

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



KAVX Standard OCXO Series		KOV	T	L	10	M	D	N	C	C	A	B	
Mounting													Shipping
T: Through Hole													B: Bulk
S: SMT													T: Tape & Reel
L Package = 14 Pin Dip													Output Type
Center Frequency													A: Sine
10M: MHz to													C: CMOS/TTL
120M: MHz													Operating Range
MHz													A: 0 to 70°C
Supply Voltage													B: -20 to 70°C
D: 3.3V													C: -40 to 85°C
E: 5V													Frequency vs. Temperature
EFC													B: ±5ppb
N: N/A													C: ±10ppb
A: ±0.5ppm													D: ±20ppb
B: ±1ppm													E: ±50ppb
													F: ±100ppb

* Configuration items are in blue

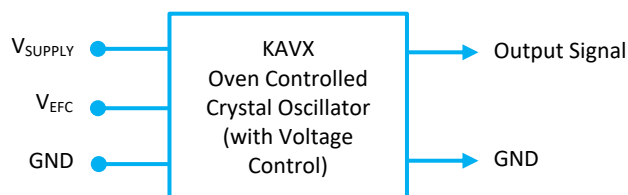
** Not all combinations of options may be possible

*** 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 st 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
Output Characteristics (CMOS/TTL)		MIN	TYP	MAX	
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
Output Characteristics (Sinusoid)		MIN	TYP	MAX	
Output Level			9.0		dBm
Spurious				-70	dBc
Harmonics				-40	dBc
Load		45	50	55	Ω

Parameter	Conditions	Values		Unit
Phase Noise		TYP	TYP	
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
		MIN	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 ² /Hz 10Hz to 2kHz		1.0		ppb/g



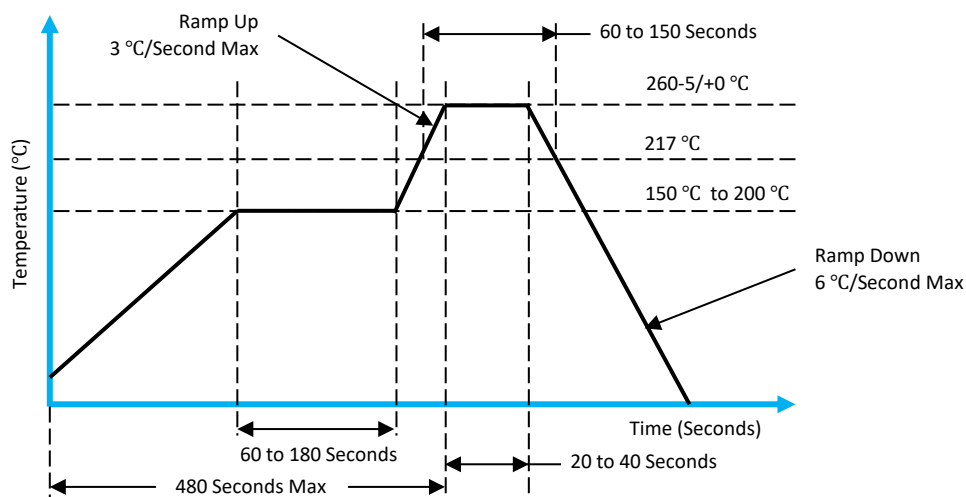
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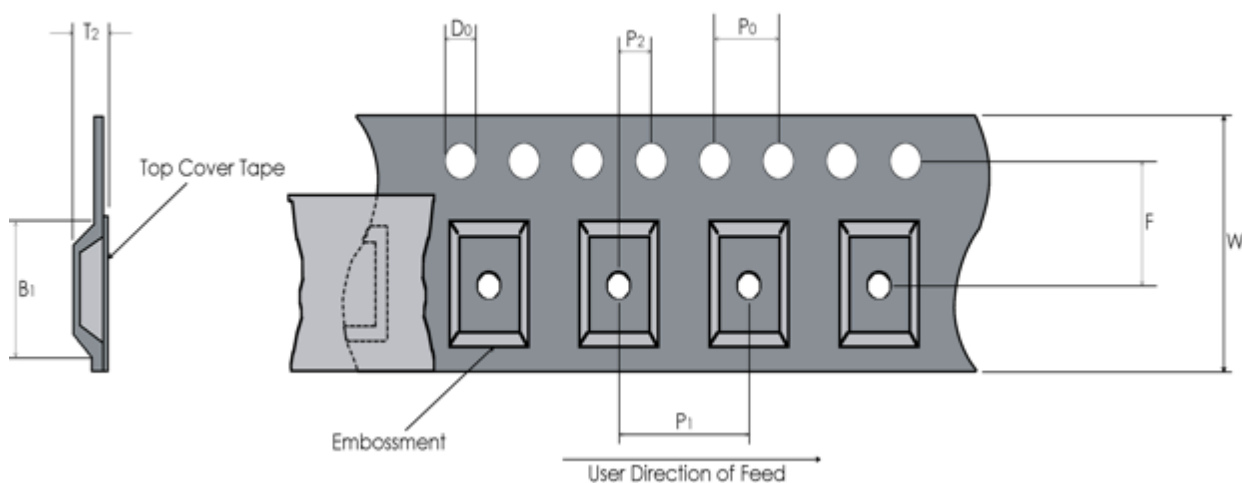
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ACCEPTABLE REFLOW PROFILE



TAPE AND REEL



Tape Dimensions (mm)								Reel Dimensions (mm)	
W	F	Do	Po	P1	P2	B1	T2	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.



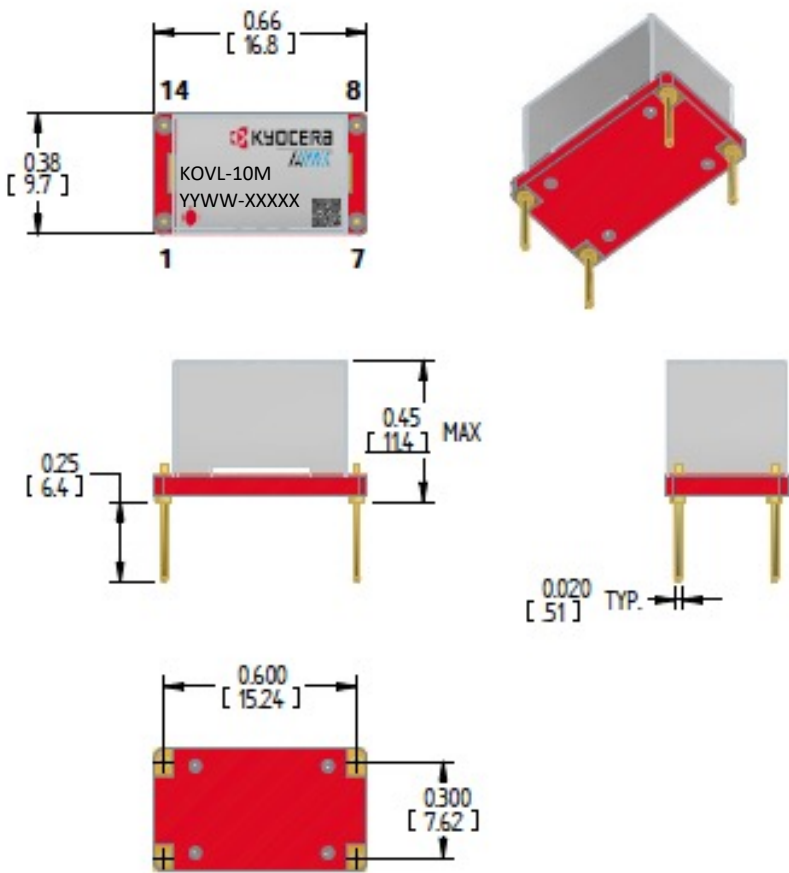
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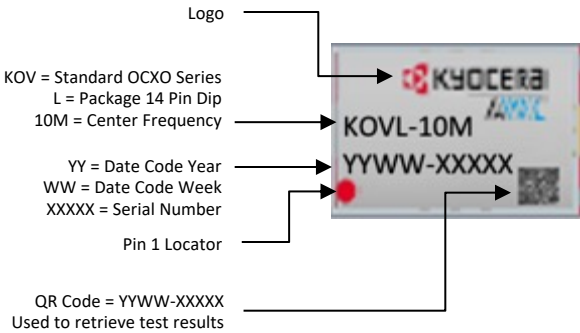
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MECHANICAL SPECIFICATIONS - THROUGH HOLE



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



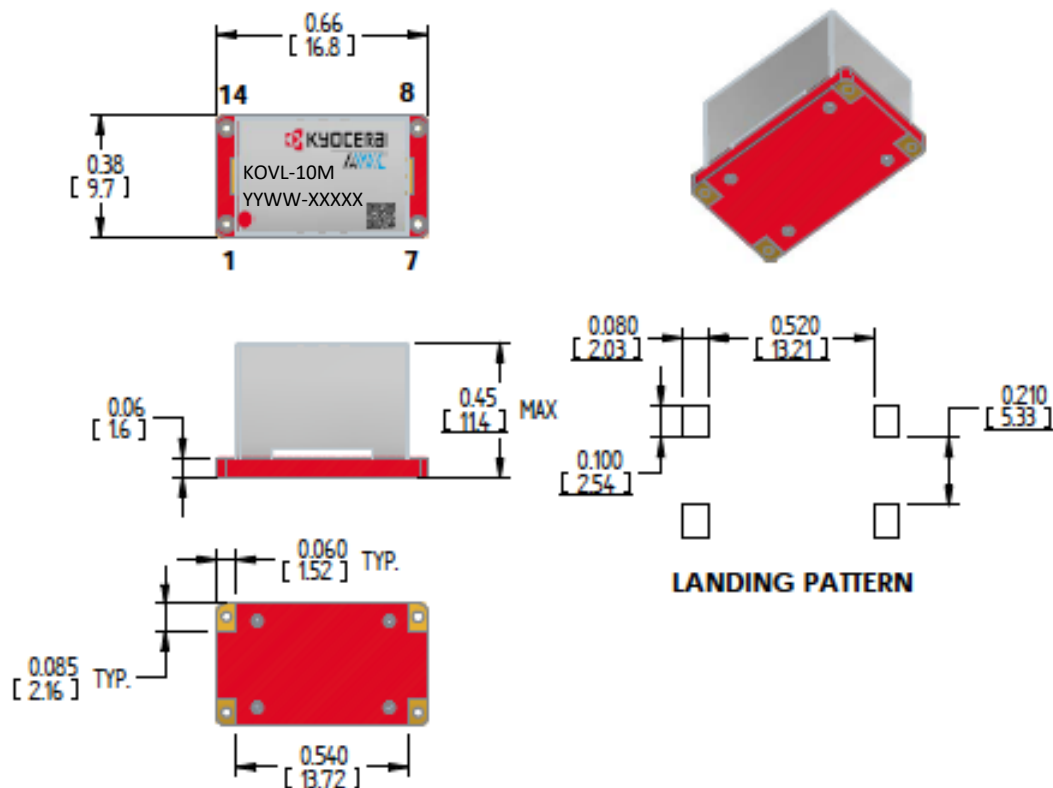
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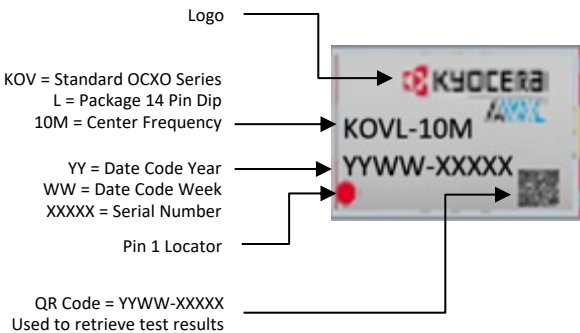
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MECHANICAL SPECIFICATIONS – SURFACE MOUNT



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



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