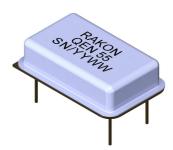
**XO DIL** 

Specific request can be addressed to RAKON info@rakon.fr

#### **Product Description**

This Crystal Oscillator is based on Hybrid Technology in DIL package. XO performs +/-50 to +/-100pm of overall frequency stability (vs. temperature range and calibration at 25°C, load and power supply changes) and ageing of +/- 5ppm per year. This reference is suitable for rugged radio systems used for instance in high speed trains or avionics.



#### **Features**

- Hybrid product with die and wire bonding to a ceramic substrate with 3 points crystal resonator.
- Case type (s): DIL package 14 pin 20.7 x 13.1 x 5.1mm typical
- Frequency Range: 1.5MHz to 100MHz
- Temperature Range: from -40°C to +85°C up to -55°C to +125°C
- Overall Frequency Stability vs. Temperature Range and calibration at 25°C and load and power supply changes: +/-50 to +/-100pm overall
- Ageing per year: +/-5ppm at 45°C first year
- Output Wave Form: square; Tristate output
- Supply Voltage: +3.3V or +5V
- Options available: R: duty cycle 50/50; T: tinned pins; Screening B



#### **Applications**

Recommended for embedded applications, extended temperature range, and rugged environment.

### **Specifications**

#### 1. Environmental conditions

Parameter	Conditions/remarks	Min	Nom	Max	Unit
Operating Temperature	Temperature option DT	-40	25	85	°C
Sperating reinperature	Temperature option AY	-55	25	125	°C
Switch-on Temperature	TSo	-55		125	°C
Non-Operating Temperature	TNOp	-55		125	°C
Random Vibration	Level as per MIL-STD-202, Method 214, Condition I-F (20 Grms)				
Sine Vibration	Level as per MIL-STD-202, Method 204, Condition E (50G)				
	Mechanical shock as per MIL-STD-202, Method 213, cond A (half sine with a pe				eak
Shocks	acceleration of 300g for duration of 3 msec)				
Acceleration	Acceleration as per MIL-STD-883, Method 2001, condition A (5000g, during 60s in Y1)		s in Y1)		

# QEN55

**XO DIL** 

## 2. Electrical interface

Parameters	Conditions/remarks	Min	Nom	Max	Unit
Power supply	Option BH	3.13	3.3	3.465	V
	Option AH	4.5	5	5.5	V
Load Impedance		13	15	18	pF

## 3. Performances

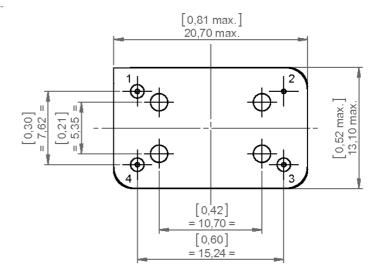
Parameters	Conditions/Remarks	Min	Тур	Max	Unit
Nominal Frequency		1.5		100	MHz
Steady state input current					
power			20		mA
	Absolute frequency drift option 50			± 50	ppm
Global Frequency stability (1)	Absolute frequency drift option 100			± 100	ppm
Initial frequency accuracy			± 15		ppm
Frequency-temperature	Temperature option DT		± 20		ppm
stability	Temperature option AY		± 25		ppm
Frequency variation vs.					
supply voltage	Over Operating Temperature		± 3		ppm
Frequency variation vs. load	Over Operating Temperature		± 5		ppm
Frequency ageing	Over 15 years		± 12		ppm
Start up time				10	ms
Output waveform	AHCMOS compatible		Squar	е	
Output level	Supply option BH			0.4	V
VOL	Supply option AH			0.5	V
Output level	Supply option BH	2.4			V
VOH	Supply option AH	4.5			V
		40		60	%
Duty cycle	Option R	45		55	%
	10%-90% of Vcc, frequency < 10 MHz		10		ns
Rise time	10%-90% of Vcc, frequency ≥ 10 MHz		5		ns
	90%-10% of Vcc, frequency < 10 MHz		10		ns
Fall time	90%-10% of Vcc, frequency ≥ 10 MHz		5		ns

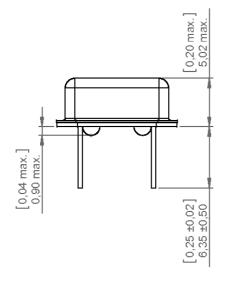
Note 1: Including initial accuracy+freq temp stability+power supply stab+ageing over 15 years

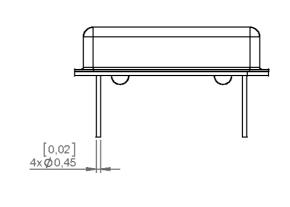
**XO DIL** 

#### 4. Mechanical features

# Weight 10 grams







DOCUMENT.	150.Plan d'encombrement	 $\overline{\mathbb{A}}$	GEN. TOL.	UNITS:	SCALE
DOCUMENT:	150-Oscillator outline	Ψ-	+/- 0.1	mm [inch]	3:1

# 5. Pin description

Line	Pin number	Name	Description
5.1	1		NC or Enable/disable or tristate
5.2	7	GND	Electrical & mechanical ground
5.3	8	Output	Output Frequency
5.4	14	Vcc	Power supply

**XO DIL** 

### 6. Ordering part number definition

The part number breakdown is defined as follows:

