

# OVEN CONTROLLED CRYSTAL OSCILLATOR

AOCJY2 Series



RoHS  
Compliant



21.0 x 21.0 x 11.0 mm

## FEATURES:

- 21.0 x 21.0 x 11.0 mm Leaded- 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 max. over 10-Year Product Life
- Excellent close-in phase noise ( $-140$  dBc/Hz Max. @100Hz offset; 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	10.00		100.00	MHz	Overall Frequency range
Standard Available Frequencies	10.00, 12.80, 13.00, 26.00, 38.88, 40.00, 100.00			MHz	
Waveform	CMOS				
Level "1" (Logic High)	0.9*Vdd			Volts	
Level "0" (Logic Low)			0.1*Vdd	Volts	
Load		15		pf	
Rise & Fall Time			6.0	ns	
Duty Cycle	45		55	%	
Waveform	Sinewave				
Peak Power	2.00			dBm	
Output Load		50		$\Omega$	
Short Term Stability		$2 \times 10^{-10}$		/second	Alan Variance
Operable Temperature Range	-40		75	$^{\circ}\text{C}$	See Stability Options
Frequency Stability Options					
0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ (Note #1)			$\pm 5.00$	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”
Frequency Stability vs. Supply Voltage (Vdd $\pm 5\%$ )			$\pm 5.00$	ppb	
Frequency Stability vs. Load Variation ( $\pm 10\%$ )			$\pm 5.00$	ppb	
Warm-Up @ 25 $^{\circ}\text{C}$			$\pm 100.00$	ppb	In $\leq 3$ -minutes
Power Consumption @ turn on			3.00	Watts	
Power Consumption Steady State			1.00	Watts	
Supply Voltage (Vdd)	3.13	3.30	3.46	Volts	See Options

**Note #1:**  $\pm 5.00$  ppb stability is only available for F0  $\leq 40$ MHz. For frequencies above 40MHz, the best available frequency stability is  $\pm 10.00$  ppb over  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$



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## STANDARD SPECIFICATIONS - continued.

Parameters	Minimum	Typical	Maximum	Units	Notes
Aging					
Daily			±1.0	ppb	
First Year			±100	ppb	
10-Years			±500	ppb	
Spectral Content					
Spurious Response			-35	dBc	
Phase Noise (10MHz Carrier) @ 5V					
@ 1 Hz offset			-90	dBc	
@ 10 Hz offset			-120	dBc	
@ 100 Hz offset			-140	dBc	
@ 1,000 Hz offset			-145	dBc	
@ 10,000 Hz offset			-150	dBc	
Electrical Frequency Adjustment					
Control Voltage Range (Vc)	0.0		Vdd	Volts	
Frequency Pull Range	±0.70			ppm	
Frequency Pull Slope		Positive			
Control Voltage Port Impedance	10			kΩ	Control Voltage Port Impedance
Center Control Voltage	(Vdd/2) -0.5	Vdd/2	(Vdd/2) +0.5	Volts	Center Control Voltage
Reference Voltage (Vdd=3.3V)	2.70	2.80	2.90	Volts	Output @ Pin#5
Reference Voltage (Vdd=5.0V)	4.40	4.50	4.60	Volts	Output @ Pin#5
Storage Temperature	-40		+100	°C	

## OPTIONS AND PART IDENTIFICATION (Left blank if standard)

AOCJY2 -  -  MHz -

Supply Voltage Option	
Blank	3.30V
A	5.00 V

Temperature Options	
E	-20°C to +70°C
F	-40°C to +75°C

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

RF Output Options	
Blank	CMOS
SW	Sinewave

±5.00 ppb stability is only available for F0 < 40MHz. For frequencies above 40MHz, the best available frequency stability is ±10.00 ppb over -20°C to +70°C

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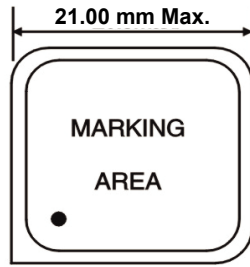


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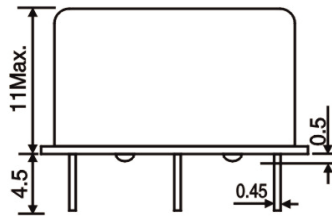


21.0 x 21.0 x 11.0 mm

## OUTLINE DIMENSIONS



Bottom View



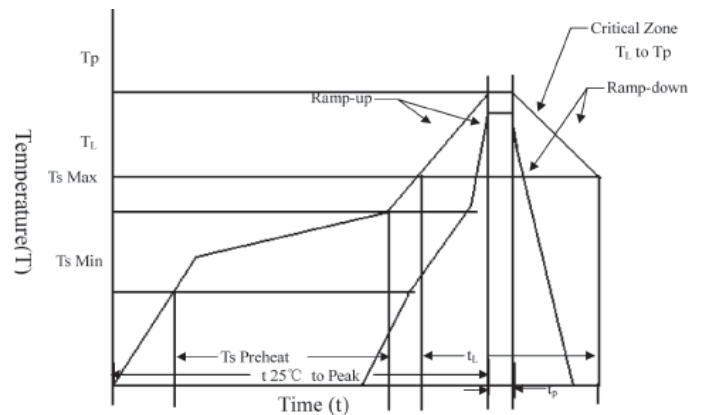
PIN	FUNCTION:
1	Power Supply
2	Output
3	GND
4	Control Voltage
5	Reference Voltage/NC

Unit:mm

## PACKAGING (20) units per tray



## REFLOW PROFILE:



T <sub>S</sub> max to T <sub>L</sub> (Ramp-up Rate)	3°C/second max.
Preheat	
Temperature Min. (T <sub>S</sub> Min.)	150°C
Temperature Typical (T <sub>S</sub> Typ.)	175°C
Temperature Max. (T <sub>S</sub> Max.)	200°C
Time (t <sub>s</sub> )	60 ~ 180 seconds
Ramp-up rate (T <sub>L</sub> to T <sub>P</sub> )	3°C/second max.
Time Maintained Above:	
--Temperature (T <sub>L</sub> )/Time (T <sub>L</sub> )	217°C/60 ~ 150 seconds
Peak Temperature (T <sub>P</sub> )	250°C max. for 10 seconds
Target Peak Temperature (T <sub>P</sub> Target)	250°C +0/-5°C
Time within 5°C of actual peak (t <sub>p</sub> )	20 ~ 40 seconds
Ramp-down Rate	6°C/second max.
Tune 25°C to Peak Temperature (t)	8 minutes max.

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