



### Features and Benefits

- Frequency range: 25MHz
- Supply voltage: 3.3V
- Current: 10mA Max.
- Frequency stability vs. temperature:  $\pm 50$ PPM
- Aging:  $\pm 3$ PPM 1<sup>st</sup> year
- Operating temperature: -40°C to +85°C
- Size: 3.2x2.5x1.0 mm

### Typical Applications

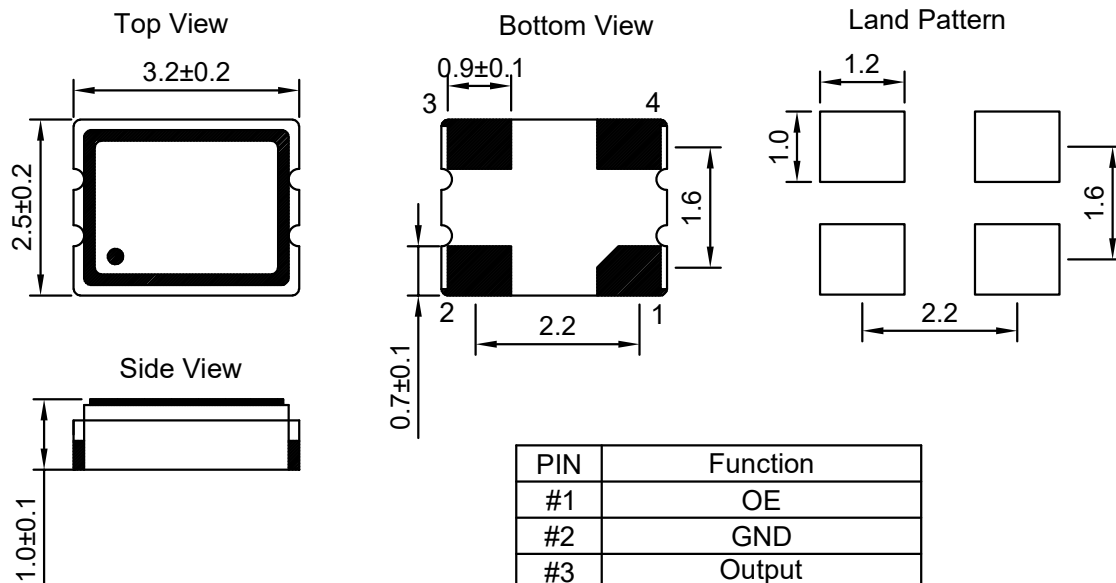
- Wearable device
- Sport Video Cams
- Ultra-small Notebook PC
- Mobile Phones
- Digital Circuit

### Description

XO3225BL-ULJ\_CMOS-25MHz-223 is the ultra-low jitter crystal oscillator. The RMS phase jitter can be 48fs typical. It can be widely used in the digital circuit and communication applications.

### Mechanical Drawing & Pin Connections

Drawing No: MD230030-1



| PIN | Function       |
|-----|----------------|
| #1  | OE             |
| #2  | GND            |
| #3  | Output         |
| #4  | Supply Voltage |

Unit in mm  
1mm = 0.0394 inches



**Specifications**

| Oscillator Specification                 | Sym             | Condition                   | Value              |      |                    | Unit   | Note |
|--|-----------------|-----------------------------|--------------------|------|--------------------|--------|------|
|  |                 |                             | Min.               | Typ. | Max.               |        |      |
| Operational Frequency                    | f <sub>0</sub>  |                             |                    | 25   |                    | MHz    |      |
| <b>RF Output</b>                         |                 |                             |                    |      |                    |        |      |
| Output Load                              |                 |                             |                    | 15   |                    | pF     |      |
| Output Level High                        |                 |                             | 90%V <sub>cc</sub> |      |                    | V      |      |
| Output Level Low                         |                 |                             |                    |      | 10%V <sub>cc</sub> | V      |      |
| Rise / Fall Time                         |                 | @10%-90% of V <sub>cc</sub> |                    | 1.5  | 5                  | ns     |      |
| Duty Cycle                               |                 |                             | 45                 |      | 55                 | %      |      |
| Startup Time                             |                 |                             |                    | 0.8  | 5                  | ms     |      |
| Output Enable/Disable Function on PIN1   |                 | Enable output               | 70%V <sub>cc</sub> |      |                    | V      |      |
|  |                 | Disable output              |                    |      | 30%V <sub>cc</sub> | V      |      |
| Enable/Disable Time                      |                 | Enable                      |                    |      | 1                  | ms     |      |
|  |                 | Disable                     |                    |      | 200                | ns     |      |
| <b>Power Supply</b>                      |                 |                             |                    |      |                    |        |      |
| Voltage                                  | V <sub>cc</sub> | ±10%                        |                    | 3.3  |                    | V      |      |
| Current                                  |                 |                             |                    | 7    | 10                 | mA     |      |
| Current With Output Disable              |                 |                             |                    | 9    | 35                 | uA     |      |
| <b>Frequency Stability</b>               |                 |                             |                    |      |                    |        |      |
| Supply Voltage Vs. Frequency Sensitivity |                 | @25°C                       |                    |      | ±1.0               | ppm    |      |
| Vs. Temperature                          |                 | @-40°C to +85°C             |                    |      | ±50                | ppm    |      |
| Aging@+25°C                              |                 | 1 <sup>st</sup> year        |                    |      | ±3.0               | ppm    |      |
| RMS Jitter (12KHz-20MHz)                 |                 |                             |                    | 48   | 300                | fs     |      |
| Phase Noise (25MHz,3.3V)                 |                 | @10Hz                       |                    | -68  |                    | dBc/Hz |      |
|  |                 | @100Hz                      |                    | -102 |                    | dBc/Hz |      |
|  |                 | @1KHz                       |                    | -139 |                    | dBc/Hz |      |
|  |                 | @10KHz                      |                    | -157 |                    | dBc/Hz |      |
|  |                 | @100KHz                     |                    | -170 |                    | dBc/Hz |      |
|  |                 | @1MHz                       |                    | -166 |                    | dBc/Hz |      |
|  |                 | @5MHz                       |                    | -168 |                    | dBc/Hz |      |
| <b>Environmental Conditions</b>          |                 |                             |                    |      |                    |        |      |
| Operating temperature range              |                 | -40°C to +85°C              |                    |      |                    |        |      |
| Storage temperature range                |                 | -55°C to +150 °C            |                    |      |                    |        |      |