RALTRON
A RAMI TECHNOLOGY Company

Hermetically Sealed Oven Controlled Crystal Oscillator

OCXO SERIES 1500

RoHS Compliant

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range	f_o		10.000		40.000	MHz
Supply Voltage	V_s	Vs ±5%	3.135	3.3	3.465	V
Power Consumption	P_S	Steady state, @ 25°C			1.1	W
	$P_{S,w}$	During warm-up ,@ 25°C			2.5	W
Warm-up Time	tw	Vs, Ta=+25°C, within ±100ppb of final frequency with reference after 1 hour on			5	min
Frequency Calibration	$\Delta f/f_0$	V_C=1.65V, Ta=+25°C, after 15mins power on ref. to nominal frequency	-200		+200	ppb
Frequency Stability vs. Temperature	$\Delta f/f_0$ (T_a)	Ref to 25˚C, over -40 ~ +85˚C, 19.2 MHz	-5		+5	ppb
Frequency Stability vs. Supply Voltage	$\Delta f/f_0$ (ΔV_{CC})	Ta=25°C, Vs±5%	-1		+1	ppb
Frequency Stability vs. Load Variation	$\Delta f/f_0$ (Δl)	Ta=25°C, Vs, load±10%	-1		+1	ppb
Aging, after 30 days of operation	$\Delta f/\Delta t_d$	Per day	-1.0		+1.0	ppb
	$\Delta f/\Delta t_y$	First year	-100		+100	ppb
	$\Delta f/\Delta t_y$	10 years	-400		+400	ppb
Operating Temperature Range			-40		+85	°C
Storage Temperature	$T_{(stg)}$		-40		+105	°C
Short Term Stability		τ=1s, still air			0.05	ppb
Start-up Time					100	ms
Control Voltage Range	V_C		0	1.65	3.3	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	%
Input Impedance			100			kΩ
Slope		Positive	-	-	-	-

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PHASE NOISE

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
@1 Hz Offset	£ (Δf)				-80	dBc/Hz
@10 Hz Offset	£ (Δf)				-110	dBc/Hz
@100 Hz Offset	£ (Δf)				-135	dBc/Hz
@1 kHz Offset	£ (Δf)				-145	dBc/Hz
@10 kHz Offset	£ (Δf)				-150	dBc/Hz
@100 kHz Offset	£ (Δf)				-153	dBc/Hz

CMOS OUTPUT CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	VOH/VOL	V_{CC} = 3.3V, load = 15pF		2.4/0.4		V
Duty Cycle	DC	load = 15pF		45/55		%
Rise/Fall Time	t_r/t_f	10% ~ 90% Vout			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					-80	dBc
Load				50		Ω

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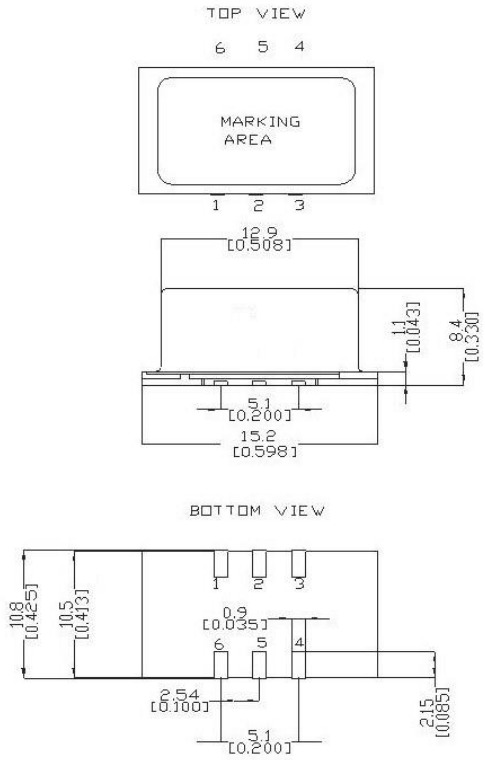
ENVIRONMENTAL MECHANICAL CONDITIONS

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/s², each 4000±10times, 6ms pulse duration time
Vibration Test	Frequency range: 1Hz-4Hz-100Hz-200Hz Acceleration: 0.0001g²/Hz-0.01g²/Hz-0.01g²/Hz-0.001g²/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℃，0.5h@+85℃，Note: the changing time < 30 seconds, cycling for 100 times

MECHANICAL DIMENSIONS AND PIN FUNCTIONS



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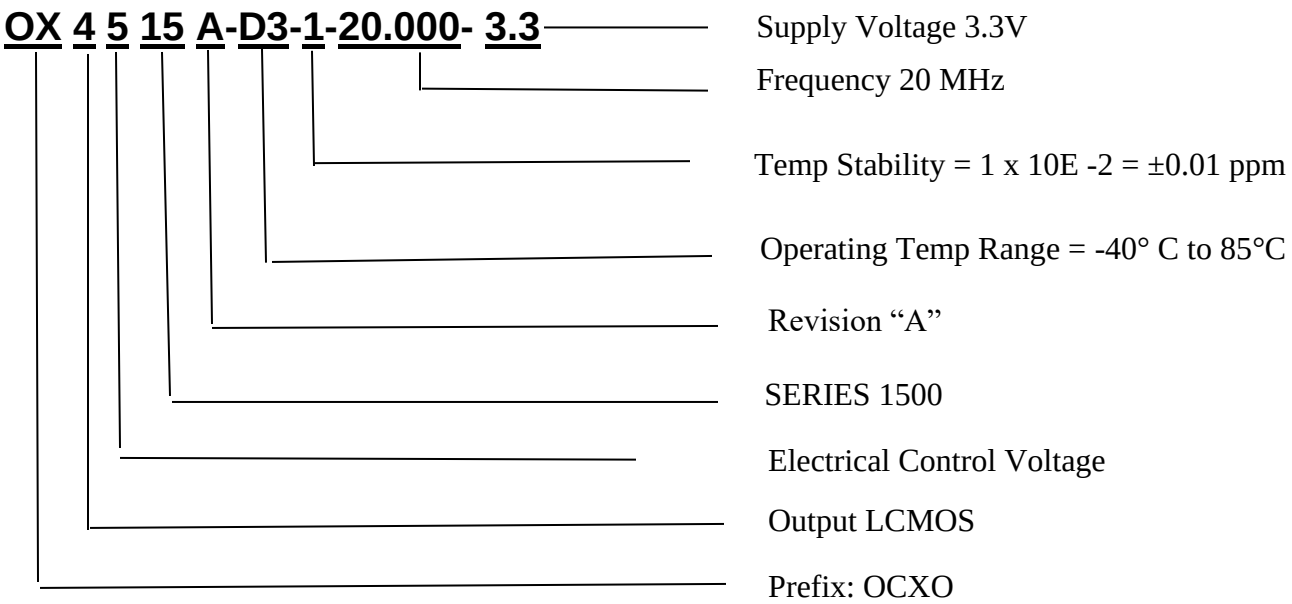
PIN	SYMBOL	FUNCTION
1	N/C or V_C	No connector or Control Voltage
2	N/C	No connect
3	GND	Case/Ground
4	OUTPUT	RF Output
5	N/C	No connect
6	Vs	Supply Voltage

PART NUMBERING SYSTEM

Prefix	Output Type	Cut Type	Series	Revision	Temperature Range	Stability	Frequency	Supply Voltage
OX	4: CMOS 6: SINE	1: No Control Voltage 5: Control Voltage	15:1500	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: 3.3V



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