

## SMD Clock Oscillator (Preliminary)

High Performance XO in 5 x 3.2 mm Surface Mount package



### Product description

The RXO5032P XO combines very low RMS phase jitter and tight frequency stability in a small 5 x 3.2 mm SMD package. Available in hundreds of industry standard frequencies from 8 MHz to 800 MHz for fast delivery and reduced inventory levels.

### Applications

- Basestation
- Communications
- Consumer Products
- DSL/ADSL
- Ethernet
- WiFi
- WiMAX/WLAN

### Features

- 0.5 ps integrated RMS phase jitter (12 kHz to 20 MHz)
- Fast sample turnaround available
- LVCMOS, LVPECL, or LVDS Output options
- Wide frequency range
- Low power differential outputs
- Small form factor

### Specifications

#### 1.0 SPECIFICATION REFERENCES

Line	Parameter	Description
1.1	Model Description	RXO5032P XO
1.2	RoHS Compliant	Yes
1.3	Reference Number	
1.4	Rakon Part Number	

#### 2.0 FREQUENCY CHARACTERISTICS

Line	Parameter	Test Condition	Value	Unit
2.1	Frequency		8 to 1500	MHz
2.2	Operating Temperature Range		-40 to 85	°C
2.3	Frequency Stability	Including Temperature range, Supply variation, Load variation and 10 years aging at 25°C	±30 to 50	ppm
2.4	Temperature Stability	Temperature range only	±10 to 20	ppm

#### 3.0 POWER SUPPLY

Line	Parameter	Test Condition	Value	Unit
3.1	Supply Voltage (VDD)	With a tolerance of ±10%	3.3	V
3.2	Supply Voltage (VDD)	With a tolerance of ±5%	2.5	V
3.3	Supply Current	For LVCMOS	30 max	mA
3.4	Supply Current	For LVPECL	65 max	mA
3.5	Supply Current	For LVDS	40 max	mA

#### 4.0 OUTPUT CHARACTERISTICS - LVCMOS UP TO 200MHZ ONLY

Line	Parameter	Test Condition	Value	Unit
4.1	Output Voltage (Vol)	15pF load	10 max	%VDD
4.2	Output Voltage (Voh)	15pF load	90 min	%VDD
4.3	Duty Cycle	@ 50% VDD	48 to 52	%
4.4	Rise Time / Fall Time	90%/10%	3 max	ns
4.5	RMS Phase Jitter	Integrated 12kHz to 20MHz	0.5	ps

#### 5.0 OUTPUT CHARACTERISTIC - LVPECL ONLY

Line	Parameter	Test Condition	Value	Unit
5.1	Output Voltage (Vol)	50Ω nominal load. (VDD - 1.6V) max.		
5.2	Output Voltage (Voh)	50Ω nominal load. (VDD - 1.03V) min.		
5.3	Duty Cycle	@ VDD-1.3V (45 to 55% 600MHz+)	48 to 52	%
5.4	Rise Time / Fall Time	80%/20% at 50Ω output load	0.6 max	ns
5.5	RMS Phase Jitter	Typical integrated 12kHz to 20MHz	0.5	ps

#### 6.0 OUTPUT CHARACTERISTICS - LVDS ONLY

Line	Parameter	Test Condition	Value	Unit
6.1	Differential Output: Voltage Swing (Vod)		350	mV
6.2	Duty Cycle	Measured at 1.25V (45 to 50% for 600MHz+)	48 to 52	%
6.3	Output Load	RL = 100 Ω / CL = 10 pF		
6.4	Rise Time / Fall Time	RL = 100 Ω / CL = 10 pF	0.6 max	ns
6.5	RMS Phase Jitter	Typical integrated 12kHz to 20MHz	0.5	ps

#### 7.0 PIN CONNECTIONS

Line	Parameter	Description
7.1	Pin 1	E/D* or NC
7.2	Pin 2	E/D* or NC
7.3	Pin 3	GND
7.4	Pin 4	OUTPUT
7.5	Pin 5	COMPLIMENTARY OUTPUT (LVPECL/LVDS only), or E/D*, or NC
7.6	Pin 6	VDD
7.7	* Output Enabled	>70% of VDD on E/D pin, or E/D pin left open (connected to internal pull-up resistor)
7.8	* Output Disabled	<30% of VDD on E/D pin, or E/D pin to GND

#### 8.0 PACKAGE DETAIL

Line	Parameter	Description
8.1	Package	F
8.2	Top line	[R #####] Part identifier
8.3	Middle line	[#####] Part information
8.4	Bottom line	[o FYWW] Pin 1, Manufacturing code, Year code* and Week code**
8.5	* Year code	A = 2010, B = 2011, C = 2012, D = 2013, ... Z = 2035
8.6	** Week Code	WW = 01 = Week of first Monday of the year

**9.0 ENVIRONMENTAL SPECIFICATION**

Line	Parameter	Description
9.1	Mechanical Shock	MIL-STD-883, Method 2002
9.2	Storage Temperature Range	-55 to 125 °C
9.3	Humidity	After 48 hours at 85 °C±2 °C 85 % relative humidity non-condensing
9.4	Thermal Shock	MIL-STD-883, Method 1011
9.5	Vibration	MIL-STD-883, Method 2007
9.6	Gross and Fine Leak	MIL-STD-883, Method 1014
9.7	RoHS Compliant	Yes

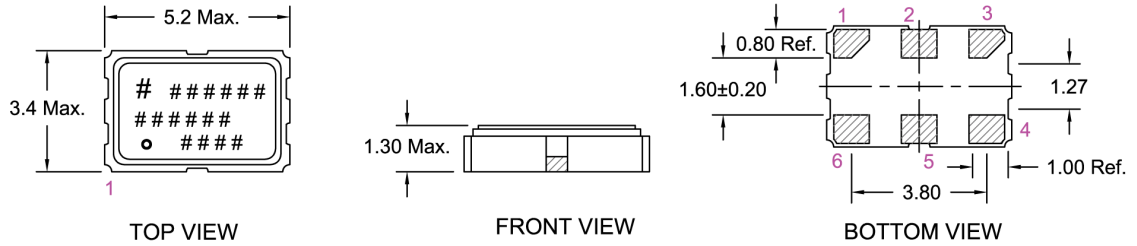
**10.0 MANUFACTURING INFORMATION**

Line	Parameter	Description
10.1	Packaging Description	Tape and Reel. Standard packing quantity is 2000 per reel
10.2	Reflow	Solder reflow process as per attached profile

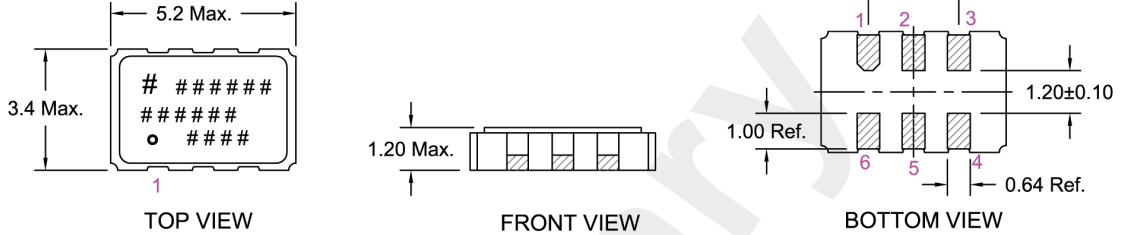
Preliminary

# Drawing Name: XO/VCXO 5032 6-Pin Model Drawing

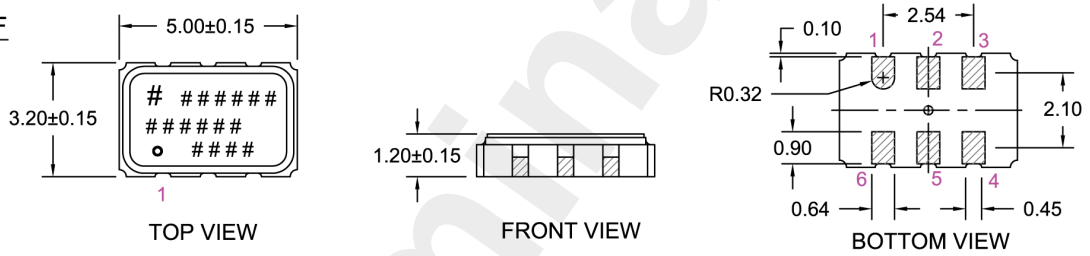
## PACKAGE G65



## PACKAGE GV5

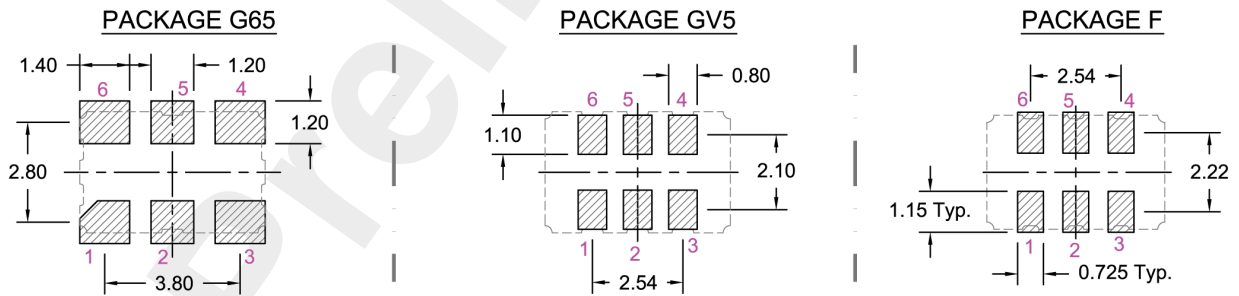


## PACKAGE F



**NOTE :** 1. PIN CONNECTIONS ARE DETAILED IN THE SPECIFICATION.  
 2. MARKING INFORMATION IS DETAILED IN THE SPECIFICATION.

## RECOMMENDED PAD LAYOUT - Top View



TITLE: XO/VCXO 5032 6-PIN MODEL

RELATED DRAWINGS:

FILENAME: CAT026

REVISION: C

DATE: 01-May-12

SCALE: 5 : 1

Millimetres

TOLERANCES:

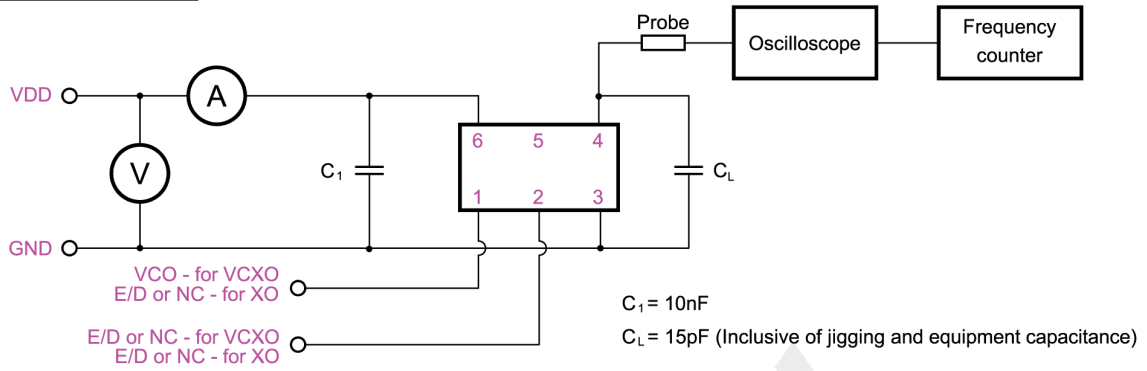
XX =  
 X.X = ±0.15  
 X.XX = ±0.10  
 X.XXX =  
 X° =  
 Hole =

**rakon**

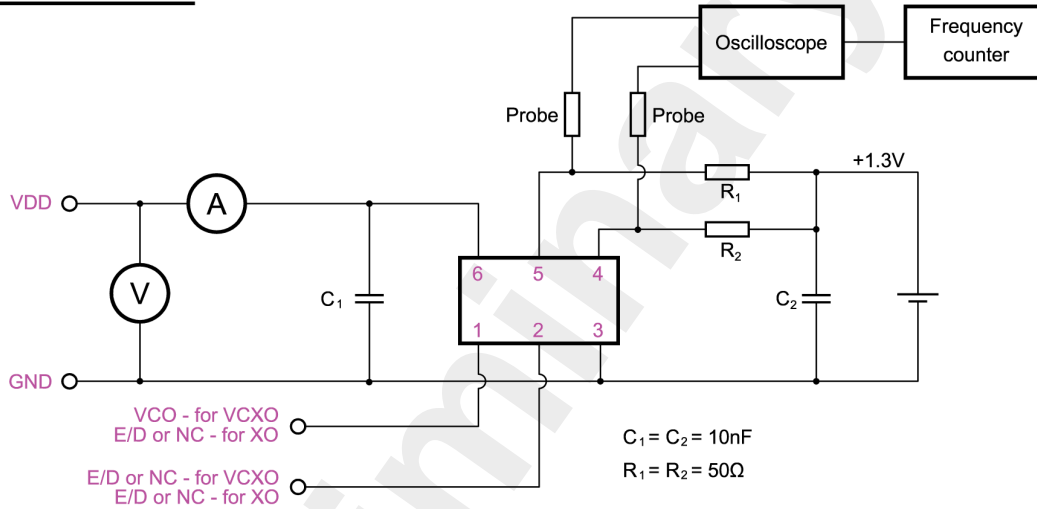
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# Drawing Name: XO/VCXO 6 Pin Series Test Circuit

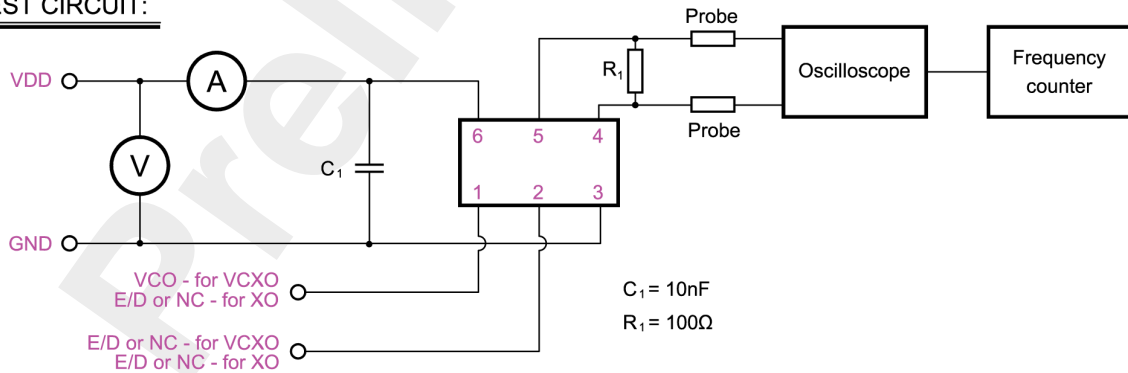
## LVCMOS TEST CIRCUIT:



## LVPECL TEST CIRCUIT:



## LVDS TEST CIRCUIT:



TITLE: XO/VCXO 6 PIN SERIES TEST CIRCUIT

FILENAME: CAT088

RELATED DRAWINGS:

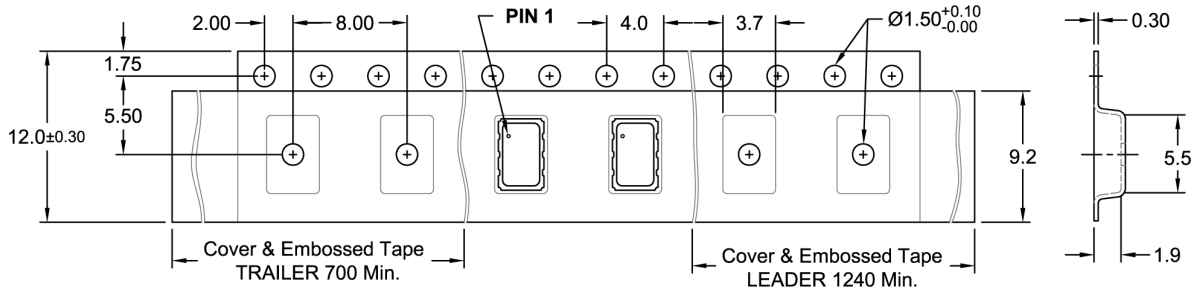
REVISION: F  
DATE: 03-May-12  
SCALE: 1 : 1  
Millimetres

**rakon**

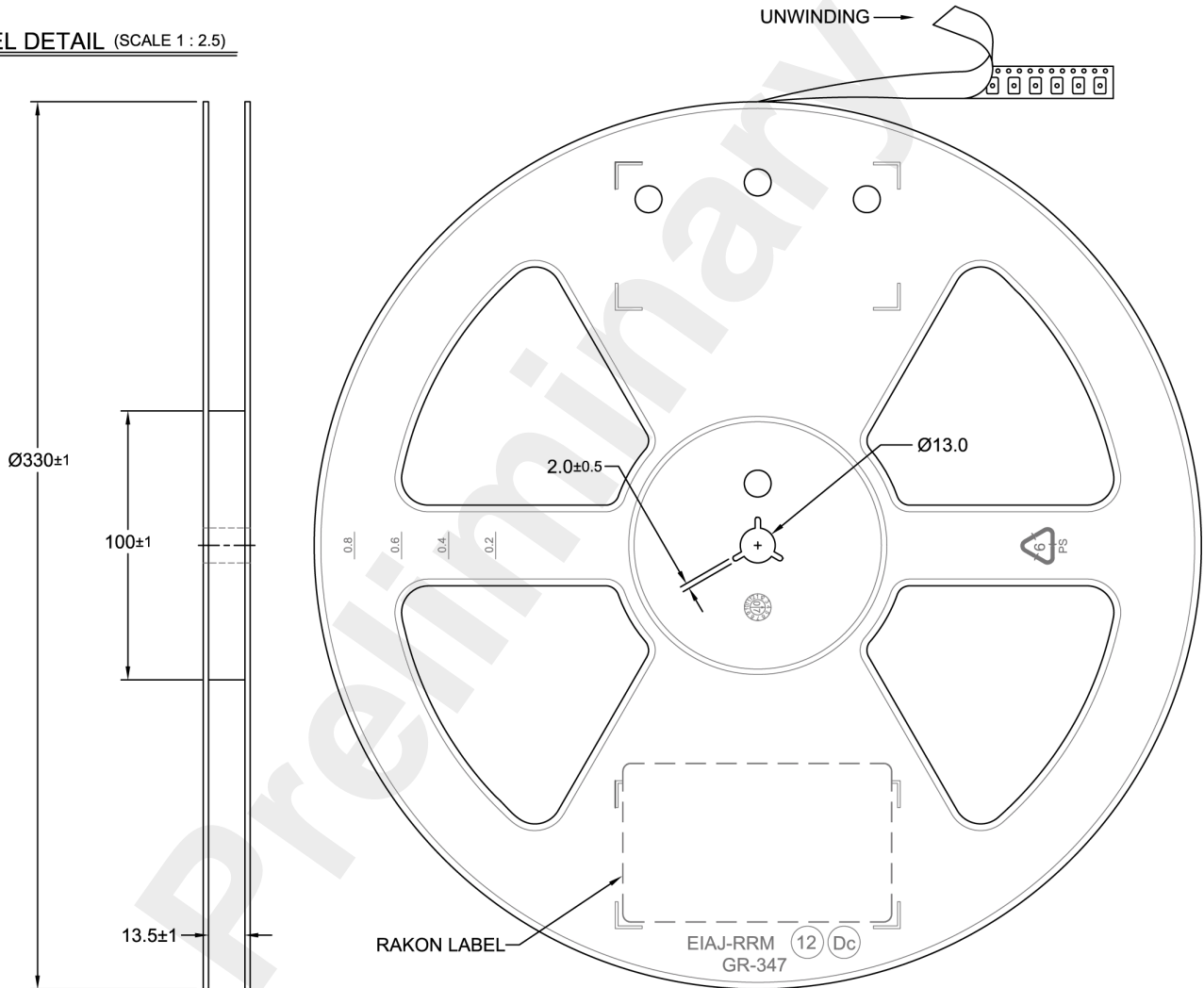
© 2009 Rakon Limited

# Drawing Name: XO/VCXO5032 F Series Tape & Reel

## TAPE DETAIL (SCALE 2 : 1)



## REEL DETAIL (SCALE 1 : 2.5)



TITLE: XO / VCXO 5032 F SERIES TAPE & REEL

RELATED DRAWINGS:

FILENAME: CAT029

REVISION: B

DATE: 14-Oct-11

SCALE: 2 : 1

Millimetres

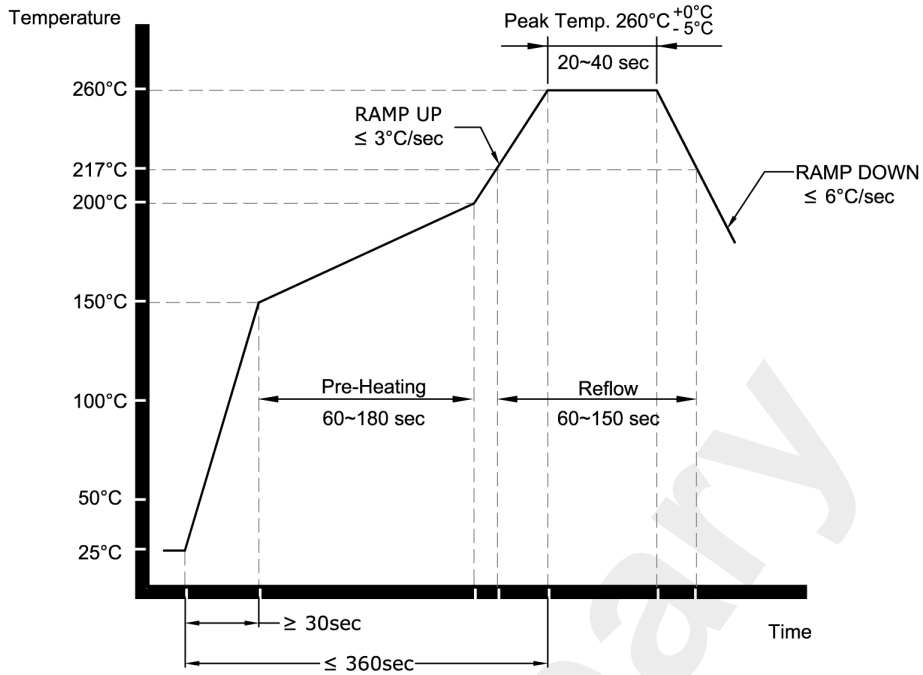
TOLERANCES:

XX =  
 X.X = ±0.1  
 X.XX = ±0.05  
 X.XXX =  
 X° =  
 Hole =

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# Drawing Name: Pb-Free Reflow



## NOTE:

The product has been tested to withstand the Reflow Profile shown. The Reflow Profile used to solder Rakon products is determined by the solder paste Manufacturer's specification. It is recommended that the Reflow Profile used does not exceed the one shown above.

TITLE: Pb-FREE REFLOW

FILENAME: CAT541

RELATED DRAWINGS:

REVISION: B

DATE: 05-Sep-11

SCALE: NTS

Millimetres

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