

# 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  $\pm 30$  ppb over  $-40^{\circ}\text{C}$  to  $+75^{\circ}\text{C}$  operating temperature Range
- Tighter Stabilities to  $\pm 5.0$  ppb over  $0^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  also available
- Exceptional long-term Aging of  $\pm 500$  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
<b>RF Output</b>					
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>
<b>Frequency Stability Options</b>					
0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$			$\pm 5.00$	ppb	Default Spec.
-20 $^{\circ}\text{C}$ to +70 $^{\circ}\text{C}$			$\pm 10.00$	ppb	Option “E”
-40 $^{\circ}\text{C}$ to +75 $^{\circ}\text{C}$			$\pm 30.00$	ppb	Option “F”
<b>Frequency Stability vs. Supply Voltage (Vdd <math>\pm 5\%</math>)</b>					
Warm-Up @ 25 $^{\circ}\text{C}$			$\pm 100.00$	ppb	In $\leq 3$ -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>
<b>Aging</b>					
Daily aging (after 30 days)			$\pm 1.0$	ppb	
Yearly			$\pm 100$	ppb	
10-Years			$\pm 500$	ppb	
<b>Waveform</b>					
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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Compliant



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## STANDARD SPECIFICATIONS contd.

Parameters	Minimum	Typical	Maximum	Units	Notes
<b>Waveform</b>	Sinewave				
Peak Power	2.00			dBm	
Output Load		50		$\Omega$	
<b>Spectral Content</b>					
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	
<b>Electrical Frequency Adjustment</b>					
Control Voltage Range (Vc)	0.0		Vdd	Volts	
Frequency Pull Range	$\pm 0.7$			ppm	
Frequency Pull Slope		Positive			
Control Voltage Port Impedance	10			k $\Omega$	
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: $\pm 5.0$ ppb/0°C to +50°C
E: $\pm 10.0$ ppb/-20°C to +70°C
F: $\pm 30.0$ 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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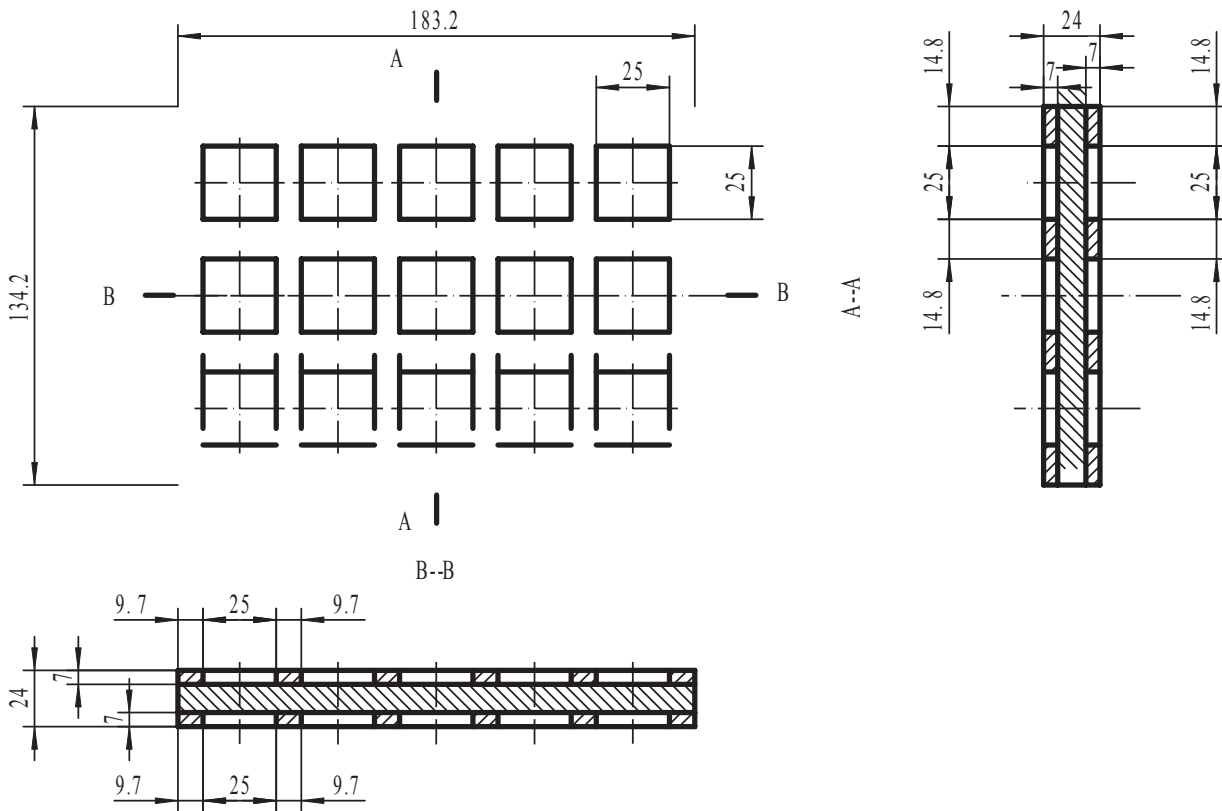
25.4 x 22.1 x 12.7 mm

## 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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