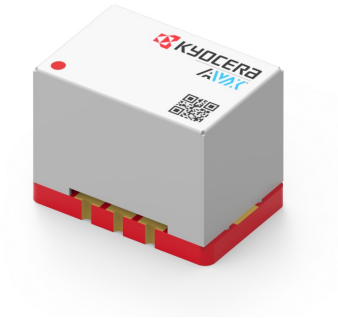
Oven Controlled Crystal Oscillator
9 x 14mm Standard OCXO – Family Data Sheet



FEATURES

- Thru Hole or Surface Mountable
- High Stability vs. Temperature
- Quick Warm-Up Time
- Low Age Rates
- Low Phase Noise
- 9 x 14mm 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

KOV T P 10 M D N C C A B

KAVX Standard OCXO Series

Mounting
T: Through Hole
S: SMT

P Package = 9mm x 14mm

Center Frequency
10M: MHz to
120M: MHz

MHz

Supply Voltage
D: 3.3V
E: 5V

EFC
N: N/A
A: ±0.5ppm
B: ±1ppm

Shipping
B: Bulk
T: Tape & Reel

Output Type
A: Sine
C: CMOS/TTL

Operating Range
A: 0 to 70ºC
B: -20 to 70ºC
C: -40 to 85ºC

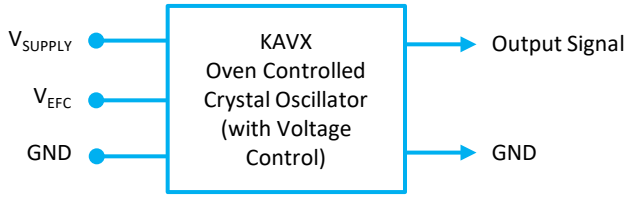
Frequency vs. Temperature
B: ±5ppb
C: ±10ppb
D: ±20ppb
E: ±50ppb
F: ±100ppb

* 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	@ +25ºC (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	After 30 Days Operation				
Per Day				±1.0	ppb
1st 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	@ +25ºC (Nominal)			3.5	W
Steady State	@ +25ºC (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

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

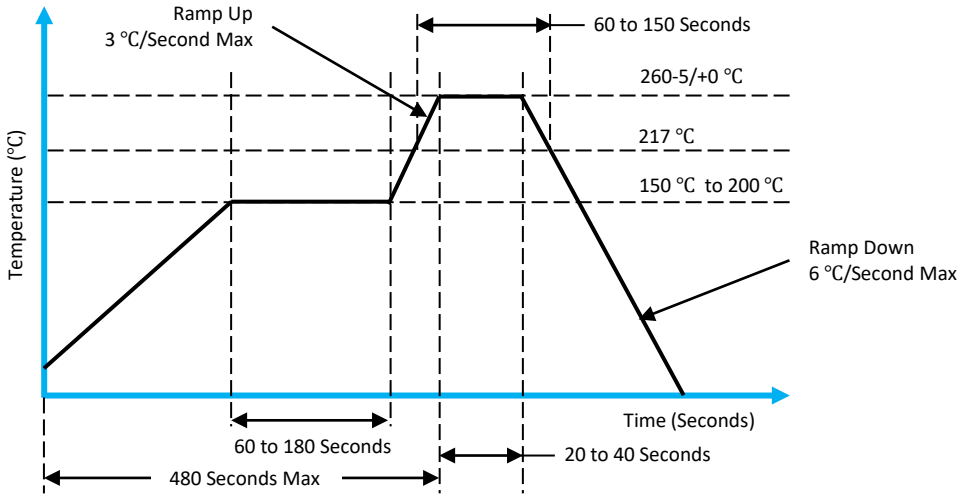
Parameter	Conditions	Values		Unit
Phase Noise		TYP	TYP	
Phase Noise (10 MHz)	Tested at +25°C (Nominal)	Sinusoid	CMOS	
	10Hz	-120	-120	dBc/Hz
	100Hz	-140	-140	dBc/Hz
	1kHz	-145	-145	dBc/Hz
	10kHz	-155	-150	dBc/Hz
	100kHz	-155	-155	dBc/Hz
Phase Noise (100 MHz)	Tested at +25°C (Nominal)	Sinusoid	CMOS	
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

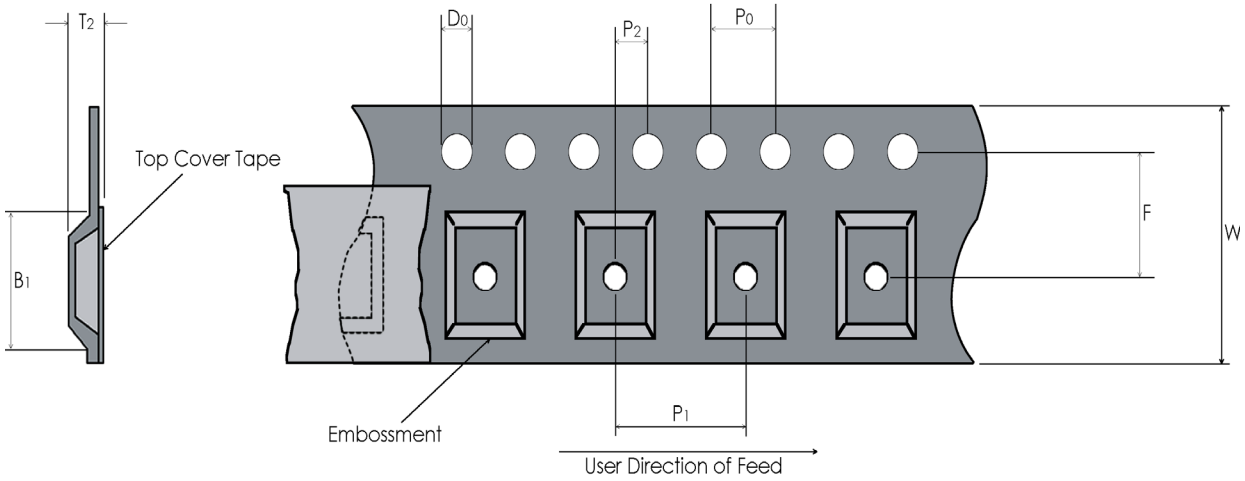
ENVIRONMENTAL COMPLIANCE

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

ACCEPTABLE REFLOW PROFILE



TAPE AND REEL



Tape Dimensions (mm)								Reel Dimensions (mm)	
W	F	Do	Po	P1	P2	B1	T2	Outside Dia.	Parts / Reel
32	14.5	1.5	4.0	20	2.0	14.4	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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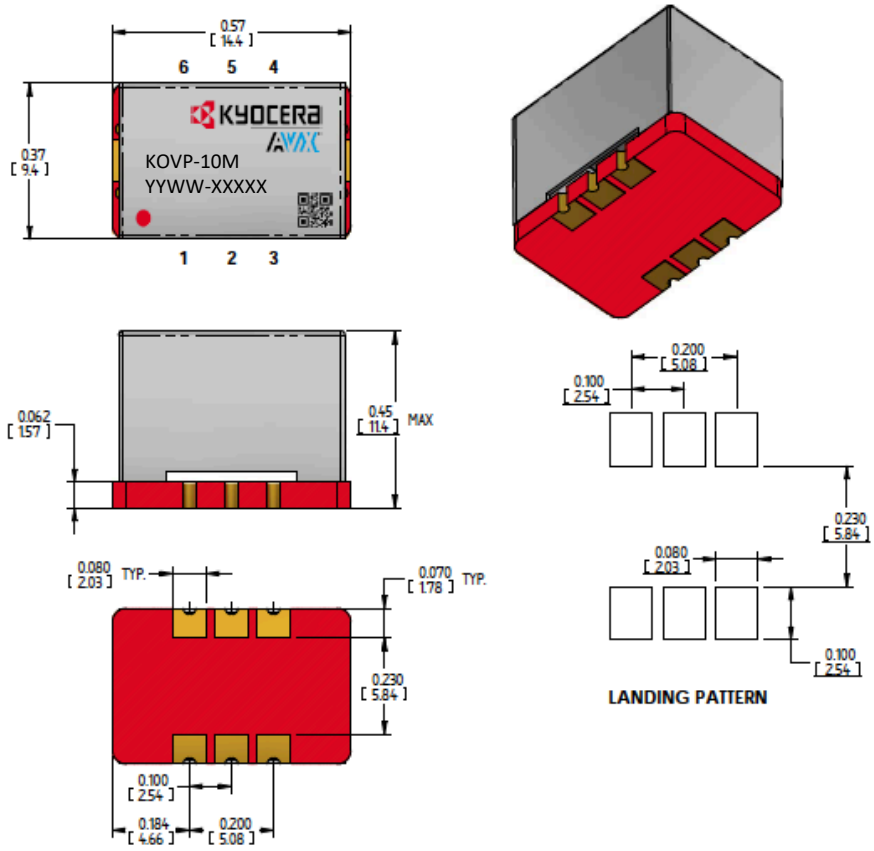
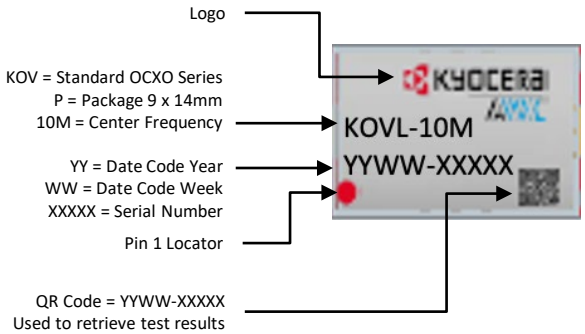
MECHANICAL SPECIFICATIONS – SURFACE MOUNT



MARKING



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

PIN	FUNCTION
1	EFC / N.C.
2, 5	N.C.
3	Ground
4	RF Output
6	Supply Voltage

Notes:
- Non-RoHS available upon request