

Low Power - Low Frequency SMD Oscillator

- Low current consumption, low frequency from 30kHz
- Low profile, miniature SMD package
- Full military testing available
- 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 $\pm 10\%$
Calibration Tolerance**	
Code A:	$\pm 0.001\%$ (± 10 ppm)
Code B:	$\pm 0.0025\%$
Code C:	$\pm 0.01\%$
Frequency Stability***	
0° to +50°C:	$\pm 0.0025\%$ typical (± 25 ppm) $\pm 0.004\%$ maximum (± 40 ppm)
-20° to +40°C:	$\pm 0.007\%$ typical (± 70 ppm) $\pm 0.01\%$ maximum (± 100 ppm)
Voltage Coefficient	± 1 ppm/V typical ± 3 ppm/V maximum
Ageing:	± 1 ppm/year typical ± 3 ppm/year maximum
Shock:	1000g, 1ms, 1/2 sine, ± 3 ppm max.
Vibration:	10g rms, 10-2000Hz, ± 3 ppm max.
Frequency Change vs. Output Load Change:	± 1 ppm 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 μ A max., 8.3 μ A typical
3.3V supply:	10 μ A max., 5.5 μ A 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
Power Down	P	LOW	High Z
Enable/Disable	T	HIGH	Frequency output
		LOW	High Z
Not Connected	Blank	HIGH	Frequency output
		LOW	Frequency output

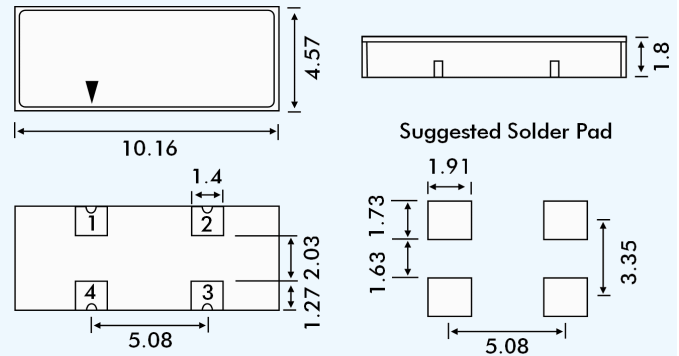
* Normally HIGH (internal pull-up resistor)

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.

OUTLINE & DIMENSIONS



Pad Connections

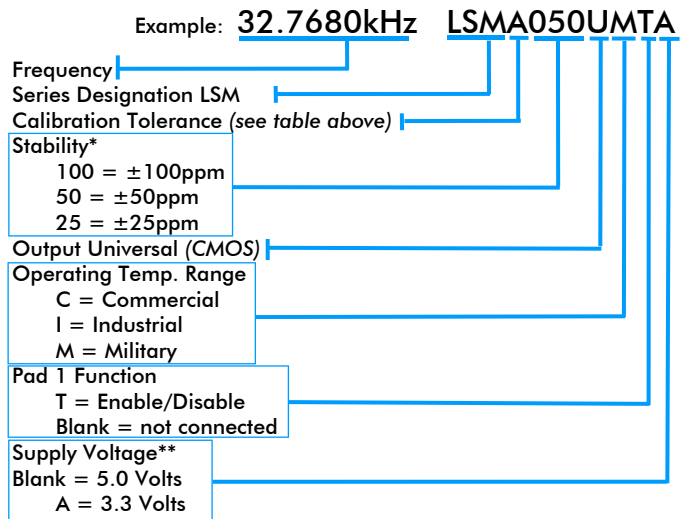
1. Not connected or enable/disable
2. Ground
3. Output
4. Supply Voltage

Terminations: Au over Ni

Notes:

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

PART NUMBERING



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