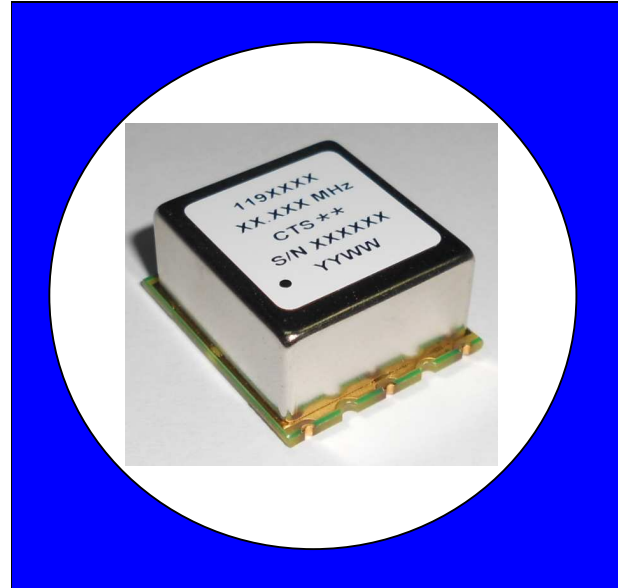


FEATURES

- Industry Standard 22 x 25.4mm SMT package
- 10 to 26 MHz
- 3.3V or 5.0V operation
- Commercial or Industrial Temperature Range
- LVCMOS or HCMOS Square Wave Output
- Optional Sine Wave Output
- Low Phase Noise
- Optional Voltage Control
- Optional Reference Voltage
- Optional Enable Function
- Tape and Reel Packaging
- Fully compliant to RoHS Directive 2002/95/EC

DESCRIPTION

The CTS model 119 is a low cost, small size, high performance OCXO. The high quality CTS Quartz Crystal used in this OCXO offers high stability and extremely low phase noise, making it the ideal choice for any telecommunications system.



Applications: Telecom Switching
Wireless Communication

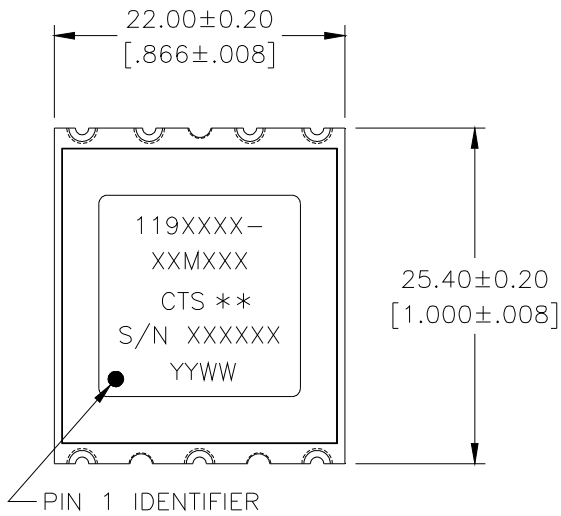
ELECTRICAL SPECIFICATIONS

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Operating Conditions					
Operating Temperature Range	T _{OP}	-40	-	85	°C
Supply Voltage (V _{CC})	3.3V – Standard	3.135	3.3	3.465	V _{DC}
	5.0 V- Available	4.75	5.0	5.25	V _{DC}
Power Consumption	during warm up	-	-	4	W
	steady state @ 25°C	-	-	1.5	W
Load - Square Wave	Output to Ground	5	10	15	pf
Load - Sine Wave	Output to Ground	45	50	55	ohms
Frequency Stability					
Standard Frequencies	f _{NOM}	10	10, 12.8, 13, 16.384, 19.44, 20, 25.6, 26	26	MHz
Calibration	Δf/f _{NOM} ; T _A =25°C; at time of shipment @ 0.5 x V _{ref} (or 0.5 x V _{CC} if no V _{ref} option)	-	-	± 200	ppb
vs Temperature	0° to 70°C; ref. 25°C Standard	-	-	±10	ppb
	-40° to 85°C; ref. 25°C Available	-	-	±20	ppb
vs Supply Voltage	± 5%	-	-	± 5	ppb
vs Load	± 10%	-	-	± 1	ppb
Aging	at time of shipment	-	-	± 1	ppb/day
	first year	-	-	± 100	ppb/year
Parameter	Conditions & Remarks	Min	Typical	Max	Unit

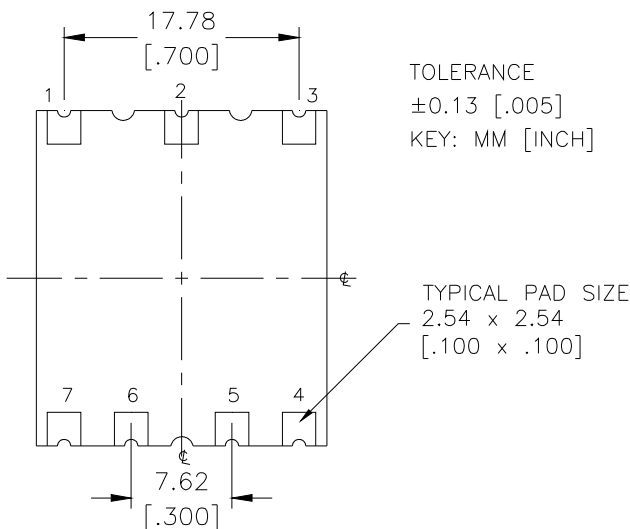
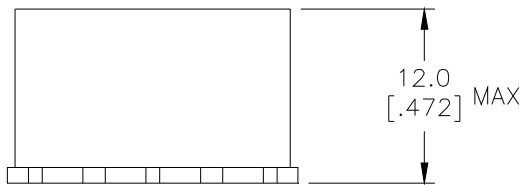
Frequency Stability continued					
Short Term Stability Allan Deviation	In Still Air @ 0.1 sec tau	-	0.01	0.02	ppb
	In Still Air @ 1.0 sec tau	-	0.01	0.02	ppb
Warm-Up Time	T _A =25°C; to within 50ppb of freq. @ 30 min	-	-	4	minutes
Phase Noise (For 10 MHz)					
	10 Hz	-	-120	-	dBc/Hz
	100 Hz	-	-140	-	dBc/Hz
	1 kHz	-	-150	-	dBc/Hz
	10 kHz	-	-155	-	dBc/Hz
Spurious					
		-	-	-70	dBc
Electronic Frequency Control					
Input Impedance	Z _i	10	-	-	kΩ
Modulation Bandwidth	-3dB	500	-	-	Hz
Control Voltage Range	V _c ; positive monotonic transfer (refer to Vref p/n option)	0	-	Vref or V _{cc}	Vdc
Tuning Range		±0.7	-	-	ppm
Tuning Coverage		15	-	-	years
Linearity		-	-	±10	%
Output Parameters					
Output Signal Square Wave		LVCMOS or HCMOS			
Amplitude	V _{OL}	-	-	10%V _{cc}	Vdc
	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	For frequencies >20Mhz		-	-30	dBc
Output Signal Sine Wave (Optional)		Sine Wave			
Amplitude	Sine Wave into 50 Ohm	2	5	8	dBm
Harmonics		-	-	-35	dBc
Subharmonics	For frequencies >20Mhz		-	-30	dBc
Reference Voltage, Vref (optional) Pad 2					
	For V _{cc} @ 3.3 Vdc; 4 ma Max	2.70	2.80	2.90	Vdc
	For V _{cc} @ 5.0 Vdc; 4 ma Max	3.85	4.00	4.15	Vdc
Enable Function (optional) Pad 2					
Enable Function	For V _{cc} = 3.3V or 5.0V				
Enable Input Voltage	Logic '1', Output Enabled	.9V _{cc}	-	-	Vdc
Disable Input Voltage	Logic '0', Output Disabled	-	-	.1V _{cc}	Vdc
Open	Floating, Output Enabled	-	-	-	-

Mechanical	
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 :	Non hermetic
Marking Permanency :	per MIL-STD-202F, Method 215J.
Attachment Method :	SMT
Storage Temperature Range:	-55°C to +125°C

**MECHANICAL SPECIFICATIONS
PACKAGE DRAWING**

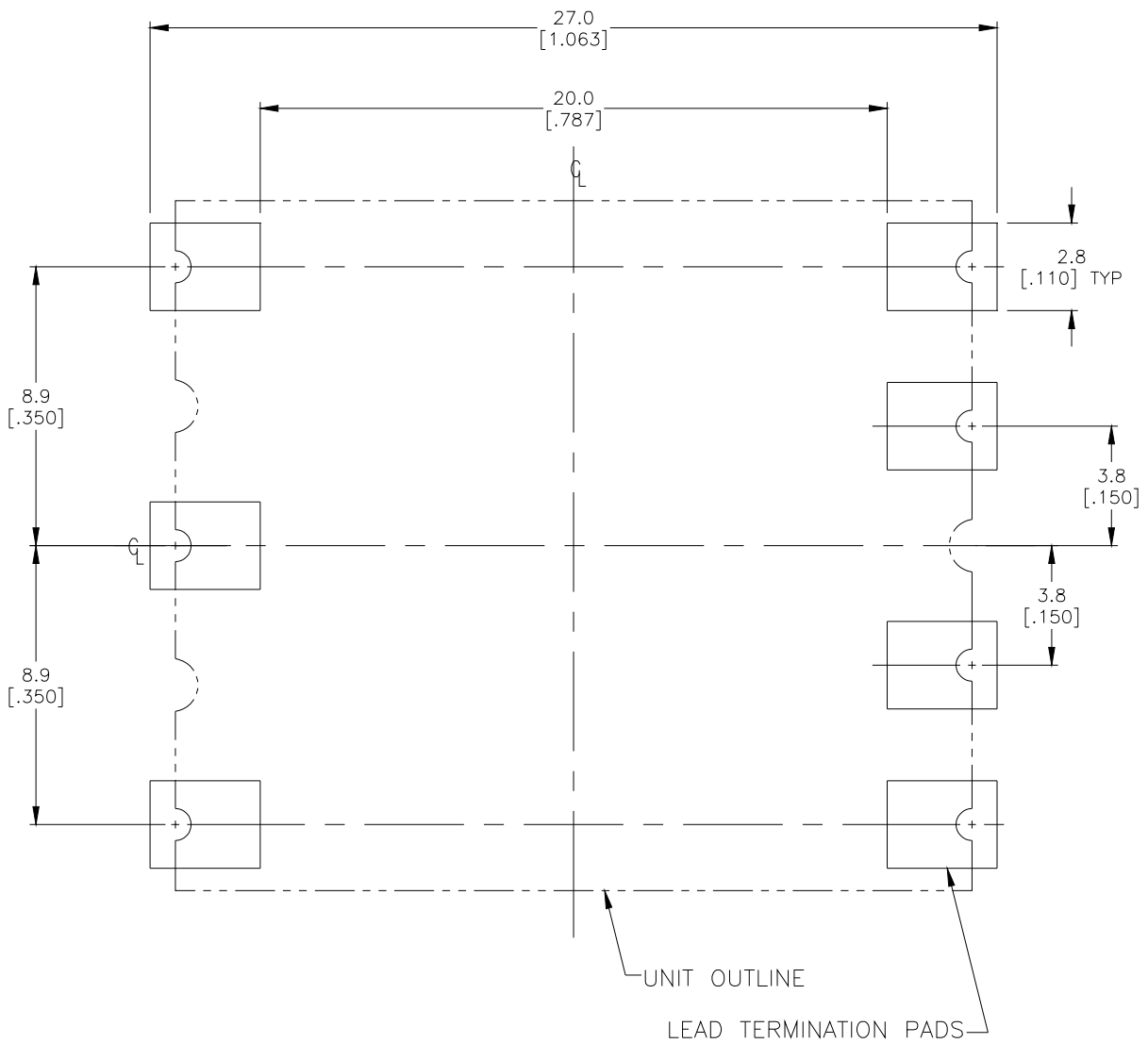


** Site Code
XXXXX Serial Number
YYWW Date Code



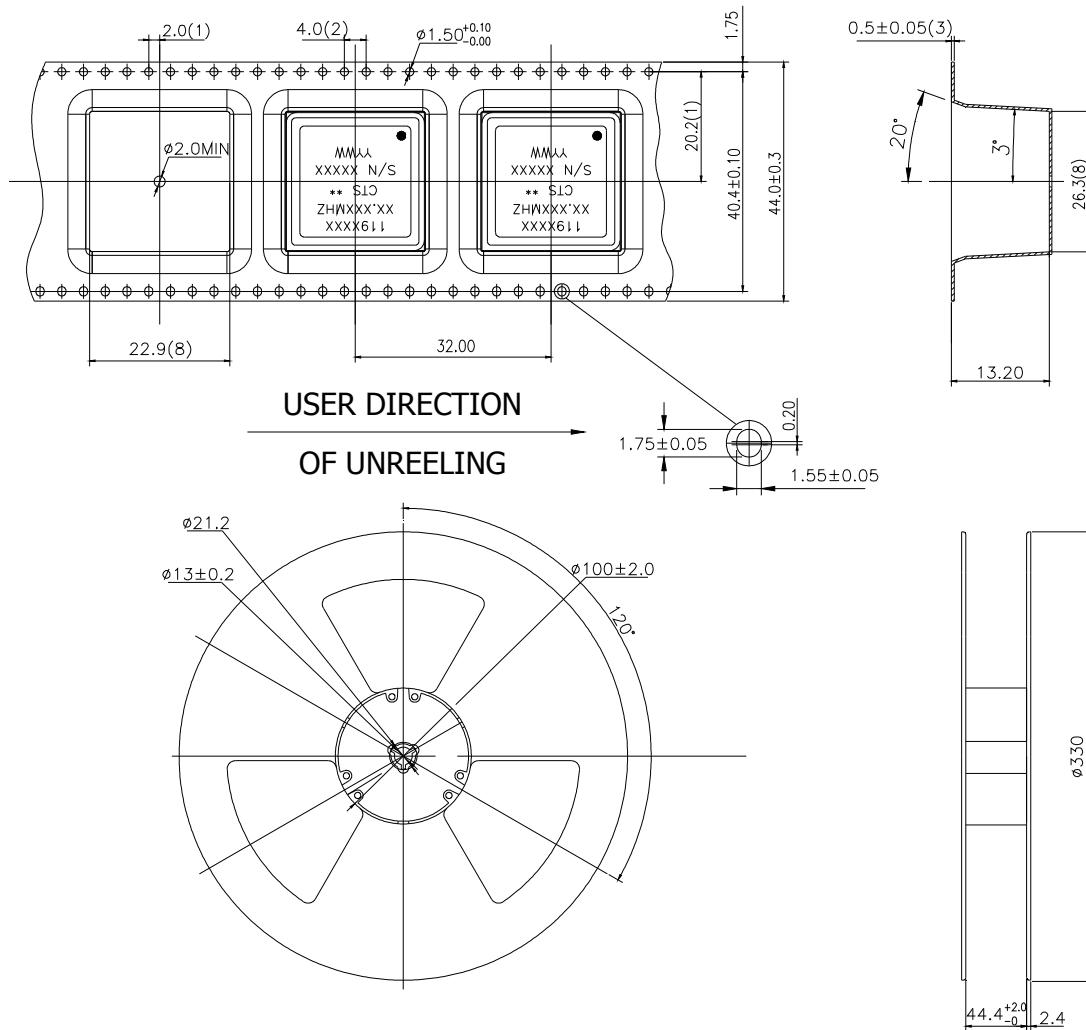
PAD	FUNCTION
1	Control Voltage – Vc or N/C
2	Ref Voltage or Enable or N/C
3	Supply Voltage – Vcc
4	RF Output
5	N/C
6	N/C
7	Ground/Case

PAD TERMINATION FINISH: GOLD FLASH, <10 MICRO INCH, OVER Ni PLATED Cu.



RECOMMENDED LAND PATTERN
ALL DIMENSIONS ARE NOMINAL
KEY: MM [INCH]

Packing: Tape and Reel



NOTES:

1. MEASURED 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 10^7 OHMS/SQ
10. MAXIMUM QUANTITY 50 UNITS IN ONE TAPE&REEL
11. UNITS: MM

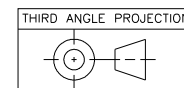


Table 1

