

ULTRA MINIATURE SMD VC/TCXO



2.0 x 1.6 x 0.8mm

ASVTX-13/ASTX-13



ESD Sensitive



RoHS/RoHS II 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 oscillator 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	13		52	MHz		
Standard Frequencies	13, 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) Temperature (ref. to +25°C) Supply Voltage Change (Vdd \pm 5%) Load Change (ZL \pm 10%)	-2.0		+2.0	ppm	+25°C, Vcon=1.4V After 2 time reflow See option (Table 1)	
	-1.5		+1.5			
	-0.2		+0.2			
	-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 (ASTX only)	
Aging (first year @+25 \pm 2°C)	-1.0		+1.0	ppm		
Supply Current (Icc)	Vdd=3.0V		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	
	Vdd=2.8V			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
				1.5		38.400MHz, -30 to +85°C
	Vdd=1.8V			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
				1.5		38.400MHz, -30 to +85°C
Startup Time			3.0	ms	90% Vp-p \pm 0.5ppm	



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Parameters		Minimum	Typical	Maximum	Units	Notes
Voltage Control Function (for ASVTX-13) Control Voltage (Vcon)	Vdd=3.0V	+0.4	+1.4	+2.4	Vdc	19.2MHz 26.0MHz 38.4MHz
	Vdd=2.8V	+0.4	+1.4	+2.4		19.2MHz
		+0.5	+1.5	+2.5		26.0MHz
		+0.1	+1.2	+2.3		38.4MHz
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
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%

*16.368MHz is only for ASTX-13 (TCXO)
**1.8V is only for ASTX-13 (TCXO)

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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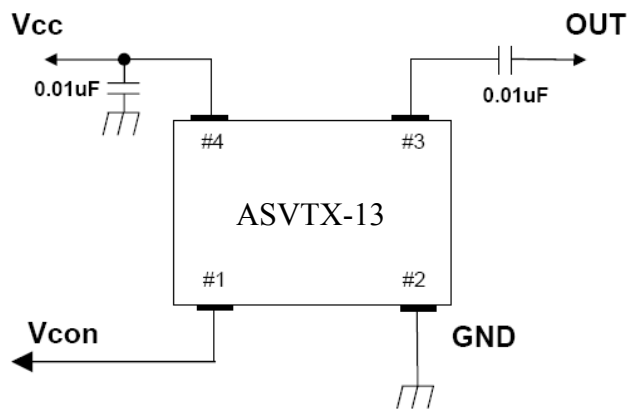


RoHS/RoHS II compliant

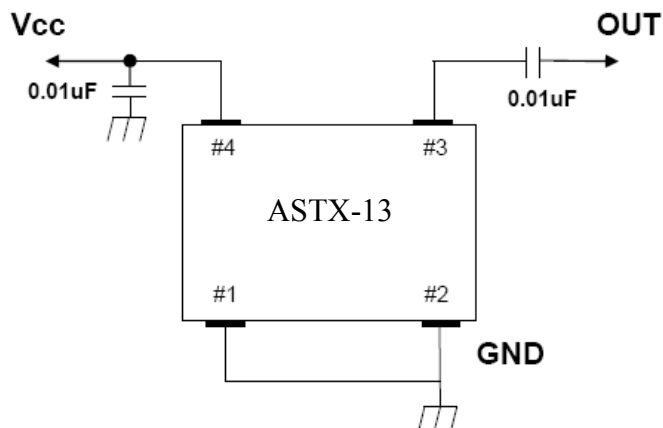


2.0 x 1.6 x 0.8mm

RECOMMENDED TEST CIRCUIT

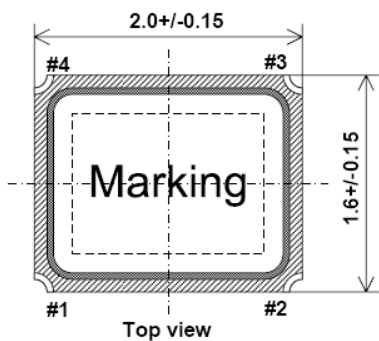


VCTCXO

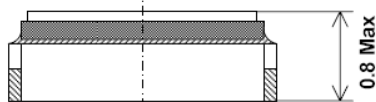


TCXO

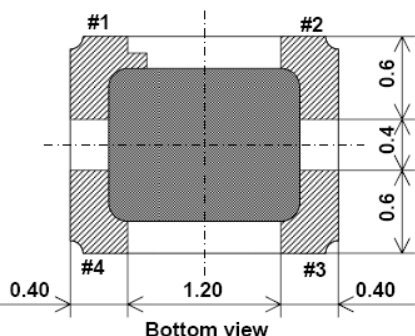
OUTLINE DIMENSION:



Top view

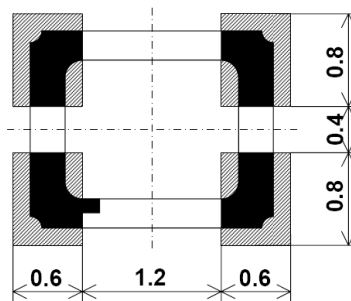


Side view



Bottom view

Recommended Land Pattern



Top View

Note1
Co-planarity: 80um Max

Note2
Electrode : Mo + Ni 1.5 to 8.89um
+ Au 0.3 to 1.0um

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.

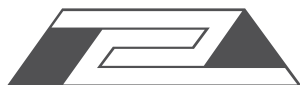
	Pin Connection
# 1 pin	GND
# 2 pin	GND
# 3 pin	Output
# 4 pin	+Vcc

ASTX-13 TCXO

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

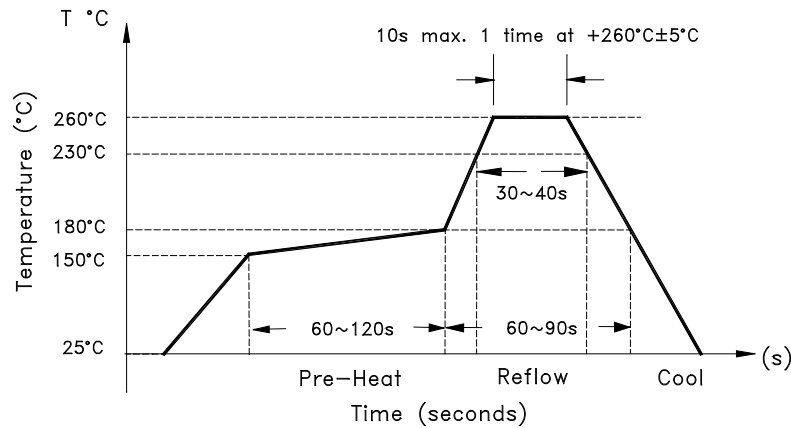
ASVTX-13 VCTCXO

Dimensions: inches (mm)





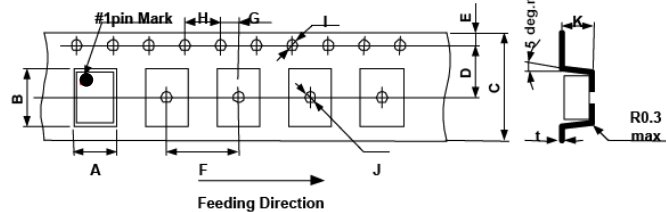
REFLOW PROFILE:



TAPE & REEL:

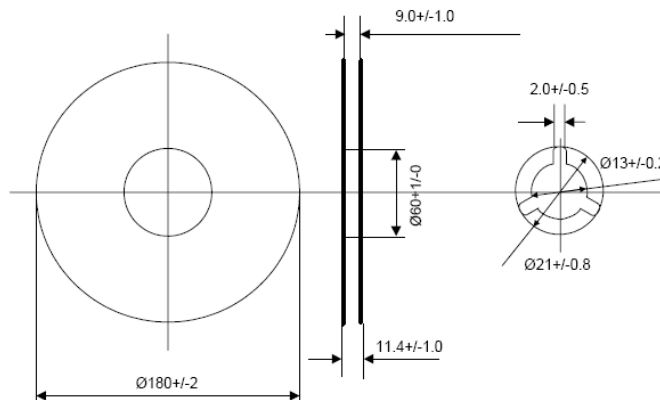
T: 1000pcs/reel
T3: 3000pcs/reel
T4: 4000pcs/reel (STD)

1. TAPE DIMENSIONS



Symbol	A	B	C	D	E
Dimension	2.0+/-0.05	2.4+/-0.05	8.0+/-0.2	3.5+/-0.05	1.75+/-0.1
Symbol	F	G	H	I	J
Dimension	4.0+/-0.1	2.0+/-0.05	4.0+/-0.1	Φ1.5+0.1/-0	Φ1.0+0.1/-0
Symbol	K	t			
Dimension	0.9+/-0.05	0.25+/-0.05			

2. REELS DIMENSIONS



Dimensions: mm

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