LSM OSCILLATOR

700 kHz to 2.1 MHz

Low Power Surface Mount Crystal Oscillator

DESCRIPTION

The LSM oscillator has the highest accuracy, stability and the lowest current of all STATEK surface mount oscillators. The design consists of a STATEK crystal, and a CMOS-compatible integrated circuit. The hybrid design is hermetically-sealed with a kovar lid in a surface mount ceramic package. Permanent precision tuning of the oscillator is accomplished by laser trimming the crystal.

FEATURES

- Low power consumption
- Low aging
- CMOS compatible
- Hermetically sealed package
- Full military testing available
- 3 Volt operation available

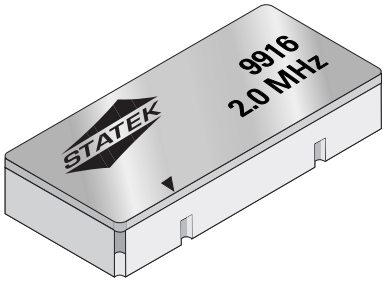
APPLICATIONS

Industrial, Computer & Communications

- General purpose clock oscillator
- Data logger
- Remote sensor
- Medical test and diagnostics

Military

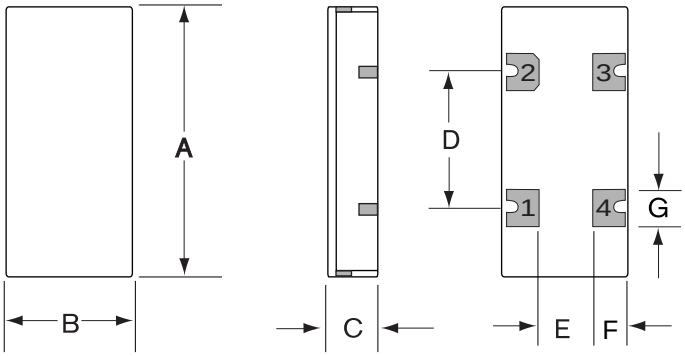
- Portable field communication
- Military high speed modem



actual size

side view

PACKAGE DIMENSIONS

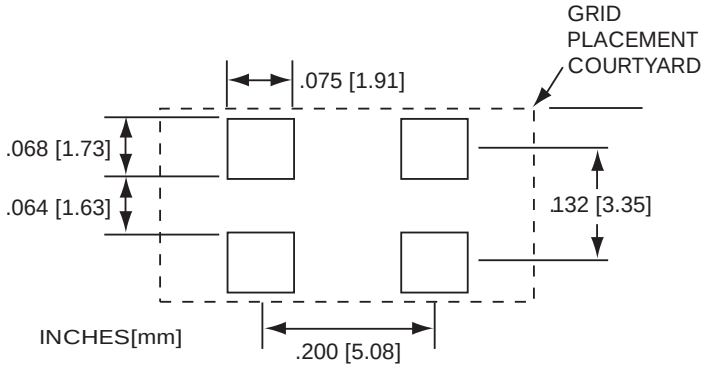


	TYP.		MAX.	
DIM	INCHES	mm	INCHES	mm
A	.400	10.16	.405	10.29
B	.180	4.57	.185	4.70
C*	.071	1.80	.079	2.00
D	.200	5.08	.205	5.21
E	.080	2.03	.085	2.16
F	.050	1.27	.058	1.47
G	.055	1.40	.063	1.60

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

*SM1 Termination; SM3 = .084 in. (2.13mm) Max.

SUGGESTED LAND PATTERN



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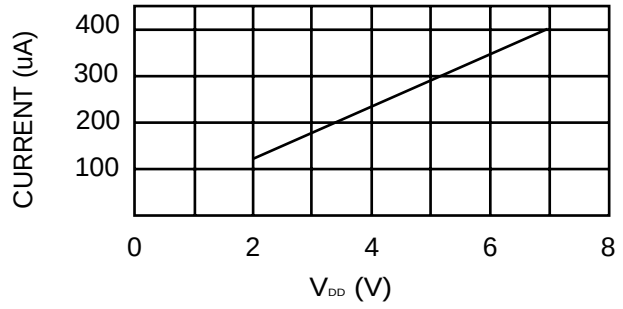
SPECIFICATIONS: LSM 2.0 MHz****

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**	A: ± 0.01% (100ppm)
	B: ± 0.03%
	C: ± 0.1%
Frequency Stability***	
0°C to +70°C	– 0.12% Typ.
	– 0.017% MAX.
Voltage Coefficient	± 5 ppm/V MAX.
Aging	± 10 ppm/year MAX.
Shock	750g, 0.3msec.,1/2 sine
Vibration	10g rms, 10 - 2000 Hz
Frequency Change vs 10%Output Load Change	± 1 ppm MAX.
Operating Temperature	-10°C to +70°C Commercial
	-40°C to +85°C Industrial
	-55°C to +125°C Military

* Contact the factory for lower voltage.
** Tighter tolerances available.
*** Does not include calibration tolerance. Positive variations are much smaller.
**** Contact the factory for other frequencies.

TYPICAL CURRENT CONSUMPTION, LSM 2.0 MHz



ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	3.3V to 7V
Storage Temperature	-55°C to +125°C
Process Temperature	260°C 20 sec.

ELECTRICAL CHARACTERISTICS

LSM 2.0 MHz

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	%
I_{DD}	Supply Current				
	V_{DD} =5V		300	400	µA
	V_{DD} =3.3V		200	300	µA
	Start-Up Time		20		msec.

PIN CONNECTIONS

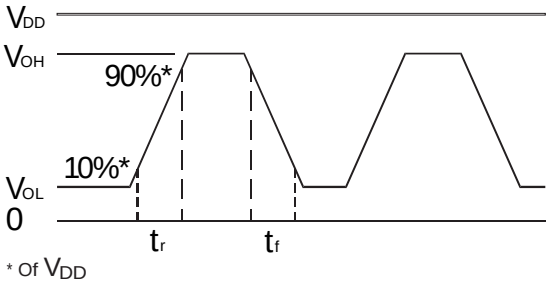
Pin	Connection
1	NC
2	Ground
3	Output
4	V_{DD}

PACKAGING

LSM -Tray Pack (Standard)

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

OUTPUT WAVE FORM



HOW TO ORDER LSM CRYSTAL OSCILLATORS

LSM [3] [S] [SM3] [2.0 MHz] ([A] / [I])

- 3: 3=3.3V, Blank=5V (Std.)
- S: "S" if special or custom design. Blank if Std.
- SM3: Blank= SM1 (Std.)
- 2.0 MHz: Frequency
- A: *Calibration Tolerance @ 25°C (A) (B) (C)
- I: Temp. Range: C = Commercial, I = Industrial, M = Military, S = Specify

* Other calibration fill in ppm.

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