

### OCXO SERIES 8000



#### ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range*	$f_0$		5.000		100.000	MHz
Supply Voltage	$V_s$	$V_s \pm 5\%$	3.135	3.3	3.465	V
			4.75	5.0	5.25	
			11.40	12.0	12.60	
Power Consumption	$P_s$	Steady state, @ 25°C			1.25	W
	$P_{s,w}$	During warm-up, @ 25°C			3.0	
Warm-up Time	$t_w$	$V_s, T_a = +25^\circ\text{C}$ , within $\pm 100$ ppb of final frequency with reference after 1 hour on			5	min
Frequency Calibration	$\Delta f/f_0$	$T_a = +25^\circ\text{C}$ , after 15mins power on ref. to nominal frequency	-200		+200	ppb
Frequency Stability vs. Temperature*	$\Delta f/f_0 (T_a)$	Measurement referenced to $(f_{\text{max}} + f_{\text{min}})/2$ . See Table	-5		+5	ppb
Frequency Stability vs. Supply Voltage	$\Delta f/f_0 (\Delta V_{CC})$	$T_a = 25^\circ\text{C}$ , $V_s \pm 5\%$ , load=15pF	-1		+1	ppb
Frequency Stability vs. Load Variation	$\Delta f/f_0 (\Delta I)$	$T_a = 25^\circ\text{C}$ , $V_s$ , load=15pF $\pm 5\%$	-1		+1	ppb
Aging, after 30 days of operation	$\Delta f/\Delta t_d$	Per day	-0.3		+0.3	ppb
	$\Delta f/\Delta t_y$	First year	-80		+80	ppb
	$\Delta f/\Delta t_y$	10 years	-0.4		+0.4	ppm
Operating Temperature Range*		See Table 1	-40		+85	°C
Storage Temperature	$T_{(stg)}$		-40		+105	°C
Short Term Stability		$\tau = 1s$			0.05	ppb
Control Voltage Range	$V_C$		0	1.65	3.0	V
Frequency Tuning Range		$V_C = 0V$	-4		-2	ppm
		$V_C = 1.65V$	-200		+200	ppb
		$V_C = 3.3V$	+2		+4	ppm
Linearity			-10		+10	%

\*Not any Combination Frequency-Operating Temperature Range- Stability is available. Please consult factory  
 \*\*The above Specification is an example for 10.000MHz, 5V

**OCXO SERIES 8000**

**PHASE NOISE**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
@ 1 Hz Offset	£ ( $\Delta f$ )				-90	dBc/Hz
@ 10 Hz Offset	£ ( $\Delta f$ )				-120	dBc/Hz
@ 100 Hz Offset	£ ( $\Delta f$ )				-140	dBc/Hz
@ 1 kHz Offset	£ ( $\Delta f$ )				-145	dBc/Hz
@ 10 kHz Offset	£ ( $\Delta f$ )				-150	dBc/Hz
@ 100 kHz Offset	£ ( $\Delta f$ )				-155	dBc/Hz

**CMOS OUTPUT CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	VOH/VOL	$V_{CC} = 5.0V$ , load = 15pF		4.5/0.5		V
Duty Cycle	DC	load = 15pF		45/55		%
Rise/Fall Time	$t_r/t_f$	10% ~ 90% $V_{out}$			5	ns
Load				15		pF

**SINE-WAVE OUTPUT CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels			5	7	9	dBm
Harmonics					-40	dBc
Spurious					-70	dBc
Load				50		$\Omega$

Table 1

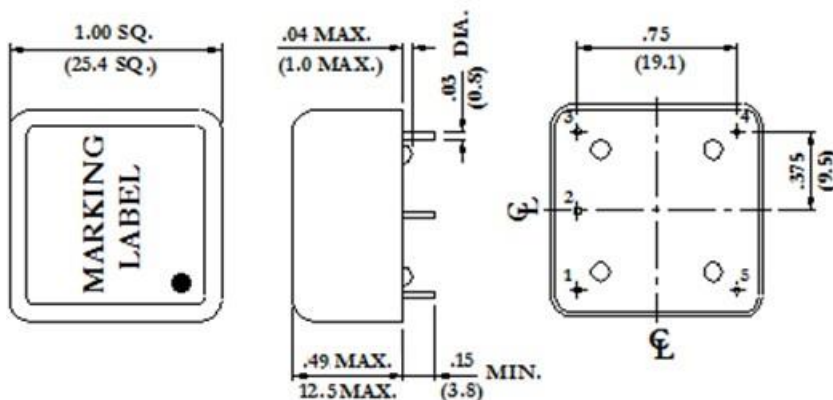
TEMPERATURE RANGE °C	FREQUENCY STABILITY (ppb)						
	5	10	20	30	50	100	200
0 ~ +60	Y	Y	Y	Y	Y	Y	Y
-10 ~ +60	Y	Y	Y	Y	Y	Y	Y
-20 ~ +70	Y	Y	Y	Y	Y	Y	Y
-30 ~ +70	Y	Y	Y	Y	Y	Y	Y
-40 ~ +75	Y	Y	Y	Y	Y	Y	Y
-40 ~ +85	Y	Y	Y	Y	Y	Y	Y
-55 ~ +85	-	-	Y	Y	Y	Y	Y

### OCXO SERIES 8000

#### ENVIRONMENTAL MECHANICAL CONDITIONS

Storage temperature range	-55°C to +105°C
Drop Test	The test shall be carried out as the provisions of the IEC60028-2-32 test Ed. 10cm height, 3 times on hard board with thickness of 3cm
Bumping Test	Device are bumped to three mutually perpendicular axes at peak acceleration of 400m/s <sup>2</sup> , each 4000±10times, 6ms pulse duration time
Vibration Test	Frequency range: 1Hz-4Hz-100Hz-200Hz Acceleration: 0.0001g <sup>2</sup> /Hz-0.01g <sup>2</sup> /Hz-0.01g <sup>2</sup> /Hz-0.001g <sup>2</sup> /Hz Grms=1.15g Sweep time: 30 minutes (perpendicular axes each sweep time)
Mechanical Shock	100g, 6mS duration, 1/2 sine wave, 3 shocks each direction along 3 mutually perpendicular planes.
Thermal shock	0.5h@-40°C, 0.5h@+85°C, Note: the changing time < 30 seconds, cycling for 100 times

#### MECHANICAL DIMENSIONS AND PIN FUNCTIONING



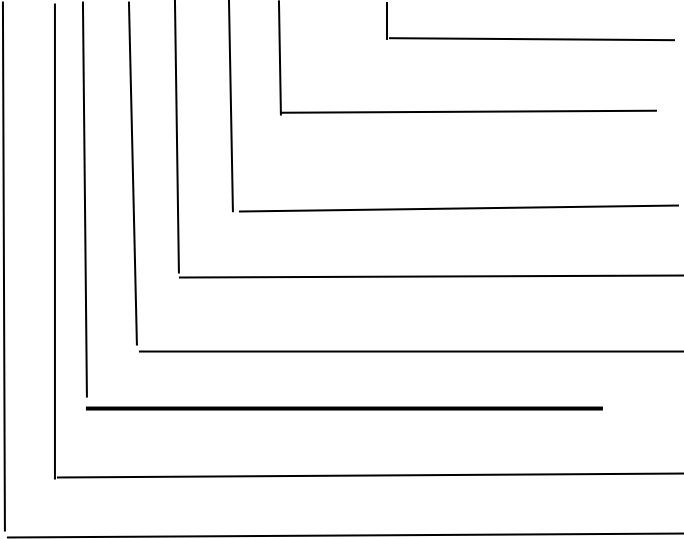
PIN	SYMBOL	FUNCTION
1	OUT	Output
2	GND	Ground
3	V <sub>C</sub> or N <sub>C</sub>	Voltage Control or Not Connected
4	V <sub>F</sub> or N <sub>C</sub>	Reference Voltage or Not Connected
5	V <sub>S</sub>	Supply Voltage

### OCXO SERIES 8000

#### ■ PART NUMBERING SYSTEM

Prefix	Output Type	Control Voltage	Series	Revision	Temperature Range	Stability	Frequency	Supply Voltage
OX	4: CMOS 6: SINE	1: No Control Voltage 5: Control Voltage	80:8000	A	First letter: Lowest Temperature, Second letter: Highest Temperature: From A=-55°C to Z=+70°C, Then: 1=+75°C, 2=+80°C, 3=+85°C... in 5°C Steps Example: HZ: -20°C to +70°C LZ: 0°C to +70°C D3: -40°C to +85°C	Value x 10E-2 in ppm  Example: 0.5= 5 ppb  1= 0.01 ppm	In MHz	3: 3.3 V 5: 5.0 V 12: 12.0 V

**OX 4 5 80 A-D3-1-20.000- 5**



Supply Voltage: 5 V

Frequency: 20 MHz

Temp Stability:  $1 \times 10E^{-2} = \pm 0.01$  ppm

Operating Temp Range: -40° C to +85°C

Revision: "A"

SERIES: 8000

Electrical Control Voltage

Output: CMOS

Prefix: OCXO

April 2021

Raltron Electronics/RAMI Technology USA, LLC, including its affiliates, employees, agents and other persons acting on its behalf (collectively Raltron/RAMI Tech), disclaim any and all liability for any errors or inaccuracies contained in this data sheet. While Raltron/RAMI Tech has made every reasonable effort to ensure the accuracy of all product information, specifications and data contained herein, Raltron/RAMI Tech does not guarantee that the information is accurate, reliable or current. The product information is provided for reference purposes only and is subject to change, correction or revision, at any time without notice. Raltron/RAMI Tech does not assume any liability arising out of an application or use of any product described herein and disclaims any warranties expressed or implied. The user of products in such applications shall assume all risks of such use and will agree to hold Raltron/RAMI Tech, harmless against all damages.