



# LSC OSCILLATOR

32.768 kHz

Low Power Surface Mount Crystal Oscillator

## DESCRIPTION

Statek's LSC oscillator has the highest accuracy, stability and lowest current of all STATEK surface mount oscillators. The design consists of a STATEK crystal and a CMOS-compatible integrated circuit. Permanent precision tuning of the oscillator is accomplished by laser trimming the crystal.

## FEATURES

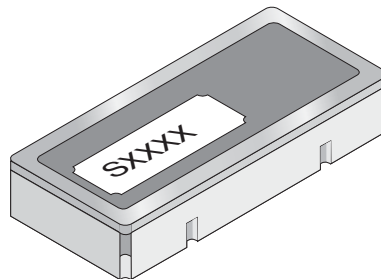
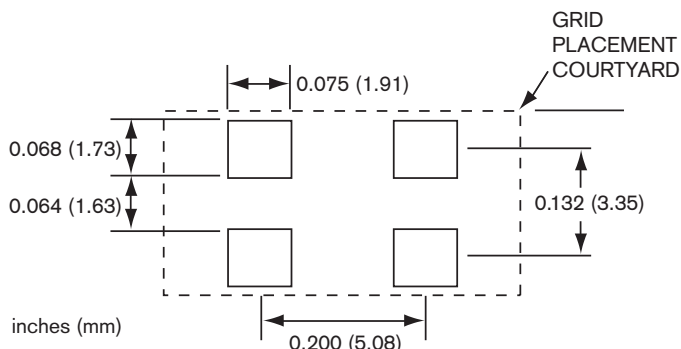
- Low power consumption
- Low aging
- CMOS compatible
- 5V operation standard
- 3.3V operation also available
- Optional Tri-State

## APPLICATIONS

Industrial, Computer & Communications

- General purpose clock oscillator
- Data logger
- Remote sensor
- Real time clock
- Medical test and diagnostics
- Portable field communication

## SUGGESTED LAND PATTERN



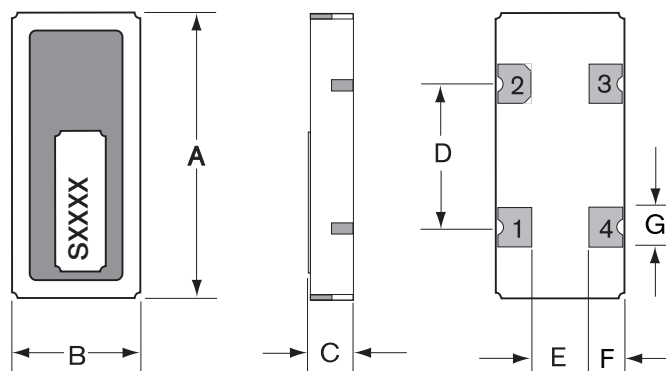
actual size



side view



## PACKAGE DIMENSIONS



DIM	TYPICAL		MAXIMUM	
	inches	mm	inches	mm
A	0.400	10.16	0.405	10.29
B	0.180	4.57	0.185	4.70
C*	0.065	1.65	0.070	1.77
D	0.200	5.08	0.205	5.21
E	0.080	2.03	0.085	2.16
F	0.050	1.27	0.058	1.47
G	0.055	1.40	0.063	1.60

Termination material is Au over Ni (SM1), solder dip (SM3) also available.

\*SM1 Termination; SM3 = 0.075 in. (1.91mm) Max.



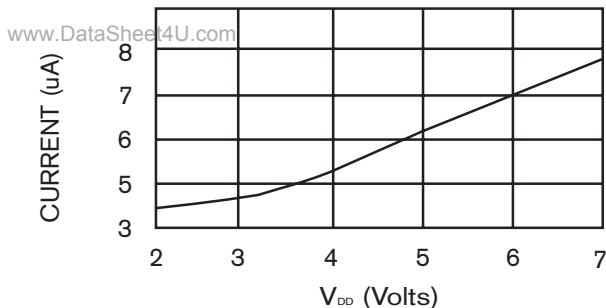
**SPECIFICATIONS: LSC 32.768 kHz**

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

Supply Voltage <sup>1</sup>	5V ± 10% (3.3V available)
Calibration Tolerance	± 100 ppm (0.01%)
Frequency Stability <sup>2</sup>	
0°C to +50°C	± 25 ppm Typ. (0.0025%) ± 40 ppm MAX. (0.004%)
-10°C to +70°C	± 70 ppm Typ. (0.007%) ± 100 ppm MAX. (0.01%)
Voltage Coefficient	± 1 ppm/V Typ. ± 3 ppm/V MAX.
Aging	± 1 ppm/year Typ. ± 3 ppm/year MAX.
Shock, survival	1000 g peak, 1 ms, 1/2 sine ± 3 ppm MAX.
Vibration, survival	10 g RMS, 10-2000 Hz ± 3 ppm MAX.
Frequency Change vs 10% Output Load Change	± 1 ppm MAX.
Operating Temperature	-10°C to +70°C (Commercial)

- Contact the factory for lower voltage.
- Does not include calibration tolerance. Positive variations small compared to negative variations (See data sheet 10103).

**TYPICAL CURRENT CONSUMPTION, LSC 32.768 kHz**



**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage V <sub>DD</sub>	-0.3V to 7V
Storage Temperature	-55°C to +125°C
Process Temperature	260°C 20 sec.

**ELECTRICAL CHARACTERISTICS**

**LSC 32.768 kHz**

All parameters are measured at ambient temperature with a 10MΩ and 10pF load at 5V.

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V <sub>OH</sub>	Output Voltage Hi	4.8	4.95		V
V <sub>OL</sub>	Output Voltage Lo		0.05	0.2	V
t <sub>r</sub>	Rise Time (10%-90%)		27	50	nsec.
t <sub>f</sub>	Fall Time (10%-90%)		29	50	nsec.
SYM	Duty Cycle	40	50	60	%
Supply Current					
I <sub>DD</sub>	V <sub>DD</sub> =5V		6.5	12	µA
	V <sub>DD</sub> =3.3V		5	10	µA

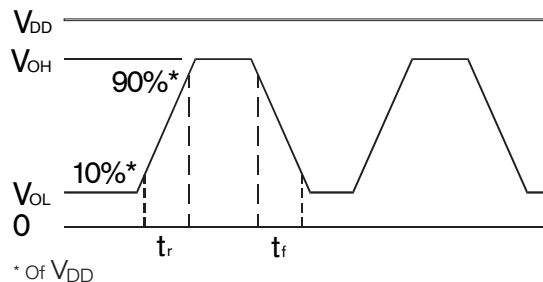
**PIN CONNECTIONS**

Pin	Connection
1	Output Enable or NC
2	Ground
3	Output
4	V <sub>DD</sub>

**PACKAGING OPTIONS**

LSC -Tray Pack  
 -16mm tape, 7" or 13" reels  
 (Reference tape and reel data sheet 10109)

**OUTPUT WAVE FORM**



**HOW TO ORDER LSC SURFACE MOUNT CRYSTAL OSCILLATORS**

LSC    3    S    T    SM3    -    32.768K    ,    100    /    C

3=3.3V operation. Blank=5V operation (Std.)	"S" if special or custom design. Blank if Std.	T = Tri-State Blank = Pin 1 no connection	Blank = SM1 = Gold Plated (Lead Free) SM3 = Solder Dipped SM5 = Solder Dipped (Lead Free)	Frequency K = kHz	Calibration Tolerance @ 25°C (in PPM)	Temp. Range: C = -10°C to +70°C
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