

## Moisture Sensitivity Level (MSL) – 1

### OVERVIEW:

Abracon's ASTXR series of Temperature Compensated Crystal Oscillators are based on an Advanced-Analog Temperature Compensation Integrated Circuit, incorporated with Rakon's Precision TCXO processing techniques.

This composite enables exceptional frequency stability over temperature ( $\leq \pm 0.50$  ppm over  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ). Additionally, high-resolution screening algorithms are employed during the production verification process, ensuring that 100% of these devices are fully compliant to the stringent frequency stability specifications.

For Power Sensitive applications, the ASTXR series provides the ability to preserve consumed power by placing the device in shut-down mode; when not used. This series of devices are ideally suited for GPS and other mobile applications where performance, size, cost and power management are of critical importance.

### FEATURES:

- Excellent phase noise performance
- Low power consumption
- Miniature size: 2.5 x 2.0 x 0.8mm SMD
- RoHS compliant
- Temperature stability:  $\pm 0.5$ ppm over  $-40 \sim +85^{\circ}\text{C}$

### APPLICATIONS:

- GPS
- Smartphone
- PND
- Communications
- Consumer electronics
- Wi-Fi
- WiMAX/W-LAN

### STANDARD SPECIFICATIONS:

Parameters	Minimum	Typical	Maximum	Units	Notes
Nominal Frequency		26.000		MHz	
Supply Voltage (Vdd)	1.71	1.8	1.89	V	
Current Consumption (@Vdd max)			1.5	mA	See Note 2
Operable Temperature Range	-40		+85	$^{\circ}\text{C}$	
Storage Temperature Range	-40		+85	$^{\circ}\text{C}$	
Initial Frequency Tolerance @+25 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$ at time of shipment			$\pm 1$	ppm	
Reflow Shift			$\pm 1$	ppm	After 2 consecutive reflows and 1hr recovery @+25 $^{\circ}\text{C}$
Frequency Stability over Operating Temperature Range			$\pm 0.5$	ppm	Ref. to $(F_{\text{MAX}} + F_{\text{MIN}})/2$ . See Note 1
Frequency Slope (tested to a minimum of 1 freq. reading every 2 $^{\circ}\text{C}$ over operating temperature range)			0.1	ppm/ $^{\circ}\text{C}$	See Note 1
Static Temperature Hysteresis (Frequency change after reciprocal temperature ramped over the operating range. Frequency measured before and after at +25 $^{\circ}\text{C}$ )			0.6	ppm	
Sensitivity vs. Supply Voltage Variations (Vdd $\pm 5\%$ @ +25 $^{\circ}\text{C}$ )			$\pm 0.1$	ppm	
Sensitivity vs. Load Variations ( $\pm 10\%$ load change @ +25 $^{\circ}\text{C}$ )			$\pm 0.2$	ppm	See Note 2
Long Term Stability (frequency drift over 1 year @ +25 $^{\circ}\text{C}$ )			$\pm 1$	ppm	
Frequency Drift on Power up			500	ppb/s	Drift period: 0.03 to 1.0 second
			40		Drift period: 1.0 to 2.0 seconds
			2.5		Drift period: 2.0 to 3.0 seconds
Output Type	DC Coupled Clipped Sine-wave				See Note 3
Output Voltage Level (@ minimum Vdd)	0.8			V	See Note 2
Output Load Resistance	9	10	11	k $\Omega$	
Output Load Capacitance	9	10	11	pF	
Startup Time (amplitude)			0.5	ms	Within 90% of specified output level
Startup Time (frequency)			1.5	ms	Within $\pm 0.5$ ppm of steady state frequency

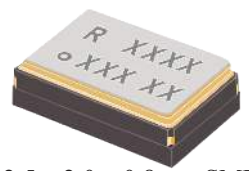


# SMD TCXO

ASTXR-12-26.000MHz-511741



RoHS / RoHS II Compliant



2.5 x 2.0 x 0.8mm SMD

Parameters	Minimum	Typical	Maximum	Units	Notes
Enable/Disable Function (Pin 1)					
Input Voltage High (VIH)	90%*Vdd		Vdd	V	Normal operating Mode
Input Voltage Low (VIL)	GND		10%*Vdd	V	Power Down Mode
Phase Noise @ 26MHz Carrier (@+25°C)					
@ 1 Hz offset		-64		dBc / Hz	
@ 10 Hz offset		-92		dBc / Hz	
@ 100 Hz offset		-115		dBc / Hz	
@ 1,000 Hz offset		-135		dBc / Hz	
@ 10,000 Hz offset		-149		dBc / Hz	

Note:

- Parts should be shielded from drafts causing unexpected thermal gradients. Temperature changes due to ambient air currents on the oscillator can lead to short term frequency drift
- Specified for load stated in the Oscillator Output section at +25°C
- AC-Coupled outputs require an external capacitor, ≥ 1nF recommended
- Frequency shift ≤ 1ppm after reliability test conditions (see section 7.0)

## CROSS REFERENCE INFORMATION:

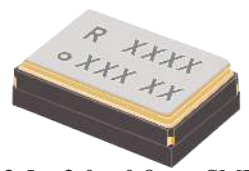
ASTXR-12-26.000MHZ-511741 is equivalent to Rakon P/N 511741.

## PART IDENTIFICATIONS:

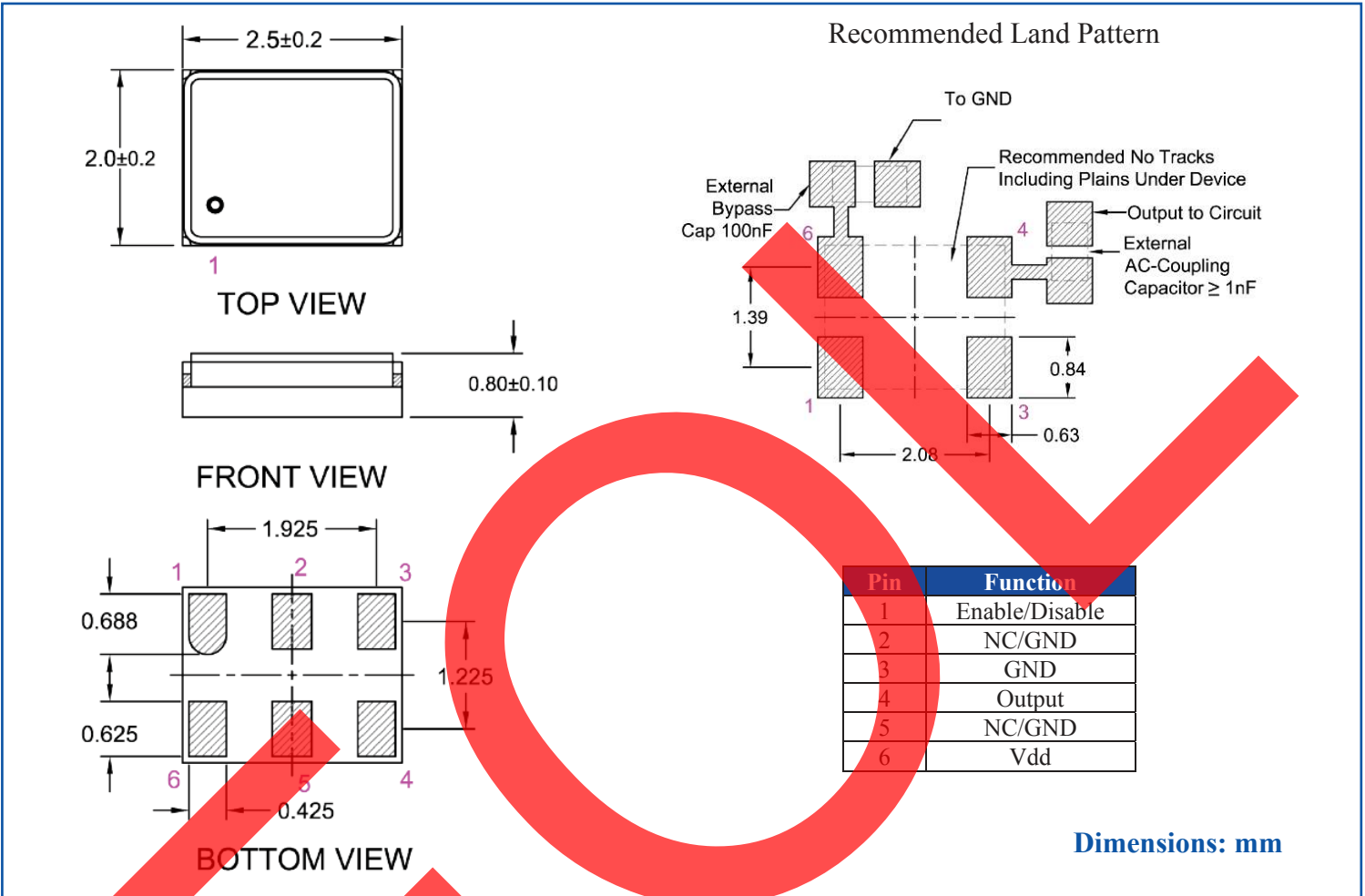
ASTXR-12-26.000MHz -511741 -

Packing
Blank: Bulk
T: Tape & Reel (3k/reel)

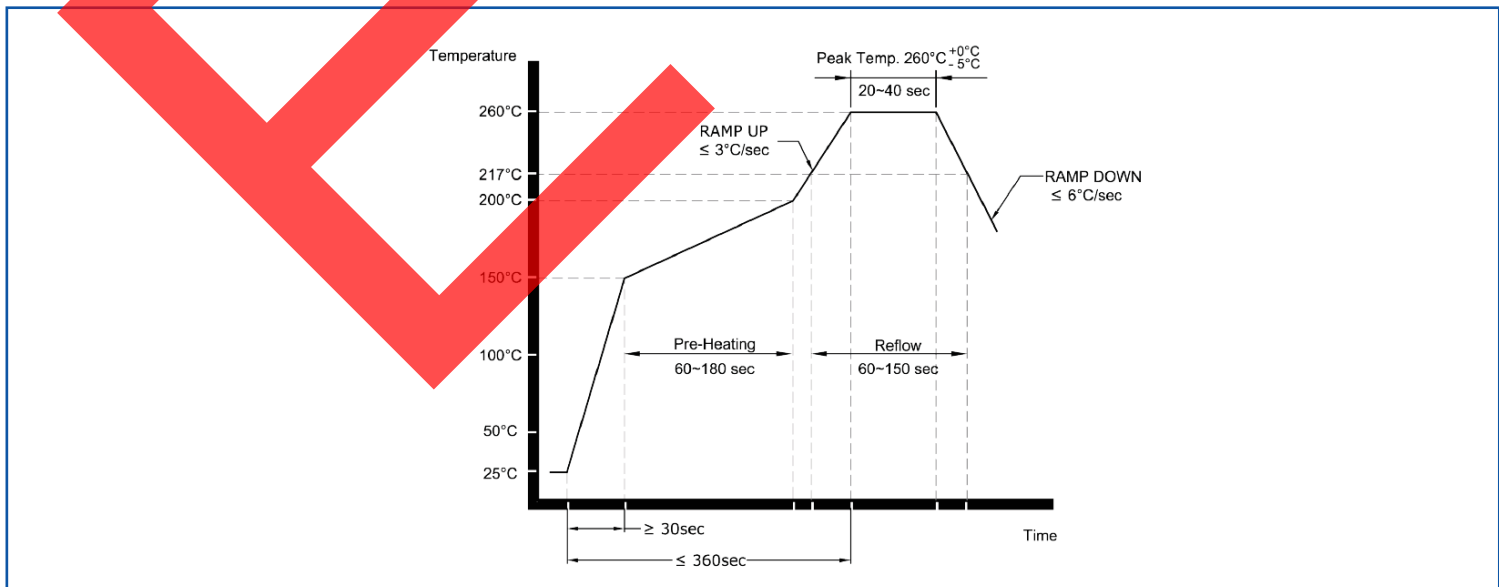




## OUTLINE DIMENSION:



## REFLOW PROFILE:

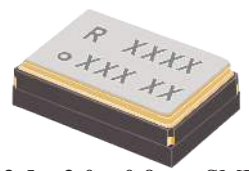


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ASTXR-12-26.000MHz-511741



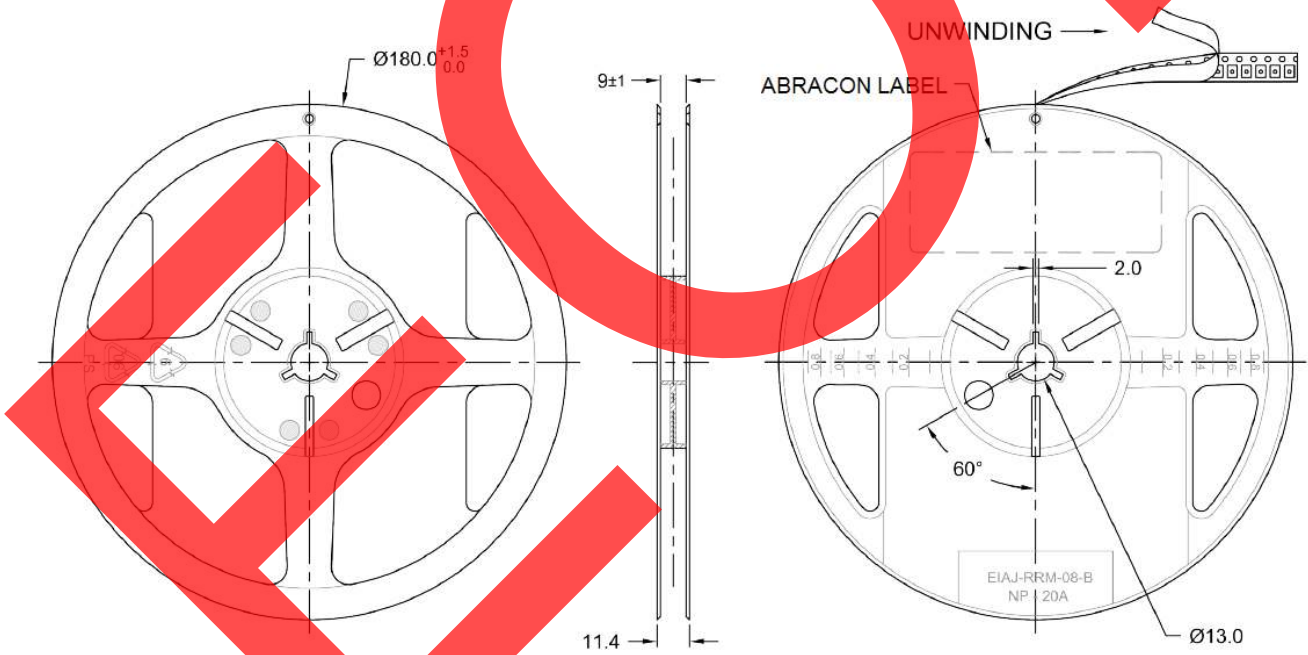
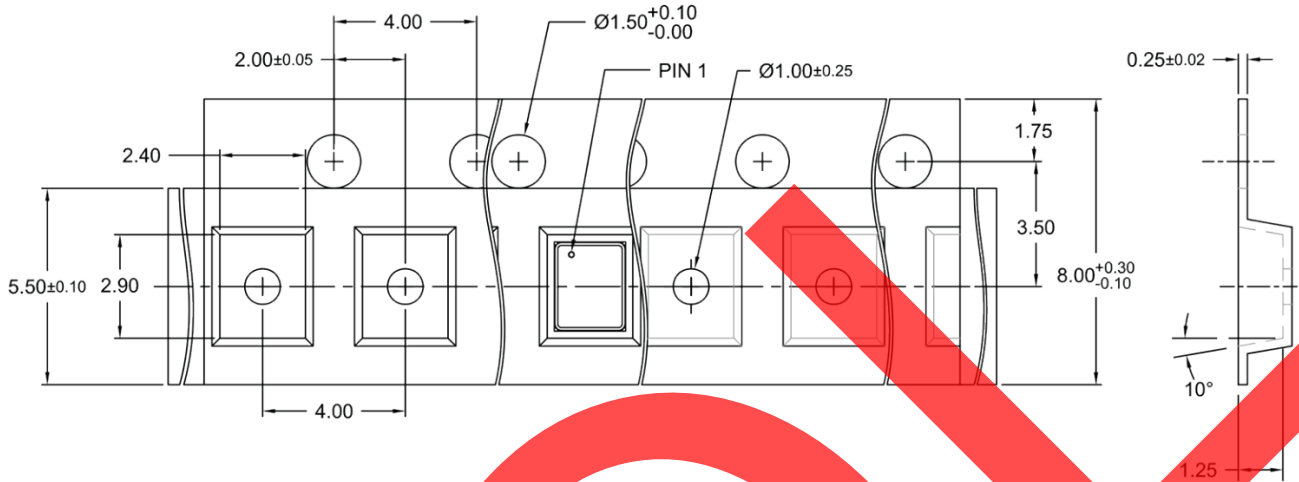
RoHS / RoHS II Compliant



2.5 x 2.0 x 0.8mm SMD

## TAPE & REEL:

**3000pcs/reel**



Dimensions: mm

**ATTENTION:** Abracon Corporation's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependant Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon Corporation is required. Please contact Abracon Corporation for more information.

ABRACON IS  
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