



Features and Benefits

Frequency range: 1MHz to 50MHz

Supply voltage: 0.9V/1.2V/1.5V

Current: 1.5mA Max.

Frequency stability vs. temperature: ± 25 PPM-50PPM

Aging: ± 3 PPM per year

Operating temperature: -40°C to $+85^{\circ}\text{C}$

Size: 2.5x2.0x0.81 mm

Typical Applications

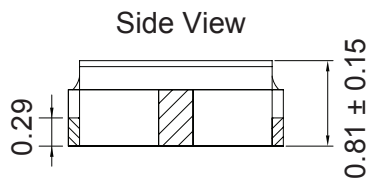
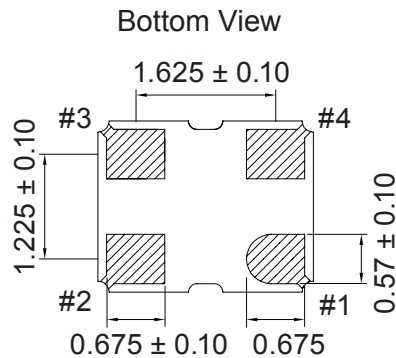
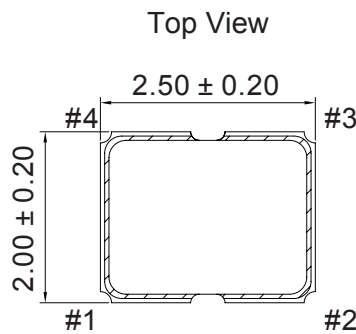
- IoT
- Mobile Phones
- Ultra-small Notebook PC
- Digital Camera
- Wearable Device
- Digital Consumer Electronics
- Sport Video Cams

Description

XO2520BM01-LP is the low power crystal oscillator. The power consumption can less than 1.8mA. It can be widely used in the low power consumption applications.

Mechanical Drawing & Pin Connections

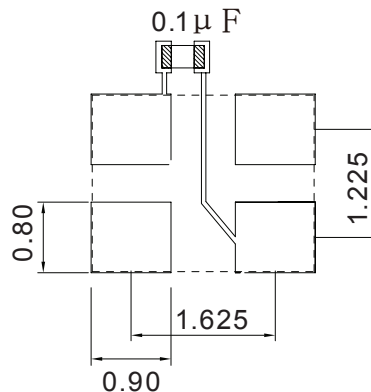
Drawing No: MD220022-1



Pin#	Function
1	Tri-state
2	GND
3	Output
4	V _{cc}

Unit in mm
1mm = 0.0394 inches

Recommended Soldering Pattern



To ensure optimal oscillator performance, place a by-pass capacitor of 0.1uF as close to the part as possible between V_{cc} and GND PAD

**Specifications**

Oscillator Specification	Sym	Condition	Value			Unit	Note
			Min.	Typ.	Max.		
Operational Frequency	f_0		1		50	MHz	
RF Output							
Output Waveform			CMOS				
Load				15		pF	
Duty Cycle			45		55	%	
Rise & Fall Time		$1\text{MHz} \leq f_0 < 10\text{MHz}$			4	ns	For 0.9V supply voltage
		$10\text{MHz} \leq f_0 < 20\text{MHz}$			3	ns	
		$20\text{MHz} \leq f_0 < 50\text{MHz}$			2	ns	
Startup Time					4	ms	
Tri-State (Input to Pin1)		Enable (High voltage or floating)	0.7 V _{cc}			V	
		Disable (Low voltage or GND)			0.3 V _{cc}	V	
Startup Time					4	ms	
Power Supply							
Voltage	V _{cc}	±5%		0.9/1.2/1.5		V	See ordering section
Current		At 15pF load			1.5	mA	For 0.9V supply voltage
		$1\text{MHz} \leq f_0 < 10\text{MHz}$ No load condition			0.9	mA	
		$10\text{MHz} \leq f_0 < 20\text{MHz}$ No load condition			1	mA	
		$20\text{MHz} \leq f_0 < 50\text{MHz}$ No load condition			1.2	mA	
Stand by Current					100	uA	
Frequency Stability							
Versus Temperature		@-40°C to +85°C with reference to +25°C			±50	ppm	See ordering section
Aging@+25°C		1 st year			±3.0	ppm	
Phase Noise At V _{cc} =1.2V, 24MHz Frequency		1KHz		-130		dBc/Hz	
		10KHz		-140			
		100KHz		-148			
		1MHz		-152			
Period Jitter (Pk-Pk)					40		ps
RMS Phase Jitter		Integrated 12kHz to 20MHz			1		ps
Environmental Conditions							
Operating temperature range		-40°C to +85°C					
Storage temperature range		-55°C to +125 °C					



Ordering Information

XO2520BM01-LP	-	01	02	03
Group		Code		

For example, XO2520BM01-LP-211 denotes the XO has the following specifications:

Temperature Range: -20°C to +70°C
Stability Over Temperature: ±25 ppm
Supply Voltage: 0.9V

01	Temperature Range
Code	Specification
1	-10°C to +60°C
2	-20°C to +70°C
3	-40°C to +85°C

02	Frequency Stability
Code	Specification
1	±25 ppm
2	±50 ppm

03	Supply Voltage
Code	Specification
1	0.9 V
2	1.2 V
3	1.5 V

Frequency Stability vs. Temperature

Temperature Range [°C]	Frequency Stability	
	±25 ppm	±50 ppm
-10°C to +60°C	Available	Available
-20°C to +70°C	Available	Available
-40°C to +85°C	On Request	Available