

### OXL16/ OXL18/ OXL20/ OXL28 Series



#### ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Nominal Frequency*	$f_0$		10.000 to 100.000			MHz
Supply Voltage	$V_s$	$V_s \pm 5\%$ , at +25°C	3.165	3.3	3.465	V
	$V_s$	$V_s \pm 5\%$ , at +25°C	4.75	5.0	5.25	V
Power Consumption	$P_s$	Steady state, at +25°C			0.3	W
	$P_w$	During warm-up, at +25°C			1.2	W
Initial Frequency Accuracy*	$\Delta f/f_0$	At +25°C after 15mins power on ref to nominal frequency with nominal $V_c$	-100/-200		+100/+200	ppb
Frequency Stability vs. Temp.	$\Delta f/f_0 (T_a)$	$T_a = -40^\circ\text{C} \dots +85^\circ\text{C}$ , ref to +25°C	-100		+100	ppb
Aging, After 30 Days of Operation*	$\Delta f/\Delta t_d$	Daily	-1/-2		+1/+2	ppb
	$\Delta f/\Delta t_y$	1st Year	-100/-200		+100/+200	ppb
	$\Delta f/\Delta t_{10y}$	10 years including 1st year	-300/-500		+300/+500	ppb
Frequency Tuning Range* (Slope = Positive)	$\Delta f/f_c (\Delta V_c)$	$V_c = 0$ V ref to center voltage			-0.5/-0.8	ppm
		$V_c = V_f/2$ center voltage	-0.1/-0.2		+0.1/+0.2	ppm
		$V_c = V_f$ ref to center voltage	+0.5/+0.8			ppm
Linearity					10	%
Input Impedance	$Z_{in}$	At $V_c$ input	25			k $\Omega$
Voltage Reference	$V_f$	Supply Voltage 3.3V	2.7	2.8	2.9	V
	$V_f$	Supply Voltage 5.0V	4.3	4.4	4.5	V
Frequency Stability vs. Voltage*	$\Delta f/f_0 (\Delta V_{CC})$	$T_a = +25^\circ\text{C}$ , $V_s \pm 5\%$	-2/-10		+2/+10	ppb
Frequency Stability vs. Load*	$\Delta f/f_0 (\Delta RL)$	$T_a = +25^\circ\text{C}$ , load $\pm 5\%$	-5/-50		+5/+50	ppb
G-Sensitivity		Per axis	-1		+1	ppb/g
Warm-up Time		< $\pm 100$ ppb, ref to 1 hour +25°C			1	min
Operating Temperature Range	$T_a$		-40		+85	°C

\*The above specifications, the first value is for 10MHz and the second is for 100MHz. For other frequencies, please contact the factory.

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#### SINE WAVE OUTPUT CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Sine Wave Output Level	V <sub>O</sub>	Supply Voltage 3.3V / 5.0V	+5 / +7			dBm
Load				50		Ω
Harmonics					-30	dBc
Spurious					-80	dBc

#### CMOS OUTPUT CHARACTERISTICS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Output Levels	V <sub>OL</sub>				+0.4	V
	V <sub>OH</sub>		+2.4			V
Duty Cycle	DC	Load = 15pF	45	50	55	%
Load				15		pF
Spurious					-70	dBc

#### PHASE NOISE

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
@10 Hz Offset	£ (Δ f)	10MHz		-125	-120	dBc/Hz
@100 Hz Offset	£ (Δ f)	10MHz		-145	-140	dBc/Hz
@1 kHz Offset	£ (Δ f)	10MHz		-155	-153	dBc/Hz
@10 kHz Offset	£ (Δ f)	10MHz		-160	-158	dBc/Hz
@100 kHz Offset	£ (Δ f)	10MHz		-165	-160	dBc/Hz
@1 MHz Offset	£ (Δ f)	10MHz		-165	-160	dBc/Hz

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ. OXL20/28//16/18	Max. OXL20/28//16/18	
@10 Hz Offset	£ (Δ f)	100MHz		-95	-90	dBc/Hz
@100 Hz Offset	£ (Δ f)	100MHz		-125	-120	dBc/Hz
@1 kHz Offset	£ (Δ f)	100MHz		-155	-150	dBc/Hz
@10 kHz Offset	£ (Δ f)	100MHz		-168// -165	-163// -160	dBc/Hz
@100 kHz Offset	£ (Δ f)	100MHz		-170// -165	-165// -160	dBc/Hz
@1 MHz Offset	£ (Δ f)	100MHz		-170// -165	-165// -160	dBc/Hz

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#### MECHANICAL DIMENSIONS AND PIN FUNCTIONS

**Series OXL16**

TOP VIEW

SIDE VIEW

BOTTOM VIEW

**Series OXL18**

TOP VIEW

SIDE VIEW

BOTTOM VIEW

Unit: mm

PIN	SYMBOL	FUNCTION
1	Vc	Voltage Control
2	Vf	Reference Voltage
4	GND	Ground
5	OUT	RF Output
8	Vs	Supply Voltage

**Series OXL20**

TOP VIEW

SIDE VIEW

BOTTOM VIEW

**Series OXL28**

TOP VIEW

SIDE VIEW

BOTTOM VIEW

Unit: mm

PIN	SYMBOL	FUNCTION
1	Vc	Voltage Control
2	Vf	Reference Voltage
7	GND	Ground
8	OUT	RF Output
14	Vs	Supply Voltage

### OXL16/ OXL18/ OXL20/ OXL28 Series

#### ■ PART NUMBERING SYSTEM

Prefix	Output Type	Control Voltage	Series	Internal Code	Revision	Temperature Range	Stability	Frequency*	Supply Voltage
OXL	4: CMOS 6: SINE	1: No Control Voltage 5: Control Voltage	16: TH 16x16mm 18: SMD 16x16mm 20: TH 20x15mm 28: SMD 20x15mm	M	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: D3: -40°C to +85°C	Value x 10E-2 in ppm  Example: 10= 100 ppb	10 MHz 100 MHz  Other frequencies available	3.3: 3.3 V 5: 5.0 V

Example: **OXL6120MA-D3-10-10.000-3.3**

OCXO Low Power, Sinewave, 20x15mm TH, -40 to 85°C, 100ppb, 10.000 MHz, 3.3V

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