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With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# ULTRA MINIATURE SMD VC/TCXO



2.0 x 1.6 x 0.8mm

## ASVTX-13/ASTX-13

### FEATURES:

- Industry smallest 2.0 x 1.6 x 0.8mm
- Low current consumption 1.5mA at 26MHz
- Vc function ideal for PLL application
- Suitable for RoHS complaint reflow

### APPLICATIONS:

- Cellular and cordless phones
- Standard reference oscillator for test equipment
- Mobile communication equipment
- Portable radio equipment and music player
- Phase Locked Loop



Moisture Sensitivity Level (MSL) -1

### STANDARD SPECIFICATIONS:

Parameters	Minimum	Typical	Maximum	Units	Notes	
Frequency Range	10	-----	52	MHz		
Standard Frequencies	10, 16.368, 19.2, 26, 38.4, 52			MHz	16.368MHz VCTCXO is available upon request. Please contact Abracon for details.	
Operating Temperature	-30	-----	+75	°C		
Storage Temperature	-40	-----	+85	°C		
Frequency Stability $\Delta f/f_0$ vs Tolerance (@+25°C)	-2.0	-----	+2.0	ppm	+25°C, Vcon=1.4V After 2- reflow	
Temperature (ref. to +25°C)	-1.5	-----	+1.5		See option (Table 1)	
Supply Voltage Change (Vdd±5%)	-0.2	-----	+0.2			
Load Change (ZL±10%)	-0.2	-----	+0.2			
Supply Voltage (Vdd)	+2.85	+3.0	+3.15	V	Option A	
	+2.66	+2.8	+2.94		Option B	
	+1.71	+1.8	+1.89		Option C	
	+3.135	+3.3	+3.465		Option D	
Aging (first year @+25±2°C)	-1.0	-----	+1.0	ppm		
Supply Current (Icc)	-----	-----	1.5	mA	16.368MHz, -30 to +85°C	
	-----	-----	1.5		19.200MHz, -30 to +85°C	
	-----	-----	1.5		26.000MHz, -30 to +85°C	
	-----	-----	2.0		38.400MHz, -30 to +85°C	
Startup Time	-----	-----	3.0	ms	90% Vp-p ±0.5ppm	
Voltage Control Function (for ASVTX-13) Control Voltage (Vcon)	Vdd=3.3V	+0.5	+1.5	+2.5	Vdc	19.200MHz 26.000MHz 38.400MHz
	Vdd=3.0V	+0.5	+1.5	+2.5		
	Vdd=2.8V	+0.4	+1.4	+2.4		
	Vdd=1.8V	+0.3	+0.9	+1.5		

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ASVTX-13/ASTX-13

Moisture Sensitivity Level (MSL) -1



ESD Sensitive



RoHS Compliant



2.0 x 1.6 x 0.8mm

Parameters	Minimum	Typical	Maximum	Units	Notes
Frequency Tuning Range @Vcon (min)	-5.5		-9.5	ppm	
@Vcon (max)	+5.5		+9.5		
Frequency Tuning Transition	Positive				
Output Voltage	0.8	-----	-----	Vp-p	
Harmonics	-----	-----	-5.0	dBc	
Load	10kΩ//10pF				
Waveform	Clipped Sine Wave				
Phase Noise					
10Hz offset from the carrier	-----	-----	-80	dBc/Hz	Applicable to all standard available frequencies with Vdd = +1.8V, +2.8 & +3.0V, +3.3V
100Hz offset from the carrier	-----	-----	-105		
1kHz offset from the carrier	-----	-----	-130		
10kHz offset from the carrier	-----	-----	-144		
100kHz offset from the carrier	-----	-----	-144		

## OPTIONS & PART IDENTIFICATION:

ASVTX-13 or ASTX-13 -  -  MHz -  -

Vdd (V)
A: 3.0V±5%
B: 2.8V±5%
C: 1.8V±5%
D: 3.3V±5%

Frequency in MHz
Please specify the frequency in MHz. e.g. 19.200MHz 26.000MHz

Packaging
Blank: Bulk
T: 1000pcs/reel
T3: 3000pcs/reel
T4: 4000pcs/reel (STD)

Table 1: Frequency Stability vs Operating Temperature

	±0.5ppm	±1.0ppm	±1.5ppm	±2.0ppm
-10°C ~ +75°C	A05	A10	A15	A20
-30°C ~ +75°C	B05	B10	Std.(Blank)	B20
-30°C ~ +80°C	C05	C10	C15	C20
-30°C ~ +85°C	D05	D10	D15	D20
-40°C ~ +85°C	I05	I10	I15	I20

# ULTRA MINIATURE SMD VC/TCXO

## ASVTX-13/ASTX-13

Moisture Sensitivity Level (MSL) -1



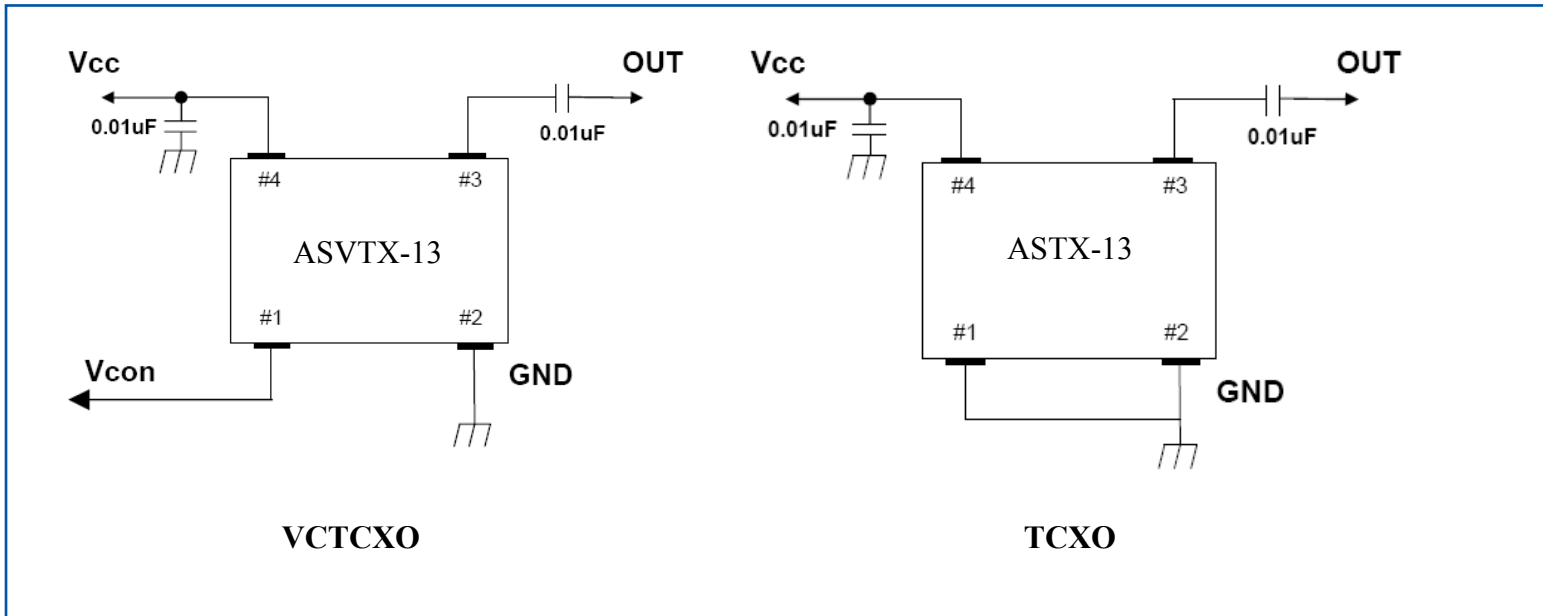
ESD Sensitive

RoHS Compliant



2.0 x 1.6 x 0.8mm

### RECOMMENDED TEST CIRCUIT



### MECHANICAL DIMENSIONS:

The mechanical drawings show the top, side, and bottom views of the component. The top view indicates a marking area and pin locations #1, #2, #3, and #4. The side view shows a maximum height of 0.8mm. The bottom view shows the pad dimensions. The recommended land pattern shows the pad dimensions for the ASVTX-13 VCTCXO and ASTX-13 TCXO.

Pin	Pin Connection
# 1 pin	Vcon
# 2 pin	GND
# 3 pin	Output
# 4 pin	Vcc

Pin	Pin Connection
# 1 pin	GND
# 2 pin	GND
# 3 pin	Output
# 4 pin	+Vcc

**Note 1:** Terminal Coplanarity: 80µm max.  
**Note 2:** Electrode: Cu + Ni + Au (10µ min. + 3µ min. + 0.03µ min.)

**Note:** It is recommended that a by-pass capacitor of 0.01µF value be placed between pin #2 and pin #4 and an AC-coupling capacitor of the same value be placed in series with pin#3 for optimal performance. For ASTX (TCXO), please connect pin #1 and #2 to GND.

**Dimensions: inches (mm)**

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ASVTX-13/ASTX-13

Moisture Sensitivity Level (MSL) -1



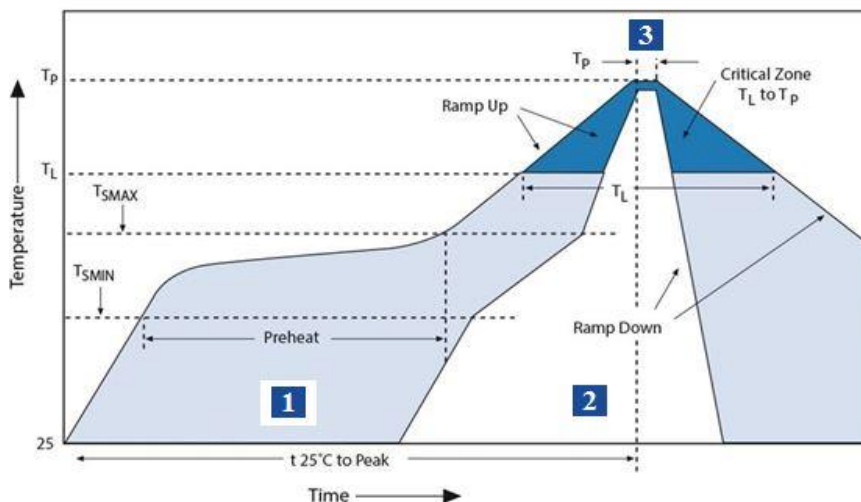
ESD Sensitive

RoHS Compliant



2.0 x 1.6 x 0.8mm

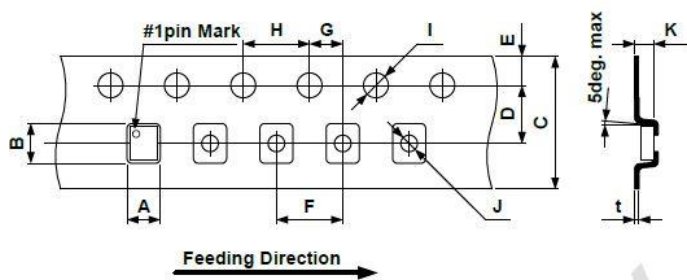
## REFLOW PROFILE:



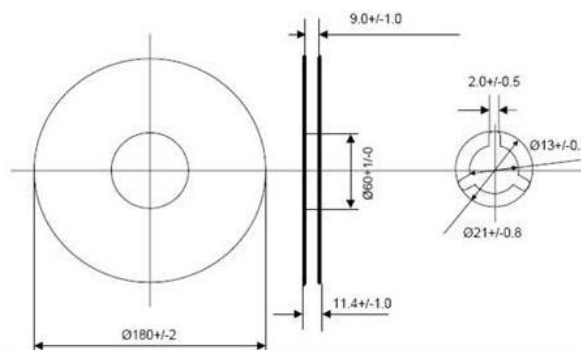
Zone	Description	Temperature	Times
1	Preheat	T <sub>SMIN</sub> ~ T <sub>SMAX</sub> 180°C ± 10°C	120 sec. MAX
2	Reflow	T <sub>L</sub> 230°C	40 sec. MAX
3	Peak heat	T <sub>P</sub> 260°C	10 sec. MAX

## REFLOW PROFILE:

T: 1000pcs/reel  
T3: 3000pcs/reel  
T4: 4000pcs/reel (STD)



A	B	C	D	E
2.0±/0.05	2.4±/0.05	8.0±/0.2	3.5±/0.05	1.75±/0.1
F	G	H	I	J
4.0±/0.1	2.0±/0.05	4.0±/0.1	φ1.5+0.1/-0	φ1.0+0.1/-0
K	t			
0.9±/0.05	0.25±/0.05			



Dimensions: mm

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