

Model 1198

Stratum 3E, 25.4 x 22 mm OCXO

Features

- 10 to 40 MHz Frequency Range
- Compliant to Stratum 3E of GR-1244-CORE
- Surface Mount
- 3.3V or 5.0V operation
- Low Jitter/Phase Noise
- Tape and Reel Packaging



25.4 x 22 x 12.7 mm

Applications

- Telecom Switching
- Wireless Communication

Description

The CTS Model 1198 is a low cost, small size, high performance OCXO. The high quality SC Quartz Crystal used in this OCXO offers high stability and low jitter/phase noise, making it the ideal choice for any telecommunications system.

Ordering Information – Table 1

Model	Stability	Temp Range	Supply Voltage	Electronic Freq Control/Vref	Output	Frequency Code
1198	— 28	G	E	N	H	— xxMxxx

Code	Stability (ppb)
17	±100
58	±50
38	±30
28	±20
18	±10
59	10 pk-pk

Code	Supply
D	5.0V ±5%
E	3.3V ±5%

Code	Output
H	HCMOS
S	Sinewave

Code	Temp Range
A	0 to 50°C
B	0 to 70°C
C	-10 to 60°C
D	-20 to 70°C
E	-30 to 70°C
G	-40 to 85°C

Code	Specification
N	Fixed freq.
V	EFC, with Vref
R	EFC, without Vref

Code	Standard Frequencies (MHz)*
10M000	
12M800	
13M000	
16M384	
19M440	
20M000	
25M600	
26M000	
38M880	
40M000	

Part Number Example:
1198-28GENH-20M000

* Custom frequencies are available. Please consult factory.



Electrical Specifications

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Operating Conditions					
Operating Temperature Range	T_{OP}	-40	-	85	°C
Supply Voltage	V_{CC} : 3.3V or 5.0V	3.135 4.75	3.3 5.0	3.465 5.25	Vdc
Power Consumption	Warm-up	-	-	3.2	W
	Steady State; $T_A = 25^\circ\text{C}$	-	-	1.2	W
Load	HCMOS	5	10	15	pF
	Sinewave	45	50	55	Ω

Frequency Stability

Frequency	F_{NOM} – See ordering options for standard frequencies	10	-	40	MHz
Calibration	25°C, at time of shipment (fixed frequency option “N”)	-	-	±0.200	ppm
Freq. vs Temperature	See Table 1 options	-	-	±10	ppb
Freq. vs Supply Voltage	$V_{CC} \pm 5\%$	-	±2	±5	ppb
Freq. vs Load	15 pF ±5%	-	-	±1	ppb
Freq. vs Time (Aging)	At time of shipment	-	-	±1	ppb/day
		-	-	±100	ppb/year
		-	-	±500	ppb/10 yrs
Short Term Stability (ADEV)	1.0 sec – still air	-	0.01	0.02	ppb
Warm-up time	$T_A = 25^\circ\text{C}$, within 100 ppb of freq. @ 60 minutes	-	-	5	minutes

Electronic Frequency Control (EFC)

Input Impedance	Z_I	50	-	-	k Ω
Modulation Bandwidth	-3 dB	500	-	-	Hz
Control Voltage Range	V_C ; positive monotonic (refer to V_{REF} p/n option)	0	-	V_{REF} or V_{CC}	Vdc
Tuning Range		±0.7	-	-	ppm
Linearity		-	-	10	%

Output Parameters

CMOS Output Levels (option)	3.3V (LVCMOS)	V_{OL}	-	-	10% V_{CC}	Vdc
	5.0V (HCMOS)	V_{OH}	90% V_{CC}	-	-	
Rise/Fall Times	10% to 90%, 10pF load	-	-	7	ns	
Duty Cycle	@50% of output signal	45	50	55	%	
Subharmonics	$F_{NOM} > 20\text{MHz}$	-	-	-30	dBc	

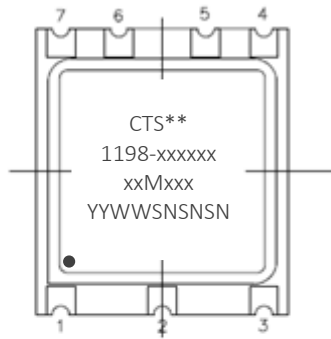
Electrical Specifications (Continued)

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Sinewave Output (option)	Into 50 Ω	2	5	8	dBm
Harmonics		-	-	-35	dBc
Subharmonics	$F_{NOM} > 20\text{MHz}$	-	-	-30	dBc
Spurious		-	-	-70	dBc
Phase Noise (for 10 MHz)	10 Hz	-	-118	-	dBc/Hz
	100 Hz	-	-143	-	
	1 kHz	-	-152	-	
	10 kHz	-	-155	-	
Reference Voltage (optional)	$V_{CC} = 3.3\text{V}$, 4ma max	2.7	2.8	2.9	Vdc
	$V_{CC} = 5.0\text{V}$, 4ma max	3.85	4.0	4.15	

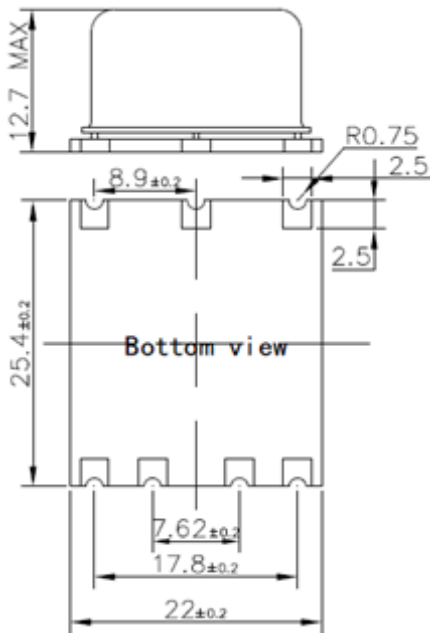
Mechanical and Environmental

Soldering	Maximum reflow temperature, 245°C for 10 seconds, 240°C for 20 seconds, per IPC/JEDEC J-STD-020C. Not intended for inverted reflow.
MSL	Level 1
Shock :	500 G's 1 ms, Halfsine, 3 shock per direction, per MIL-STD-202F, Method 213B, Test Condition D.
Sinusoidal Vibration :	0.06" D.A. or 10 G's Peak, 10 to 500 Hz, per MIL-STD-202F, Method 204D, Test Condition A.
Random Vibration :	5.35 G's RMS. 20 to 200 Hz, per MIL-STD-202F, Method 214, Test Condition 1A, 15 minutes each axis.
Seal :	Hermetic
Marking Permanency :	per MIL-STD-202F, Method 215J.
Attachment Method :	SMT
Storage Temperature Range:	-45°C to +95°C

Mechanical Specifications

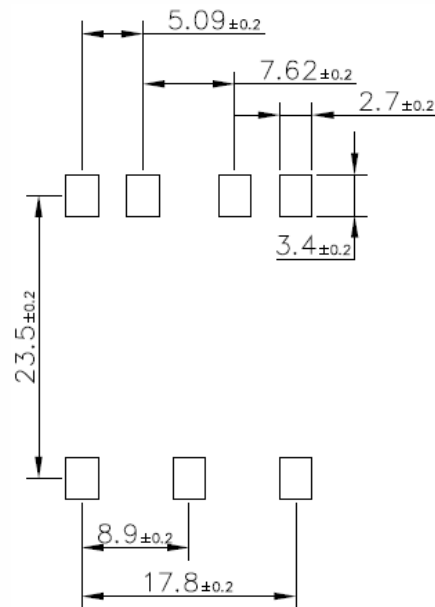


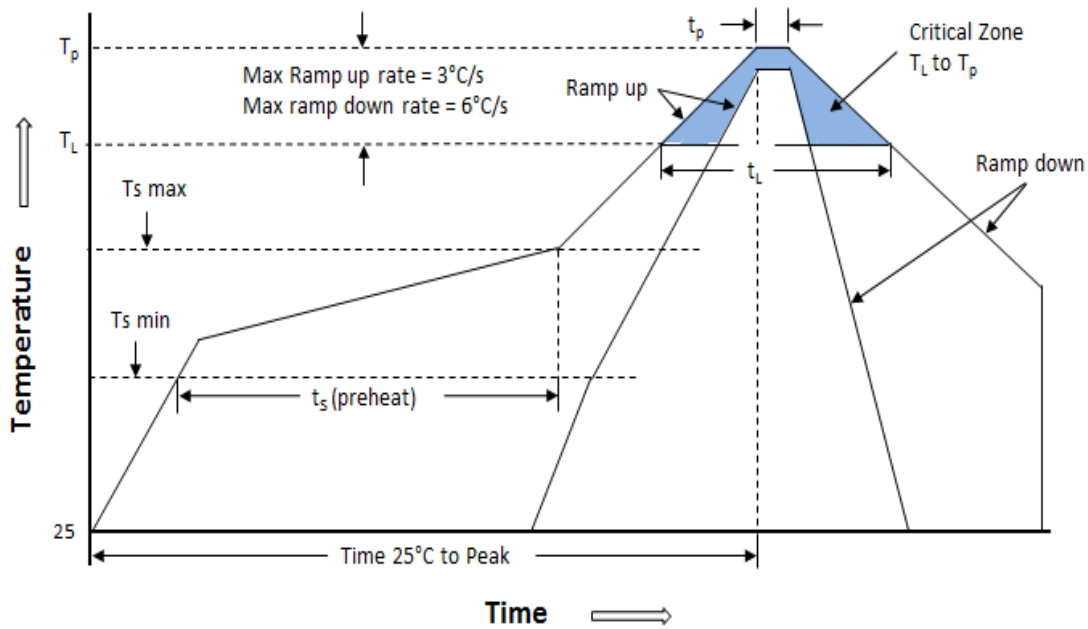
Marking	
**	Site Code
SNSNSN	Serial Number
YYWW	Date Code



Pad	Function
1	Control Voltage – V _C or N/C
2	V _{REF} , or N/C
3	Supply Voltage – V _{CC}
4	RF Output
5	N/C
6	N/C
7	Ground/Case

Recommended Solder Pad Geometry

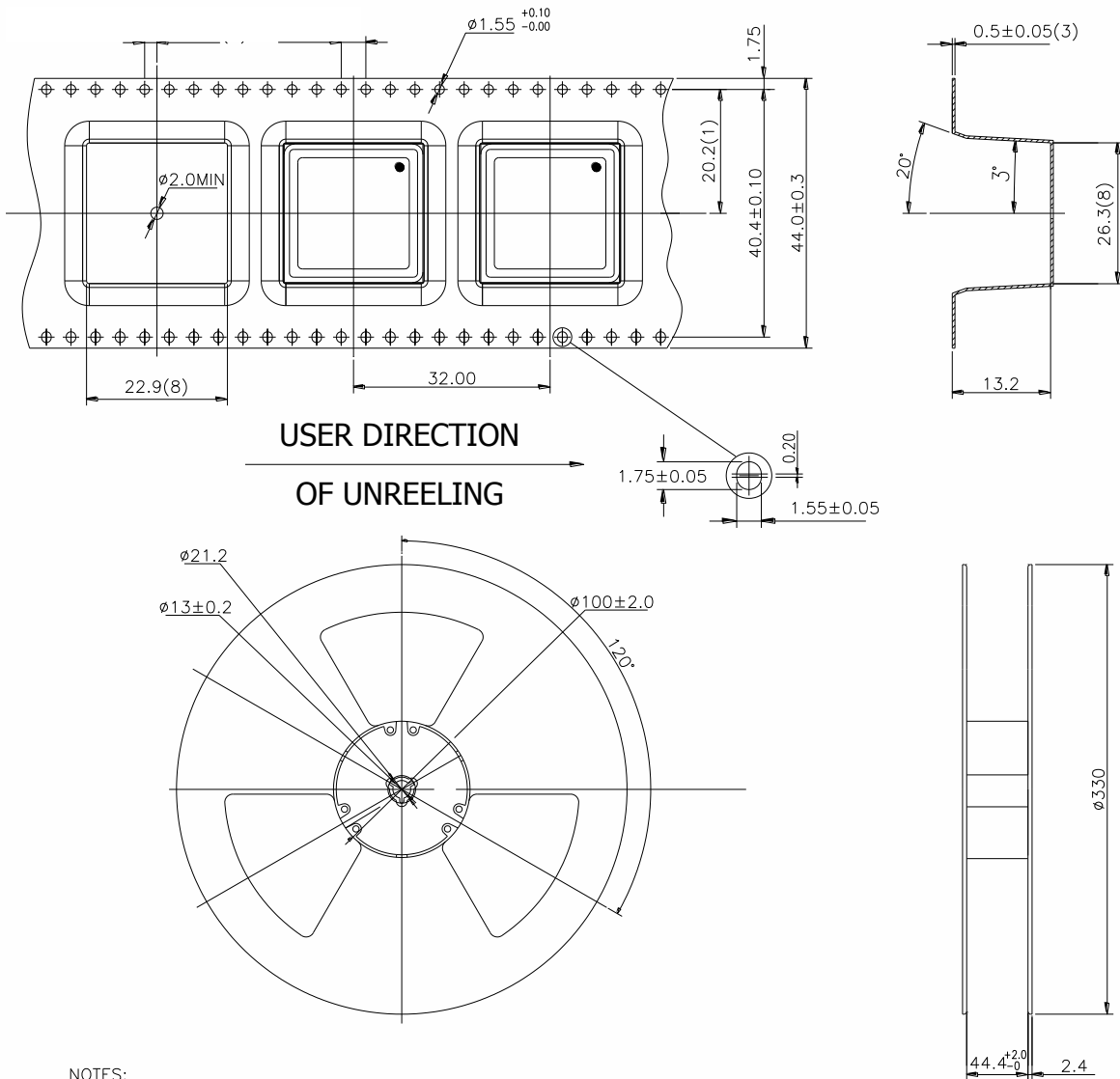




Ts max to Tl(Ramp-up Rate)	3°C/s max
Preheat	
Temperature Min (Ts min)	150°C
Temperature typ (Ts)	175°C
Temperature max (Ts max)	200°C
Time (ts)	60-120 seconds
Ramp-up Rate (Tl to Tp)	3°C/s max
Time maintained above:	
--Temperature (Tl)	217°C
--Time (tL)	90 seconds max
Peak Temperature	245°C max for 10 seconds
Time within 5°C of peak (tp)	20 seconds
Ramp-down Rate	6°C/s max
Time 25°C to Peak Temp (t)	8 minutes max

Note: Temperatures represent device body temperature.

Packing: Tape and Reel



NOTES:

1. MEASURED FROM THE CENTERLINE OF SPROCKET HOLE TO CENTERLINE OF THE POCKET HOLE AND FROM THE CENTERLINE OF SPROCKET HOLE TO CENTERLINE OF THE POCKET
2. CUMULATIVE TOLERANCE OF 10 SPROCKET HOLES IS ± 0.20
3. THIS THICKNESS IS APPLICABLE AS MEASURED AT THE EDGE OF THE TAPE
4. MATERIAL: BLACK POLYSTYRENE
5. DIM IN MM
6. ALLOWABLE CAMBER TO BE 1mm PER 100mm IN LENGTH, NON-CUMULATIVE OVER 250mm
7. UNLESS OTHERWISE SPECIFIED, TOLERANCE ± 0.10
8. MEASUREMENT POINT TO BE 0.3 ABOVE THE INDICATED POINT.
9. SURFACE RESISTIVITY: FROM 10^5 TO 10^8 OHMS/SQ
10. MAXIMUM QUANTITY 50 UNITS IN ONE TAPE & REEL
11. UNITS: MM

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