A RAMI TECHNOLOGY Company

Oven Controlled Crystal Oscillator

OCXO SERIES 5100

FEATURES

High reliability
Fast warm up
Frequencies up to 100 MHz

RoHS Compliant

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Frequency Range*	f_o		5.000		100.000	MHz
Supply Voltage	V_s	Vs ±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			1.3	W
	$P_{S,w}$	During warm-up ,@ 25°C			3.0	
Warm-up Time	tw	Vs, Ta=+25°C, within ±100ppb of final frequency with reference after 1 hour on			5	min
Frequency Calibration	$\Delta f/f_0$	Ta=+25°C, after 15mins power on ref. to nominal frequency	-100		+100	ppb
Frequency Stability vs. Temperature*	$\Delta f/f_0$ (T_a)	Measurement referenced to (fmax+fmin)/2. See Table	-5		+5	ppb
Frequency Stability vs. Supply Voltage	$\Delta f/f_0$ (ΔV_{CC})	Ta=25°C, Vs±5%, load=15pF	-1		+1	ppb
Frequency Stability vs. Load Variation	$\Delta f/f_0$ (Δl)	Ta=25°C, Vs, load=15pF±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		τ=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**

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PHASE NOISE

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

CMOS OUTPUT CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	VOH/VOL	V_{CC} = 5.0V, load = 15pF		3.8/0.5		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					-70	dBc
Load				50		Ω

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

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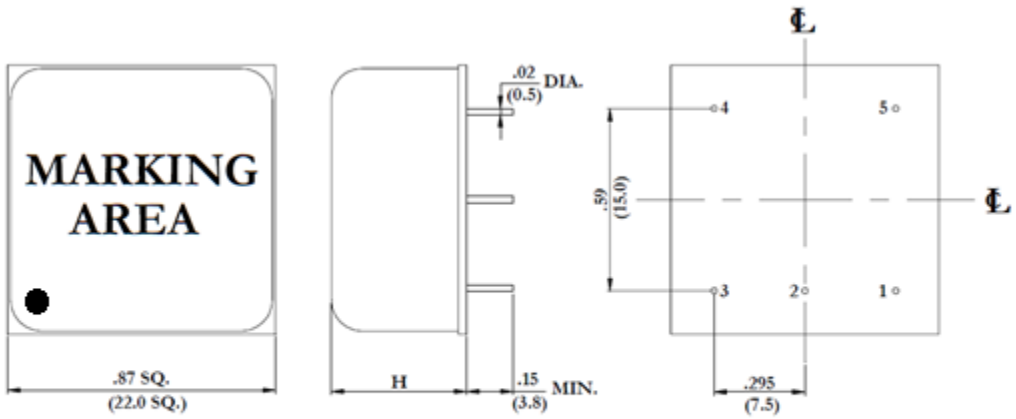
ENVIRONMENTAL MECHANICAL CONDITIONS

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/s^2, each 4000±10times, 6ms pulse duration time
Vibration Test	Frequency range: 1Hz-4Hz-100Hz-200Hz Acceleration: 0.0001g^2/Hz-0.01g^2/Hz-0.01g^2/Hz-0.001g^2/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 FUNCTIONING



HEIGHT, MAX. "H":
0.45" / 11.5mm

OUTLINE TOLERANCE:
±0.015" / 0.4mm

PIN	SYMBOL	FUNCTION
1	Vs	Supply Voltage
2	OUT	RF Output
3	GND	Ground
4	V_c or NC	Voltage Control or Not Connected
5	V_{ref} or NC	Reference Voltage or Not Connected

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	51:5100	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 51 A-D3-1-10.000- 5

- Supply Voltage: 5 V
- Frequency: 10 MHz
- Temp Stability: 1 x 10E -2 = ±0.01 ppm
- Operating Temp Range: -40° C to 85°C
- Revision: "A"
- SERIES: 5100
- Electrical Control Voltage
- Output: CMOS
- Prefix: OCXO

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