

# OVEN CONTROLLED CRYSTAL OSCILLATOR

AOCJY3 Series



RoHS  
Compliant



25.4x 25.4 x 13.0 mm

## FEATURES:

- 25.4x 25.4 x 13.0 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 Typical @100 Hz 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 <i>(Note #1)</i>
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	<i>(Note #2)</i>
Level "0" (Logic Low)			0.1*Vdd	Volts	<i>(Note #2)</i>
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		$1 \times 10^{-10}$		/second	Alan Variance
Operable Temperature Range	-40		75	$^{\circ}\text{C}$	<a href="#">See Stability Options</a>
Frequency Stability Options					
0 $^{\circ}\text{C}$ to +50 $^{\circ}\text{C}$ <i>(Note #3)</i>			$\pm 5.00$	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 $\pm 5\%$ )			$\pm 2.00$	ppb	
Frequency Stability vs. Load Variation ( $\pm 10\%$ )			$\pm 2.00$	ppb	
Warm-Up @ 25 $^{\circ}\text{C}$			$\pm 30.00$	ppb	In $\leq 3$ -minutes
Power Consumption @ turn on			3.60	Watts	
Power Consumption Steady State			1.20	Watts	
Supply Voltage (Vdd)	3.13	3.30	3.46	Volts	<a href="#">See Options</a>

**Note #1:** Carrier frequency 100.000MHz is not offered @ Vdd=12.0V

**Note #2:** When Vdd=12.0V; Level “1” = 4.50 V minimum; Level “0” = 0.50V maximum

**Note #3:**  $\pm 5.00$  ppb stability is only available for  $F_0 \leq 40\text{MHz}$ . 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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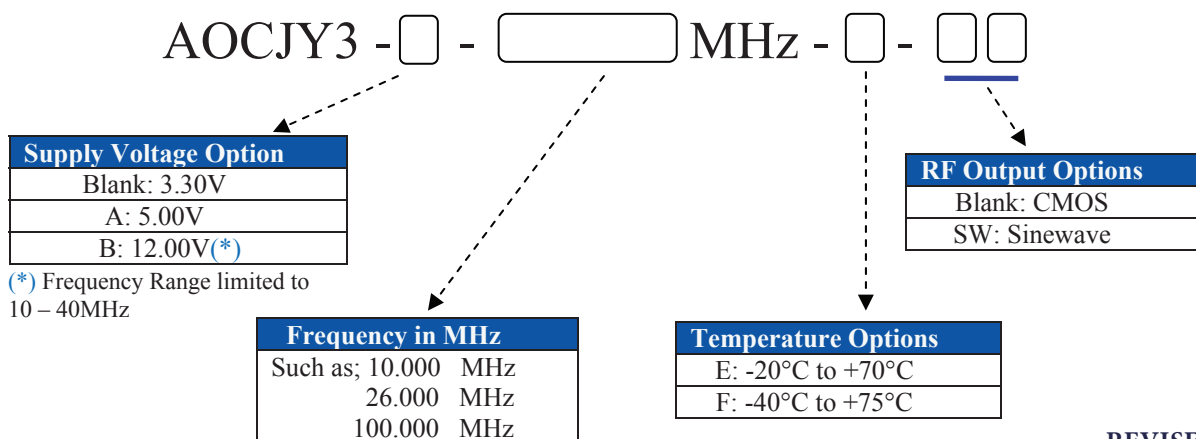
25.4x 25.4 x 13.0 mm

## STANDARD SPECIFICATIONS - continued.

Parameters	Minimum	Typical	Maximum	Units	Notes
<b>Aging</b>					
Daily			±1.0	ppb	
First Year			±100	ppb	
10-Years			±500	ppb	
<b>Spectral Content</b>					
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			-155	dBc	
<b>Electrical Frequency Adjustment</b>					
Control Voltage Range (Vc)	0.0		Vdd	Volts	
Frequency Pull Range	±0.700			ppm	
Frequency Pull Slope		Positive			
Control Voltage Port Impedance	10			kΩ	
Center Control Voltage (Note #4)	(Vdd/2) -0.5	Vdd/2	(Vdd/2) +0.5	Volts	Center Control Voltage
Control Port Linearity		±10		%	
Reference Voltage (Vdd=3.3V)	2.70	2.80	2.90	Volts	Output @ Pin#4
Reference Voltage (Vdd=5.0V)	4.40	4.50	4.60	Volts	Output @ Pin#4
Reference Voltage (Vdd=12.0V)	4.90	5.00	5.10	Volts	Output @ Pin#4
Storage Temperature	-40		+100	°C	

**Note #4:** When Vdd=12.0V, Control Voltage Range is 0.0V to 5.0V and therefore, the Center Control Voltage is (2.50V±0.50V)

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



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REVISED: 07/05/2018

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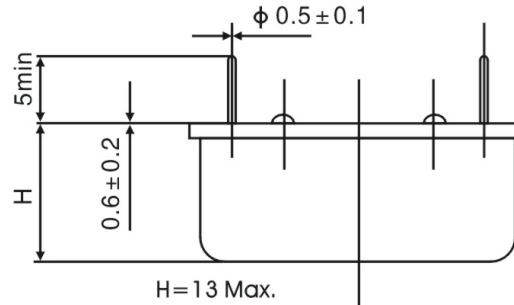
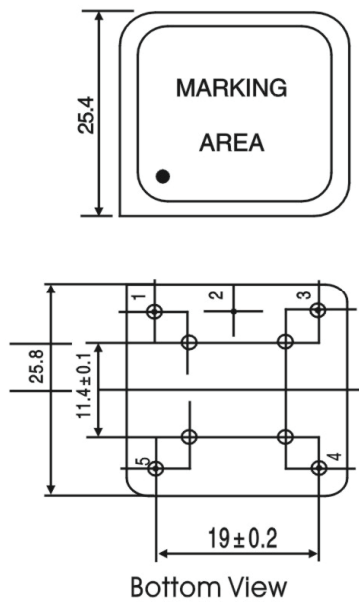


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25.4x 25.4 x 13.0 mm

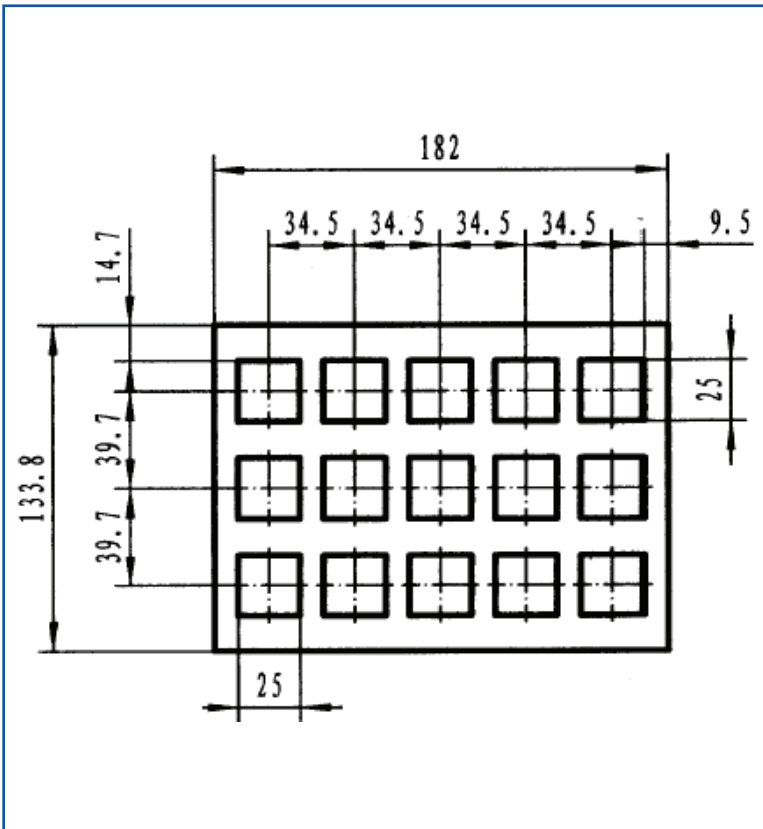
## OUTLINE DIMENSIONS



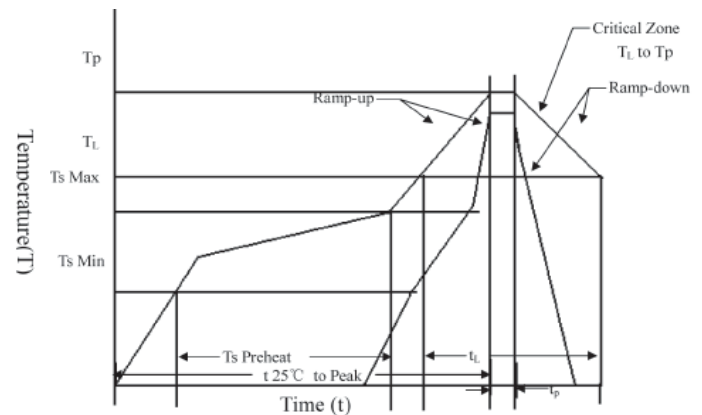
PIN	FUNCTION:
1	R F Output
2	GND
3	Control Voltage
4	Reference Voltage
5	Power Supply

Unit:mm

## PACKAGING: 15 pcs/tray



## 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.

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