

Oven Controlled Crystal Oscillator

25 x 25mm Standard OCXO – Family Data Sheet



FEATURES

- Stratum 3E Compliant
- Thru Hole or Surface Mountable
- High Stability vs. Temperature
- Quick Warm-Up Time
- Low Age Rates
- Low Phase Noise
- 25 x 25mm 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

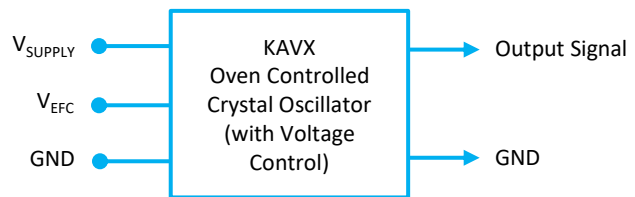


<p>KAVX Standard OCXO Series</p> <p>Mounting T: Through Hole S: SMT</p> <p>E Package = 25mm x 25mm</p> <p>Center Frequency 10M: 10MHz to 120M: 120MHz</p> <p>MHz</p> <p>Supply Voltage D: 3.3V E: 5V</p> <p>EFC N: N/A A: ±0.5ppm B: ±1ppm</p> <p>Notes: - Configuration items are in blue - Not all combinations of options may be possible - Other options may be available</p>	<p>KOV T E 10 M D N C C A B</p>	<p>Shipping B: Bulk T: Tape & Reel</p> <p>Output Type A: Sine C: CMOS/TTL</p> <p>Operating Range A: 0 to 70°C B: -20 to 70°C C: -40 to 85°C H: -40 to 75°C</p> <p>Frequency vs. Temperature B: ±5ppb C: ±10ppb D: ±20ppb E: ±50ppb F: ±100ppb</p>
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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
				±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)			2.5	W
Steady State	@ +25°C (Nominal)		0.9		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	
Output Characteristics (CMOS/TTL)					
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)					
Output Level		9.0			dBm
Spurious		-70			dBc
Harmonics		-40			dBc
Load		45	50	55	Ω

Parameter	Conditions	Values		Unit
		TYP	TYP	
Phase Noise				
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 ² /Hz 10Hz to 2kHz		1.0		ppb/g
Stratum 3E	Holdover at 25 °C	-10		+10	ppb



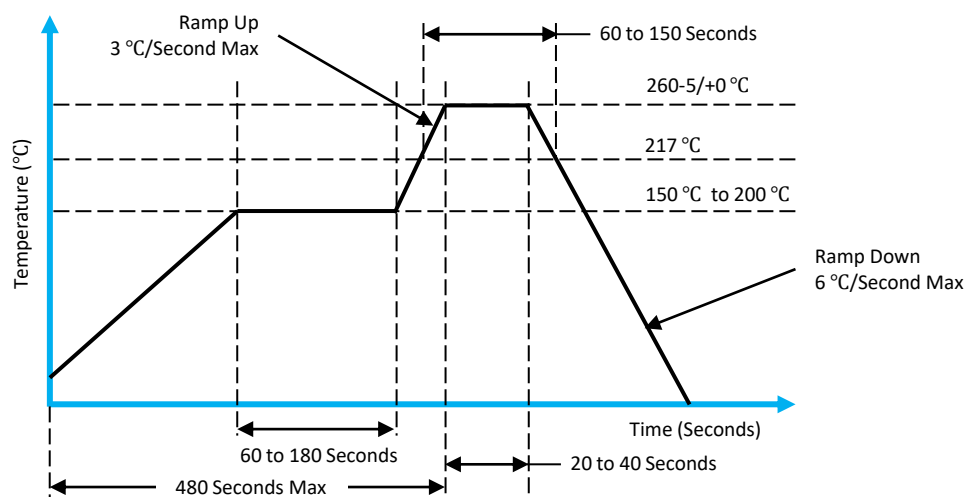
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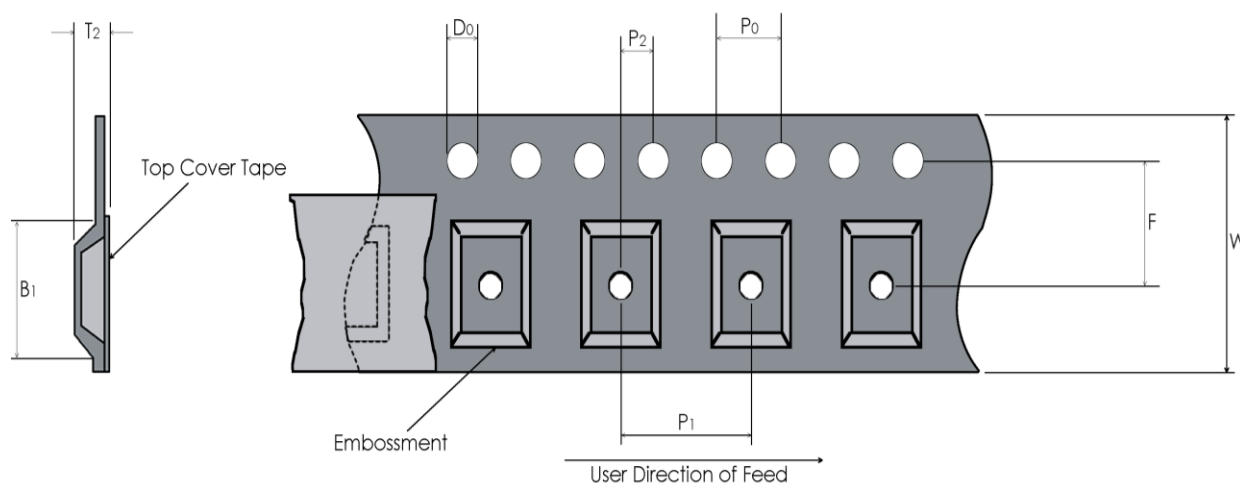
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ACCEPTABLE REFLOW PROFILE



TAPE AND REEL



Tape Dimensions (mm)								Reel Dimensions (mm)	
W	F	Do	Po	P1	P2	B1	T2	Outside Dia.	Parts / Reel
56	26.5	1.5	4.0	40	2.0	25.6	17.9	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.



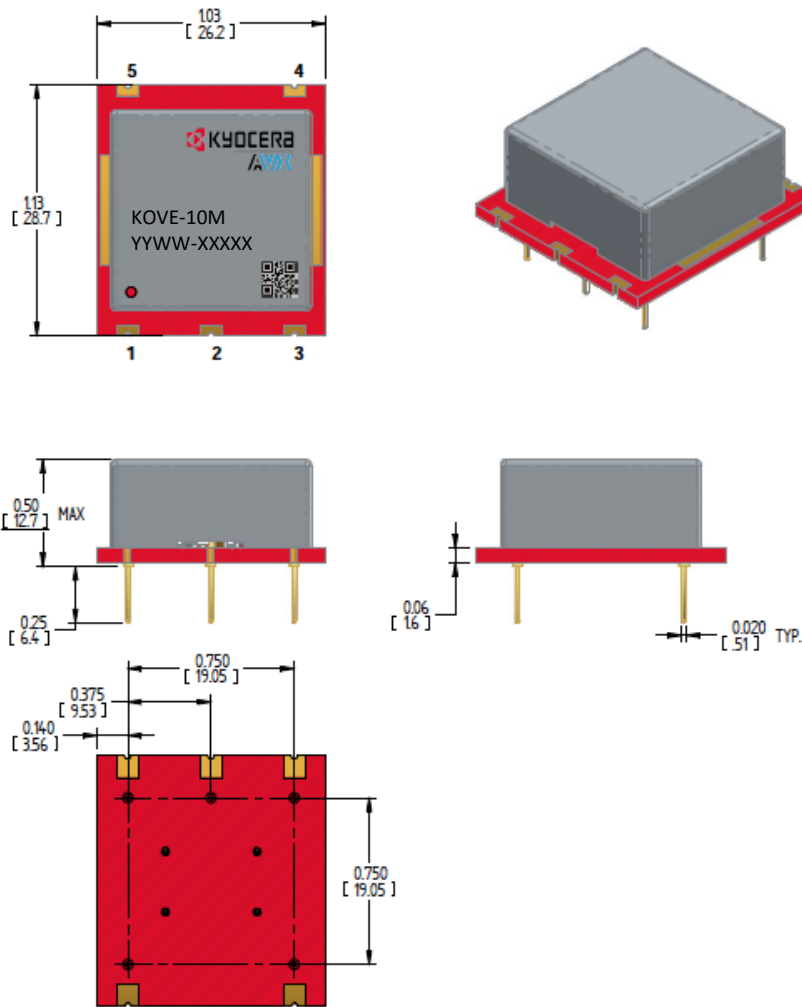
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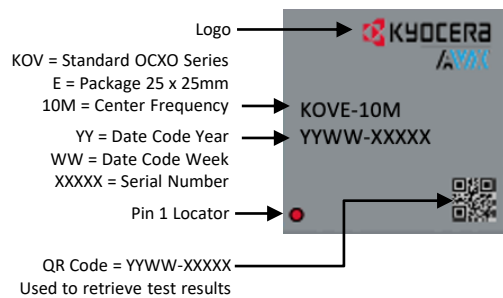
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MECHANICAL SPECIFICATIONS - THROUGH HOLE



MARKING



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

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



Notes:

- Non-RoHS available upon request



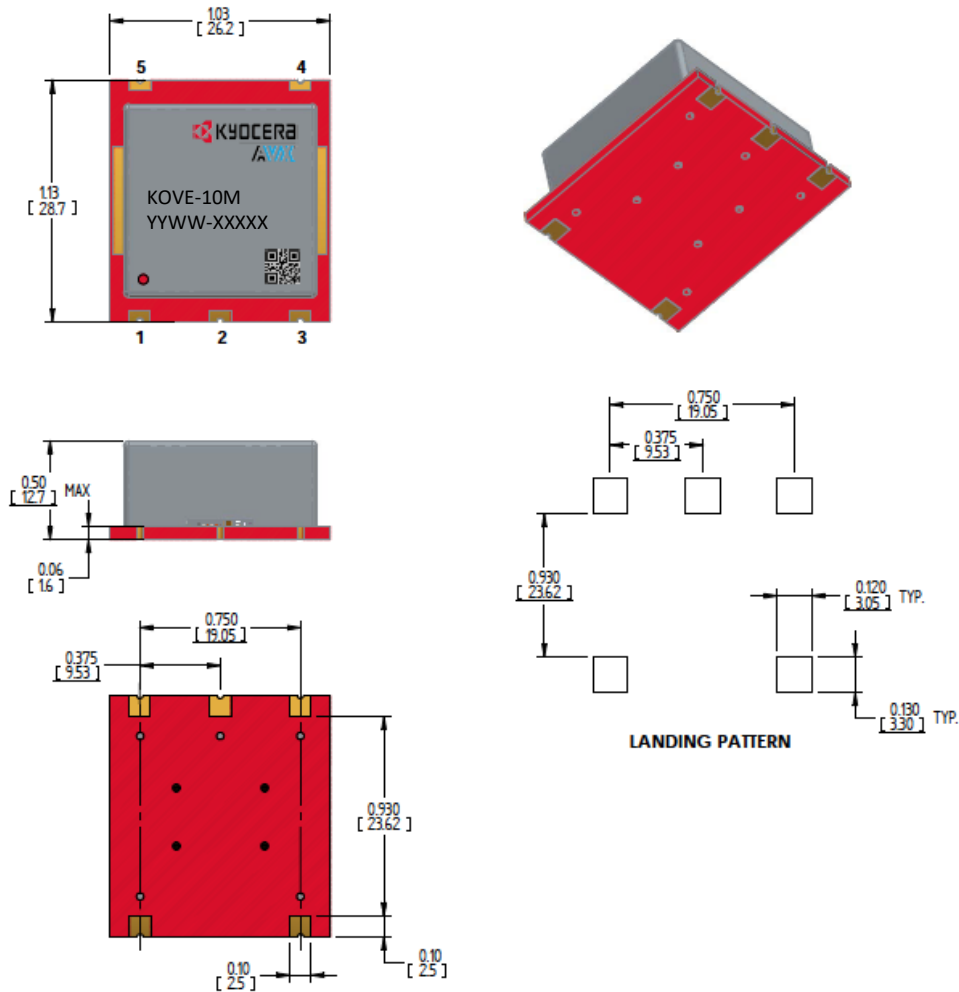
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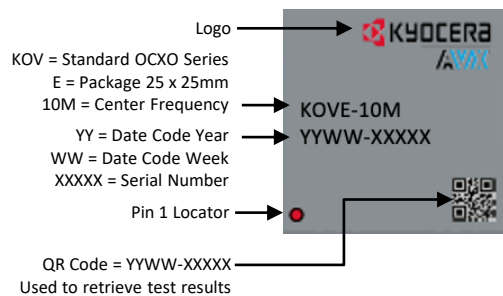
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MECHANICAL SPECIFICATIONS – SURFACE MOUNT



MARKING



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

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



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