

Oven Controlled Crystal Oscillators

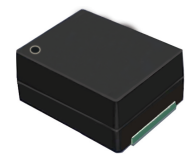
AOCJYR-10.000MHz-M5625LF



ESD Sensitive



RoHS / RoHS II Compliant



9.7 x 7.5 x 4.3 mm SMD

Moisture Sensitivity Level (MSL) – 1

OVERVIEW:

Abracon's AOCJYR series of World's Smallest Profile, Surface Mount- Ovenized Quartz Crystal Oscillators are based on Proprietary Mercury™ ASIC technology, patented by Rakon. This Advanced Technology coupled with Rakon's proprietary manufacturing techniques enable ± 10 ppb stability over -20°C to $+70^{\circ}\text{C}$, with typical short-term aging of better than ± 2 ppb per day.

Sophisticated Integrated Oven Control architecture ensures fast warm-up time, while minimizes initial power consumption to 350mW typical at 25°C . Further, the integration of critical functionality improves overall product reliability by reducing FIT rates 10x relative to traditional discrete OCXOs.

The AOCJYR series is offered in Industry leading 9.7 x 7.5 x 4.3 mm SMT package, while AOCJYR-DIL is available in 21.7 x 13.08 x 8.6 mm leaded hermetic package.

FEATURES:

- Compact package size: 9.7 x 7.5 x 4.3mm
- Frequency stability over temperature as low as ± 25 ppb over -40 to $+85^{\circ}\text{C}$
- Low power consumption
- High reliability

APPLICATIONS:

- Stratum 3
- Small Cells
- Switches and Routers
- Time & Frequency References
- SyncE and IEEE 1588

STANDARD SPECIFICATIONS:

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|---|---------|----------|-----------|-------------------------|---|
| Nominal Frequency | 10.000 | | | MHz | |
| Supply Voltage (Vdd) | 3.135 | 3.3 | 3.465 | V | |
| Input Power (warm-up) | | 1000 | | mW | |
| Input Power (steady-state) | | | 400 | mW | @ 25°C still air |
| Operable Temperature Range | -40 | | 85 | $^{\circ}\text{C}$ | |
| Storage Temperature Range | -55 | | +125 | $^{\circ}\text{C}$ | |
| Initial Frequency Tolerance @ 25°C At time of shipment | | | ± 0.5 | ppm | See Note 1 |
| Reflow Shift | | | ± 1 | ppm | After 1hr recovery |
| Frequency Stability over Operating Temperature Range in Still Air | | | ± 25 | ppb | Ref. to $(F_{\text{MAX}}+F_{\text{MIN}})/2$ |
| Slope in Still Air | | | ± 2 | ppb/ $^{\circ}\text{C}$ | Temperature ramp $1^{\circ}\text{C}/\text{minute max.}$ |
| Holdover Stability | | $<\pm 4$ | | ppb | 24hrs, temperature variation $\leq \pm 1^{\circ}\text{C}$. See Note 2 |
| Free-run Accuracy | | | ± 4.6 | ppm | All causes, 20 years life, ref. to nominal frequency. Stratum III compliant |
| Stability vs. Supply Voltage Change | | ± 10 | | ppb | $\pm 5\%$ variation in Vdd, ref. to freq. @Vdd=3.3V |
| Load Coefficient | | ± 10 | | ppb | ± 5 pF variation in load, ref. to freq. @ 15pF load |
| Frequency Aging (per day) | | $<\pm 2$ | | ppb | See Note 2 |

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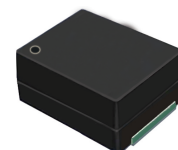
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STANDARD SPECIFICATIONS CONTINUED:

| Parameters | | Minimum | Typical | Maximum | Units | Notes |
|---|------------|---------------------|----------------------|---------------------|----------|---|
| Frequency Aging (long-term stability) | First Year | | | ±1 | ppm | |
| | 20 Years | | | ±3 | ppm | |
| Warm-up Time | | | <3 | | minute | See Note 3 |
| Root Allan Variance | | | <1x10 ⁻¹⁰ | | | @25°C, τ=1.0s |
| Acceleration Sensitivity | | | <2 | | ppb/g | Gamma vector of all 3 axes from 30Hz to 1500Hz |
| Output Type | | LVCMOS | | | | |
| High-level Output Voltage (V _{OH}) | | 90%*V _{dd} | | | V | |
| Low-level Output Voltage (V _{OL}) | | | | 10%*V _{dd} | V | |
| Output Load | | 10 | 15 | 20 | pF | |
| Rise and Fall Time (t _r , t _f) | | | | 4 | ns | |
| Duty Cycle | | 45 | | 55 | % | |
| Phase Noise @ 10MHz Carrier | | | | | | |
| @ 1 | Hz offse | | -72 | | dBc / Hz | |
| @ 10 | Hz offset | | -98 | | dBc / Hz | |
| @ 100 | Hz offset | | -123 | | dBc / Hz | |
| @ 1,000 | Hz offset | | -142 | | dBc / Hz | |
| @ 10,000 | Hz offset | | -149 | | dBc / Hz | |
| @ 100,000 | Hz offset | | -150 | | dBc / Hz | |
| @ 1,000,000 | Hz offset | | -150 | | dBc / Hz | |

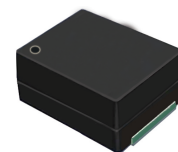
Note:

1. The characteristics of the component may be temporarily affected by the processes of assembly and soldering. The frequency specifications apply 48 hours after assembly. Nominal conditions apply unless otherwise stated.
2. After 30 days of continuous operation.
3. Time needed for frequency to be within ±20ppb reference to frequency after 1hour, at 25°C. Parameter is assembly and operating history dependent

CROSS REFERENCE INFORMATION:

AOCJYR-10.000MHZ-M5625LF is equivalent to Rakon P/N M5625LF.

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9.7 x 7.5 x 4.3 mm SMD



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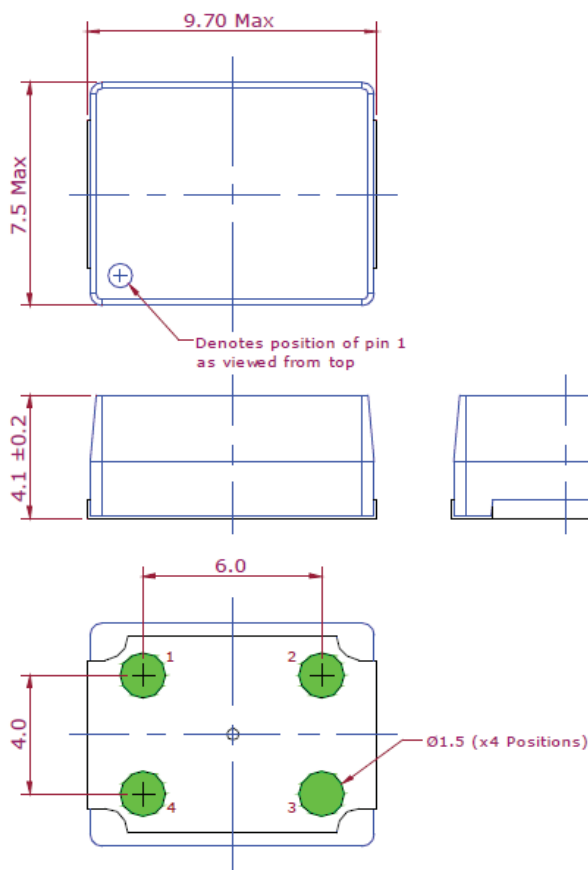
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PART IDENTIFICATION:

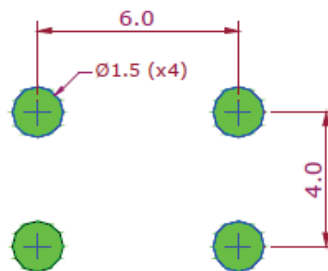
AOCJYR- 10.000MHz -M5625LF -

| Packing |
|--------------------------|
| Blank: Bulk |
| T: Tape & Reel (1k/reel) |

OUTLINE DIMENSION:



Recommended Land Pattern



| Pin | Function |
|-----|----------------|
| 1 | NC |
| 2 | Ground |
| 3 | RF-output |
| 4 | Supply Voltage |

Note: For correct operation, decouple the supply voltage with a 10µF capacitor close to the oscillator.

Dimension: mm

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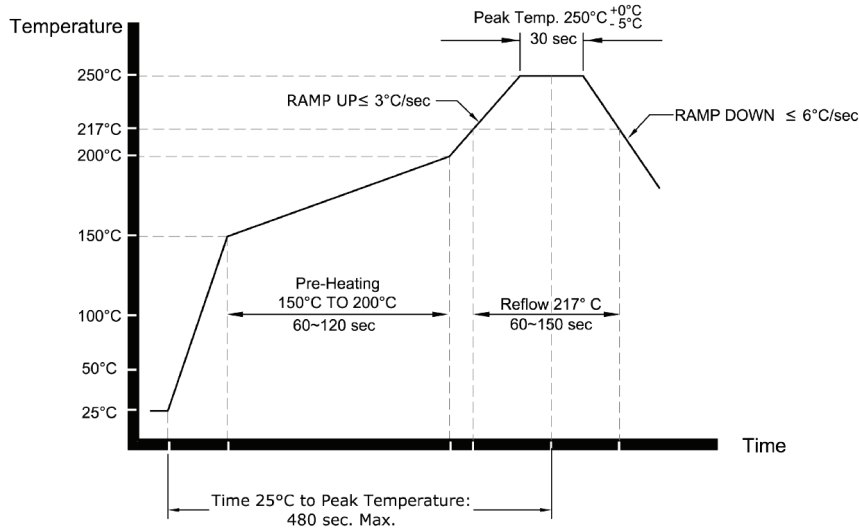


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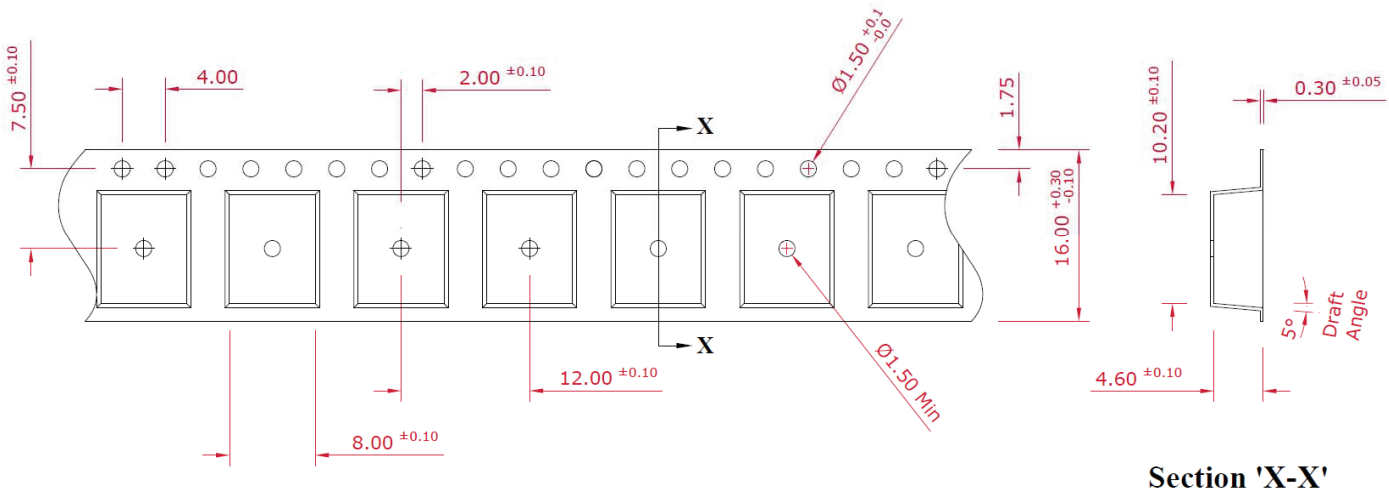
REFLOW PROFILE:



TAPE & REEL:

Packaging: 1000pcs/reel

Reel Size: Ø13"



Dimension: mm

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На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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