

# Oven Controlled Crystal Oscillator

## 14 Pin Dip Standard OCXO – Family Data Sheet

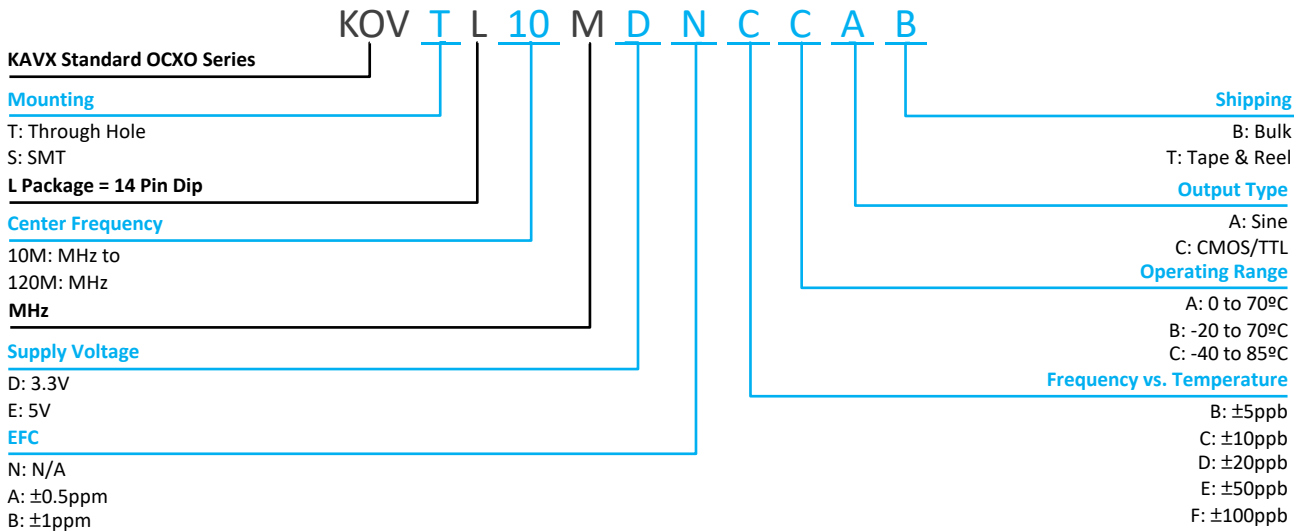


### FEATURES

- Thru Hole or Surface Mountable
- High Stability vs. Temperature
- Quick Warm-Up Time
- Low Age Rates
- Low Phase Noise
- 14-pin DIP Package

KYOCERA AVX's high performance OCXO product offering is a result of 90+ years of leading products within the Frequency Control Industry. Modern layout topologies enable KYOCERA AVX to engineer and manufacture robust designs for all applications.

### HOW TO ORDER

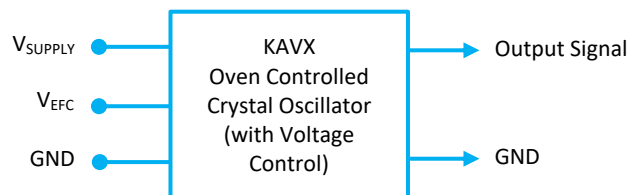


- \* Configuration items are in blue
- \*\* Not all combinations of options may be possible
- \*\*\* Other options may be available

### APPLICATIONS

- Network Infrastructure
- 5G Picocell
- Test and Measurement Systems
- GPS Precision Timing Devices
- Medical Devices
- Aerospace
- Industrial

### BLOCK DIAGRAM



Note: If EFC Option "N" is used, connect  $V_{EFC}$  to GND



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### PERFORMANCE SPECIFICATIONS

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
Frequency Range		10		120	MHz
Initial Tolerance	@ +25°C (Nominal)			±100	ppb
Warm Up Time	To initial tolerance			3	Min
Frequency Stability					
vs. Temperature	Options B - (Max-Min)/2		±5		ppb
	Options C - (Max-Min)/2		±10		ppb
	Options D - (Max-Min)/2		±20		ppb
	Options E - (Max-Min)/2		±50		ppb
	Options F - (Max-Min)/2		±100		ppb
vs. Load	± 5% Δ in Load		±2		ppb
vs. Supply Voltage	± 5% Δ in supply		±2		ppb
ADEV (Short Term Stability)	T = 1 second		5E-11		
Aging					
Per Day	After 30 Days Operation			±1.0	ppb
1 <sup>st</sup> Year				±100	ppb
Supply Voltage (Vdd)	Option D	3.13	3.3	3.47	Vdc
	Option E	4.75	5	5.25	Vdc
Power Dissipation					
Start Up	@ +25°C (Nominal)			3.5	W
Steady State	@ +25°C (Nominal)		1.5		W
Electronic Frequency Control					
Voltage Range		0	Vdd/2	Vdd	Vdc
Frequency Range	Option N	0			ppm
	Option A	±0.5			ppm
	Option B	±1.0			ppm
Slope			positive		
Input Impedance			100		kΩ
Linearity			10		%

Note: Values typical of 10MHz units



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### PERFORMANCE SPECIFICATIONS

Parameter	Conditions	Values			Unit
		MIN	TYP	MAX	
<b>Output Characteristics (CMOS/TTL)</b>					
High Output Level	Logic "1"	90% Vdd			Vdc
Low Output Level	Logic "0"	10% Vdd			Vdc
Rise/Fall Time		5			nSec
Duty Cycle		45	50	55	%
Load		15			pF
<b>Output Characteristics (Sinusoid)</b>					
Output Level		9.0			dBm
Spurious		-70			dBc
Harmonics		-40			dBc
Load		45	50	55	Ω

Parameter	Conditions	Values		Unit	
		TYP	TYP		
<b>Phase Noise</b>					
Phase Noise (10 MHz)	Tested at +25°C (Nominal)	Sinusoid	CMOS		
		10Hz	-120	-120	dBc/Hz
		100Hz	-140	-140	dBc/Hz
		1kHz	-145	-145	dBc/Hz
		10kHz	-155	-150	dBc/Hz
		100kHz	-155	-155	dBc/Hz
Phase Noise (100 MHz)	Tested at +25°C (Nominal)	Sinusoid	CMOS		
		10Hz	-90	-90	dBc/Hz
		100Hz	-120	-120	dBc/Hz
		1kHz	-145	-140	dBc/Hz
		10kHz	-155	-145	dBc/Hz
		100kHz	-155	-150	dBc/Hz

Note: Values typical of 10MHz units



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### ENVIRONMENTAL COMPLIANCE

Parameter	Conditions	Values			Unit
		MIIN	TYP	MAX	
Operating Temperature	Option A	0		+70	°C
	Option B	-20		+70	°C
	Option C	-40		+85	°C
Storage Temperature		-55		+100	°C
Seal	MIL-STD-202 Method 112 Test Condition D				
Mechanical Shock	MIL-STD-202, Method 213, Test Condition C				
Vibration	Mil-Std-202, Method 201				
Acceleration Sensitivity	10MHz output Vibration profile: 0.001G <sup>2</sup> /Hz 10Hz to 2kHz		1.0		ppb/g



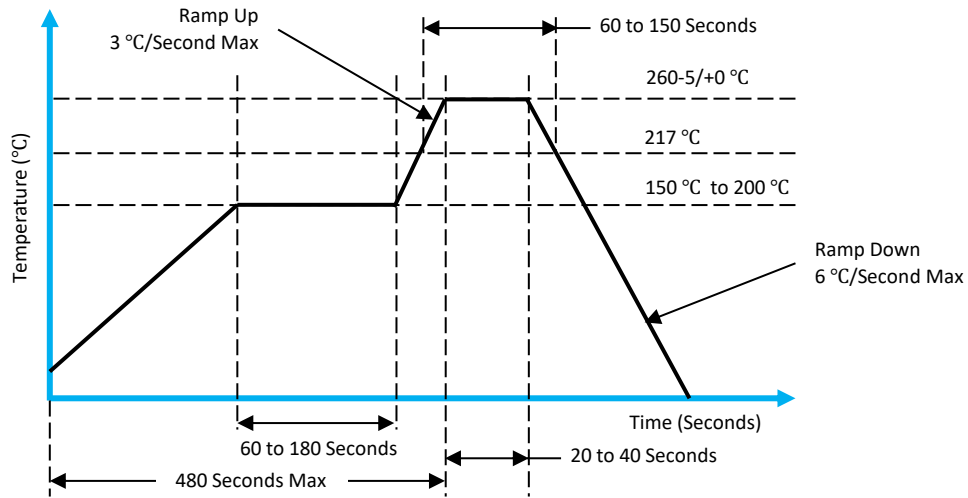
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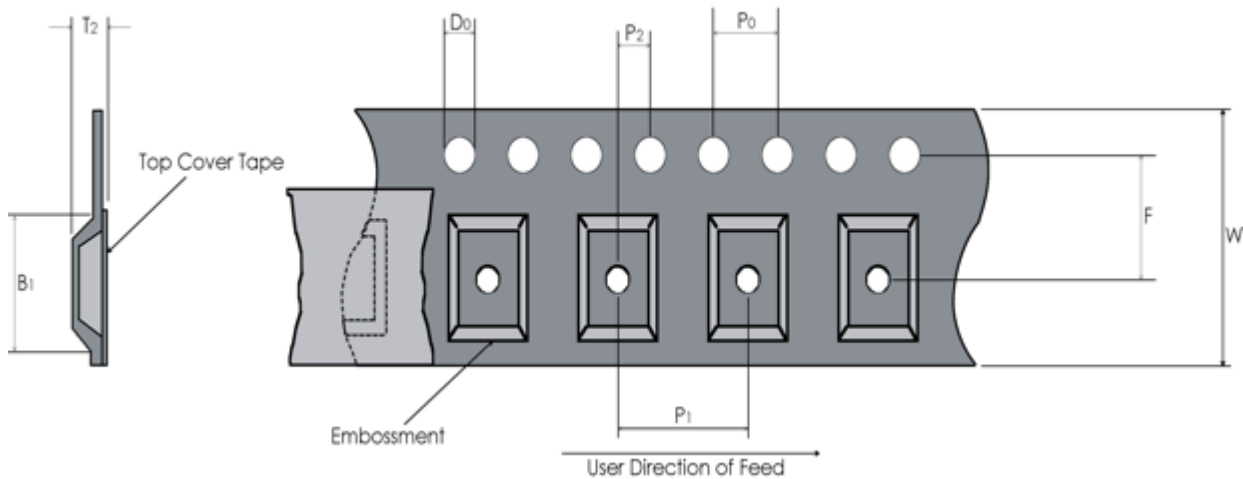
## 14 Pin Dip Standard OCXO – Family Data Sheet



### ACCEPTABLE REFLOW PROFILE



### TAPE AND REEL



Tape Dimensions (mm)								Reel Dimensions (mm)	
W	F	Do	P <sub>o</sub>	P <sub>1</sub>	P <sub>2</sub>	B <sub>1</sub>	T <sub>2</sub>	Outside Dia.	Parts / Reel
24	10.5	1.5	4.0	20	2.0	17.0	11.8	330	250

#### Notes:

1. Profile Classification per IPC/JEDEC J-STD-020C Pb-Free Small Body Assembly
2. Only the SMT version can be selected as a Tape & Reel shipping method
3. If Tape & Reel is required a MOQ of 200-piece increments are required.



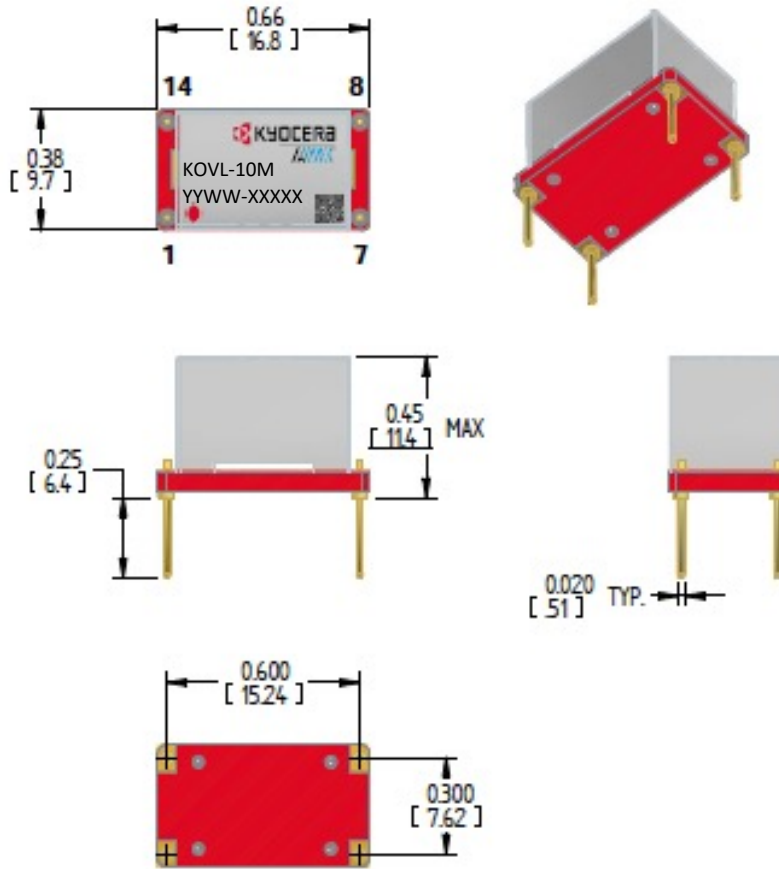
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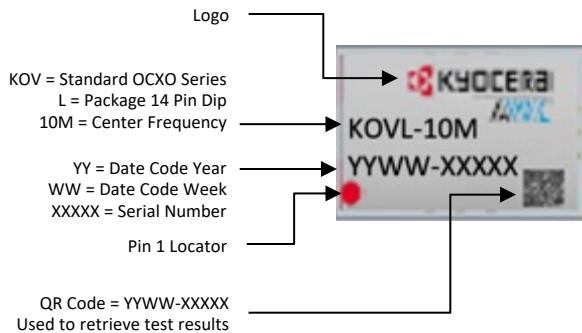
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### MECHANICAL SPECIFICATIONS - THROUGH HOLE



### MARKING



Tolerances (mm) .X = ± 0.5, .XX = ±0.2 unless otherwise specified

PIN	FUNCTION
1	EFC / N.C.
7	Ground
8	RF Output
14	Supply Voltage



Notes:  
 • Non-RoHS available upon request



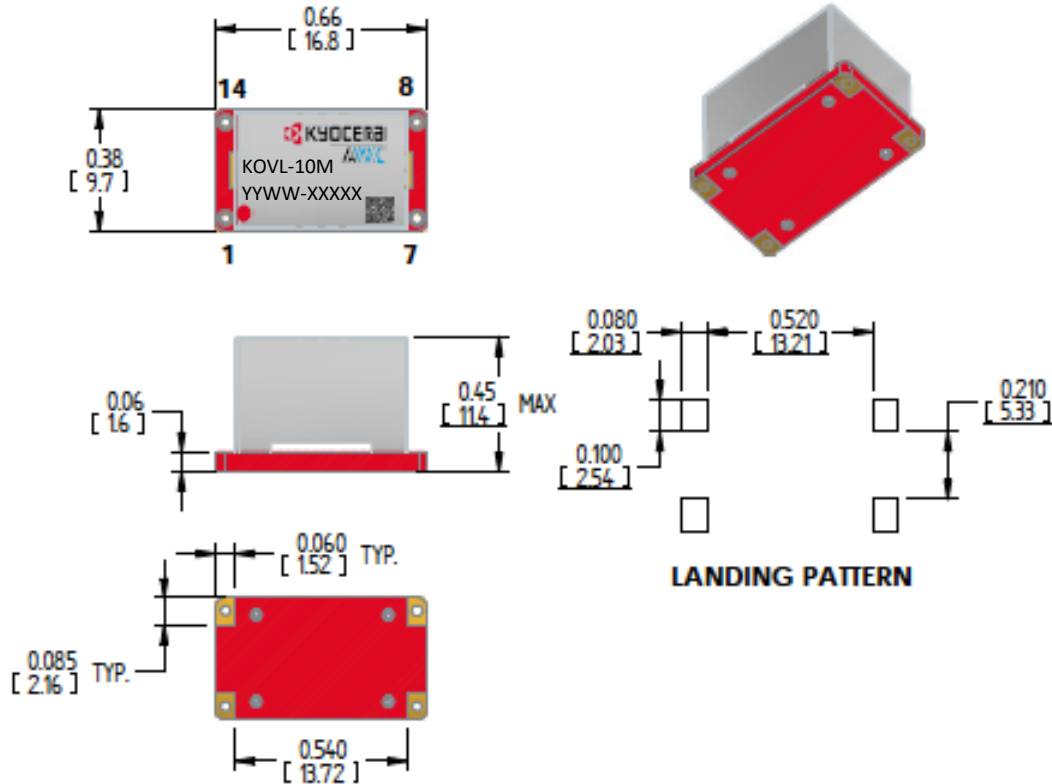
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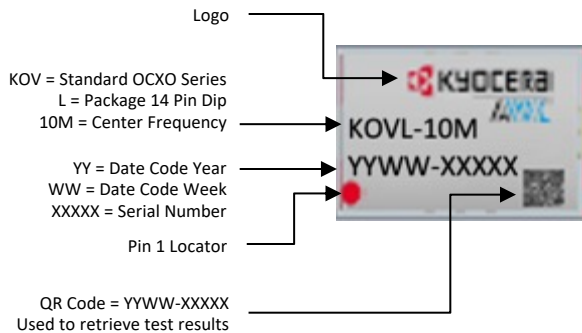
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### MECHANICAL SPECIFICATIONS – SURFACE MOUNT



### MARKING



Tolerances (mm) .X = ± 0.5, .XX = ±0.2 unless otherwise specified

PIN	FUNCTION
1	EFC / N.C.
7	Ground
8	RF Output
14	Supply Voltage



Notes:

- Non-RoHS available upon request



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