Not PB-Free

APPROVAL SHEET

Customer : _____

Part Number: _____

Part No.: 11420060000.0003

Holder : OCXO-20

Frequency: 60.000MHz

Manufacturer: _____

Date: 2023/5/4

Prepared	Checked	Approved

(For Customer Use)

Acceptable	Non-Acceptable

Revision History

No.	Revised Date	Change Content	Approved	Remark
1.0	2023-5-4	Initial Release		

1. Scope

This document describes technical guidelines of product **11420060000.0003**

2. Electrical Characteristics

LVCMOS OUTPUT OCXO-20						
PARAMETER	**SYMBOL**	**CONDITIONS**	**MIN**	**TYPE**	**MAX**	**UNIT**
Normal Frequency	F_n	SC	-	60.000	-	MHz
Absolute maximum ratings						
Maximum Supply Range	V_{cc}	–	-0.5	-	+5.5	V
Operating Temperature range	T_A	–	-40	-	85	℃
Storage Temperature range	-	-	-55	-	125	℃
Power						
Operating Supply Voltage	V_{cc}	-	3.13	3.30	3.47	V
Turn-On Power	-	Nom Vcc	-	-	3.6	W
Steady state Power	-	Ta=25℃	-	1.2	1.5	W
Frequency Stability						
Calibration	-	T_A=25℃	-	±500	±800	ppb
Freq VS Temperature	T_S	-40℃to85℃(ref to 25℃)	-	-	±100	ppb
Freq. VS Voltage	-	Vcc=3.3V±5% (Vc= constant)	-	-	±20	ppb
Freq VS Time (Aging)	-	Per day	-	-	±2	ppb
	-	Per year	-	-	±100	ppb
	-	10 years	-	-	±0.5	ppm
Warm up time		to within F ± 1 E-7 frequency reached after 1 hour of continuous operation @ 25℃	-	-	5	minutes
Electrical Frequency Control						

Control Voltage Range	-	VC Transfer is positive monotonic	0	-	2.8	V
Center control voltage	V_c	-	-	1.4	-	V
Pulling Range	-	-	±0.5	-	-	ppm
Input impedance (Zi)	-	-	100	-	-	KΩ
EFC Linearity	-	-	-	-	±10	%
Output parameters						
Output signal	-	-	LVCMOS			
Output load	-	Output to ground	Load=15pF±10%			Ω
Output level	V_{OH}	Load=15pF±10%,Vcc=3.3V	2.97	-	-	VDC
	V_{OL}	Load=15pF±10%,Vcc=3.3V	-	-	0.33	VDC
Rise/fail time	Tr/Tf	-	-	-	6	ns
Duty cycle	SYM	-	45	50	55	%
Spurious	-	-	-	-	-70	dBc
Reference Voltage	-	-	-	-	-	VDC
Phase noise						
-	-	10Hz	-	-85	-	dBc/Hz
	-	100Hz	-	-120	-	dBc/Hz
	-	1KHz	-	-145	-	dBc/Hz
	-	10KHz	-	-150	-	dBc/Hz
	-	100KHz	-	-155	-	dBc/Hz

3. Construction

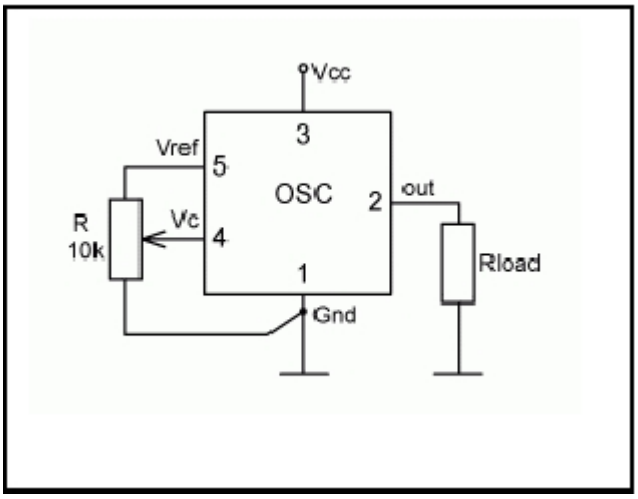
1. Oscillator enclosure seal:

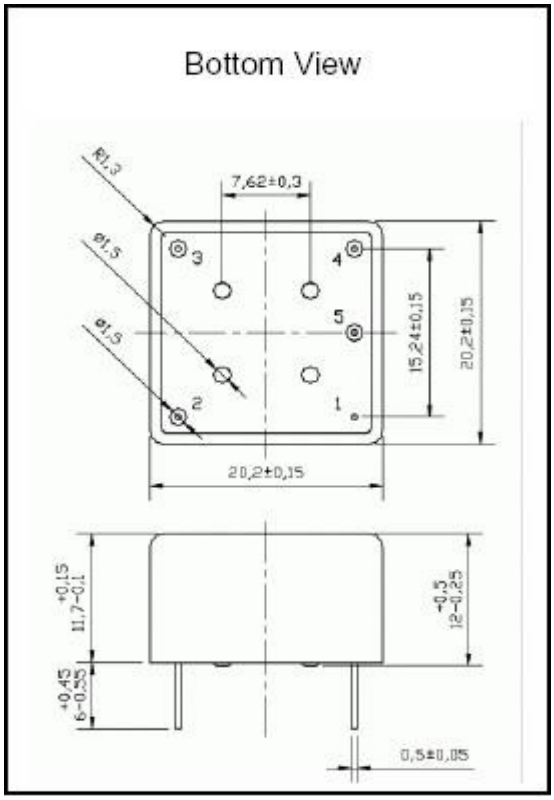
☐Seam seal ■resistance weld ☐cold weld

2. crystal enclosure medium

☐nitrogen ■vacuum ☐dry air

4.Dimension:

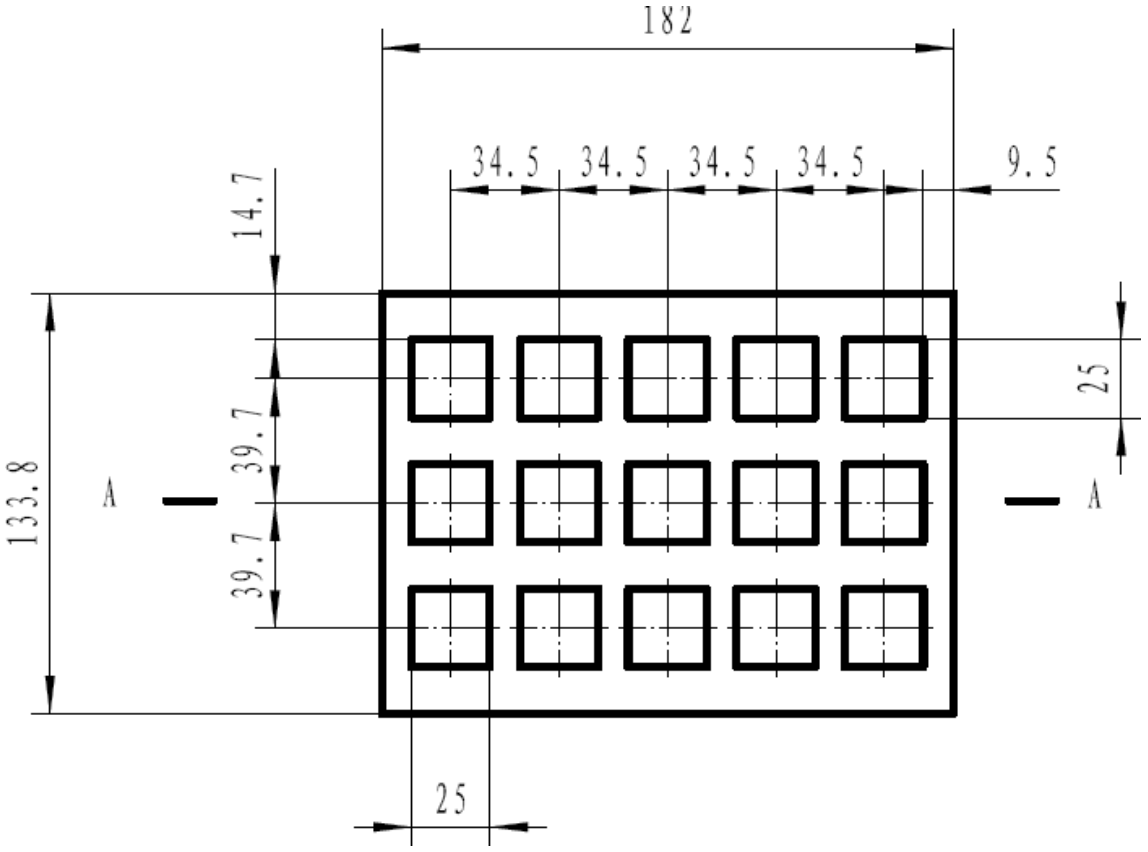

Vcc
3
Vref
5
OSC
2
out
R
10k
Vc
4
Rload
1
Gnd


Bottom View
R1,3
7,62±0,3
ø1,5
ø1,5
3
4
5
2
1
15,24±0,15
20,2±0,15
20,2±0,15
+0,15
11,7-0,1
+0,5
12-0,25
+0,45
6-0,35
0,5±0,05

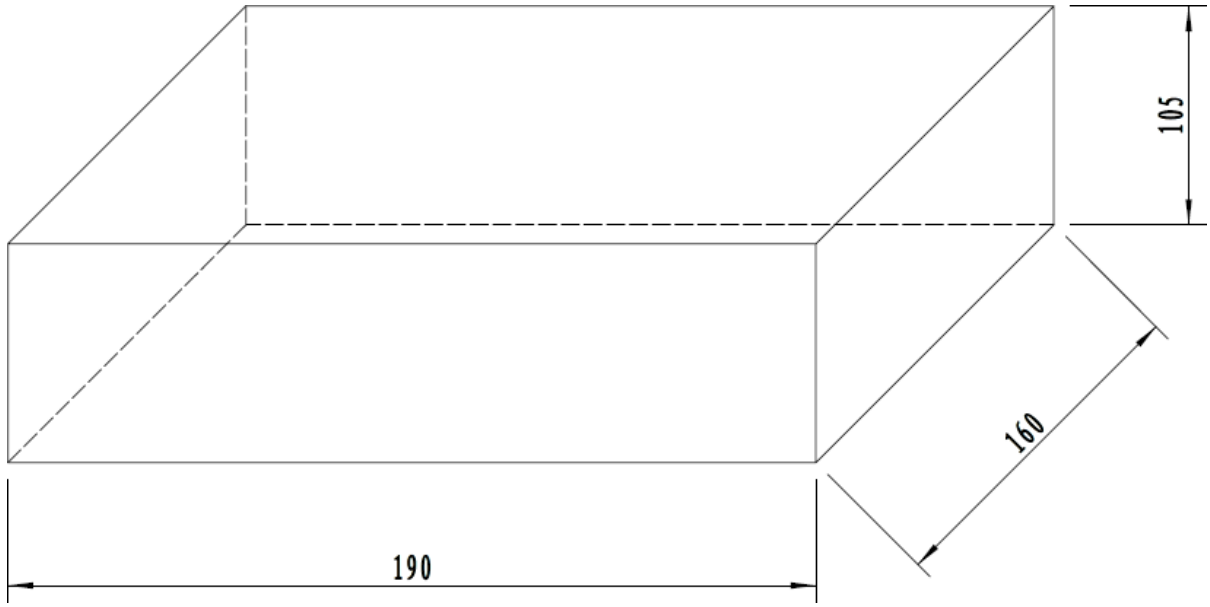
5. Marking

■ Laser Marking ☐ Ink Marking

6. Packing Instruction



Trap Material: ESD sponge.



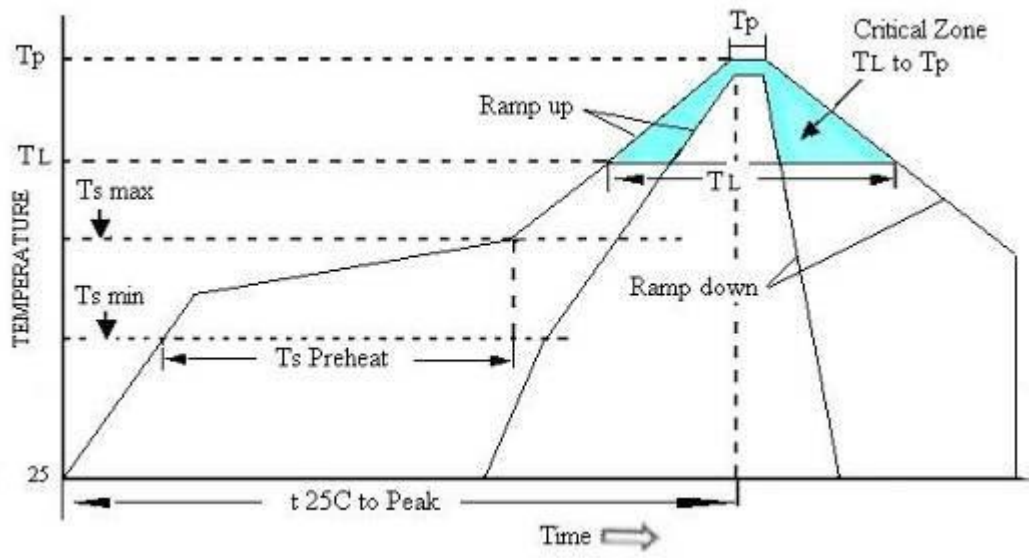
45 unites per box.

7.Reliability characteristic:

	Item	Condition	Specifications
7.1	Reflow Simulation	3X 240°C Peak 20 secs max above 240°C	ΔF≤±0.2ppm
7.2	Power Cycle	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	ΔF≤±0.2ppm
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.	ΔF≤±0.2ppm
7.4	Mechanical Shock	Shock 50g / 11 mS ½ sine IEC 68-2-27, test Ea, severity 50A	ΔF≤±0.2ppm
7.5	Vibration	Vibration 10g –10Hz / 500Hz IEC 68-2-06, test Fc, severity 500/10	ΔF≤±0.2ppm
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。	ΔF≤±0.2ppm
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 T_L(Ramp-up Rate)	3℃/second max
Preheat Temperature Min(Ts Min) Temperature Typical(Ts Typ) Temperature Max.(Ts Max) Time(ts)	 150℃ 175℃ 200℃ 60-180 seconds
Ram-up Rate(T_L to Tp)	3℃/second Max
Time Maintained Above: --Temperature(T_L) --Time(T_L)	 217℃ 60-150seconds
Peak Temperature (Tp)	260℃ Max for 10 seconds
Time within 5℃ of actual peak(t_p)	20-40 seconds
Ramp-down Rate	6℃/seconds Max
Tune 25℃ 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℃ Max for 5 seconds Max, 2 times Max