

# Dynamic Engineers Inc.

2550 Gray Falls Dr., Suite#128, Houston, TX, 77077 USA TEL: 1-281-870-8822 EMAIL: Sales@DynamicEng.com

### XO2520BM-5( MHz-A

54MHz Ultra-low Power Crystal Oscillator

#### **Features and Benefits**

Frequency range: 54MHz Supply voltage: 3.3V Current: 15mA Max.

Frequency stability vs. temperature: ±25PPM

Aging: ±3PPM per year

Operating temperature: -40°C to +85°C

Size: 2.5x2.0x0.81 mm

#### **Typical Applications**

loT Smartphone Digital Camera Game Console Wearable Device Digital Consumer Electronics

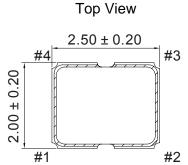
#### **Description**

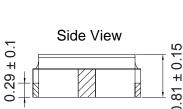
XO2520BM-54MHz-A is the low power crystal oscillator. The power consumption can be less than 15mA. It can be widely used in the low power consumption applications.

### **Mechanical Drawing & Pin Connections**

**Drawing No:** 

MD220022-1





Pin#	Function			
1	Tri-state			
2	GND			
3	Output			
4	Vcc			

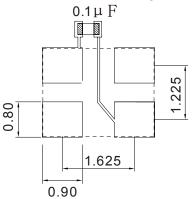
Unit in mm 1mm = 0.0394 inches

# 1.625 ± 0.10 #3 #4 #4 01.0 ± 25.0 #1 01.0 ± 25.0 #1 01.0 ± 25.0

**Bottom View** 

### Recommended Soldering Pattern

 $0.675 \pm 0.10 \quad 0.675$ 



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



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# **Specifications**

Specification   Min. Typ. Max.	Oscillator Specification	Sy	Sv	Value			Unit	Note
Operational Frequency   fo			Condition	Min.		Max.		
Output Waveform	Operational Frequency	$f_0$					MHz	
Output Waveform	RF Output							
Load					CMOS			
Output High(Logic "1")	•					15	pF	
Output Low(Logic "0")				0.9Vcc				
Duty Cycle   Rise & Fall Time						0.1Vcc	V	
Note				45	50	_		
Output enable				.0				
Startup Time   2 ms   2 ms   Power Supply   Voltage   Voc   At maximum supply voltage   Department of the proper Stability   Stand by Current   Department of the prop Stability   Stand by Current   Department of the prop Stability   Stand by Current   Department of the prop Storage   Department of the prop Storag			Output enable	0.7 Vcc				floating (*Note1): Enable frequency output
Power Supply       Voltage     V <sub>cc</sub> 2.97     3.3     3.63     V       Current     At maximum supply voltage     15     mA       Stand by Current     OE pin Low and disable frequency output     10     uA       Frequency Stability       Frequency Stability       Overall     Frequency stability vs. operating temperature range and voltage variance.     -25     +25     ppm       Aging     Frequency drift in first year @ 25°C     -3.0     +3.0     ppm       Environmental Conditions       Operating temperature range     -40°C to +85°C; The operating temperature range over which the frequency stability is measured.       Storage Temperature range     -55°C to +125°C       Thermal Shock     MIL-STD-883H 1010.8 Condition B; -55°C, 125°C; soak time is 10 mins, with total 200 cycles       Damp Heat     JESD22-A101; 85°C /85% RH for 500 hrs       Low Temp Storage     IEC 60068-2-3; -55°C for 500 hrs       Drop Test     IEC 60068-2-32; 70, 80, 100cm, each height for 3 times on hardboard       Mechanical Shock     MIL-STD-883H 2002.5 Condition B; 1500g, half-sine, 0.5ms, each axis for 3 times.						0.3 V <sub>cc</sub>	V	frequency
Voltage         Voc         2.97         3.3         3.63         V           Current         At maximum supply voltage         15         mA           Stand by Current         OE pin Low and disable frequency output         10         uA           Frequency Stability         Frequency Stability         10         uA           Overall         Frequency stability vs. operating temperature range and voltage variance.         -25         +25         ppm           Aging         Frequency drift in first year @ 25°C         -3.0         +3.0         ppm           Environmental Conditions         -40°C to +85°C; The operating temperature range over which the frequency stability is measured.           Storage Temperature range         -55°C to +125°C           Thermal Shock         MIL-STD-883H 1010.8 Condition B; -55°C, 125°C; soak time is 10 mins, with total 200 cycles           Damp Heat         JESD22-A101; 85°C /85% RH for 500 hrs           Low Temp Storage         JEC 60068-2-1; -55°C for 500 hrs           Drop Test         IEC 60068-2-32; 70, 80, 100cm, each height for 3 times on hardboard           Mechanical Shock         MIL-STD-883H 2002.5 Condition B; 1500g, half-sine, 0.5ms, each axis for 3 times.	Startup Time					2	ms	
Current At maximum supply voltage  Stand by Current DE pin Low and disable frequency output  Frequency Stability  Frequency Stability  Overall Frequency stability includes frequency tolerance@25°C and frequency stability vs. operating temperature range and voltage variance.  Aging Frequency drift in first year @ 25°C -3.0 +3.0 ppm  Environmental Conditions  Operating temperature range -40°C to +85°C; The operating temperature range over which the frequency stability is measured.  Storage Temperature range -55°C to +125°C  Thermal Shock MIL-STD-883H 1010.8 Condition B; -55°C, 125°C; soak time is 10 mins, with total 200 cycles  Damp Heat JESD22-A101; 85°C /85% RH for 500 hrs  Low Temp Storage IEC 60068-2-1; -55°C for 500 hrs  Drop Test IEC 60068-2-32; 70, 80, 100cm, each height for 3 times on hardboard  Mechanical Shock MIL-STD-883H 2002.5 Condition B; 1500g, half-sine, 0.5ms, each axis for 3 times.	Power Supply							
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	Vibration Test							

<sup>\*</sup>Note1: A pull-up resistor of  $<30k\Omega$  between the OE pin and Vcc is recommended in a high noise environment.