

SMD OVEN CONTROLLED CRYSTAL OSCILLATOR

AOCJY Series



25.4 x 22.1 x 12.7 mm

FEATURES:

- 25.4 x 22.1 x 12.7 mm True SMT- RoHS Compliant Reflow-able 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

STANDARD SPECIFICATIONS:

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---------|--------------|--------------------|------------------------------|
| RF Output | | | | | |
| Frequency | 1.00 | | 160.00 | MHz | CMOS output |
| | 1.00 | | 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 | $^{\circ}\text{C}$ | <i>See Stability Options</i> |
| Frequency Stability Options | | | | | |
| 0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ | | | ± 5.00 | ppb | Default Spec. |
| -20 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$ | | | ± 10.00 | ppb | Option “E” |
| -40 $^{\circ}\text{C}$ to +75 $^{\circ}\text{C}$ | | | ± 30.00 | ppb | Option “F” |
| Frequency Stability vs. Supply Voltage (Vdd $\pm 5\%$) | | | | | |
| 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 | <i>See Options</i> |
| Reference Voltage (Vref) (available as an output to facilitate oscillator tuning) | 2.60 | 2.80 | 3.00 | Volts | <i>For Vdd=+3.3V version</i> |
| | 4.30 | 4.50 | 4.70 | Volts | <i>For Vdd=+5.0V version</i> |
| Aging | | | | | |
| Daily aging (after 30 days) | | | ± 1.0 | ppb | |
| Yearly | | | ± 100 | ppb | |
| 10-Years | | | ± 500 | ppb | |
| Waveform | LVCMOS | | | | |
| 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 | % | |

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RoHS
Compliant



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STANDARD SPECIFICATIONS contd.

| Parameters | Minimum | Typical | Maximum | Units | Notes |
|------------------------------------------|--------------|----------|--------------|------------|-------|
| Waveform | Sinewave | | | | |
| Peak Power | 2.00 | | | dBm | |
| Output Load | | 50 | | Ω | |
| Spectral Content | | | | | |
| Spurious Response | | | -70 | dBc | |
| Phase Noise @ 10MHz carrier (Vdd = 3.3V) | | | | | |
| 1Hz | | | -90 | dBc / Hz | |
| 10Hz | | | -120 | dBc / Hz | |
| 100Hz | | | -135 | dBc / Hz | |
| 1,000Hz | | | -145 | dBc / Hz | |
| 10,000 Hz | | | -150 | dBc / Hz | |
| 100,000Hz | | | -150 | dBc / Hz | |
| 1,000,000Hz | | | -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 | |

OPTIONS AND PART IDENTIFICATION (Left blank if standard)

AOCJY - - MHz - -

| Supply Voltage Option |
|------------------------|
| Blank: 3.30V $\pm 5\%$ |
| A: 5.00V $\pm 5\%$ |

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

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

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

OUTLINE DIMENSIONS

Recommended Soldering Pattern

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

Dimensions: Inches (mm)

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REFLOW PROFILE:



| | |
|------------------------------------------|---------------------------|
| T_s max to T_L (Ramp-up Rate) | 3°C/second max. |
| Preheat | |
| Temperature Min. (T_s Min.) | 150°C |
| Temperature Typical (T_s Typ.) | 175°C |
| Temperature Max. (T_s Max.) | 200°C |
| Time (t_s) | 60 ~ 180 seconds |
| Ramp-up rate (T_L to T_p) | 3°C/second max. |
| Time Maintained Above: | |
| --Temperature (T_L)/Time (T_L) | 217°C/60 ~ 150 seconds |
| Peak Temperature (T_p) | 250°C max. for 10 seconds |
| Target Peak Temperature (T_p Target) | 250°C +0/-5°C |
| Time within 5°C of actual peak (t_p) | 20 ~ 40 seconds |
| Ramp-down Rate | 6°C/second max. |
| Tune 25°C to Peak Temperature (t) | 8 minutes max. |

PACKAGING: 15 pcs/tray



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