rakon

Crystal Oscillator

QEN79

XO SMD

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

RoHS 2002/95/EC

Product Description

This Crystal Oscillator is based on Hybrid Technology in SMD 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, seam sealing cover.
- Case type (s) : SMD package 4 J-lead 14 x 9 x 3.37mm 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

1.0 Environmental conditions

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

2.0 Electrical interface

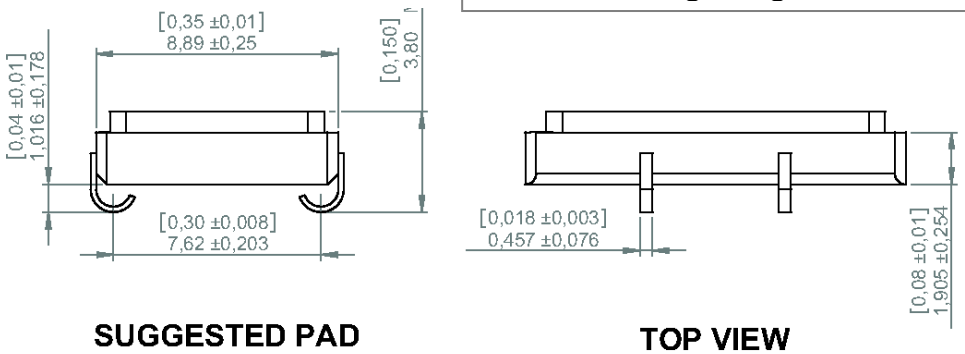
Line	Parameters	Conditions/remarks	Min	Nom	Max	Unit
2.1	Power supply	Supply option BH	3.13	3.3	3.465	V
		Supply option AH	4.5	5	5.5	V
2.2	Load Impedance		13	15	18	pF

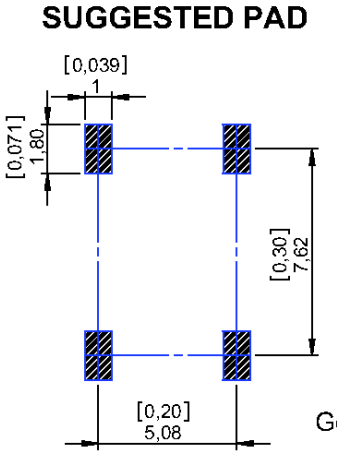
3.0 Performances

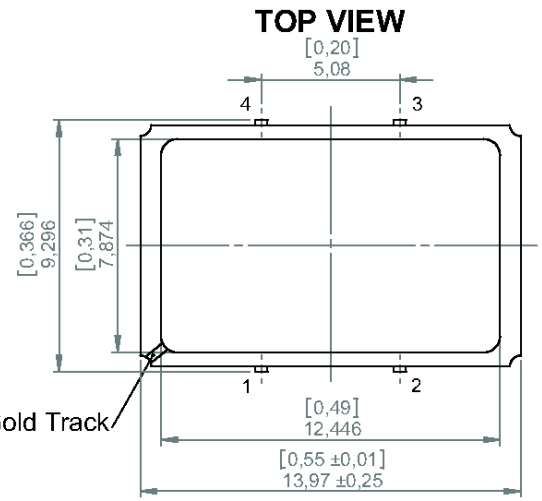
Line	Parameters	Conditions/Remarks		Min	Typ	Max	Unit
3.1	Nominal Frequency			1.5		100	MHz
3.2	Steady state input current power				20		mA
3.3	Global Frequency stability	Including initial accuracy+freq temp stability+power supply stab+load stability+ageing over 15 years	Temperature option 50			± 50	ppm
3.4			Temperature option 100			± 100	ppm
3.5	Initial frequency accuracy				± 15		ppm
3.6	Frequency-temperature stability		Temperature option DT		± 20		ppm
3.7			Temperature option AY		± 25		ppm
3.8	Frequency variation vs. supply voltage	Over Operating Temperature			± 3		ppm
3.9	Frequency variation vs. load	Over Operating Temperature			± 5		ppm
3.10	Frequency ageing	Over 15 years			± 12		ppm
3.11	Start up time					10	ms
3.12	Output waveform	AHCMOS compatible		Square			
3.13	Output level	VOL				0.4	V
3.14		VOH		2.4			V
3.15	Duty cycle			40		60	
		Option R		45		55	%
3.16	Rise time	10%-90% of Vcc, frequency > 10MHz			5		ns
3.17	Fall time	90%-10% of Vcc, , frequency > 10MHz			5		ns

4.0 Mechanical features

Weight 2 grams





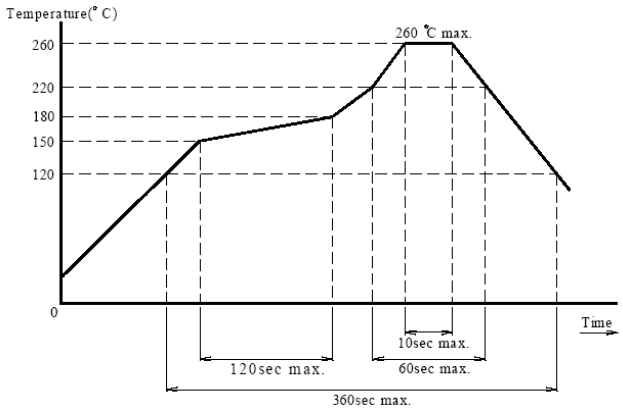


DOCUMENT :	150.Plan d'encombrement *150-Oscillator outline*		GEN. TOL.	UNITS:	SCALE
			+/- 0.1	mm [inch]	5:1

5.0 Pin description

Line	Pin number	Name	Description
5.1	1	Vcc	NC or Enable/disable or tristate
5.2	2	GND	Electrical & mechanical ground
5.3	3	Fout	Output Frequency
5.4	4	Vcc	Power supply

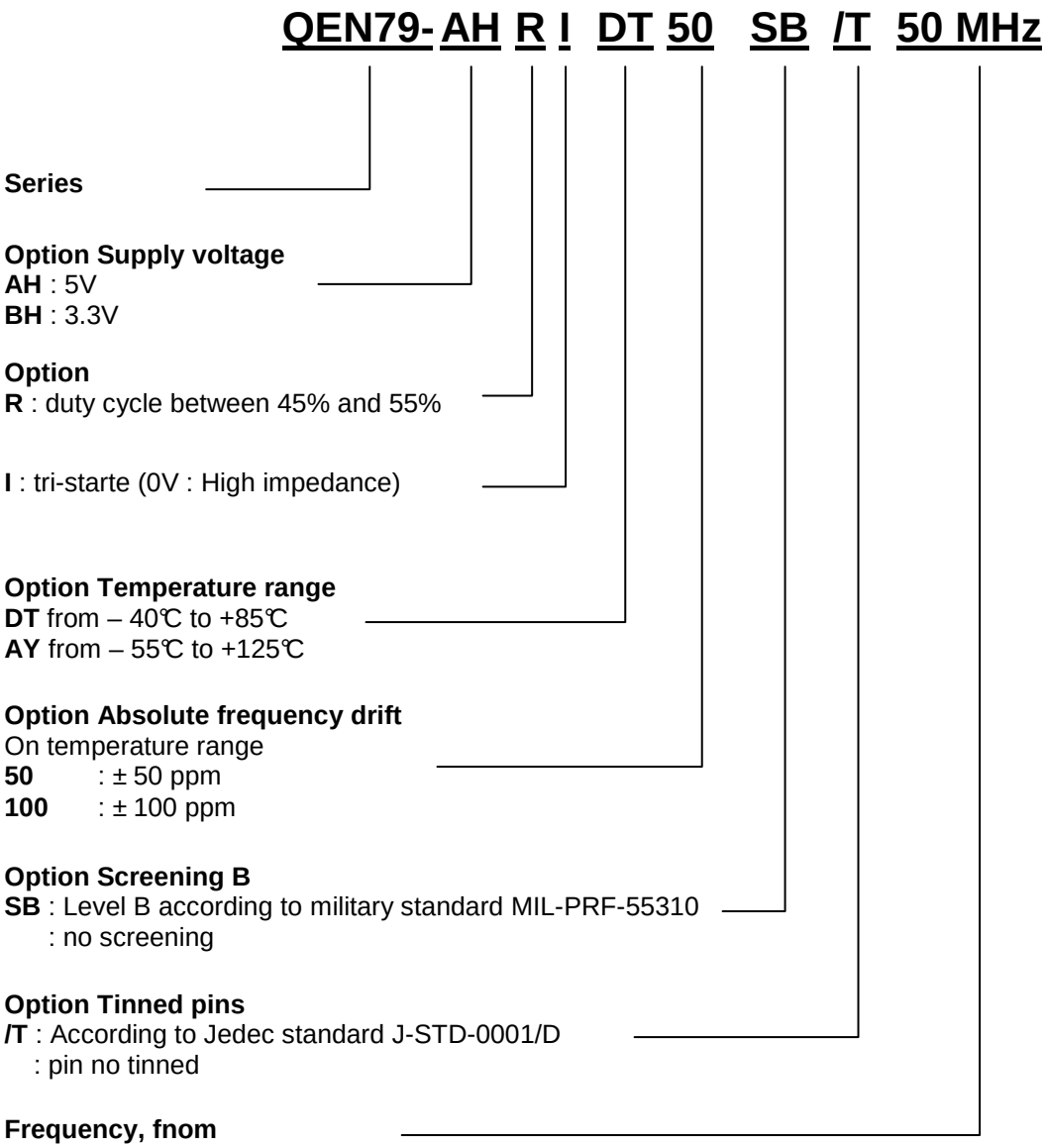
6.0 Suggested reflow profile



Reflow soldering :
Two times max

7.0 Ordering part number definition

The part number breakdown is defined as follows:



Option I compulsory from beginning 2011