

SMD VC/TCXO

ASVTX-12/ASTX-12

Request Samples



Check Inventory



ESD Sensitive



2.5 x 2.0 x 0.8 mm

RoHS/RoHS II Compliant

MSL Level = 1

Features

- Ultra miniature and low height 0.8mm
- Low current consumption 2.5mA
- Vc function corresponds to PLL circuits
- Suitable for RoHS reflow profile
- Low phase noise

Applications

- Cellular phones
- Standard OSC for exact equipment
- Mobile communication equipment
- Portable radio equipment
- Personal Digital Assistants (PDAs)
- Portable music players

Key Electrical Specifications

Parameters	Minimum	Typical	Maximum	Unite	Notes
Frequency Range	10		52	MHz	
Standard Frequencies	10, 13, 16.368, 16.369, 19.2, 26, 38.4, 40, 52			MHz	
Operating Temperature	-30		+85	°C	See option (Table 1)
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 time reflow
Temperature (ref. to +25°C)	-2.0		+2.0		See option (Table 1)
Supply Voltage Change (Vcc±5%)	-2.0		+2.0		
Load Change (ZL±10%)	-2.0		+2.0		
Control Voltage (V con) (ASVTX-12 only)	+0.4		+2.4	V	Option A
	+0.4		+2.4		Option B
	+0.4		+2.4		Option C
	+0.3		+1.5		Option D
	+0.4		+2.4		Option E
Supply Voltage (Vcc)	+2.85	+3.0	+3.15	V	Option A
	+2.66	+2.8	+2.94		Option B
	+2.375	+2.5	+2.625		Option C
	+1.71	+1.8	+1.89		Option D
	+3.135	+3.3	+3.465		Option E
Aging (first year @+25±2°C)	-1.0		+1.0	ppm	
Supply Current (Icc)			2.0	mA	10MHz ≤ Fo < 26MHz
			2.5	mA	26MHz ≤ Fo ≤ 52MHz
Startup Time			2.0	ms	
Frequency Tuning Range (ASVTX-12 only)	±5.0		±9.5	ppm	
Vcon Input Impedance (ASVTX-12 only)	500			kΩ	

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Parameters	Minimum	Typical	Maximum	Unite	Notes
Frequency Tuning Transition	Positive				
Output Voltage	0.8			Vp-p	
Harmonics			-5.0	dBc	
Load	10kΩ//10pF				
Waveform	Clipped Sine Wave				
Phase Noise @ 19.2MHz					
100Hz offset from the carrier		-115	-100	dB/Hz	
1kHz offset from the carrier		-135	-125		
10kHz offset from the carrier		-150	-140		

Options and Part Identification (left blank if standard)

ASVTX-12 or ASTX-12 - - MHz - -

VDD (V)
A: 3.0V±5%
B: 2.8V±5%
C: 2.5V±5%
D: 1.8V±5%
E: 3.3V±5%

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

Packaging
T: 1,000pcs/reel
T3: 3,000pcs/reel

Table 1: Frequency Stability vs Operating Temperature

	±0.5ppm	±1.0ppm	±1.5ppm	±2.0ppm	±2.5ppm
0°C ~ +55°C	D05	D10	D15	D20	D25
-10°C ~ +60°C	E05	E10	E15	E20	E25
0°C ~ +70°C	F05	F10	F15	F20	F25
-20°C ~ +70°C	G05	G10	G15	G20	G25
-30°C ~ +85°C	H05*	H10	H15	STD (Blank)	H25
-40°C ~ +85°C	I05*	I10*	I15	I20	I25

*Please contact Abracon for availability



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REVISED: 02-18-22

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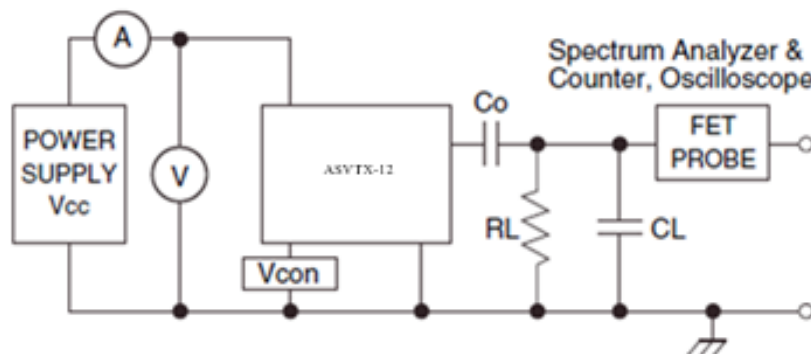
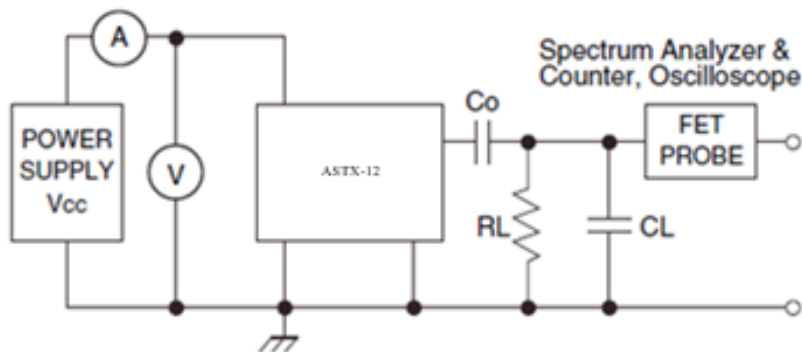


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Recommended Test Circuit



$RL=10k\Omega\pm10\%$ $CL=10pF\pm10\%$
• CL include Probe Capacitance
Co: DC Cut Capacitance

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Reflow Profile [JEDEC J-STD-020]

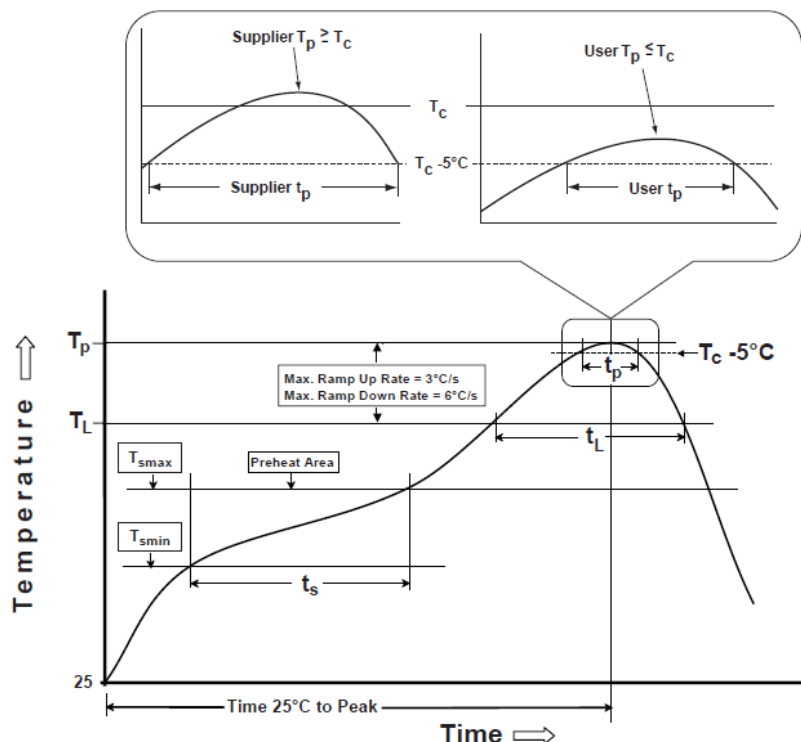


Table 1

SnPb Eutectic Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process
Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T_p)*	see Table 1	see Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 sec.	30 sec.
Ramp-down rate (T_p to T_{smax})	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.

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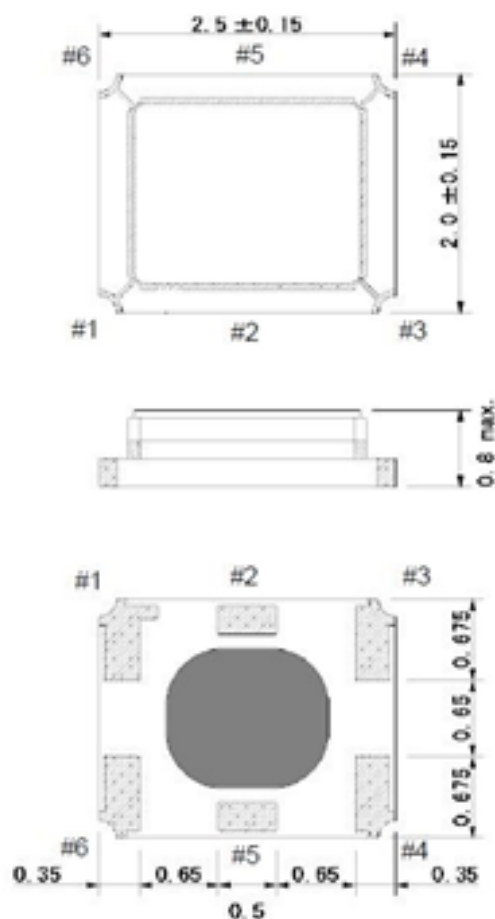


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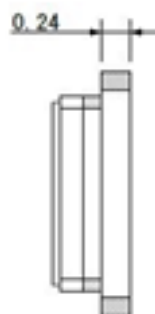


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RoHS/RoHS II Compliant
MSL Level = 1

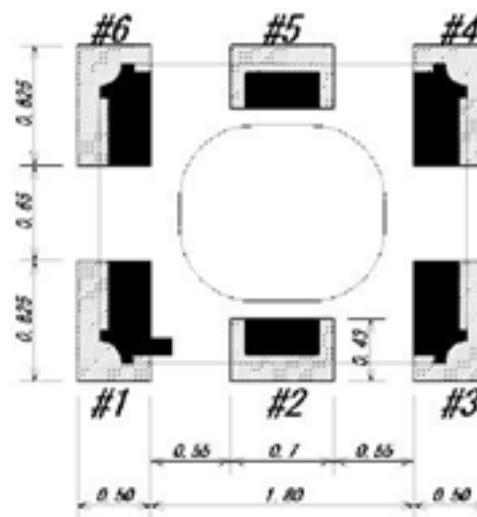
Mechanical Dimensions 1



Dimensions: mm



Recommended Land Pattern



	Pin Configuration
#1pin	GND
#3pin	GND
#4pin	OUTPUT
#6pin	Vcc
#2/5pin	N.C.

ASTX-12 TCXO

	Pin Configuration
#1pin	Vcon
#3pin	GND
#4pin	OUTPUT
#6pin	Vcc
#2/5pin	N.C.

ASVTX-12 VCTCXO

Note1: It is recommended that a by-pass capacitor of 0.01uF value be placed between pin #6 and pin #3 and an AC-coupling capacitor of the same value be placed in series with pin#4 for optimal performance. For ASTX, please connect pin #1 and #3 to GND.

Note2: Pin#2 and Pin#5 should be left floating (No Connect = N.C.)

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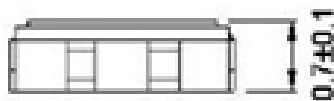
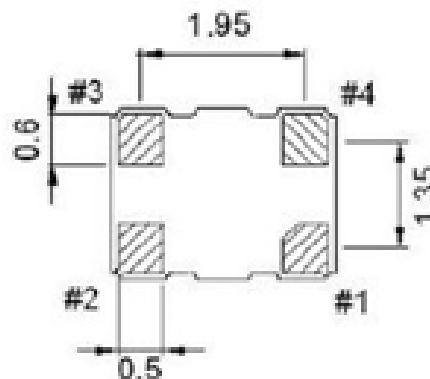
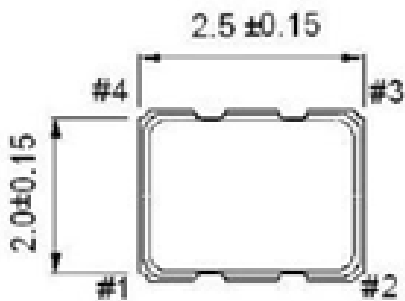


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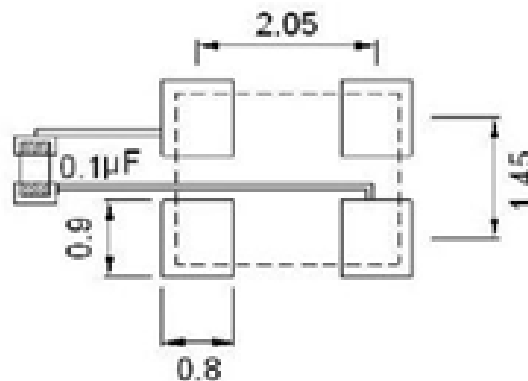


2.5 x 2.0 x 0.8 mm
RoHS/RoHS II Compliant
MSL Level = 1

Mechanical Dimensions 2



Recommended Land Pattern



Dimensions: mm

PIN	FUNCTION	
	ASVTX	ASTX
1	Vcon	GND
2	GND	
3	OUTPUT	
4	Vcc	

Note:

It is recommended that a by-pass capacitor of 0.1μF 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.

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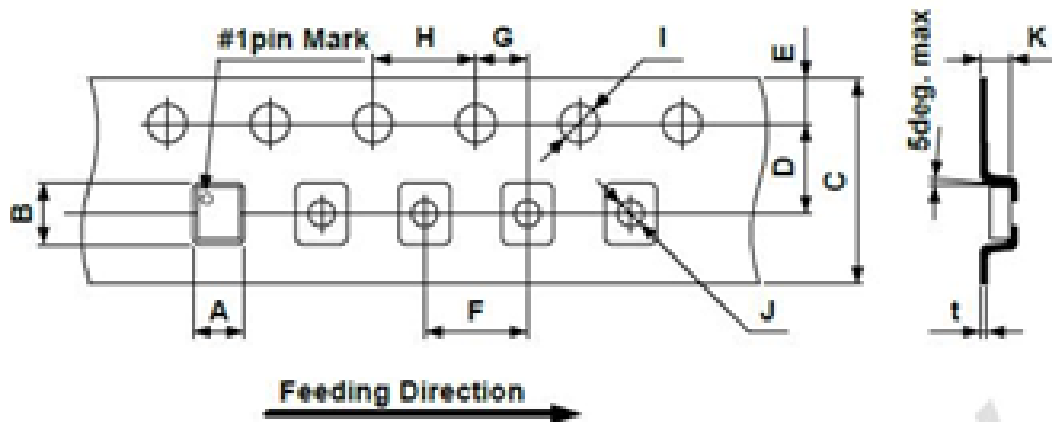


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MSL Level = 1

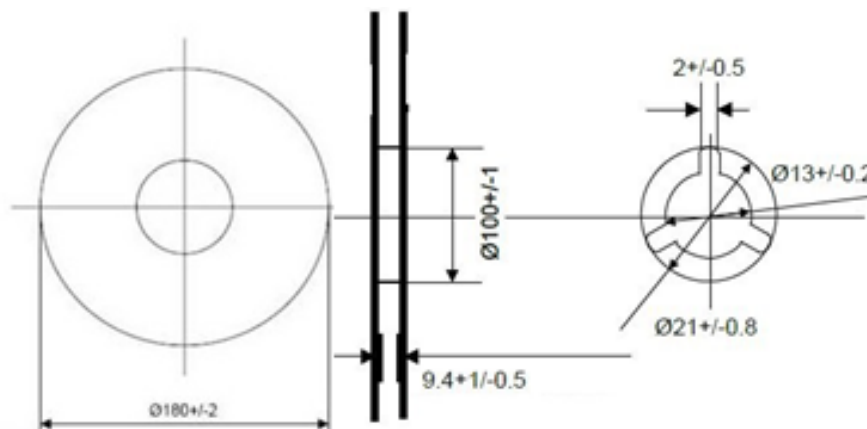
Packaging

T: 1,000pcs/reel

T3: 3,000pcs/reel



A	B	C	D	E
2.4±/-0.1	2.9±/-0.1	8.0+0.3/-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	φ1.1+0.1/-0
K	t			
1.15±/-0.05	0.25±/-0.05			



Dimensions: mm

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