EUROQUARTZ

XO32 Series Oscillators

3.2 x 2.5 x 1.0mm SMD HCMOS — 312kHz to 160MHz

FEATURES

- **Ultra-miniature 3.2 x 2.5 x 1.0mm package**
- **Frequency Range 312kHz to 160MHz**
- **Tristate (Enable/Disable) function as standard**
- **Supply voltage 1.0, 1.2, 1.5, 1.8, 2.5, 3.3 or 5.0 Volts**

DESCRIPTION

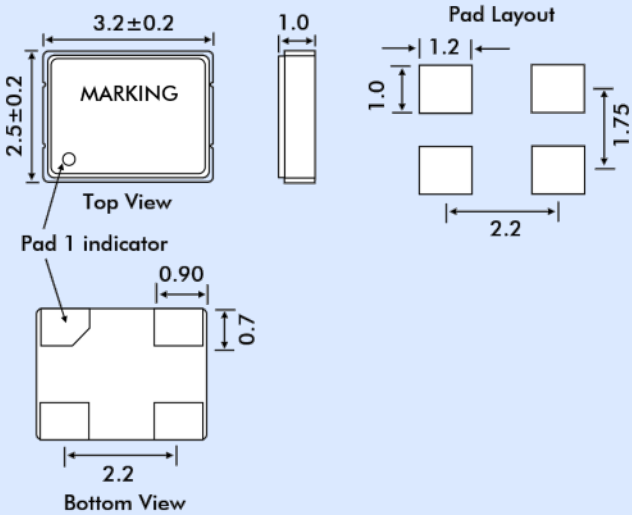
XO32 ultra-miniature oscillators consist of a TTL/CMOS-compatible hybrid circuit and a miniature quartz crystal packaged in a low-profile, industry-standard ceramic package. The package provides a fully specified clock oscillator with a very small footprint.

SPECIFICATION

Frequency Range:	312kHz to 160.0MHz
Supply Voltage:	1.0, 1.2, 1.5, 1.8, 2.5, 3.3 Volts±5% or 5.0 Volts ±10%
Output Logic:	HCMOS/LSTTL
Frequency Stability	
0° to +50°C:	from ±10ppm
-20° to +70°C:	from ±15ppm
-40 to +85°C:	from ±25ppm
-55° to +105°C:	from ±100ppm
Rise/Fall Time:	*(Frequency dependent - see table)*
Output Voltage:	
HIGH '1':	90%Vdd minimum
LOW '0':	10%Vdd maximum
Output Load	15pF
Duty Cycle:	50%±5% typical
Supply Current:	*See table*
Operating Temperature	
Commercial:	-10° to +70°C
Industrial:	-40° to +85°C
Storage Temperature:	-55 to +105°C
Start-up Time:	10ms max.
Ageing:	±5ppm max. in first year at 25°C
Phase Jitter RMS:	10ps typical
Tristate Function (Pad 1):	Enable/Disable function is standard for XO32. Output (Pad 3) is active if Pad 1 is not connected or Pad 1 is 'HIGH'. Output is high impedance when 'LOW' or GROUND is applied to Pad 1.
Packaging:	8mm tape, 178mm reel, 1k pieces

Note: Parameters are measured at ambient temperature of 25°C, supply voltage as stated and a load of 15pF

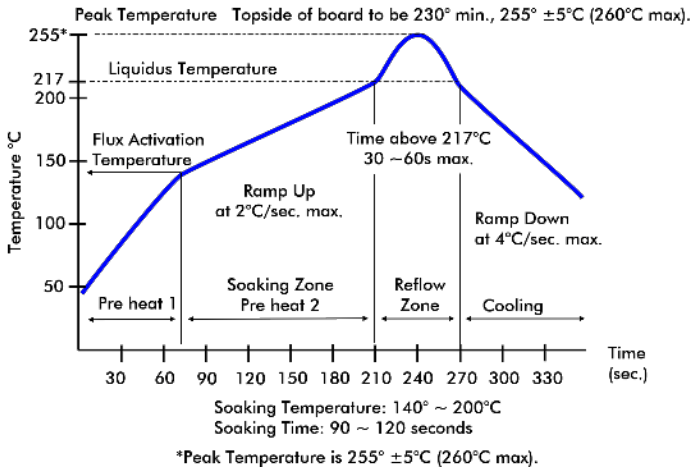
OUTLINE & DIMENSIONS



Pad Connections

1 No Connection (1.0V and 1.2V)
Enable/Disable (1.8V, 2.5V, 3.3V & 5.0V)
2 Ground
3 Output
4 Supply Voltage

SOLDER TEMPERATURE PROFILE



Soaking Temperature: 140° ~ 200°C
Soaking Time: 90 ~ 120 seconds

*Peak Temperature is 255° ±5°C (260°C max).

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SUPPLY VOLTAGE-DEPENDENT PARAMETERS

Supply Voltage	+1.0VDC±5% Code = 'F'	+1.2VDC±5% Code = 'E'	+1.5VDC±5% Code = 'D'	+1.8VDC±5% Code = 'C'	+2.5VDC±5% Code = 'B'	+3.3VDC±5% Code = 'A'	+5.0VDC±10% Code = '_'
Frequency Range	312kHz~ 60MHz	312kHz~ 60MHz	312kHz~ 60MHz	156kHz~ 160MHz	156kHz~ 160MHz	156kHz~ 160MHz	156kHz~ 160MHz
Logic HIGH '1' (90%Vdd min.)	0.90V min.	1.08V min.	1.35V.min	1.62V min.	2.25V min.	2.97V min.	4.5V min.
Logic LOW '0' (90% Vdd max.)	0.10V max	0.12V max	0.15V max.	0.18V max.	0.25V max.	0.33V max.	0.5V max.
Current Consumption	[0.3~1.5MHz] 4mA max.	[0.3~1.5MHz] 4mA max.	[0.3~1.5MHz] 4mA max.	[1.0~1.5MHz] 5mA max.	[0.3~1.5MHz] 5mA max.	[0.5~1.5MHz] 5mA max.	[0.5~1.5MHz] 5mA max.
	[1.5~20MHz] 4mA max	[1.5~20MHz] 4mA max.	[1.5~20MHz] 4mA max.	[1.5~20MHz] 8mA max.	[1.5~20MHz] 8mA max.	[1.5~20MHz] 8mA max.	[1.5~20MHz] 8mA max.
	[20.1~50MHz] 4mA max.	[20.1~50MHz] 4mA max.	[20.1~50MHz] 4mA max.	[20.1~50MHz] 15mA max.	[20.1~50MHz] 15mA max.	[20.1~50MHz] 15mA max.	[20.1~50MHz] 15mA max.
	[50.1~60MHz] 12mA max.	[50.1~60MHz] 12mA max.	[50.1~60MHz] 12mA max.	[50.1~160MHz] 22mA max.	[50.1~160MHz] 25mA max.	[50.1~75MHz] 35mA max.	[50.1~75MHz] 35mA max.
Rise Time/ Fall Time	6ns max.	6ns max.	6ns max.	7ns max.	7ns max.	10ns max.	10ns max.
	Measured between 10% ~ 90% of wave form (CL = 15pF)						

ENVIRONMENTAL PERFORMANCE SPECIFICATION

RoHS Status:	Compliant
Storage Temperature Range:	-55° to +105°C
Humidity:	85% RH, 85°C for 48 hours
Hermetic Seal:	Leak rate $2x10^{-8}$ ATM -cm^3/s max.
Solderability:	MIL-STD-202F Method 208E
Reflow:	248°C max. (see diagram)
Vibration:	MIL-STD-202F Method 204, 35±5 mins, 50 to 2000Hz
Shock:	MIL-STD-202F Method 213B, test Condition E, 50g 11ms.

PART NUMBERING

Example: 20.000MHz XO32050UCTA

Frequency
Series Designation XO32
Stability*
- 100 = ±100ppm
- 050 = ±50ppm
- 025 = ±25ppm

Output CMOS/LSTTL
Operating Temp. Range
- C = Commercial (-10°~70°C)
- I = Industrial (-40°~+85°C)
- M = Military (±100ppm -55°~+105°C)

Tristate Function
Supply Voltage
Blank = 5.0 Volts
- A = 3.3 Volts
- B = 2.5 Volts
- C = 1.8 Volts
- D = 1.5 Volts
- E = 1.2 Volts
- F = 1.0 Volts

** For other stability requirements enter figure required. E.g. for ±20 ppm enter '020' after 'XO32'.*

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