ULTRA MINIATURE SMD VC/TCXO

ASVTX-13/ASTX-13

2.0 x 1.6 x 0.8mm

ESD Sensitive

RoHS Compliant

Moisture Sensitivity Level (MSL) –1

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 oscialltor for test equipment
- Mobile communication equipment
- Portable radio equipment and music player
- Phase Locked Loop

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 Δf/f0 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		

ABRACON LLC
The Power of Linking Together

5101 Hidden Creek Lane Spicewood TX 78669
Phone: 512-371-6159 | Fax: 512-351-8858
For terms and conditions of sale, please visit:
www.abracon.com

REVISED: 01.27.2017

ABRACON IS ISO9001-2008 CERTIFIED

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Pb RoHS Compliant

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

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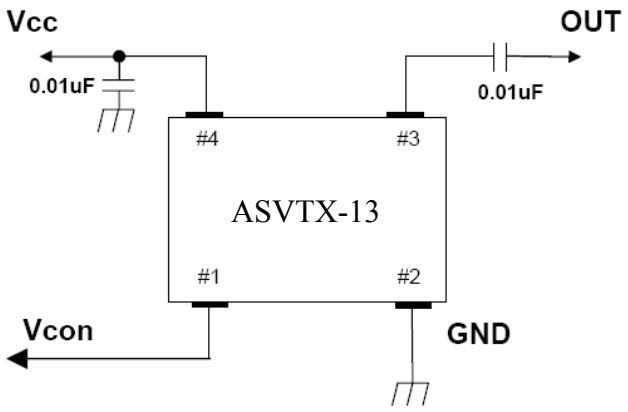
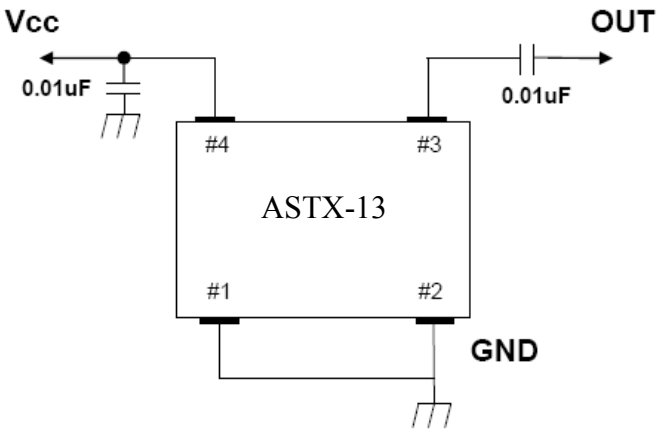
RECOMMENDED TEST CIRCUIT

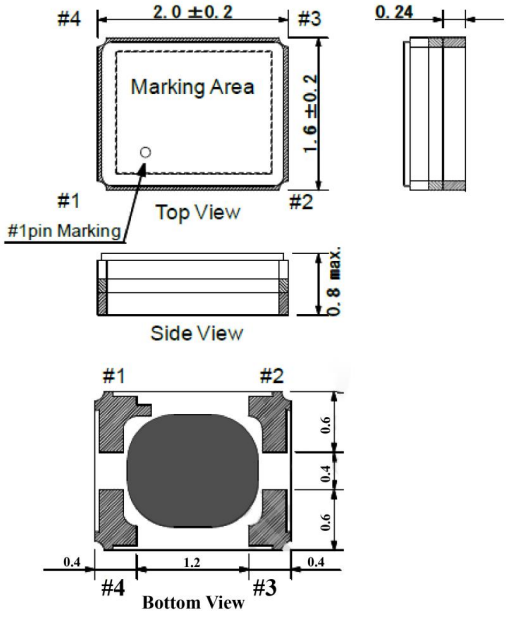


VCTCXO

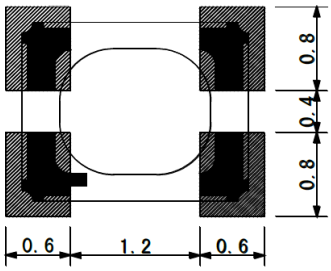


TCXO

MECHANINCAL DIMENSIONS:



Recommended Land Pattern



ASVTX-13 VCTCXO

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

ASTX-13 TCXO

	Pin Connection
# 1 pin	GND
# 2pin	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 0.01uF 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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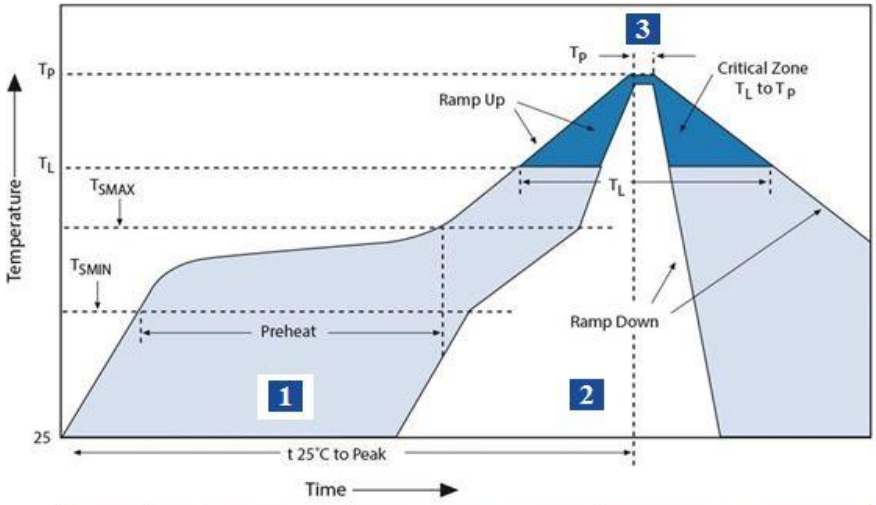
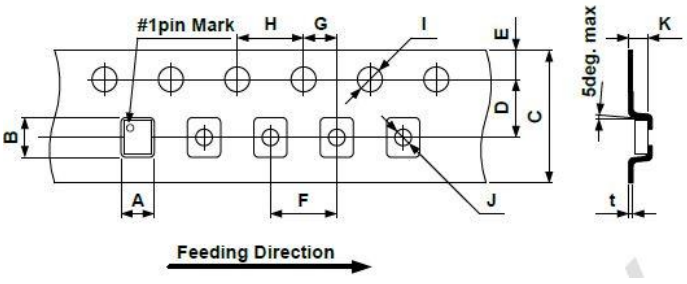
REFLOW PROFILE:



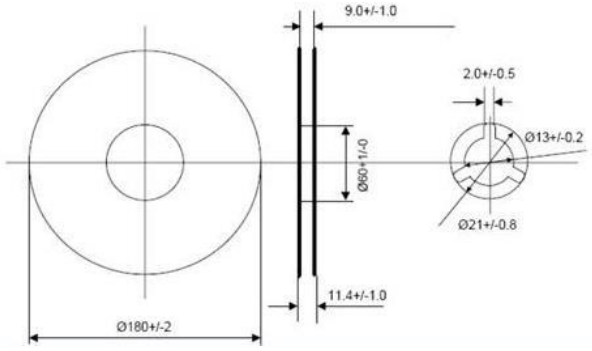
Zone	Description	Temperature	Times
1	Preheat	T_{SMIN} ~ T_{SMAX} 180°C ± 10°C	120 sec. MAX
2	Reflow	T_L 230°C	40 sec. MAX
3	Peak heat	T_P 260°C	10 sec. MAX

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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