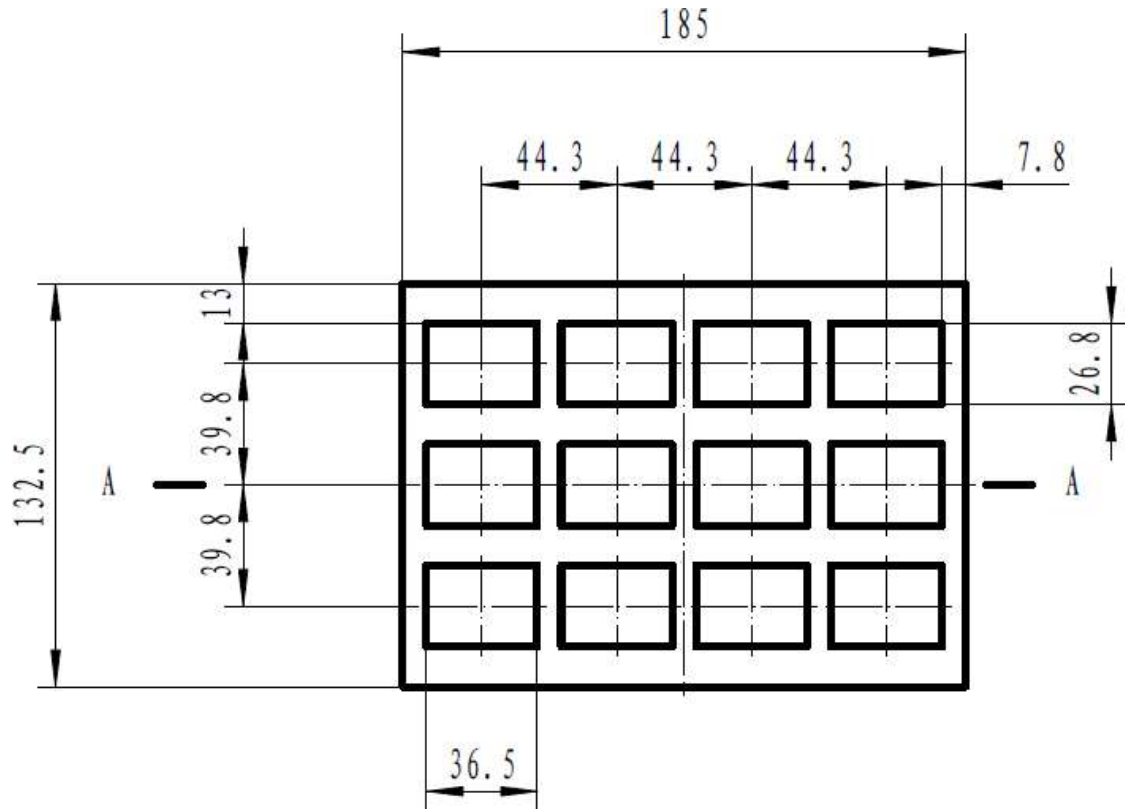
5. Marking

Laser Marking

Ink Marking

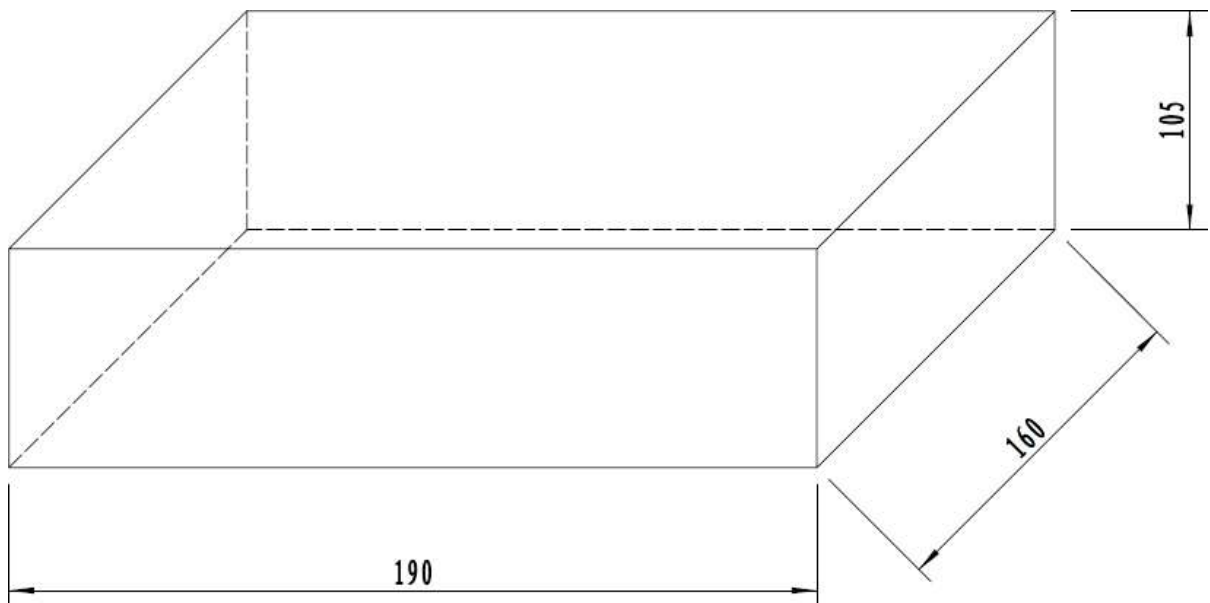
6. Packing Instruction

Units: mm



12units per tray

Tray Material: ESD sponge.



36 unites per box.

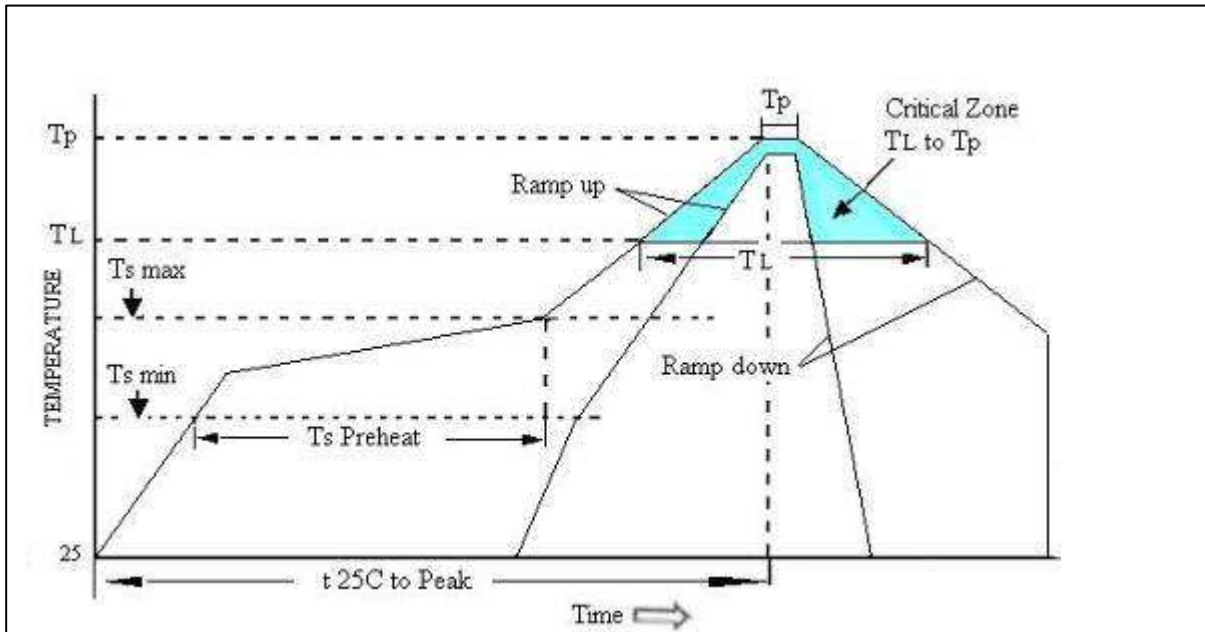
7. Reliability characteristic:

| | 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 Cycle | 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 | Subject OCXO to 500 g's, half-sine, pulse width of 1 ms for double ovens; 1000 g's , half-sine, pulse width of 1 ms for single ovens, five shocks in each of 6 directions of 3 perpendicular planes, for a total of 30 shocks. After shock, check with final test. GJB 360A-96 Method 213 | $\Delta F \leq \pm 0.2 \text{ ppm}$ |
| 7.5 | Vibration | Vibrate oscillators sinusoidally from 10 Hz to 55 Hz with a double amplitude of 0.60" and from 55 Hz to 500 Hz with a peak acceleration of 10 g's for 30 minutes in each of three perpendicular directions. Oscillators to be checked with final test after vibration. GB2423.10-1995 (idt IEC 68-2-6:1982) Method 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 | Per. Spec. |

| | | | |
|-----|---------------|---|---|
| | | frequency). Use the results to predict long-term aging. | |
| 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