

**OX4170A-D3-2-38.880-3.3**



**ELECTRICAL SPECIFICATIONS**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Nominal Frequency	$f_0$		38.880			MHz
Supply Voltage	$V_s$	$V_s \pm 5\%$ @ 25°C	3.135	3.3	3.465	V
Input Current	$I_s$	Steady state, @ 25°C			150	mA
	$I_{s,w}$	During warm-up, @ 25°C			500	mA
Warm-up Time	$t_w$	$V_s$ , $T_a = +25^\circ\text{C}$ , within $\pm 200$ ppb of final frequency with reference after 1 hours on			3	min
Frequency Calibration	$\Delta f/f_0$	$T_a = +25^\circ\text{C}$ , after 15min power on ref. to nominal frequency and within 90 days storage.	-500		+500	ppb
Frequency Stability vs. Temperature	$\Delta f/f_0 (T_a)$	$T_a = -40^\circ\text{C} \dots +85^\circ\text{C}$ , measurement referenced to 25°C	-20		+20	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	-10		+10	ppb
Frequency Stability vs. Load Change	$\Delta f/f_0 (\Delta I)$	Load change max.: 10%	-10		+10	ppb
Frequency vs. Temperature slope		1°C/ min, 5°C step	-1		+1	ppb/°C
Aging, after 30 Days of Operation	$\Delta f/\Delta t_d$	Daily	-2		+2	ppb
	$\Delta f/\Delta t_y$	First year	-400		+400	ppb
	$\Delta f/\Delta t_y$	10 years	-2		+2	ppm
Total free run Frequency Stability	$\Delta f/\Delta t$	Including 20 Years of aging, Voltage supply variation, load variation, frequency calibration, frequency stability vs. temperature.	-4.6		+4.6	ppm
Operating Temperature Range	$T_a$		-40		+85	°C
Storage Temperature Range	$T_{(stg)}$	Absolute max	-40		+85	°C

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**LVC MOS OUTPUT CHARACTERISTICS**

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	VOL	V <sub>s</sub> = 3.3V, load = 15pF			0.3	V
	VOH	V <sub>s</sub> = 3.3V, load = 15pF	3.0			
Duty Cycle	DC	load = 15pF	45		55	%
Rise/Fall Time	t <sub>r</sub> /t <sub>f</sub>	10% ~ 90% V <sub>out</sub>		2	5	ns
Load			13.5	15	16.5	pF
Spurious					-70	dBc

**PHASE NOISE**

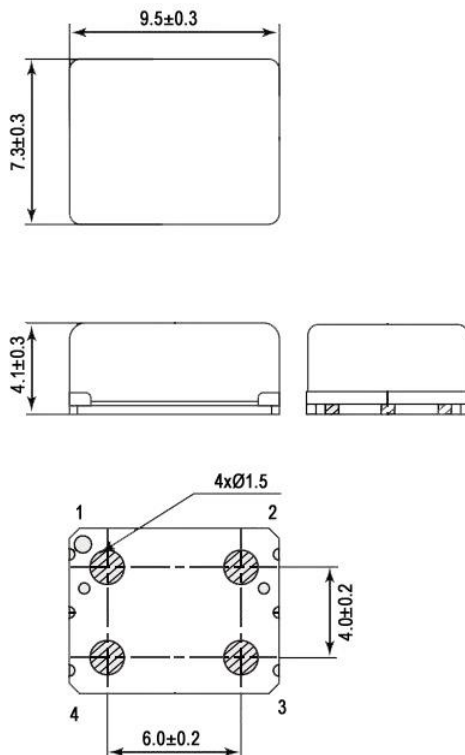
PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ. / Nom.	Max.	
@1 Hz offset	£ (Δf)			-67	-64	dBc/Hz
@10 Hz Offset	£ (Δf)			-100	-95	dBc/Hz
@100 Hz Offset	£ (Δf)			-130	-125	dBc/Hz
@1 kHz Offset	£ (Δf)			-150	-145	dBc/Hz
@10 kHz Offset	£ (Δf)			-158	-150	dBc/Hz
@100 kHz Offset	£ (Δf)			-160	-155	dBc/Hz
@1 MHz Offset	£ (Δf)			-163	-160	dBc/Hz

**ENVIRONMENTAL CHARACTERISTICS**

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

### OX4170A-D3-2-38.880-3.3

#### MECHANICAL DIMENSIONS AND PIN FUNCTIONING



PIN	SYMBOL	FUNCTION
1	N/C	No Connect
2	GND	Ground
3	OUT	RF Output
4	V <sub>s</sub>	Supply Voltage

	Signed	Date
Created	AR	June 11, 2020
Eng. approved	CP	June 11, 2020
REV A		



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