EUROQUARTZ

LSM Oscillators

Low Frequency - Low power SMD Oscillator 30kHz to 200kHz

FEATURES

- **Low current consumption, low frequency from 30kHz**
- **Low profile, miniature SMD package**
- **Full military testing available**
- **MIL testing to MIL-PRF-55310 available**

DESCRIPTION

LSM series oscillators are precision surface mount oscillators with a frequency range from 30kHz to 200kHz. The part comprises of a hermetically sealed crystal with a hybrid circuit sealed in a ceramic package with a Kovar lid. Full MIL testing is available.

SPECIFICATION

Frequency Range****:	30kHz to 200kHz (32.768kHz)
Supply Voltage*:	3.3 or 5.0 Volts ±10%
Calibration Tolerance**	
Code A:	±0.001% (±10ppm)
Code B:	±0.0025%
Code C:	±0.01%
Frequency Stability***	
0° to +50°C:	±0.0025% typical (±25ppm)
	±0.004% maximum (±40ppm)
-20° to +40°C:	±0.007% typical (±70ppm)
	±0.01% maximum (±100ppm
Voltage Coefficient	
	±1ppm/V typical
	±3ppm/V maximum
Ageing:	±1ppm/year typical
	±3ppm/year maximum
Shock:	1000g, 1ms, ½ sine, ±3ppm max.
Vibration:	10g rms, 10-2000Hz, ±3ppm max.
Frequency Change vs. Output Load Change:	±1ppm maximum
Operating Temperature:	-10° to +70°C Commercial
	-40° to +85°C Industrial
	-55° to +125°C Military
Output Voltage (5.0V supply)	
HIGH:	4.8V minimum, 4.95V typical
LOW:	0.2V maximum, 0.05V typical
Rise/Fall Times:	12ns typical
Symmetry:	40/60% maximum, 45/55% typical
Supply Current	
5.0V supply:	15 µA max., 8.3 µA typical
3.3V supply:	10 µA max., 5.5 µA typical
Packaging:	Tray pack (standard)
	16mm tape, 17.8cm or 33cm reels

ENABLE/DISABLE, POWER DOWN, NOT CONNECTED

Option	Specifying Code	Pad 1*	Pad 3 (Output)
Power Down	P	LOW	High Z
		HIGH	Frequency output
Enable/Disable	T	LOW	High Z
		HIGH	Frequency output
Not Connected	Blank	NC	Frequency output

** Normally HIGH (internal pull-up resistor)*

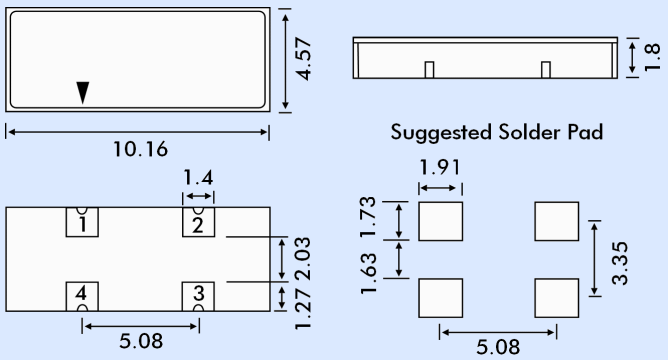
ENABLE/DISABLE vs. POWER DOWN

P - Power Down:	When Pad 1 is LOW the oscillator stops running
T - Enable/Disable:	When Pad 1 is LOW the internal oscillator continues to run but the output (Pad 3) is in a high impedance (Z) state.
Power Down:	Disabled current consumption low, recovery delayed.
Enable/Disable:	Disabled current consumption lower than normal, recovery immediate.

RoHS



OUTLINE & DIMENSIONS



Pad Connections

1. Not connected or enable/disable
2. Ground
3. Output
4. Supply Voltage

Terminations: Au over Ni

Notes:

* *Contact factory for lower supply voltages*
** *Tighter tolerances avialable*
*** *Does not include calibration tolerance. Positive variations are small compared to negative variations.*
**** *Contact factory for frequencies other than 32.7680kHz*

PART NUMBERING

Example: 32.7680kHz LSMA050UMTA

Frequency
Series Designation LSM
Calibration Tolerance *(±100ppm standard)*
Stability*
100 = ±100ppm
050 = ±50ppm
025 = ±25ppm
Output Universal *(CMOS)*
Operating Temp. Range
C = Commercial
I = Industrial
M = Military
Pad 1 Function
T = Enable/Disable
Blank = not connected
Supply Voltage**
Blank = 5.0 Volts
A = 3.3 Volts

* *For other stability requirements enter figure required.*
** *For other supply voltage enter required voltage.*

EUROQUARTZ LIMITED Blacknell Lane CREWKERNE Somerset UK TA18 7HE
Tel: +44 (0)1460 230000 Fax: +44 (0)1460 230001 info@euroquartz.co.uk www.euroquartz.co.uk