



RFM Integrated Device, Inc.

## PRODUCT SPECIFICATION

Part Number: XO6002

XO,156.25M +/-50 -40C  
to +85C LVDS

# SMD 3.2x2.5 156.25 MHz 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 LVDS Output
- Option-able stand-by function for output .

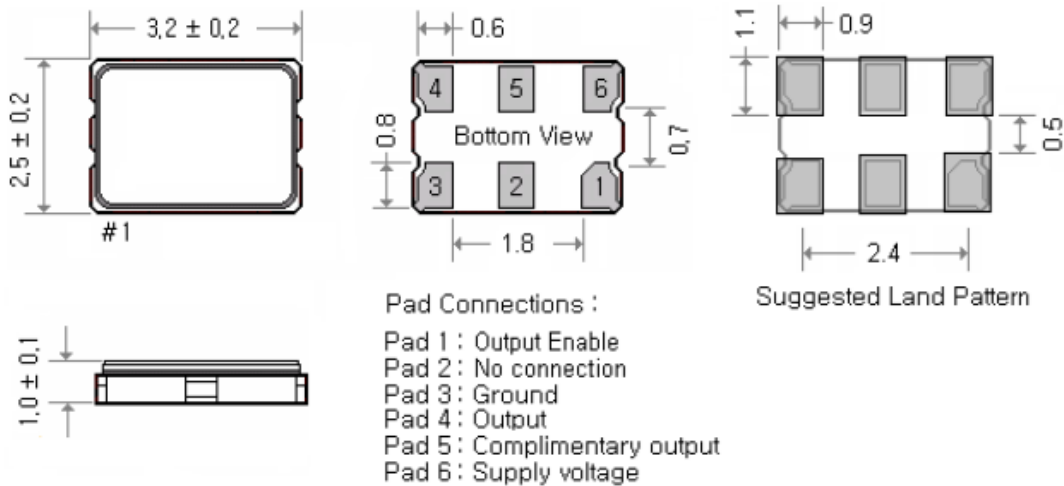
## Electrical Characteristics:

<b>XO6002</b>	<b>Specifications</b>
Nominal Frequency, Fo	156.250000 MHz
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	100 ohm (LVDS)
“0” Level “1” Level	0.9 V min ; 1.1 V typ. 1.4 V typ ; 1.6 V max
Output Swing	250 mV min , 350 mV typ. , 450 mV max
Frequency Stability	+/-50 ppm
Power Supply Current, Icc	16 mA typ ; 27 mA max
Rise Time ( 20% -> 80% of final RF level in Vp-p ) Fall Time ( 80% -> 20% of final RF level in Vp-p )	0.2 nsec typ. ; 0.4 nsec max. 0.2 nsec typ. ; 0.4 nsec max.
Duty Cycle	45% ~ 55%
Start - Up Time	5.0 msec typ. , 10 msec max
RMS Phase Jitter (12K~20MHz)	0.2 ps typ. ; 0.5 ps max.
Aging	+/-3.0 ppm/first year

SSB Phase Noise (@10Hz Carrier Offset)	-50 dBc/Hz typ
SSB Phase Noise (@100Hz Carrier Offset)	-80 dBc/Hz typ
SSB Phase Noise (@1KHz Carrier Offset)	-115 dBc/Hz typ
SSB Phase Noise (@10KHz Carrier Offset)	-135 dBc/Hz typ
SSB Phase Noise (@1MHz Carrier Offset)	-142 dBc/Hz typ
SSB Phase Noise (@10MHz Carrier Offset)	-147 dBc/Hz typ
Enable/Disable Function	PIN 1: High or Open, PIN 3:Enable PIN 1: Low, PIN 3:Disable

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

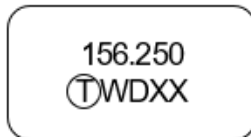
## Mechanical Dimensions: (Unit: mm)



## Marking:

Line 1: 156.25 (Frequency)

Line 2: ⓉWDXX (Product Code + Data Code + Internal Code(XX) : 1 or 2 letters)



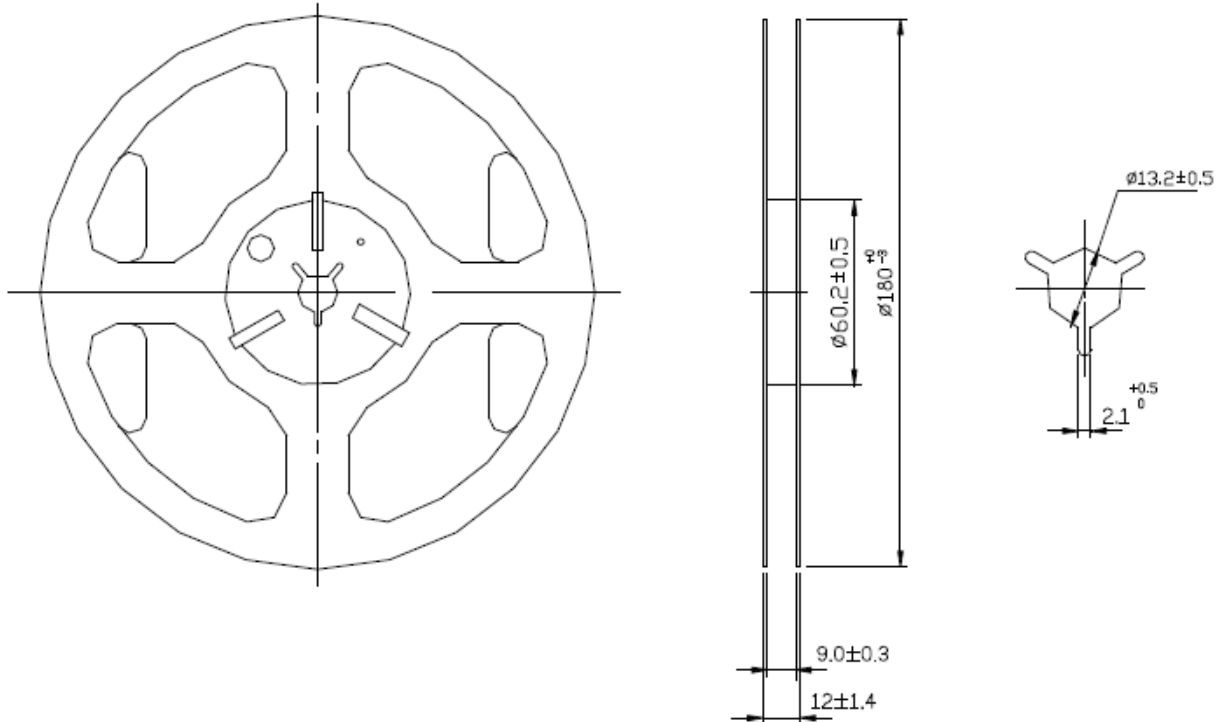
## Product Code Table

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

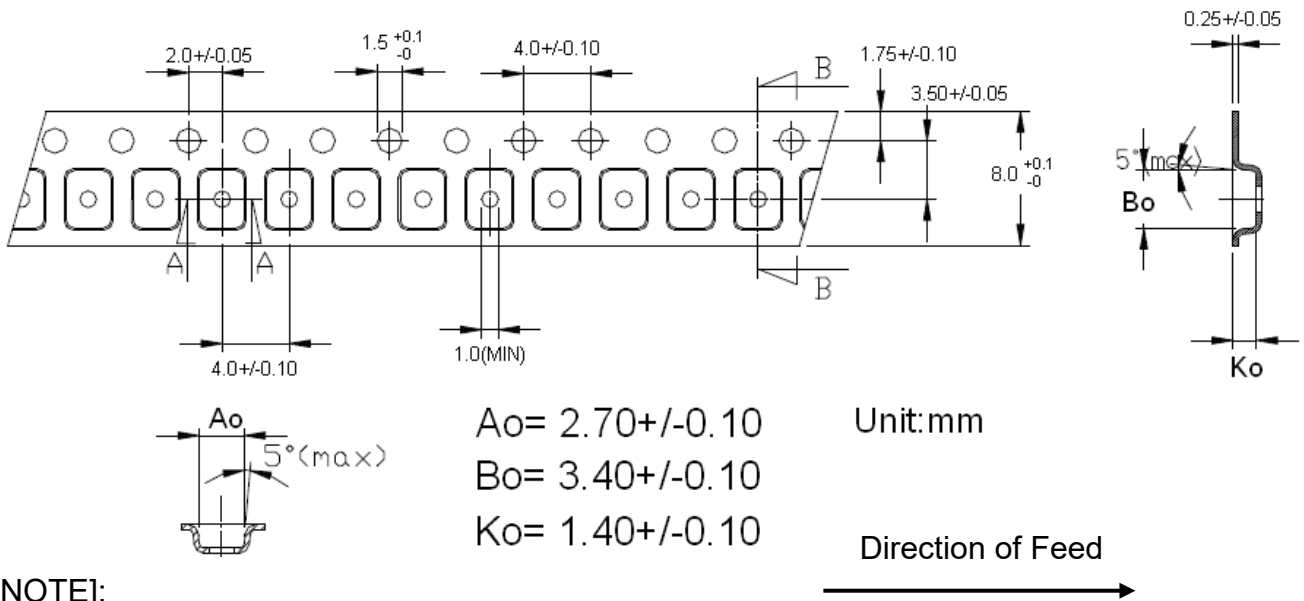
## Date Code Table

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

## Reel Dimensions (mm):



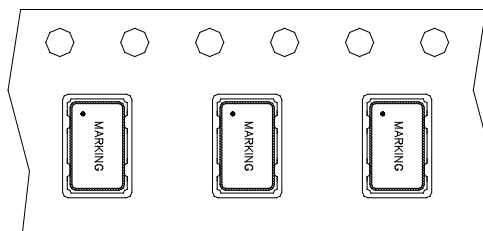
## Tape Dimensions (mm):



### [NOTE]:

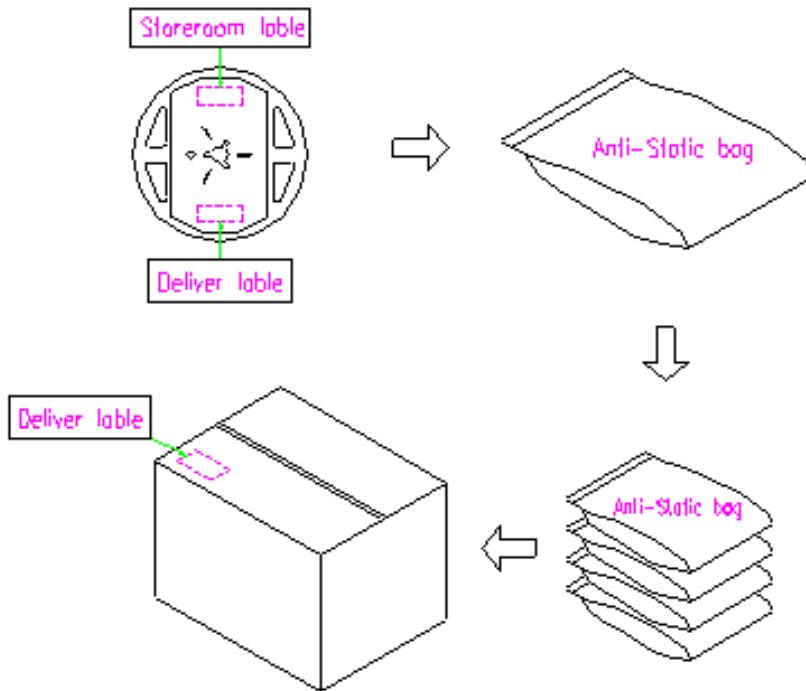
1. Unless otherwise specified tolerance on dimension  $\pm 0.1$  mm.
2. Material: conductive polystyrene with color black.
3. 10 pitch cumulative tolerance  $\pm 0.2$  mm.

### PACKING DIRECTION:

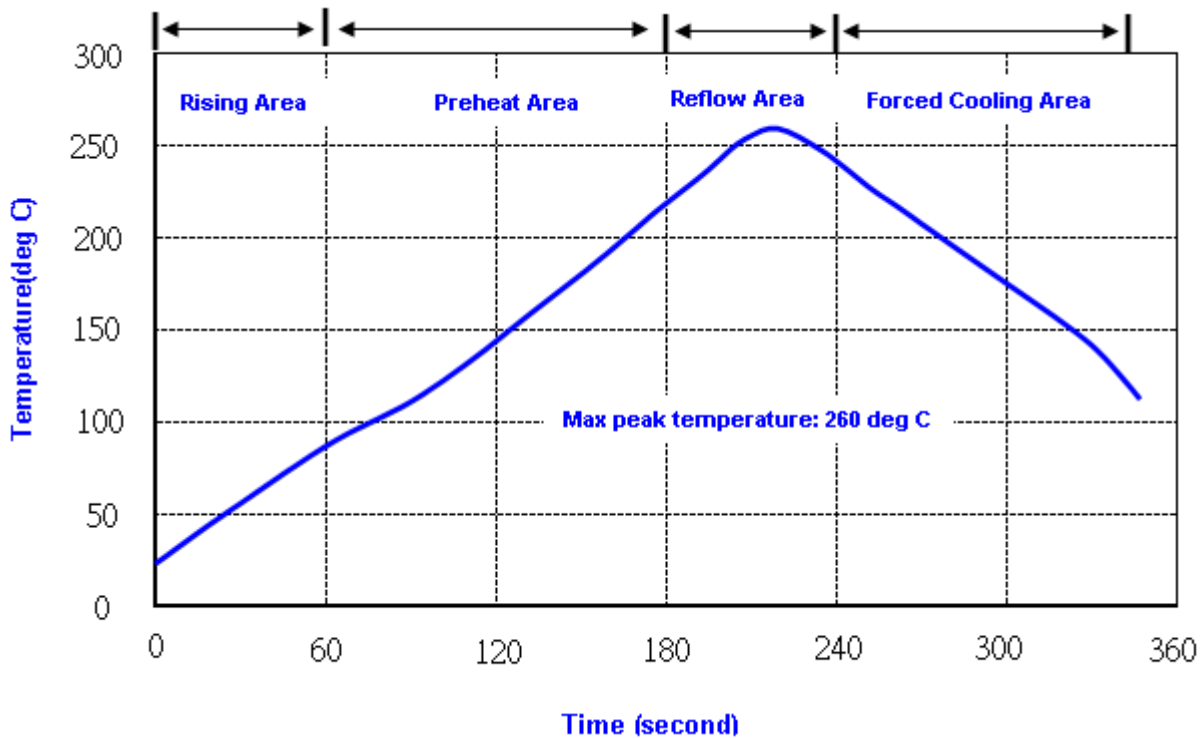


# Packing Quantity/Packing:

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