

Oven Controlled Crystal Oscillator

AOCJY

Request Samples



Check Inventory



ESD Sensitive



25.4 x 22.1 x 12.7 mm
RoHS/RoHS II Compliant
 MSL Level = 1

Features

- 25.4 x 22.1 x 12.7 mm True SMT- RoHS Compliant Reflowable Package
- SC-Cut, High “Q” resonator-based design
- Either Sinewave or CMOS RF output
- Available with ± 30 ppb over -40°C to $+75^{\circ}\text{C}$ operating temperature Range
- Tighter Stabilities to ± 5.0 ppb over 0°C to $+50^{\circ}\text{C}$ also available
- Exceptional long-term Aging of ± 500 ppb over 10-Year Product Life
- Excellent close-in phase noise (-135 dBc/Hz Typical @100 Hz offset from 10MHz carrier)

Applications

- Cellular Infrastructure
- Radar Systems
- Test & Measurement Equipment
- GPS Tracking with precision hold-over accuracy
- WiMax / WLAN

Key Electrical Specifications

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--|--|---------|--------------|--------------------|---------------------------------|
| RF Output | | | | | |
| Frequency | 10.00 | | 100.00 | MHz | CMOS output |
| | 10.00 | | 100.00 | MHz | Sinewave output |
| Standard Available Frequencies | 10.00, 12.80, 13.00, 16.384, 20.00, 26.00, 38.40, 38.88, 40.00, 100.00 MHz | | | | |
| Operable Temperature Range | 0 | | 50 | $^{\circ}\text{C}$ | See Stability Options |
| Frequency Stability Options | | | | | |
| 0°C to $+50^{\circ}\text{C}$ | | | ± 5.00 | ppb | Default Spec. |
| -20°C to $+70^{\circ}\text{C}$ | | | ± 10.00 | ppb | Option “E” |
| -40°C to $+75^{\circ}\text{C}$ | | | ± 30.00 | ppb | Option “F” |
| Frequency Stability vs. Supply Voltage (Vdd $\pm 5\%$) | | | ± 20.00 | ppb | |
| Warm-Up @ 25 $^{\circ}\text{C}$ | | | ± 100.00 | ppb | In < 3-minutes |
| Power Consumption @ turn on | | | 3.60 | Watts | |
| Power Consumption Steady State | | | 1.40 | Watt | |
| Supply Voltage (Vdd) | 3.135 | 3.30 | 3.465 | Volts | See Options |
| Reference Voltage (Vref) (available as an output to facilitate oscillator tuning) | 2.60 | 2.80 | 3.00 | Volts | For Vdd= $+3.3\text{V}$ version |
| | 4.30 | 4.50 | 4.70 | Volts | For Vdd= $+5.0\text{V}$ version |
| Aging | | | | | |
| Daily aging (after 30 days) | | | ± 1.0 | ppb | |
| Yearly | | | ± 100 | ppb | |
| 10-Years | | | ± 500 | ppb | |

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| Parameters | Minimum | Typical | Maximum | Units | Notes |
|---|-----------------|----------|--------------|------------|-------|
| Waveform | LVC MOS | | | | |
| Level "1" (Logic High) | 0.9*Vdd | | | Volts | |
| Level "0" (Logic Low) | | | 0.1*Vdd | Volts | |
| Load | | 15 | | pf | |
| Rise & Fall Time | | | 5.0 | ns | |
| Duty Cycle | 45 | | 55 | % | |
| Waveform | Sinewave | | | | |
| Peak Power | 2.00 | | | dBm | |
| Output Load | | 50 | | Ω | |
| Spectral Content | | | | | |
| Spurious Response | | | -70 | dBc | |
| Phase Noise @ 10MHz Carrier (Vdd=3.3V) | | | | | |
| @ 1 Hz offset | | | -90 | dBc / Hz | |
| @ 10 Hz offset | | | -120 | dBc / Hz | |
| @ 100 Hz offset | | | -135 | dBc / Hz | |
| @ 1,000 Hz offset | | | -145 | dBc / Hz | |
| @ 10,000 Hz offset | | | -150 | dBc / Hz | |
| @ 100,000 Hz offset | | | -150 | dBc / Hz | |
| @ 1,000,000 Hz offset | | | -150 | dBc / Hz | |
| Electrical Frequency Adjustment | | | | | |
| Control Voltage Range (Vc) | 0.0 | | Vdd | Volts | |
| Frequency Pull Range | ± 0.7 | | | ppm | |
| Frequency Pull Slope | | Positive | | | |
| Control Voltage Port Impedance | 10 | | | k Ω | |
| Center Control Voltage | (Vdd/2) -0.5 | Vdd/2 | (Vdd/2) +0.5 | Volts | |

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Options and Part Identification (left blank if standard):

AOCJY - - MHz - -

| Supply Voltage Option |
|-----------------------|
| Blank: 3.30V±5% |
| A: 5.00V±5% |

| Frequency in MHz |
|---------------------|
| Such as; 10.000 MHz |
| 26.000 MHz |
| 100.000 MHz |

| Temperature Options |
|-----------------------------|
| Blank: ±5.0ppb/0°C to +50°C |
| E: ±10.0ppb/-20°C to +70°C |
| F: ±30.0ppb/-40°C to +75°C |

| RF Output Options |
|-------------------|
| Blank: CMOS |
| SW: Sinewave |

| Packaging |
|--------------------------------|
| Blank: Bulk (Tray or Cut/Tape) |
| T: 50pcs/reel |

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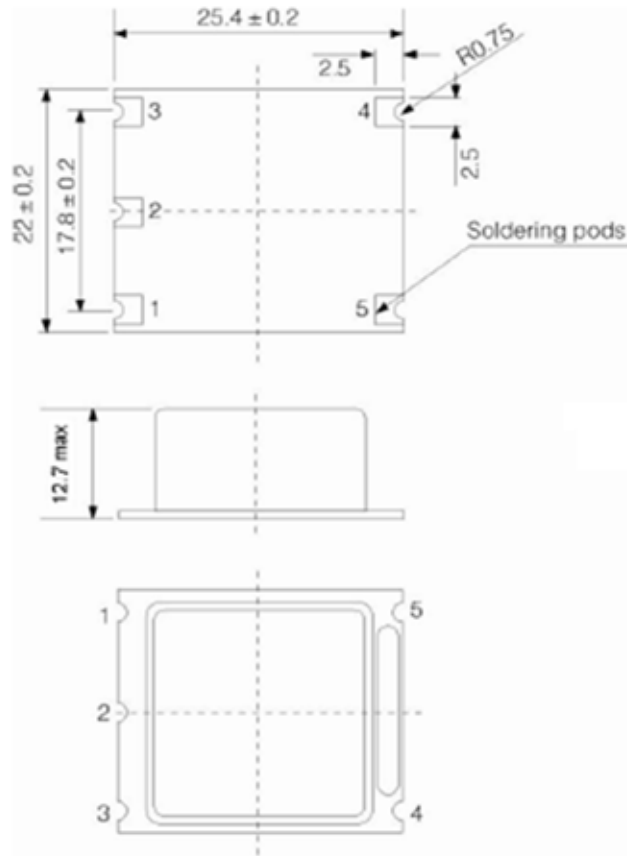


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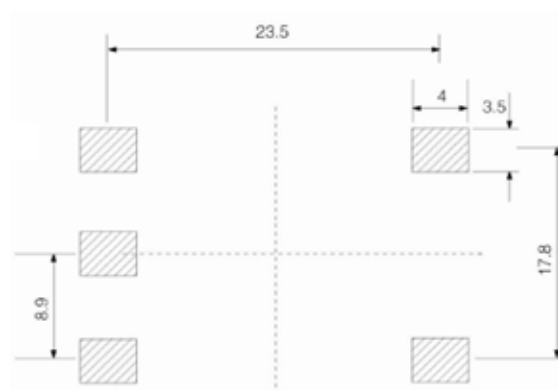
25.4 x 22.1 x 12.7 mm
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Mechanical Dimensions



| PIN | Function |
|-----|-----------------|
| 1 | Control Voltage |
| 2 | VREF |
| 3 | Supply Voltage |
| 4 | RF-output |
| 5 | Ground, Case |

Recommended Land Pattern



Dimensions: mm

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Reflow Profile [JEDEC J-STD-020]

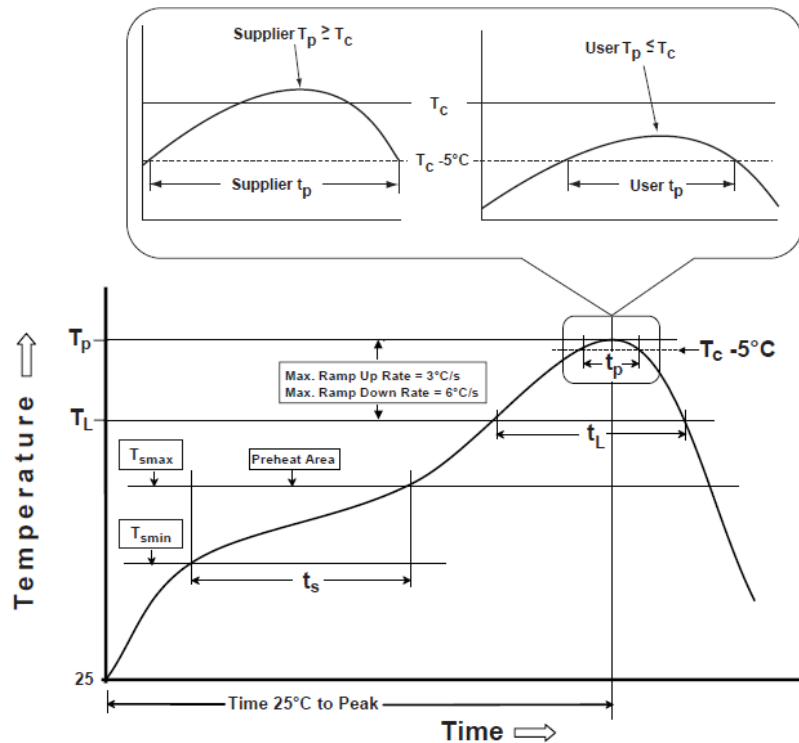


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ ≥350 |
|-------------------|-----------------------------|-----------------------------|
| <2.5 mm | 235 °C | 220 °C |
| ≥2.5 mm | 220 °C | 220 °C |

Table 2

Pb-Free Process
Classification Temperatures (T_c)

| Package Thickness | Volume mm ³ <350 | Volume mm ³ 350-2000 | Volume mm ³ >2000 |
|-------------------|-----------------------------|---------------------------------|------------------------------|
| <1.6 mm | 260 °C | 260 °C | 260 °C |
| 1.6 mm - 2.5 mm | 260 °C | 250 °C | 245 °C |
| >2.5 mm | 250 °C | 245 °C | 245 °C |

| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|---|-------------------------|------------------|
| Preheat / soak | | |
| Temperature minimum (T_{smin}) | 100°C | 150°C |
| Temperature maximum (T_{smax}) | 150°C | 200°C |
| Time (T_{smin} to T_{smax}) (t_s) | 60 - 120 sec. | 60 - 120 sec. |
| Average ramp-up rate (T_{smax} to T_p) | 3°C/sec. max | 3°C/sec. max |
| Liquidous temperature (T_L) | 183°C | 217°C |
| Time at liquidous (t_L) | 60 - 150 sec. | 60 - 150 sec. |
| Peak package body temperature (T_p)* | see Table 1 | see Table 2 |
| Time (t_p)** within 5°C of the specified classification temperature (T_c) | 20 sec. | 30 sec. |
| Ramp-down rate (T_p to T_{smax}) | 6°C/sec. max | 6°C/sec. max |
| Time 25°C to peak temperature | 6 min. max | 8 min. max |
| Reflow cycles | 2 max | 2 max |

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

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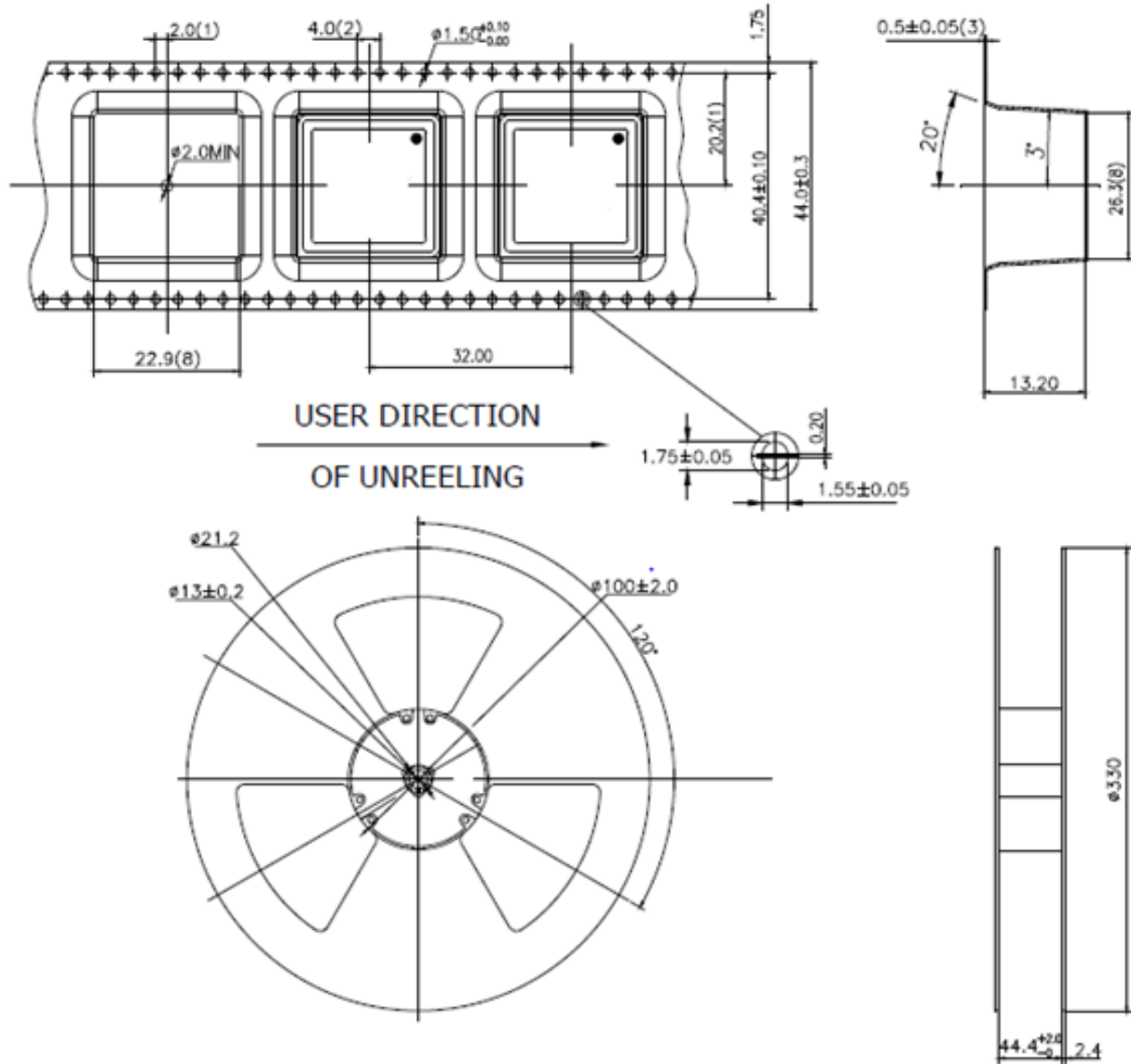
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Packaging

Tape and Reel = 50 units (standard pack quantity)



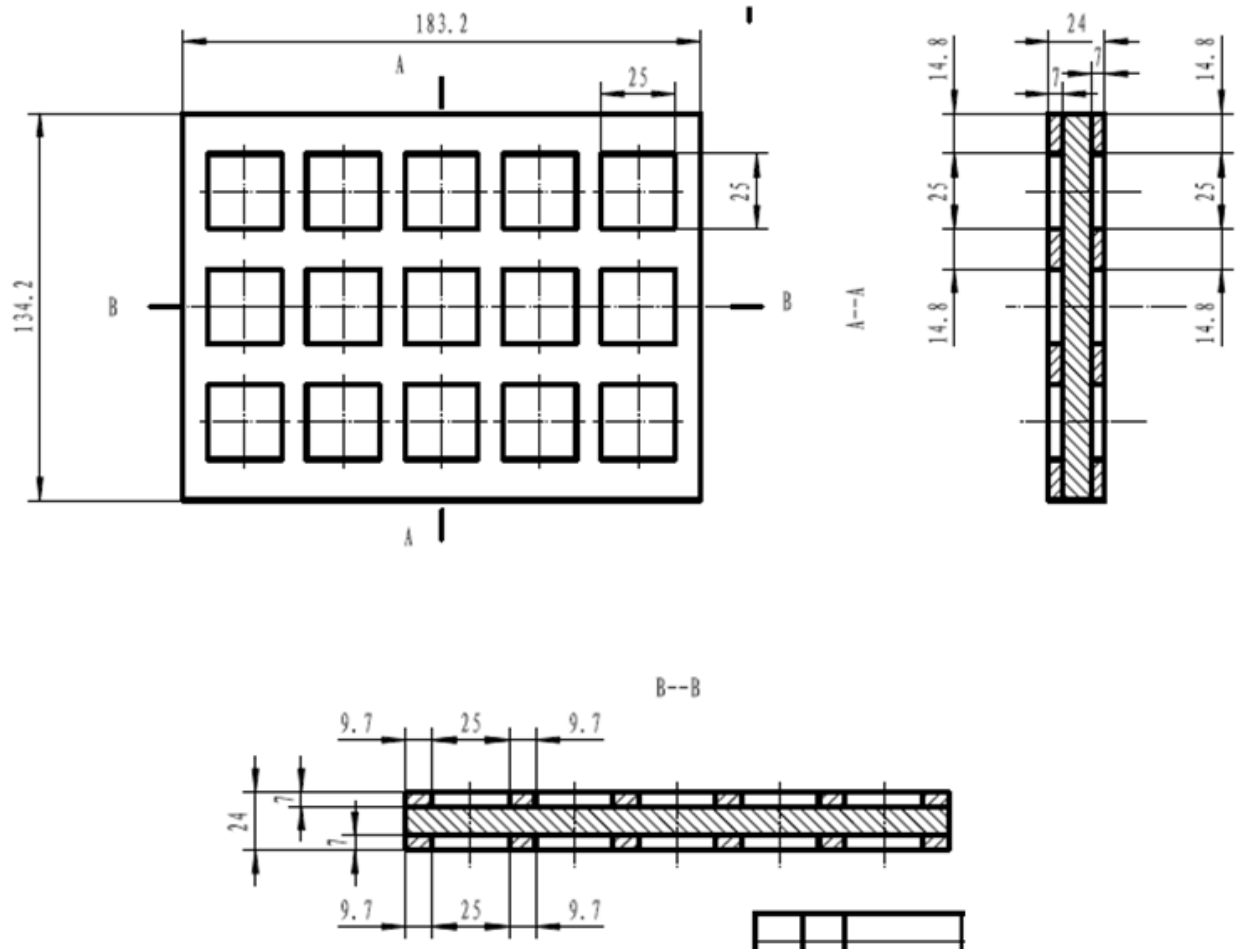
Dimensions: m m

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Packaging *continued*

Bulk packaging, 15 units per tray (standard pack quantity)



Dimensions: mm

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