

**AEC**[®]

Abundance Enterprise Co.

PRODUCT SPECIFICATION**CRYSTAL RESONATOR****AEC PART NUMBER / SPEC. NO: VCXO/DIP14-32.768M-100- 0°C~+70°C-100/2.5-5V****CUSTOMER: QUARTZ-1 LTD**

This model is ROHS/PB-free compliance according to the
ROHS directive 2002/95/EC

Customer's Name	QUARTZ-1 LTD
Production Name	VCXO
Frequency	32.768MHz
Model No	VCXO/DIP14-32.768M-100- 0°C~+70°C-100/2.5-5V
Issue Date	12-11-2007

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1. ERAL PROVISION

1-1 Production Name: Crystal Oscillator

1-2 Holder Type: FULL size 14 pin

1-3 Application: _____

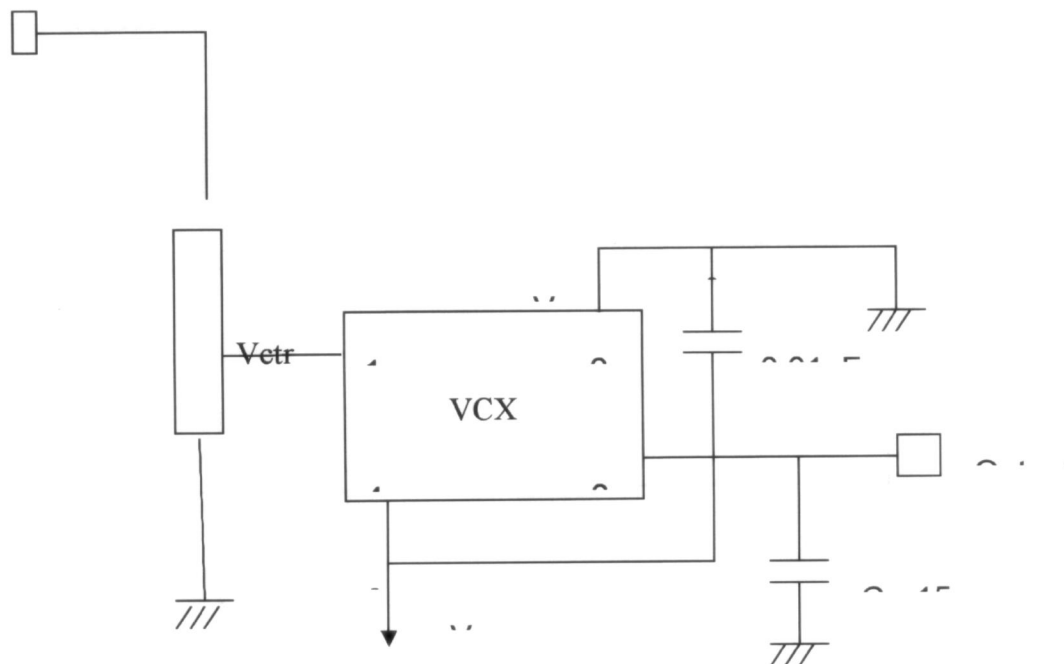
2. ELECTRICAL DATA

Parameter	MIN	TYPICAL	MAX	Unit
Holding	FULL VCXO			
Frequency		32.768		MHZ
Frequency stability @25±2°C	-50		+50	PPM
Operation temperature range	0		+70	°C
store temperature range	-40		+85	°C
Operation Voltage	+4.7	+5.0	+5.3	V
Control Voltage	0	2.5	5.0	V
Frequency Deviation	-100		+100	PPM
Input Current (on loud)			35	mA
Duty Cycle	40%	50%	60%	
Rise Time (Tr)			10	ns
Fall Time (Tf)			10	ns
Start time for oscillator			4	ms
Output	10LSTTL / 15PFHCMOS			
Output Low Voltage Level			0.4V (TTL) 10%VCC (HCMOS)	
Output High Voltage Level	2.4V (TTL) 90%VCC (HCMOS)			

Marking	VCXO(5V) 32.768MHz H 07 xx	
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3. Using Circuit

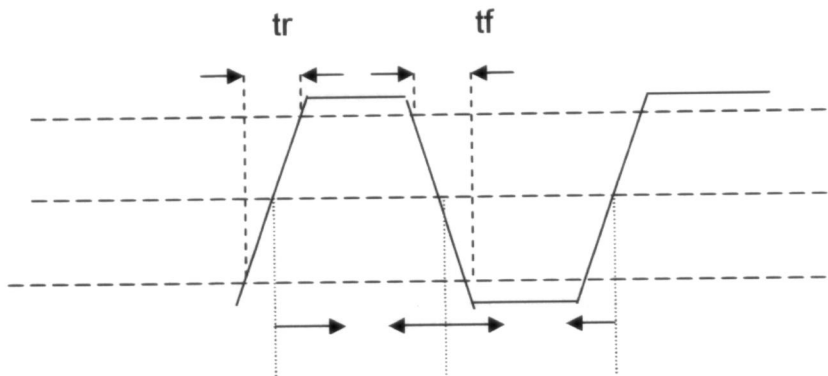
5.0V



Output Waveform

Duty ratio =

$$[TH/(TH+TL)]*100\%$$



CMOS

TTL

90%VCC

(TTL : 2.4V)

50%VCC

(TTL : 1.4V)

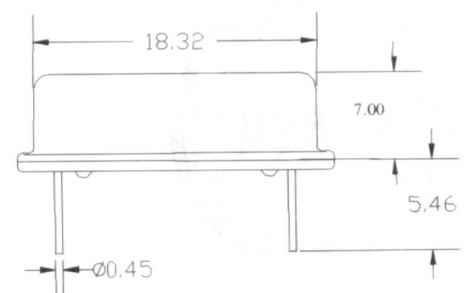
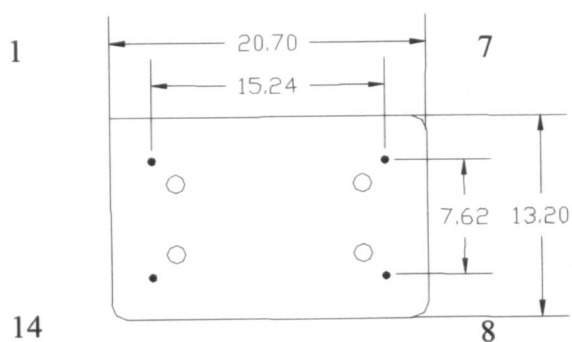
10%VCC

(TTL:0.4V)

TH

TL

4. OSCILLATOR DIMENSIONS



Pin Number	1	7	8	14
Function	V_{ctr}	V_{ss}	Q_{out}	V_{cc}

5. Environmental

Test Item	Condition of Test	Performance Requirements
GROSS LEAK TEST	Helium: force 200kpa, dipping time 70min, blowing 5min, finishing the measure in 30min.	$\leq 4 \times 10^{-9} \text{ pa.m}^3/\text{s}$
Vibration	Endurance condition by a frequency sweep shall be made. the entire frequency range from 10HZ to 55HZ and return to 10HZ, shall be transversed in 1min. Amplitude (total excursion): 1.5mm This motion shall be applied for a period of 2h each of 3 mutually perpendicular axes(a total of 6h)	The parameters of table 3 must be satisfied
Drop	From 750mm height 3 times on 30mm hard wooden floor	
Shock	Peak acceleration: 981m/s^2 Duration of the pulse :6ms Three successive shocks shall be applied in both direction of 3 mutually perpendicular axes(a total of 18 shocks)	
Damp heat, constant	The unit shall be stored at a temperature of $40^\circ\text{C} \pm 2^\circ\text{C}$ with relative humidity of 90% to 95% for 7d, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.	The parameters of table 3 must be satisfied
Cold	The unit shall be stored at a temperature of $-55 \pm 3^\circ\text{C}$ for 2h , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.	
Dry heat	The unit shall be stored at a temperature of $105 \pm 3^\circ\text{C}$ for 16h , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.	

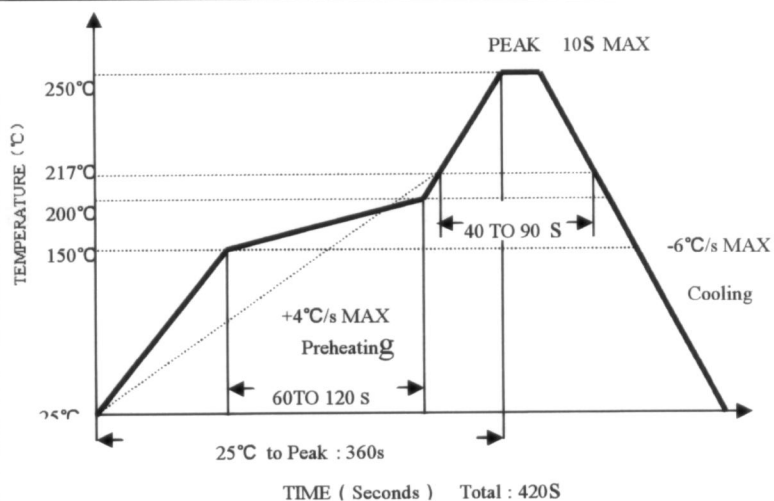
Aging

The unit shall be stored at a temperature of $85\pm 2^{\circ}\text{C}$ for 30d , then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.

Temperature Cycling

The unit shall be subjected to 10 successive change of temperature cycles, each as shown in table below, then it shall be subjected to standard atmospheric conditions for 1h after which measurement shall be made.

	Temperature	Duration
1	$-40^{\circ}\text{C}\pm 3^{\circ}\text{C}$	15min
2	standard atmospheric conditions	Within 30S
3	$85^{\circ}\text{C}\pm 3^{\circ}\text{C}$	15min
4	standard atmospheric conditions	Within 30S

Resistance to soldering heat

Reflow soldering cure see the chart.

Soldering iron method:

Bit temperature : $350^{\circ}\text{C}\pm 10^{\circ}\text{C}$

Application time of soldering iron : 5S MAX

The parameters of table 3 must be satisfied