



RFM Integrated Device, Inc.

## PRODUCT SPECIFICATION

Part Number: XO6008

XO,125M +/-30 -40C to +85C  
LVPECL

# SMD 7.0x5.0 125MHz Crystal Oscillator



## Features:

- Surface Mount Seam Weld Package
- Excellent Reliability Performance
- Good Frequency Perturbation and Stability over temperature
- Moisture Sensitivity Level (MSL) : Level-1

## Application:

- 3.3 V Supply Voltage LVPECL Output
- Option-able stand-by function for output .

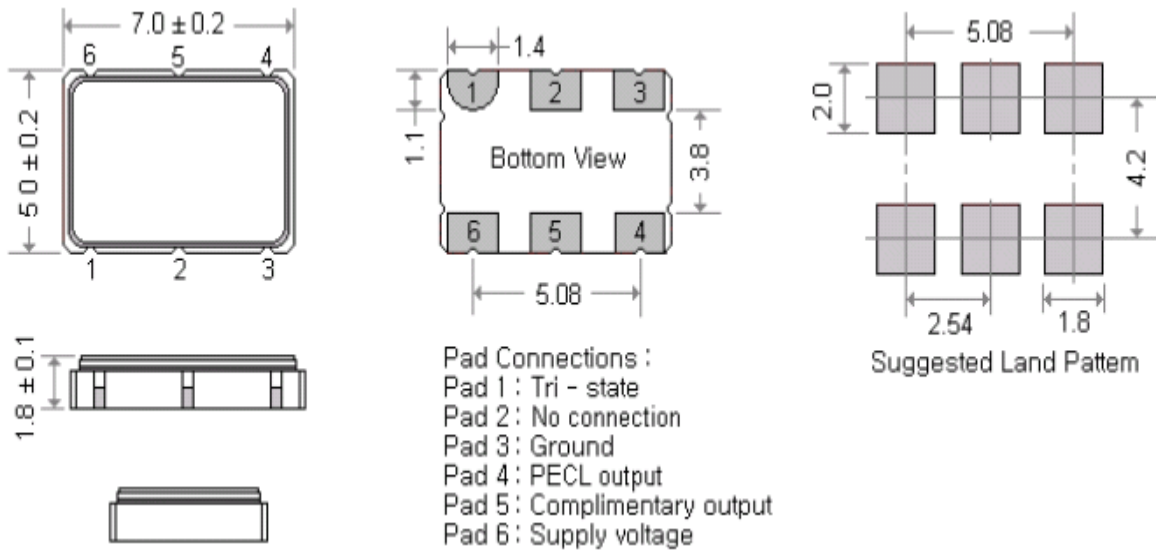
## Electrical Characteristics:

| XO6008   | Specifications  |
|--|---|
| Nominal Frequency, Fo  | 125.000000MHz   |
| Storage Temperature Range  | -55°C to +150°C   |
| Operating Temperature Range  | -40°C to +85°C  |
| Power Supply Voltage, Vcc  | 3.3 V +/- 5%  |
| Load   | 50 Ω (PECL Output )   |
| “0” Level<br>“1” Level   | 1.70 max<br>2.27 min  |
| Power Supply Current, Icc  | 30 mA typical   |
| Frequency Accuracy <sup>1</sup>  | +/-30 ppm max   |
| Duty Cycle   | 45% ~ 55% Typical   |
| Star-up Time   | 5.0 msec typical and 10 msec max  |
| Phase Noise  | -50 dBc/Hz typ .at 10Hz Offset<br>-80 dBc/Hz typ .at 100Hz Offset<br>-115 dBc/Hz typ .at 1KHz Offset<br>-135 dBc/Hz typ .at 10KHz Offset<br>-147 dBc/Hz typ .at 1MHz Offset<br>-152 dBc/Hz typ .at 10MHz Offset |
| Rise Time ( 20% -> 80% of final RF level in Vp-p )<br>Fall Time ( 80% -> 20% of final RF level in Vp-p ) | 0.3 nsec typical , 0.5 nsec max<br>0.3 nsec typical , 0.5 nsec max  |

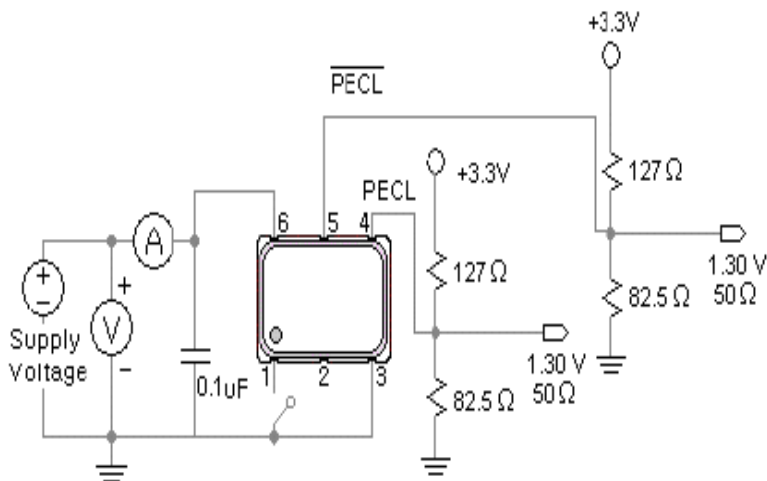
|                         |   |
|-------------------------|---|
| Aging at Ta = + 25°C    | +/-3 ppm/First year   |
| Enable/Disable Function | PIN 1: High or Open, PIN 4 ,PIN 5 :Enable<br>PIN 1: Low, PIN 4, PIN 5 : Disable |

#Note 1: Frequency accuracy includes 25C tolerance, operating temperature range -40 to 85deg C, aging and voltage or load change

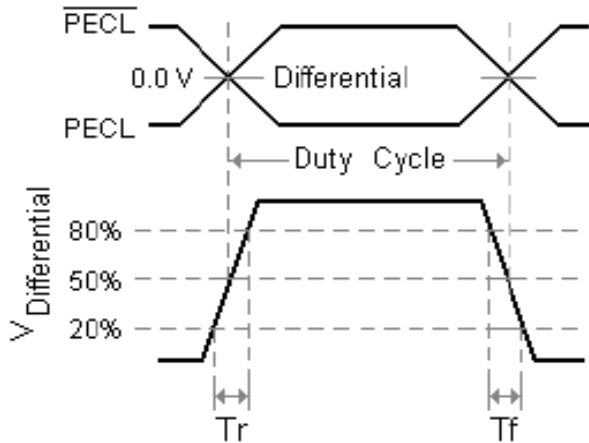
## Mechanical Dimensions: (Unit: mm)



## Square Wave Test Circuit



# Output Wave Form



## Marking :

Line 1 : Frequency (125.000)

Line 2 :  $\text{\textcircled{T}}$ WDXX (Product Code + Date Code + Internal Traceability Code (XX) : Can be 1 or 2 letters)

125.000  
 $\text{\textcircled{T}}$ WDXX

## Product Code Table

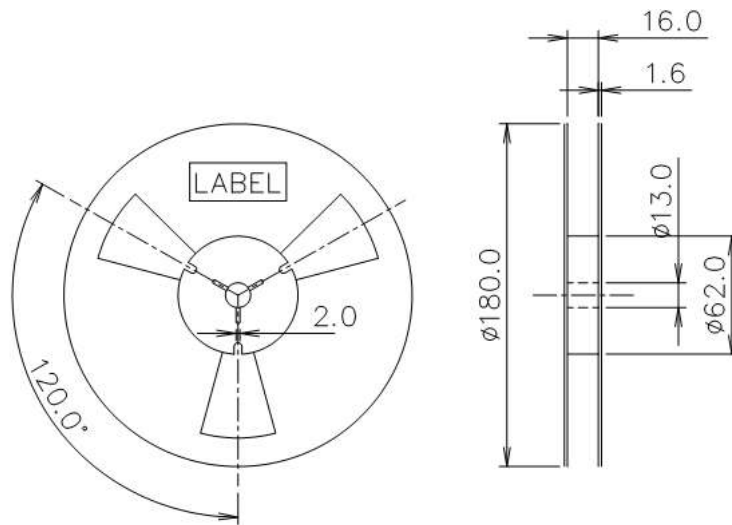
|              |      |      |          |          |
|--------------|------|------|----------|----------|
| Year         | 2013 | 2014 | 2015     | 2016     |
|              | 2017 | 2018 | 2019     | 2020     |
|              | 2021 | 2022 | 2023     | 2024     |
| Product code | W    | w    | <u>W</u> | <u>w</u> |

## Date Code Table

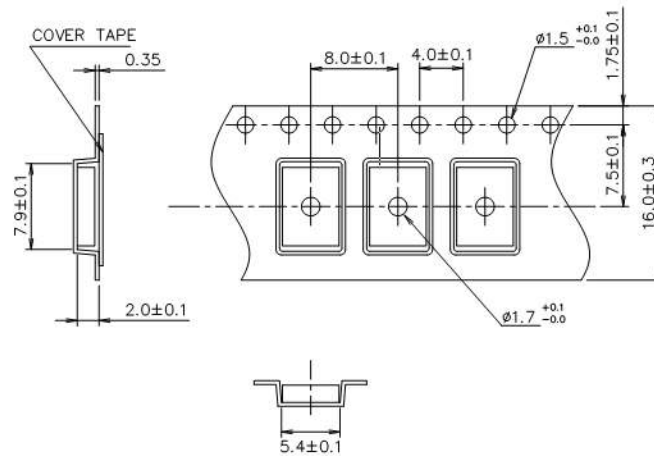
|      |      |      |      |      |      |      |      |      |      |      |      |      |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| WK01 | WK02 | WK03 | WK04 | WK05 | WK06 | WK07 | WK08 | WK09 | WK10 | WK11 | WK12 | WK13 |
| A    | B    | C    | D    | E    | F    | G    | H    | I    | J    | K    | L    | M    |
| WK14 | WK15 | WK16 | WK17 | WK18 | WK19 | WK20 | WK21 | WK22 | WK23 | WK24 | WK25 | WK26 |
| N    | O    | P    | Q    | R    | S    | T    | U    | V    | W    | X    | Y    | Z    |
| WK27 | WK28 | WK29 | WK30 | WK31 | WK32 | WK33 | WK34 | WK35 | WK36 | WK37 | WK38 | WK39 |
| a    | b    | c    | d    | e    | f    | g    | h    | i    | j    | k    | l    | m    |
| WK40 | WK41 | WK42 | WK43 | WK44 | WK45 | WK46 | WK47 | WK48 | WK49 | WK50 | WK51 | WK52 |
| n    | o    | p    | q    | r    | s    | t    | u    | v    | w    | x    | y    | z    |

## Packing:

### ■ Reel Dimension (Unit: mm)



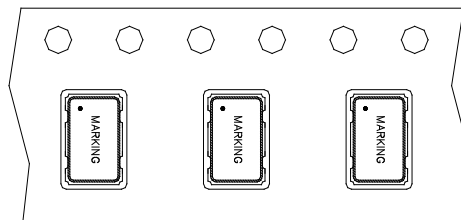
### ■ Tape Dimension (Unit: mm)



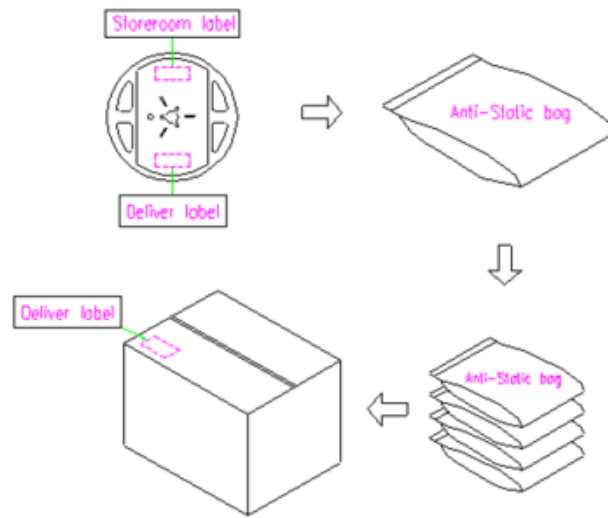
### [NOTE]:

1. Unless otherwise specified tolerance on dimension +/-0.1 mm.
2. Material: conductive polystyrene with color black
3. 10 pitch cumulative tolerance +/-0.2 mm.
4. Packing Direction: dot or the logo of marking should be close to the hole of tape.

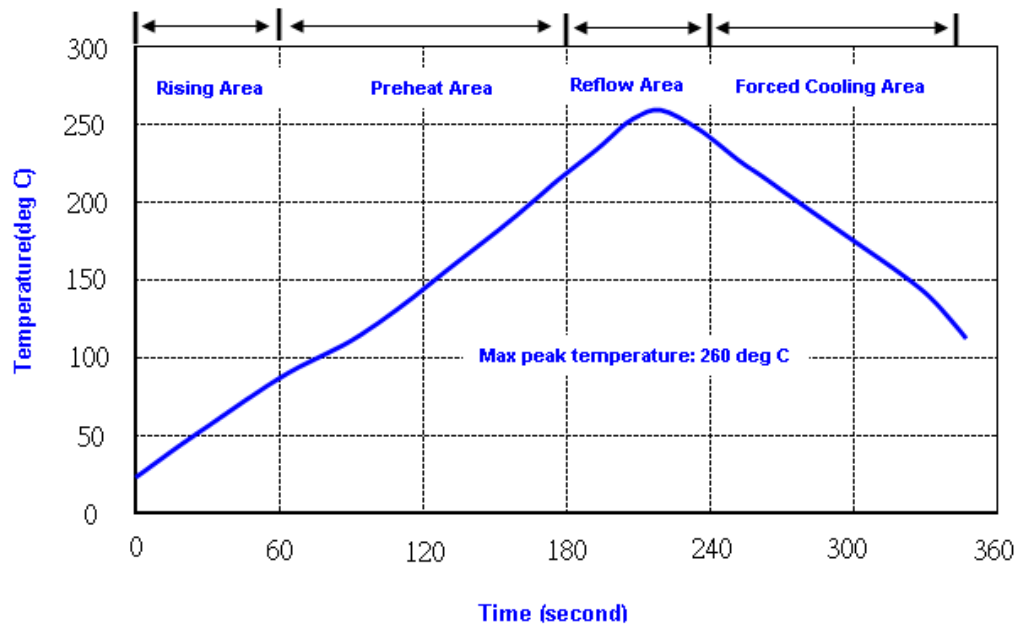
### ■ PACKING DIRECTION:



# Packing Quantity/Packing: 1K pcs maximum per reel



## Reflow Profile:



- Note: 1. Max peak temperature: 260+/-5 deg C; Time: 10+/-2 sec
- 2. Temperature: 217+/-5 deg C; Time: 90~100 sec

## Reliability Specifications

| Test name                                | Test process / method  | Reference standard            |
|--|--|-------------------------------|
| <b>Mechanical characteristics</b>        |  |                               |
| resistance to Soldering heat (IR reflow) | Temp./ Duration : 265°C /10sec ×2 times<br>Total time : 4min.(IR-reflow)   | EIAJED-4701<br>-300(301)M(II) |
| Vibration                                | Total peak amplitude : 1.5mm<br>Vibration frequency : 10 to 2000 Hz<br>Sweep period : 20 minute<br>Vibration directions : 3 mutually perpendicular<br>Duration : 2 hr / direc. | MIL-STD 202G<br>method 204    |
| Mechanical Shock                         | directions : 3 impacts per axis<br>Acceleration : 3000g's, +20/-0 %<br>Duration : 0.3 ms (total 18 shocks)<br>Waveform : Half-sine   | MIL-STD 202G<br>method 213    |
| Solderability                            | Solder Temperature:265±5°C<br>Duration time: 5±0.5 seconds.  | J-STD-002                     |
| <b>Environmental characteristics</b>     |  |                               |
| Thermal Shock                            | Heat cycle conditions<br>-40 °C (30min) ↔ 85 °C (30min)<br>* cycle time : 10 times   | MIL-STD 883G<br>method 1010.8 |
| Humidity test                            | Temperature : 85 ± 2 °C<br>Relative humidity : 85%<br>Duration : 96 hours  | MIL-STD 202G<br>method 103    |
| Dry heat ( Aging test )                  | Temperature : 125 ± 2 °C<br>Duration : 168 hours   | MIL-STD 202G<br>method 108A   |
| Cold resistance (Low Temp Storage)       | Temperature : -40 ± 2 °C<br>Duration : 96 hours  | IEC 60068-2-1                 |