

### OCXO SERIES 7000

#### FEATURES

Compact  
High reliability  
Frequencies up to 40 MHz



#### ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range*	$f_0$		5.000		40.000	MHz
Nominal Frequencies		10, 12.8, 13, 19.2, 20, 25, 25.6, 30.72, 38.88				MHz
Supply Voltage	$V_s$	$V_s \pm 5\%$	3.135	3.3	3.465	V
Power Consumption	$P_s$	Steady state, @ 25°C		0.35	0.5	W
	$P_{s,w}$	During warm-up, @ 25°C		0.8	0.9	
Warm-up Time	$t_w$	$V_s, T_a = +25^\circ\text{C}$ , within $\pm 100\text{ppb}$ of final frequency with reference after 1 hour on			3	min
Frequency Calibration	$\Delta f/f_0$	$T_a = +25^\circ\text{C}$ , $V_c$ at center, before shipment	-500		+500	ppb
Frequency Stability vs. Temperature*	$\Delta f/f_0 (T_a)$	Over Operating temperature range	-10		+10	ppb
Frequency Stability vs. Supply Voltage	$\Delta f/f_0 (\Delta V_{CC})$	$T_a = 25^\circ\text{C}$ , $V_s \pm 5\%$	-10	$\pm 5$	+10	ppb
Aging, after 30 days of operation	$\Delta f/\Delta t_d$	Per day	-5		+5	ppb
	$\Delta f/\Delta t_y$	First year	-300		+300	ppb
Operating Temperature Range*			-40		+85	°C
Storage Temperature Range	$T_{(stg)}$		-40		+85	°C
Control Voltage Range	$V_C$		0.2	1.5	2.8	V
Frequency Tuning Range	$\Delta f/f$		$\pm 5$			ppm
Slope		Positive	-	-	-	-

\*Not any Combination Frequency-Operating Temperature Range- Stability is available. Please consult factory

**OCXO SERIES 7000**

**PHASE NOISE**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
@10 Hz Offset	$\mathcal{E} (\Delta f)$			-105	-100	dBc/Hz
@100 Hz Offset	$\mathcal{E} (\Delta f)$			-135	-130	dBc/Hz
@1 kHz Offset	$\mathcal{E} (\Delta f)$			-150	-145	dBc/Hz
@10 kHz Offset	$\mathcal{E} (\Delta f)$			-158	-155	dBc/Hz
@100 kHz Offset	$\mathcal{E} (\Delta f)$			-160	-155	dBc/Hz
@1 MHz Offset	$\mathcal{E} (\Delta f)$			-163	-160	dBc/Hz

Values for 10MHz OCXO

**CMOS OUTPUT CHARACTERISTICS**

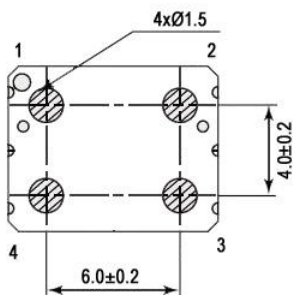
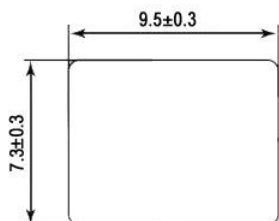
PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	VOL	$V_{CC} = 3.3V$ , load = 15pF			0.3	V
	VOH	$V_{CC} = 3.3V$ , load = 15pF	3.0			V
Duty Cycle	DC	At $(V_{OL} + V_{OH})/2$	45		55	%
Load				15		pF

**ENVIRONMENTAL MECHANICAL CONDITIONS**

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

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#### MECHANICAL DIMENSIONS AND PIN FUNCTIONING



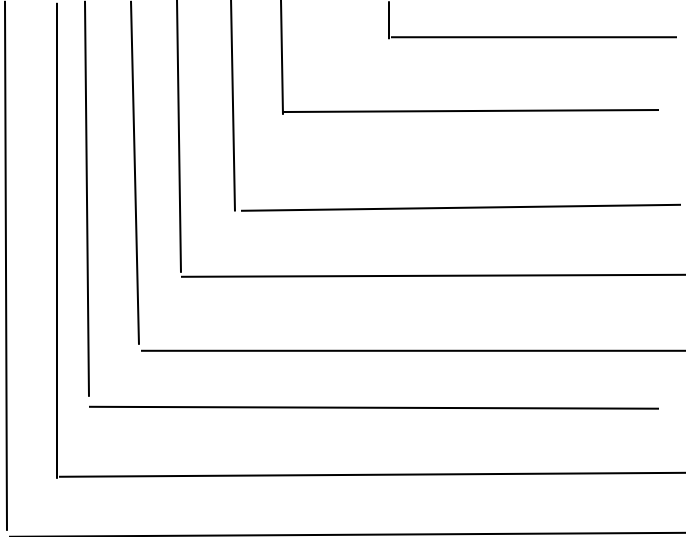
PIN	SYMBOL	FUNCTION
1	N/C or V <sub>c</sub>	No connect or Voltage Control
2	GND	Ground
3	OUTPUT	Output
4	V <sub>cc</sub>	Supply Voltage

#### ■ PART NUMBERING SYSTEM

Prefix	Output Type	Cut Type	Series	Revision	Temperature Range	Stability	Frequency	Supply Voltage
OX	4: CMOS	1: No Control Voltage 5: Control Voltage	70:7000	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= 10 ppb	In MHz	3.3 : 3.3 V

### OCXO SERIES 7000

OX 4 5 70 A-D3-2-20.000- 3.3



Supply Voltage: 3.3 V

Frequency: 20 MHz

Temp Stability:  $1 \times 10E -2 = \pm 0.02$  ppm

Operating Temp Range:  $-40^{\circ} C$  to  $85^{\circ} C$

Revision: "A"

SERIES: 7000

Electrical Control Voltage

Output: CMOS

Prefix: OCXO

September 2020