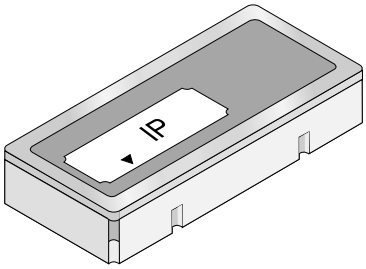
LSC OSCILLATOR

32.768 KHZ

Low Power Surface Mount Crystal Oscillator

DESCRIPTION

The 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.



actual size

side view

FEATURES

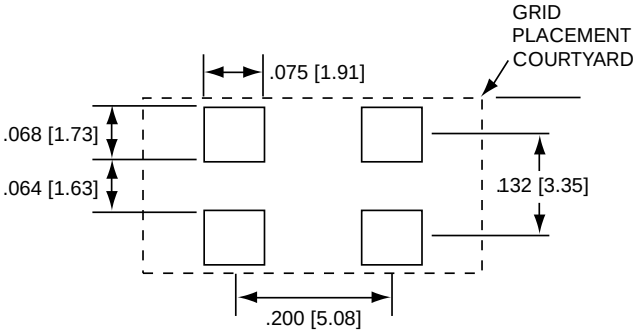
- Low power consumption
- Low aging
- CMOS compatible
- 3.3 Volt operation available
- Optional Tri-State

APPLICATIONS

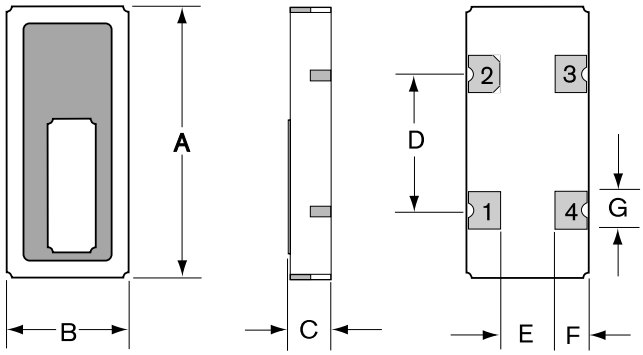
Industrial, Computer & Communications

- General purpose clock oscillator
- Data Logger
- Remote sensor
- Real Time Clock
- Medical test and diagnostics
- Portable field communication

SUGGESTED LAND PATTERN



PACKAGE DIMENSIONS



	TYP.		MAX.	
DIM	INCHES	mm	INCHES	mm
A	.400	10.16	.405	10.29
B	.180	4.57	.185	4.70
C*	.065	1.65	.070	1.77
D	.200	5.08	.205	5.21
E	.080	2.03	.085	2.16
F	.050	1.27	.058	1.47
G	.055	1.40	.063	1.60

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

*SM1 Termination; SM3 = .075 in. (1.91mm) Max.

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

SPECIFICATIONS: LSC 32.768 kHz***

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

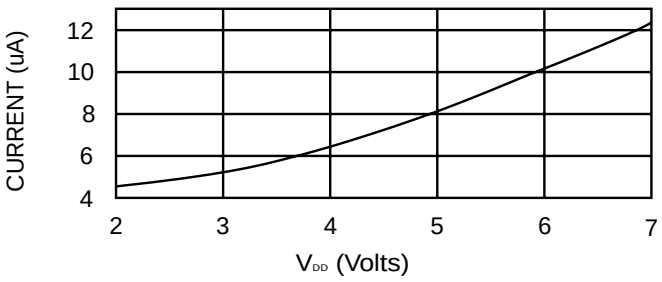
Supply Voltage*	5V ± 10% (3.3V available)		
Calibration Tolerance	± 0.01%(100ppm)		
Frequency Stability**			
0°C to +50°C	± 0.0025%	Typ.	± 25ppm
	± 0.004%	MAX.	± 40ppm
-20°C to+70°C	± 0.007%	Typ.	± 70ppm
	± 0.01%	MAX.	± 100ppm
Voltage Coefficient	± 1 ppm/V Typ.		
	± 3 ppm/V MAX.		
Aging	± 1 ppm/year Typ.		
	± 3 ppm/year MAX.		
Shock	1000g, 1msec.,1/2 sine		
	± 3 ppm MAX.		
Vibration	10g 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).

*** Contact factory for other frequencies.

TYPICAL CURRENT CONSUMPTION, LSC 32.768 kHz



ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	-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_{OH}	Output Voltage Hi	4.8	4.95		V
V_{OL}	Output Voltage Lo		0.05	0.2	V
t_r	Rise Time (10%-90%)		12	25	nsec.
t_f	Fall Time (10%-90%)		12	25	nsec.
SYM	Duty Cycle	40	50	60	%
	Supply Current				
I_{DD}	V_{DD} =5V		8.3	15	µA
	V_{DD} =3.3V		5.5	10	µA

PIN CONNECTIONS

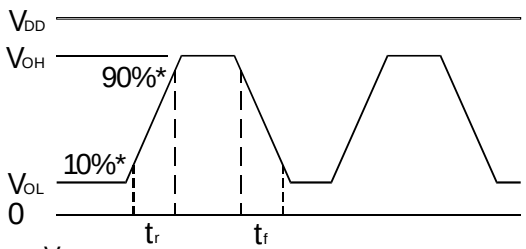
Pin	Connection
1	Output Enable or NC
2	Ground
3	Output
4	V_{DD}

PACKAGING

LSC -Tray Pack (Standard)

-16mm tape, 7" or 13" reels (Optional)
Per EIA 481 (see data sheet 10109)

OUTPUT WAVE FORM



HOW TO ORDER LSC SURFACE MOUNT CRYSTAL OSCILLATORS

LSC [3] [S] [T] [SM3] [32.768 kHz] ([100ppm] / [I])

- 3: 3=3.3V, Blank=5V (Std.)
- S: "S" if special or custom design. Blank if Std.
- T: T = Tri-State, Blank = Pin 1 no connection
- SM3: Blank= SM1 (Std.), SM1 = Gold Plated, SM3 = Solder Dipped
- 32.768 kHz: Frequency
- 100ppm: Calibration Tolerance @ 25°C
- I: Temp. Range: C = Commercial, I = Industrial, S = Specify

10153 - Rev B