LFXOTF OSCILLATOR

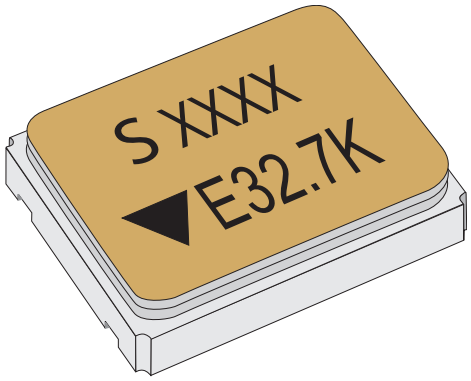
32.768 kHz

Low Current Consumption

Miniature Surface Mount Crystal Oscillator

DESCRIPTION

Statek's 32.768 kHz LFXOTF oscillator is designed for applications requiring low current consumption (as low as 600 nA). It consist of a Statek miniature tuning fork quartz crystal and a CMOS compatible IC in a ceramic package. The ceramic packaged crystal used in the LFXOTF oscillator is pre-qualified before assembly through electrical tests and characterization over temperature



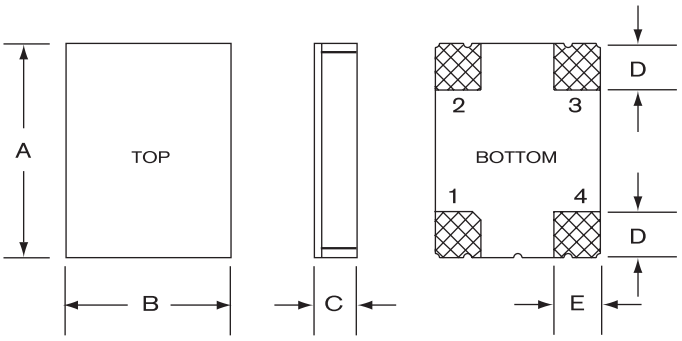
FEATURES

- Ultra-low power
- Low aging (double hermetic seal)
- CMOS output
- Optional output enable/disable with tri-state
- Low EMI emission
- Full military testing available
- High temperature option

APPLICATIONS

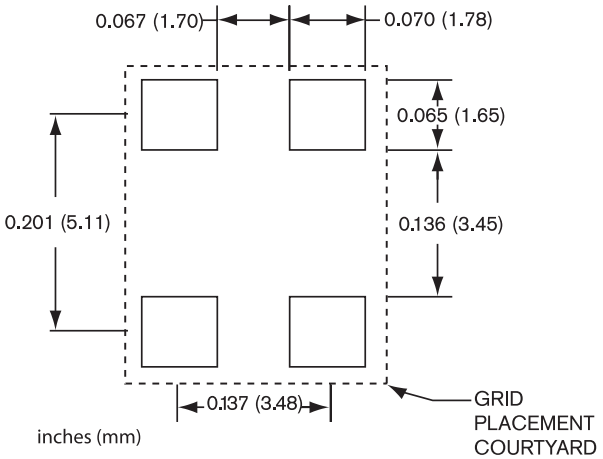
- Medical
- Military & Aerospace
- Industrial controls
- Instrumentation

DIMENSIONS



	TYPICAL		MAXIMUM	
DIM	inches	mm	inches	mm
A	0.256	6.50	0.263	6.68
B	0.197	5.00	0.204	5.18
C (SM1)	0.063	1.60	0.065	1.65
C (SM3/SM5)	0.067	1.70	0.073	1.85
D	0.055	1.40	0.065	1.65
E	0.060	1.52	0.070	1.78

SUGGESTED LAND PATTERN



PIN CONNECTIONS

1. Not connected (N) or Enable/Disable (T)
2. Ground
3. Output
4. V_{DD}

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**

SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted.
Specifications are subject to change without notice.

Supply Voltage[1]	1.8 V to 5 V (V_{DD})
Current Consumption	See Table 1
Calibration Tolerance[2]	±10 ppm ±30 ppm ±100 ppm
Frequency Stability[3]	Follows that of a 32.768 kHz tuning fork crystal
Aging	±1 ppm/year TYP ±3 ppm/year MAX
Shock	5,000 g, 0.3 ms, 1/2 sine
Vibration	20 g, 10 - 2000 Hz swept sine
Operating Temperature Ranges	-10°C to +70°C (Commercial) -40°C to +85°C (Industrial) -55°C to +125°C (Military) +25°C to +150°C (High Temperature)

1. Available voltages: 1.8 V, 2.5 V, 3.0 V, 3.3 V, and 5.0 V at ±10% tolerance.
2. Other tolerances available.
3. Frequency stability over the temperature range based on the formula: $-0.035\ ppm/°C^2 x (T - 25°C)^2$

ELECTRICAL CHARACTERISTICS

All parameters are measured at ambient temperature with a 10 MΩ and 15 pF load with V_{DD} 1.6 V to 5.5 V.

PARAMETER	MIN	TYP	MAX	UNIT
Output Voltage High	V_{DD} - 0.4 V	V_{DD}		V
Output Voltage Low		0	0.4	V
Rise Time (10%-90%)			100	ns
Fall Time (10%-90%)			100	ns
Duty Cycle	45	50	55	%

ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	0.5 V to 7 V
Storage Temperature	-55° C to +125° C
Process Temperature	260° C for 20 s

TYPICAL CURRENT CONSUMPTION - TABLE 1

V_{DD} (V)	I_{DD} (µA) No load	I_{DD} (µA) 15 pF load
1.8	0.6	1.5
2.5	0.8	2.0
3.0	0.9	2.5
3.3	1.0	2.8
5.0	1.7	4.5

The current consumption I_{DD} under a capacitive load C_L is higher than the current I_0 under no load by $I_{DD} = I_0 + f\,C_L\,V_{DD}$, where $f = 32.768$ kHz.

ENABLE/DISABLE OPTIONS (T/N)

For the 32.768 kHz LFXOTF, Statek offers two enable/disable options: T and N. The T-version has a tri-state output and continues to run internally when the output is put into the high Z state. So, the T-version offers very fast output recovery when the oscillator is re-enabled. The N-version does not have PIN 1 connected internally and so has no enable/disable capability.

HOW TO ORDER 32.768 kHz LFXOTF OSCILLATORS/ULTRA LOW POWER

LFXOTF **4** **S** **N** **SM5** – **32.768K** , **30** / **I**

- **4**: 1 = 1.8V; 2 = 2.5V; 3 = 3.0V; 4 = 3.3V; 5 = 5.0V
- **S**: Blank = Standard; S = Special
- **N**: Enable/Disable Option T or N
- **SM5**: Termination — Blank = SM1 = Gold Plated (Pb Free); SM3 = Solder Dipped; SM5 = Solder Dipped (Pb Free)
- **32.768K**: Frequency K = kHz
- **30**: Calibration Tolerance @ 25°C (in ppm)
- **I**: Operating Temperature Range — C = -10°C to +70°C; I = -40°C to +85°C; M = -55°C to +125°C; S = Customer Specified

STATEK CORPORATION 512 N. MAIN ST., ORANGE, CA 92868 714-639-7810 FAX: 714-997-1256 **www.statek.com**