

**ROHS COMPLIANT**

**APPROVAL SHEET**

Customer : \_\_\_\_\_  
 Part Number: \_\_\_\_\_  
 Part No.: 11414037940.0001  
 Holder : OCXO-14  
 Frequency: 37.94MHz  
 Manufacturer: \_\_\_\_\_  
 Date: 2023-03-22

Prepared	Checked	Approved

**(For Customer Use)**

Acceptable	Non-Acceptable



**1. Scope**

This document describes technical guidelines of product [11414037940.0001](#)

**2. Electrical Characteristics**

HCMOS OUTPUT OCXO-14						
PARAMETER	SYMBOL	CONDITIONS	MIN	TYPE	MAX	UNIT
Normal Frequency	$F_n$			37.94		MHz
<b>Absolute maximum ratings</b>						
Maximum Supply Range	$V_{cc}$	–	-0.3		+5.5	V
Operating Temperature range	$T_A$	–	-40		85	°C
Storage Temperature range			-55		125	°C
<b>Power</b>						
Operating Supply Voltage	$V_{cc}$		4.75	5	5.25	V
Turn-On		Nom $V_{cc}$			2.5	W
Steady state		$T_A=25^\circ\text{C}$			1	W
<b>Frequency Stability</b>						
Calibration		$T_A=25^\circ\text{C}$		$\pm 0.3$	$\pm 0.5$	ppm
Freq VS Temperature	$T_S$	$-40^\circ\text{C}$ to $85^\circ\text{C}$			$\pm 200$	ppb
Freq VS Time (Aging)		Per day			$\pm 50$	ppb
		1st year			$\pm 1.5$	ppm
		10 years			$\pm 4$	ppm
Warm up time		time to $\pm 0.5$ of $F_n$			3	minutes
<b>Electrical Frequency Control</b>						
Control Voltage Range	$V_c$	VC Transfer is positive monotonic	0		5	V

Control Voltage at f0	V <sub>Cr0</sub>	25°C at time of shipment		2.5		V
Pulling Range				±5		ppm
Input impedance (Zi)			50			KΩ
EFC Linearity					5	%
<b>Output parameters</b>						
Output signal		-	HCMOS			
Output load		Output to ground	13.5	15	16.5	pF
Output Level	V <sub>OH</sub>	High Level	4.5			V
	V <sub>OL</sub>	Low Level			0.5	V
Duty Cycle			45	50	55	%
Rise time/ Fall time					5	ns
Phase noise		10Hz		-90		dBc/Hz
		100Hz		-120		dBc/Hz
		1KHz		-140		dBc/Hz
		10KHz		-150		dBc/Hz

### 3. Construction

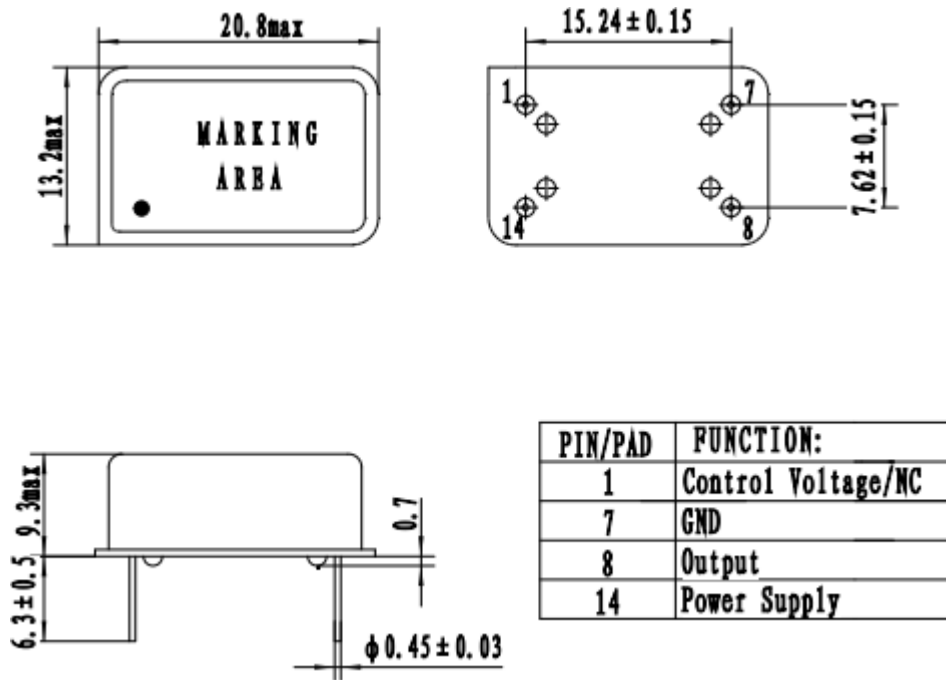
#### 1. Oscillator enclosure seal:

Seam seal     resistance weld     cold weld

#### 2. crystal enclosure medium

nitrogen     vacuum     dry air

**4.Dimension:**

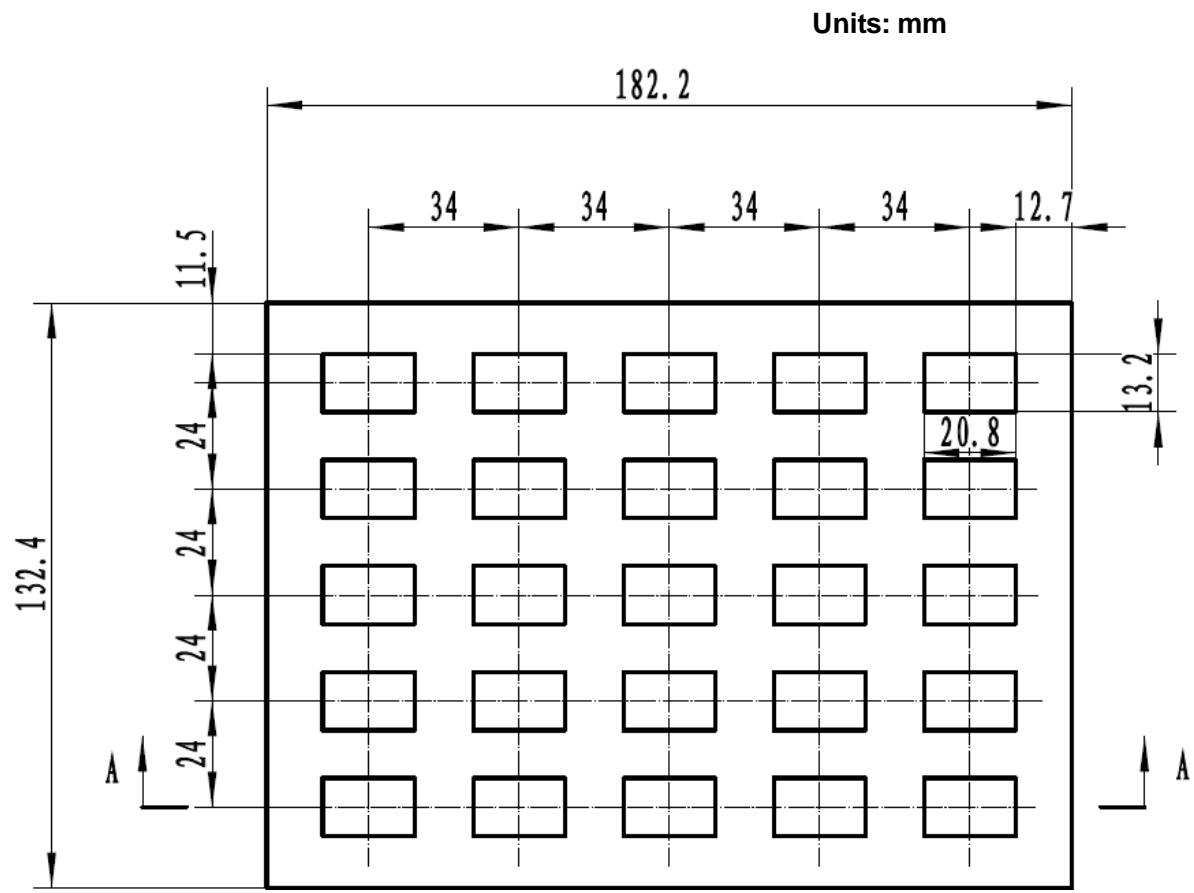


**5. Marking**

Laser Marking

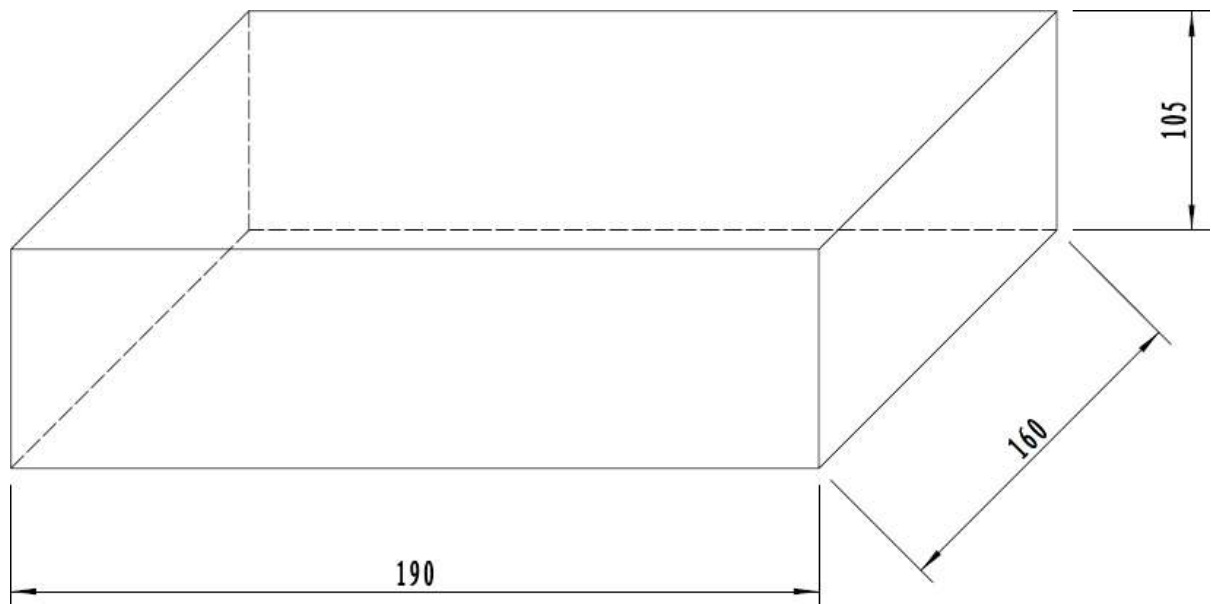
Ink Marking

**6. Packing Instruction**



Tray Material: ESD plast.

25 units per tray.



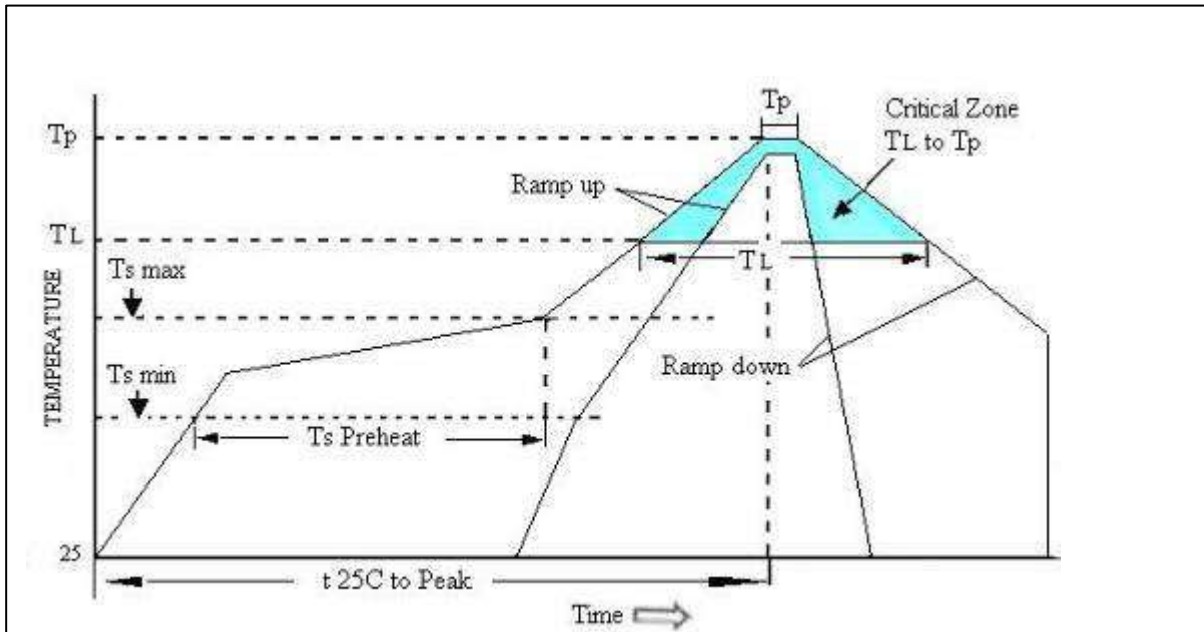
100 unites max per box.

**7. Reliability characteristic:**

	Item	Condition	Specifications
7.1	Reflow Simulation	3X 240°C Peak 20 secs max above 240°C	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.2	Power Cycl	100 Cycles -40°C, 30 minutes no power (off) and 30 minutes powered (on) -- Test product for functionality -- Continue for another 250 cycles -- Test product for functionality -- Intenal visual and mechanical inspection	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.3	Thermal Shock	Subject samples to temperature extremes of -40 and +125C, 30 minute soaks at the temperature extremes, 10 seconds maximum transition time between extremes. The test duration is 10 Cycles GJB 360A-96 Method 107.	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.4	Mechanical Shock	IEC 68-2-27 Test Ea	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.5	Vibration	IEC 68-2-06 Test Fc	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.6	Free drop	Drop from 10cm height on 3cm hard wooden board for 6 times  GB2423.8-1995 (idt IEC 68-2-32:1990) Method Ed.	$\Delta F \leq \pm 0.2 \text{ ppm}$
7.7	Aging	Bias oscillators at nominal voltage and subject oscillators to 25C for 1008 hours. Readings are to be taken with oscillator at 25C twice per day. Determine aging (frequency shift post 1008 hours minus initial frequency). Use the results to predict long-term aging.	Per. Spec.
7.8	Solderability	Precondition parts by steaming (over boiling water) for 8 hours OR age the parts at 150C for 16 hours	A new uniform coating of solder shall cover a minimum of 95% of the surface being immersed.

**8. All products are RoHs compliant**

### 9. Reflow Profile



#### High Temperature Infrared /Convection

Note:Temperature shown are applied to body of device

Ts max to TL(Ramp-up Rate)	3°C/second max
Preheat	
Temperature Min(Ts Min)	150°C
Temperature Typical( Ts Typ)	175°C
Temperature Max.(Ts Max)	200°C
Time(ts)	60-180 seconds
Ram-up Rate(TL to Tp)	3°C/second Max
Time Maintained Above:	
--Temperature(TL)	217°C
--Time(TL)	60-150seconds
Peak Temperature (Tp)	260°C Max for 10 seconds
Time within 5°C of actual peak(tp)	20-40 seconds
Ramp-down Rate	6°C/seconds Max
Tune 25°C to Peak Temperature(t)	8 minutes Max
Moisture Sensitivity Level	Level 1

#### High Temperature Manual Soldering

Note:Temperature shown are applied to body of device

260°C Max for 5 seconds Max, 2 times Max