

# Ultra-Low Phase Noise OCXO

AOCJY7TQ



ESD Sensitive



RoHS/RoHS II Compliant



25.5 x 25.5 x 12.7mm

## FEATURES:

- Exceptional Close to the carrier Maximum Phase Noise of -155dBc/Hz @ 1kHz & -170dBc/Hz @ 10kHz offset from 100.0 MHz Carrier
- SC-Cut, High “Q” resonator based design
- 100.0MHz carrier frequency
- Excellent Frequency Stability of  $\pm 50.0$  ppb over the operating temperature range of -40°C to +70°C
- Tuned Sinewave output into a 50 $\Omega$  load
- Industry Standard, 25.5 x 25.5 x 12.7mm RoHS compliant & Pb free package

## APPLICATIONS:

- COTS Military & Industrial Radios & Timing Circuits
- Cellular Infrastructure
- Radar Systems
- Test & Measurement Equipment
- GPS Tracking with precision hold-over accuracy
- WiMax / WLAN
- Precision primary frequency reference clocks

## STANDARD SPECIFICATIONS:

### Maximum Rating

Parameters	Rating
Storage Temperature Range	-55 to +125°C
Supply Voltage	-0.3 to 15V
Control Voltage	0 to 5V
ESD, HBM/CDM/MM	2kV/1kV/200V

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency (Fc)	100.000			MHz	
Initial Frequency Tolerance (@+25°C) at shipping			$\pm 300$	ppb	
Warm-up Time (@+25°C)			5	minutes	with accuracy of $\pm 100$ ppb
<b>Frequency Stability Options (Ref. to Frequency @+25°C)</b>					
-40°C to +70°C			$\pm 50$	ppb	Option “5”
-40°C to +70°C			$\pm 100$	ppb	Option “1”
-40°C to +85°C			$\pm 200$	ppb	Option “2”
Frequency Stability vs. Supply Voltage Change (Vdd $\pm 5\%$ )			$\pm 10$	ppb	
Frequency Stability vs. Load Change (Load $\pm 5\%$ )			$\pm 10$	ppb	
Aging per Day (after 30 days of operation)			$\pm 5$	ppb	
Aging per Year (after 30 days of operation)			$\pm 500$	ppb	
Supply Voltage (Vdd)	+11.4	+12.0	+12.6	V	
Power Consumption	During Warming-up		4.5	W	
	Steady@+25°C & still air		1.5	W	
<b>Control Port ( Applicable for Voltage Controlled version only)</b>					
Control Voltage Range (Vc)	+0	+2.5	+5	V	
Center Control Voltage (Vc)		+2.5		V	To be with-in $\pm 300$ ppb of Fc @ 25°C
Frequency Tuning Range		$\pm 1000$		ppb	
Tuning Slope	Positive				
Linearity			$\pm 10$	%	
Port Impedance	50			k $\Omega$	

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## STANDARD SPECIFICATIONS:

(Continued)

Parameters	Minimum	Typical	Maximum	Unites	Notes
Phase Noise* (100MHz carrier frequency @25°C):		<-95	-93	dBc/Hz	Offset @10Hz
		<-126	-125		Offset @100Hz
		<-161	-155		Offset @1kHz
		-171	-170		Offset @10kHz
		-173	-170		Offset @100kHz
		-174	-170		Offset @1MHz
		-173	-170		Offset @10MHz
		-174	-170		Offset @20MHz
RMS Jitter (12kHz to 20MHz)		20	40	fs	
<b>Sine Wave Output</b>					
Output Level	8			dBm	
Harmonics			-30	dBc	
Spurious			-70	dBc	
Load		50		Ω	

\* Close to carrier phase noise is a few dB better in fixed clock configuration than the voltage controlled configuration

## PART IDENTIFICATION:

AOCJY7TQ -  - 100.000MHz -

**Fixed Clock or Voltage Controlled**

X = Fixed Clock

V = Voltage Controlled

**Freq. Stability over Operating Temp.**

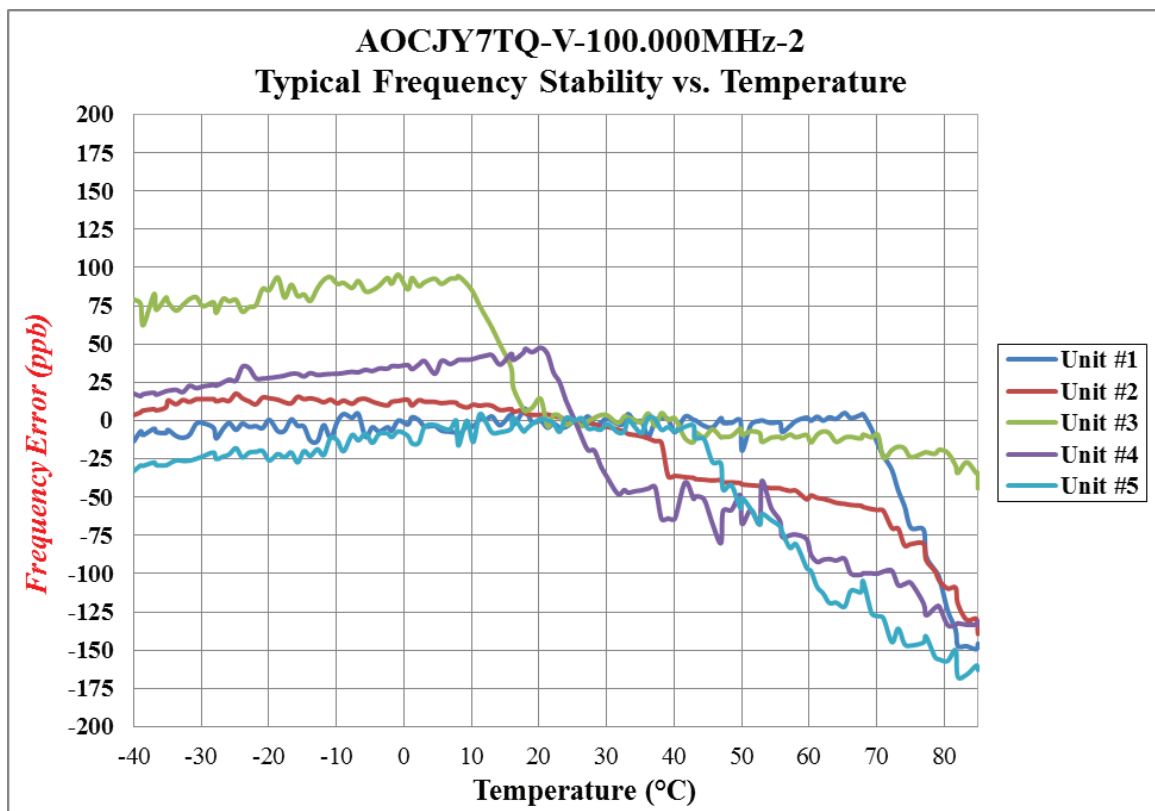
5: ±50ppb

1: ±100ppb

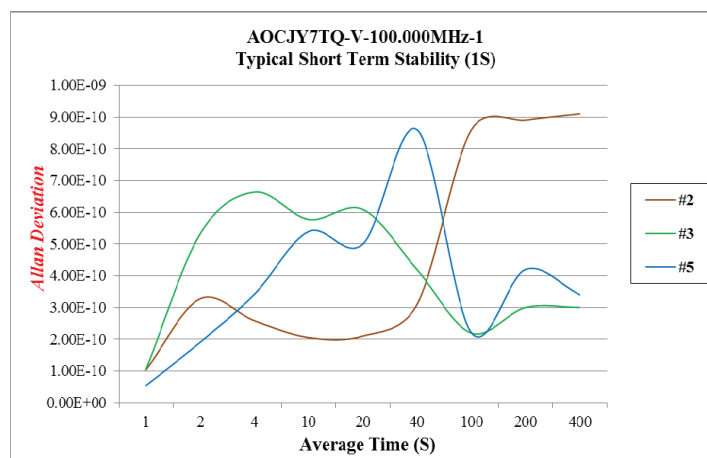
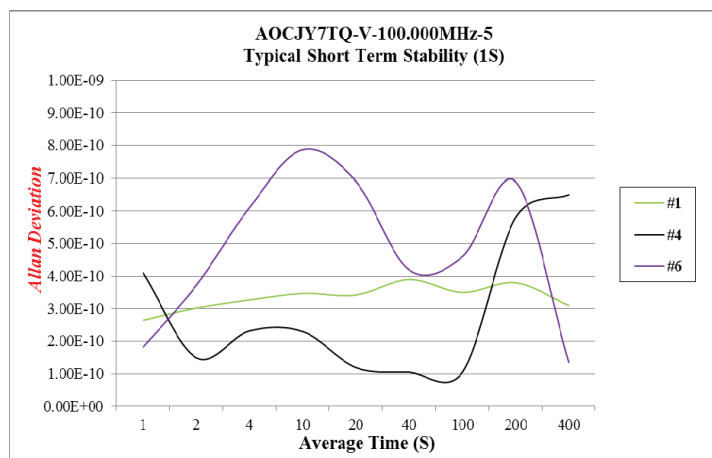
2: ±200ppb



## TYPICAL FREQUENCY STABILITY VS. TEMPERATURE



## TYPICAL SHORT TERM STABILITY



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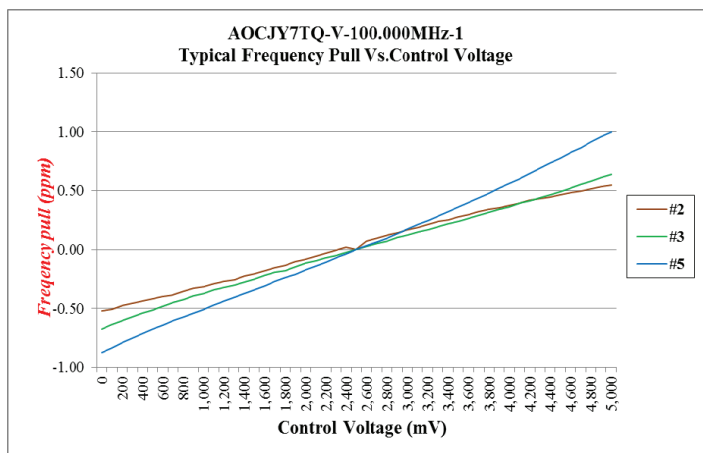
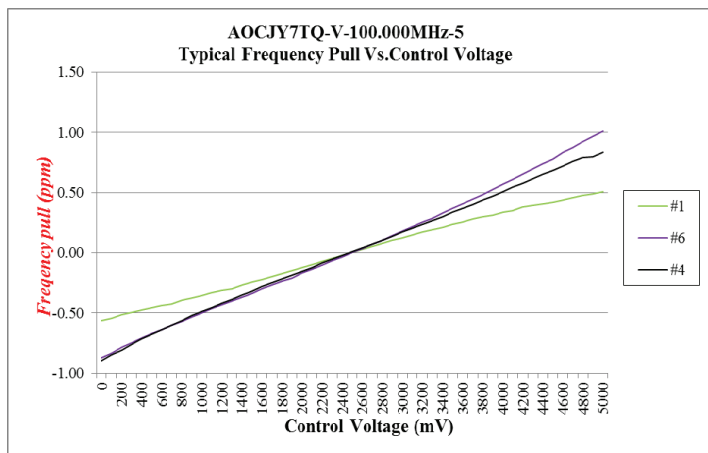


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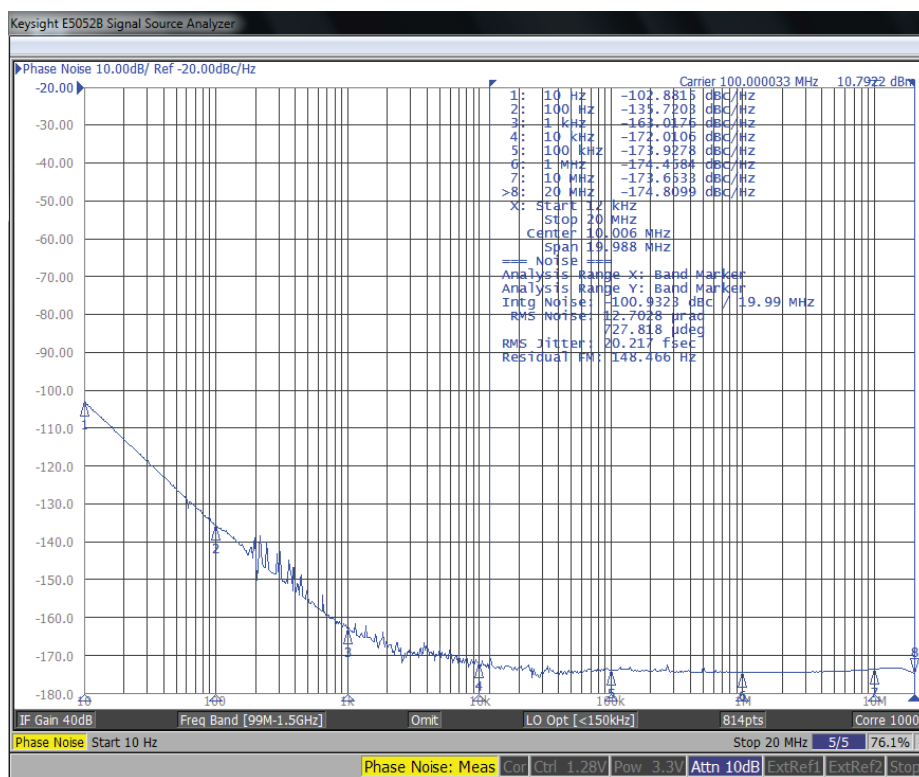
25.5 x 25.5 x 12.7mm

## TYPICAL FREQUENCY PULL VS. CONTROL VOLTAGE



## TYPICAL PHASE NOISE

### 100.00 MHz Carrier



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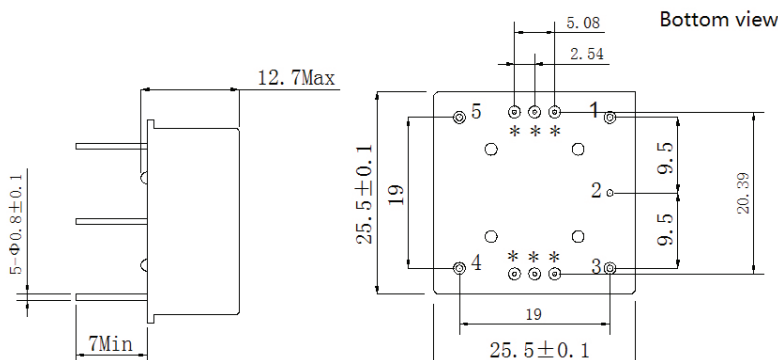


RoHS/RoHS II Compliant



25.5 x 25.5 x 12.7mm

## OUTLINE DIMENSION:

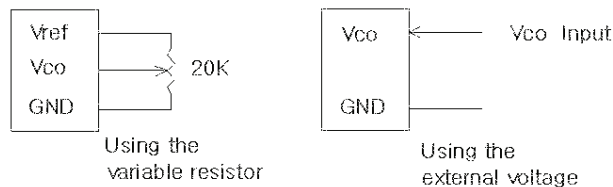


Pin	Function
1	RF Output
2	GND, Case
3	Vc (see Note 2 below)
4	Vref (See Note 3 below)
5	Vdd

### Notes:

1. The pins with “\*” are for factory testing purpose.
2. Please leave pin 3 not connected if Vc is not used.
3. Please leave pin 4 not connected if Vref is not used.

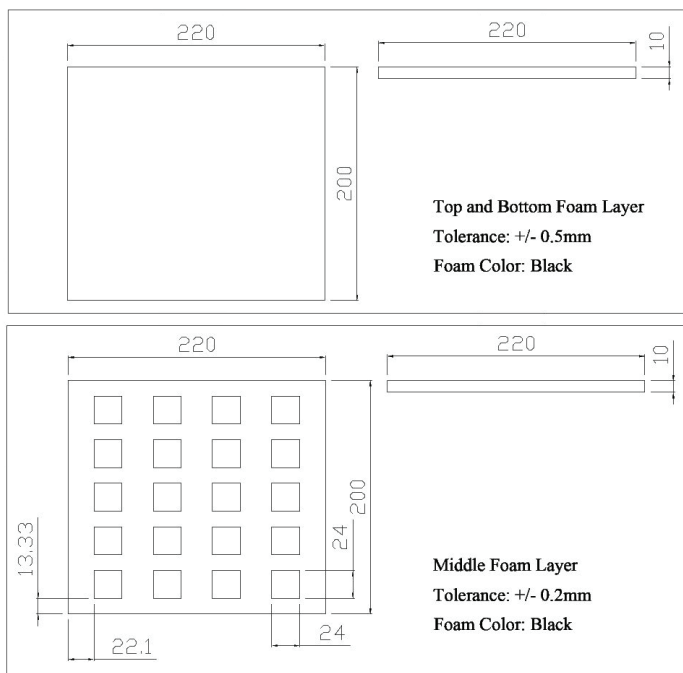
### Reference Connection of Voltage Control Circuit



Dimensions: mm

## TAPE & REEL:

### 20pcs/ ESD Foam Tray



Dimensions: mm

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