HIGH-STABILITY, LOW PHASE NOISE SMD VCOCXO

AOC2522A

Request Samples | Check Inventory

ESD Sensitive | Pb

25.4 x 22 x 12.7 mm
RoHS/RoHS II Compliant
MSL Level = 1

Features

- Extremely low long-term aging: ±750ppb over 20 years
- Stability over temperature: ±30ppb over -40°C to +85°C
- 10, 12.8, 16.384, 20, 38.88, 40, 100 MHz standard available frequencies
- 25.4 x 22mm, 5-pad SMD reflow-solderable package
- 3.3V & 5V Vdd supply options
- SC-Cut, High "Q" resonator-based design

Applications

- Stratum 3 & Stratum 3E compliant
- Cellular infrastructure; Base stations
- Test & measurement equipment
- Switches & routers
- Time & frequency references
- Precision GPS

Part Identification

AOC2522A [ ] [ ] [ ] [ ] - [ ]

(1): Fixed Clock or Voltage Controlled
V: Voltage Controlled

(2): Vdd
A: 3.3V
F: 5.0V

(3): Stability over OTR
G: ±30ppb over -40°C to +85°C

(4): RF Output
C: CMOS

(5): Output Frequency in MHz
Please specify the frequency in units of MHz out to **4-digit** accuracy after the decimal.
Example:
"20.0000" = 20MHz

Part Number Example:

AOC2522AVAGC-20.0000

ABRACON LLC
5101 Hidden Creek Ln Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
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Electrical Specifications [Note 1]

Parameters		Min.	Typ.	Max.	Units	Notes
Frequency (Fc)		10		100	MHz	
Standard Available Frequencies		10, 12.8, 16.384, 20, 38.88, 40, 100			MHz	
Operating Temperature Range		-40		+85	°C	
Storage Temperature Range		-55		+100	°C	
Supply Voltage (Vdd)		3.135	3.3	3.465	V	
		4.75	5.0	5.25		
Power Consumption (warm-up)				3.2	W	
Power Consumption (steady state @+25°C)				1.0	W	
Frequency Accuracy (calibration) [Note 2]			±100	±200	ppb	10MHz ≤ Fc ≤ 40MHz
			±200	±300		Fc = 100MHz
Frequency Stability over Operating Temperature Range [Note 3]				±30	ppb	Over -40°C to +85°C
Frequency Stability vs. Supply Voltage Change (Vdd±5%)				±10	ppb	10MHz ≤ Fc ≤ 40MHz
				±15		Fc = 100MHz
Frequency Stability vs. Load Change				±5	ppb	Load=15pF±10%
Aging per Day			±1	±2	ppb	@+25°C
Aging per Year			±50	±100	ppb	
Aging 10 Years				±500	ppb	
All-Inclusive Frequency Tolerance over 20 Year Product Life [Note 4]				±750	ppb	
Warm-Up Time [Note 5]				5	min.	
Output Signal			LVCMOS			@ Vdd=3.3V
			HCMOS			@ Vdd=5.0V
Output Load		13.5	15	16.5	pF	Output to ground
Duty Cycle		45	50	55	%	@ 50% Vdd
Output High Voltage (V_{OH})	V_{OH}	0.9*Vdd			V	
Output Low Voltage (V_{OL})	V_{OL}			0.1*Vdd		
Rise (Tr) / Fall (Tf) Time				6	ns	@10%Vdd-90%Vdd
Center Control Voltage (Vc)			Vdd/2		V	
Control Voltage Range		0		Vdd	V	
Frequency Pullability		±0.7			ppm	
Control Port Input Impedance		100			kΩ	
EFC Linearity				10	%	
Tuning Slope			Positive			
Reference Voltage (Vref)		2.6	2.8	3.0	V	@ Vdd=3.3V
		4.3	4.5	4.7		@ Vdd=5.0V

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Parameters	Min.	Typ.	Max.	Units	Notes
Phase Noise (@ 10.0000MHz)		-88	-85	dBc/Hz	Offset @1Hz
		-120	-115		Offset @10Hz
		-137	-135		Offset @100Hz
		-146	-143		Offset @1kHz
		-150	-147		Offset @10kHz
		-152	-150		Offset @100kHz
Phase Noise (@ 20.0000MHz)		-85	-80	dBc/Hz	Offset @1Hz
		-128	-110		Offset @10Hz
		-142	-135		Offset @100Hz
		-149	-145		Offset @1kHz
		-151	-150		Offset @10kHz
		-152	-150		Offset @100kHz
Phase Noise (@ 100.0000MHz)		-60	-55	dBc/Hz	Offset @1Hz
		-93	-80		Offset @10Hz
		-125	-120		Offset @100Hz
		-146	-140		Offset @1kHz
		-158	-150		Offset @10kHz
		-158	-155		Offset @100kHz

Note 1: Above table: All measurements at +25°C, nominal Vdd, nominal Vc, and nominal load, unless otherwise specified
Note 2: @ +25°C; relative to carrier; initial set-tolerance frequency at time of shipment, pre-reflow
Note 3: Over -40°C to +85°C; relative to stabilized frequency (at +25°C) after 1 hour of continuous operation, post-reflow
Note 4: Includes stability over temperature, initial frequency accuracy (calibration), load pulling, power supply variation, and 20 years aging
Note 5: @ +25°C; within ±100ppb of F where F is the stabilized frequency reached after 1 hour of continuous operation

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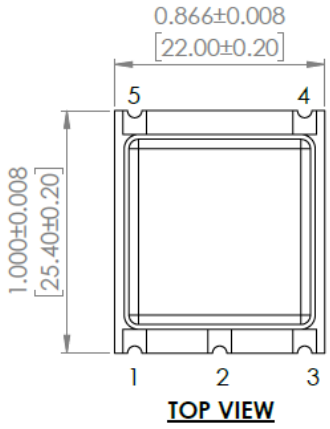
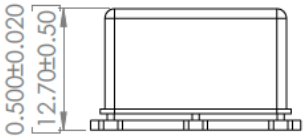
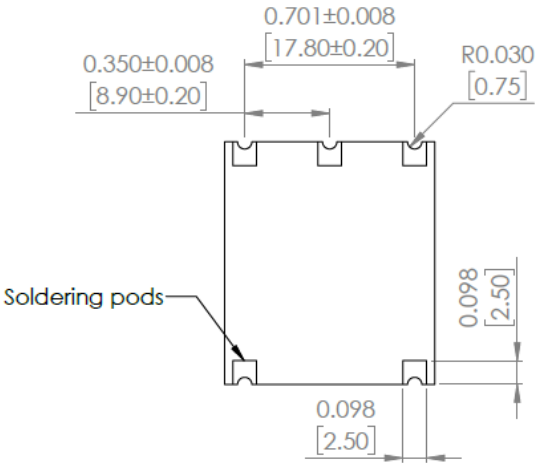
Mechanical Dimensions



TOP VIEW

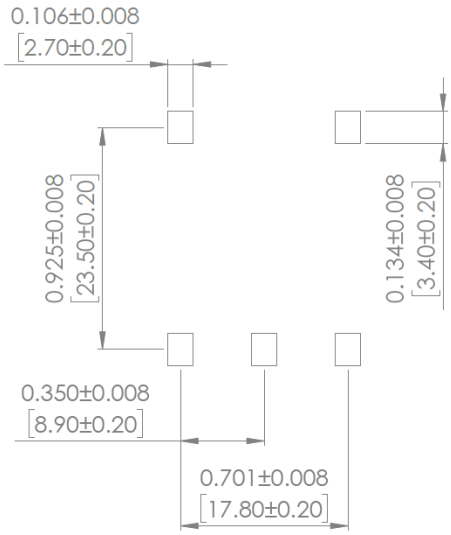


SIDE VIEW



BOTTOM VIEW

RECOMMENDED LAND PATTERN



Pin #	Function
#1	Voltage-Control (Vc)
#2	Reference Voltage (Vref)
#3	Supply Voltage (Vdd)
#4	Output
#5	GROUND

Dimensions: inches [mm]

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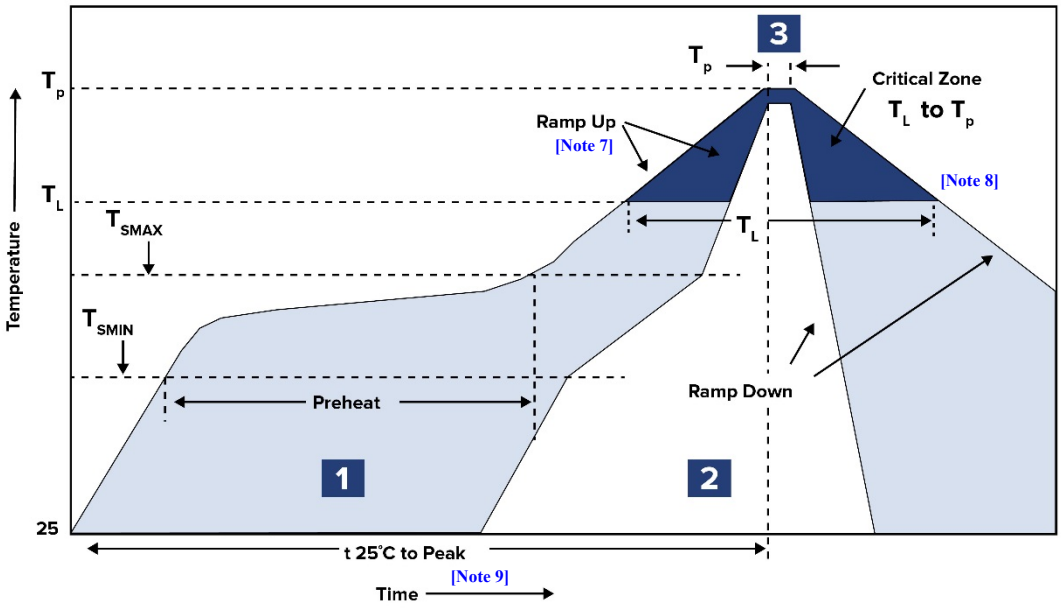
Reflow Profile [Note 6]



Zone	Description	Temperature	Times
1	Preheat	T_{SMIN} ~ T_{SMAX} 150°C ~ 200°C	60 ~ 180 sec.
2	Reflow	T_L 217°C	60 ~ 150 sec.
3	Peak heat	T_P 260°C	10 sec. MAX

Note 6: Can withstand 2 times reflow; all temperatures refer to topside of the package, measured on the package body surface
Note 7: Ramp Up Rate (T_L → T_P) = 3°C / sec. MAX
Note 8: Ramp Down Rate (T_P → T_L) = 6°C / sec. MAX
Note 9: Time 25°C to Peak Temperature (25°C → T_P) = 8 minutes MAX

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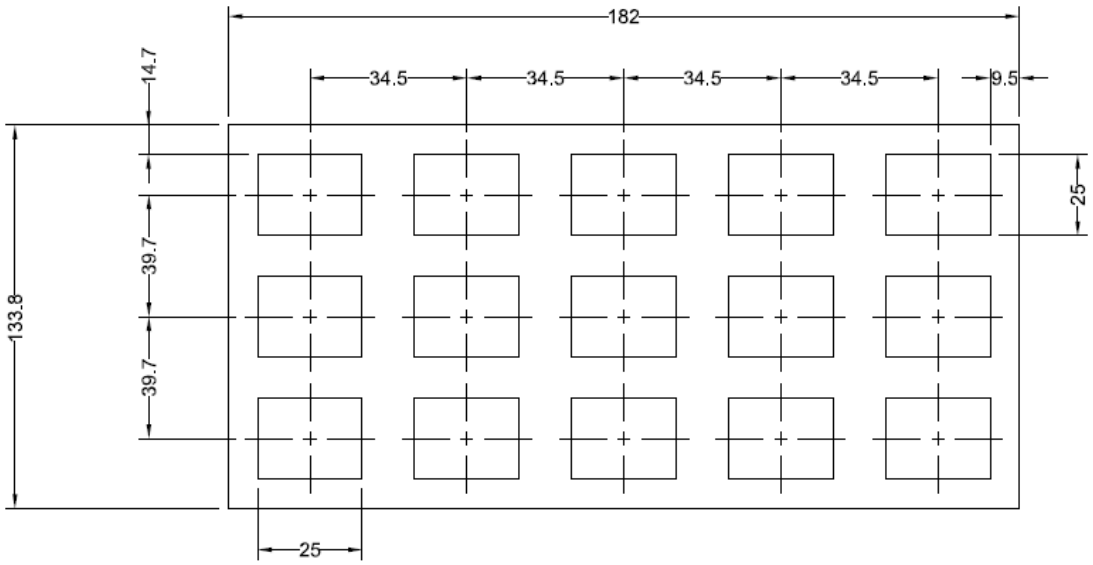
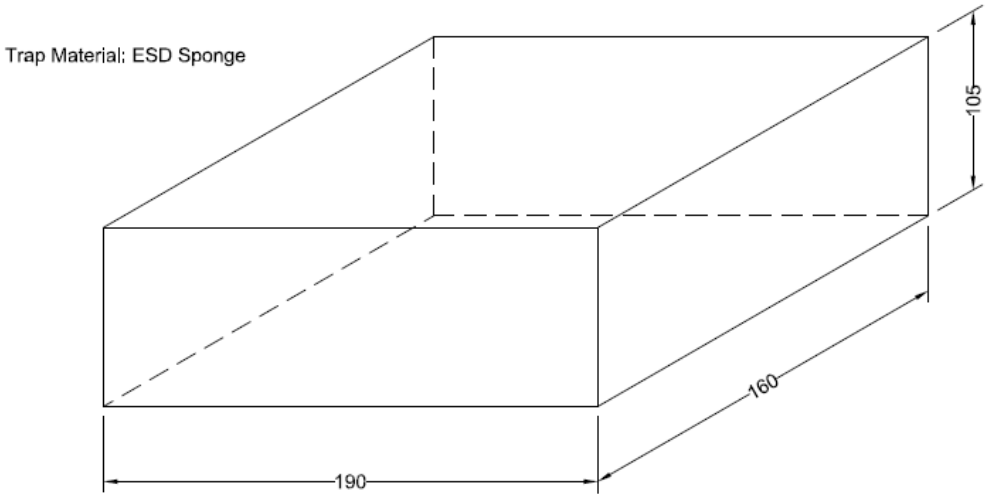
Packaging

(15) units per tray





Dimensions: mm

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