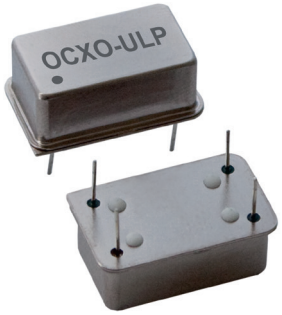
MICRO CRYSTAL SWITZERLAND

OCXO-ULP HCMOS Output

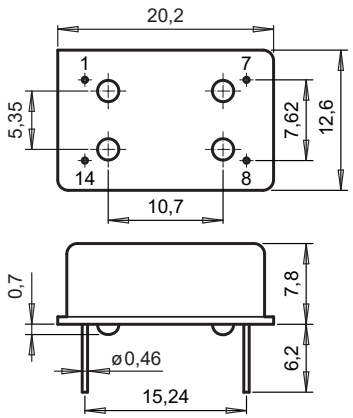
Ultra Low Power Fast Warm-up OCXO – 16.384 MHz



RoHS COMPLIANT

DIMENSIONS

Package:



Pin Out:

pin 1 V_C
pin 7 GND
pin 8 F_{OUT}
pin 14 V_{DD}

Case is connected to GND (pin 7)

All dimensions in mm typical

APPLICATIONS

Ocean Bottom Nodes
Battery Operated Devices
GNSS based Synchronization Systems
Portable Radio Communication
Inertial Navigation

DESCRIPTION

The OCXO-ULP is an Oven Controlled Quartz Crystal Oscillator with HCMOS Output that incorporates a custom circuit and an XTAL operating under vacuum, in a hermetically sealed DIL-14 metal package.

FEATURES

High stability and low aging.
Ultra fast warm-up.
Ultra low power consumption.
Operates in fundamental mode.
High shock and vibration resistant.
RoHS-compliant.

ELECTRICAL CHARACTERISTICS AT 25°C

Frequency versus temperature -10 to +50°C (without air flow)	ΔF/F	≤ ±20	ppb
Frequency long term aging	ΔF/F	16.384 MHz	
aging per day (typ.) 1)		≤ ±0.8	ppb
long term aging 1st year (typ.) 1)		≤ ±0.3	ppm
Frequency control range by V_C (min./max.) see table 2	ΔF/F	≥ ±0.3 / < 1.5	ppm
Supply voltage ±0.15 V	V_{DD}	3.3	V
Power consumption	P	see table 1	mW
Output signal		HCMOS compatible	
F_{OUT} duty cycle @ $V_{DD}/2$ (min./max.)	δ_{FOUT}	40 / 60	%
Rise & fall time (load = 15 pF)	t_r / t_f	≤ 7	ns
Output level V_{OL} / V_{OH}		< 0.4 / > V_{DD} -0.5	V
Start-up time	t_{START}	< 5	ms
Capacitive load min. / max.	C_L	10 / 39	pF
Frequency stability versus load change of ±10%	ΔF/F	≤ ±0.01	ppm
Warm-up time within ±0.1 ppm at +25°C	V_{DD}	3.3	V
	t	≤ 30	s
Stability versus V_{DD}	ΔF/F/ mV	< ±0.2	ppb/ mV

1) After 30 days operating

ELECTRICAL CHARACTERISTICS AT 25°C (continuation)

Phase noise typical at 16.384 MHz:				
Static conditions, BW = 1 Hz	10 Hz	L	-110	dBc/ Hz
	100 Hz		-130	
	1 kHz		-145	
	10 kHz		-150	
	100 kHz		-150	

TABLE 1: Power consumption

Temperature	Input power V_{DD} = 3.3 V
Steady state at +25°C	≤ 90 mW
Steady state at +7°C	≤ 115 mW
Start-up current at +25°C / duration	≤ 350 mA / 30 s

TABLE 2: Input pin 1 V_C

Frequency adjustment control	V_{DD} = 3.3 V
Control voltage range V_C (input impedance Z_{VC} > 47 kΩ)	0.6 to 2.7 V

ENVIRONMENTAL CHARACTERISTICS

	Conditions
Storage temperature range	–55 to +125°C
Shock resistance (survival)	5000 g, 0.3 ms, ½ sine
Vibration resistance (survival)	20 g / 10 – 2000 Hz
g-sensitivity	< 1 ppb / g (Y axis)

TERMINATIONS AND PROCESSING, OPTION 1

Pins soldering	+235°C / 10 s max. +260°C / 5 s max.
Package	Metal DIL-14 / 4 pins
Terminations (Option 1) (see Application Manual)	SMD, formed leads (D2)
	THD, Standard (Blank)

ORDERING INFORMATION

OCXO – ULP 16.384 MHz D2 XXX

Ultra Low Power
(V_{DD} = 3.3 V)
(HCMOS Output)
(-10 to +50°C)
(V_C = 0.6 to 2.7 V)

Frequency

Option 1
D2 = SMD (formed leads)
Blank = THD (Standard)

Customer specification N°

All specifications subject to change without notice.

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