

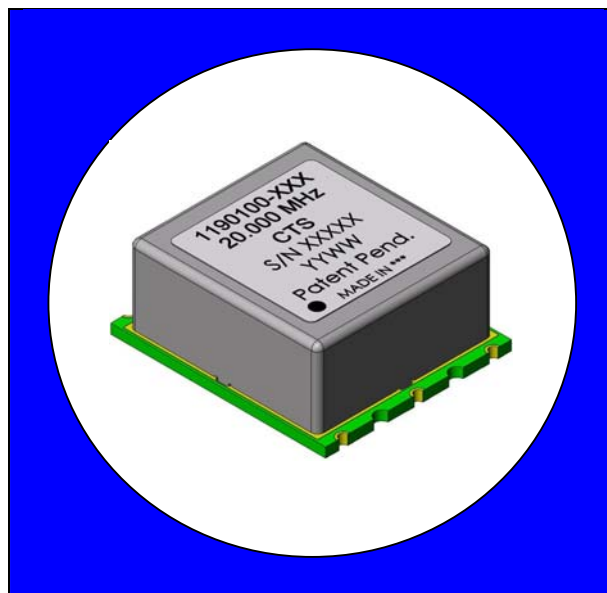
FEATURES

- Industry Standard 22 x 25.4mm SMT package
- Compliant to Stratum 3E per GR-1244-Core and GR-253-Core
- 20 MHz
- 3.3V or 5.0V operation
- Low Phase Noise
- Tape and Reel Packaging
- Fully compliant to RoHS Directive 2002/95/EC

DESCRIPTION

The CTS model 1190100 is a low cost, small size, high performance OCXO. The high quality CTS Quartz Crystal used in this OCXO offers high stability and low jitter/phase noise, making it the ideal choice for any telecommunications system.

Applications: Telecom Switching
Wireless Communication
Timing over Packet



ELECTRICAL SPECIFICATIONS

| Parameter | Conditions & Remarks | Min | Typical | Max | Unit |
|-----------------------------|---|-------|---------|-------|--------------|
| Operating Conditions | | | | | |
| Operating Temperature Range | T _{OP} | -40 | - | +85 | °C |
| Supply Voltage (Vcc) | 3.3V | 3.135 | 3.3 | 3.465 | Vdc |
| | 5.0 V | 4.750 | 5.0 | 5.250 | |
| Power Consumption | during warm up | - | - | 4.0 | W |
| | steady state @ 25°C | - | - | 1.5 | W |
| Load | Output to Ground | 5 | 10 | 15 | pf |
| Frequency Stability | | | | | |
| Frequency | f _{NOM} | - | 20 | - | MHz |
| Calibration | Δf/f _{NOM} ; T _A =25°C; at time of shipment | - | ±75 | ± 200 | ppb |
| vs Operating Temperature | Over any 40°C change within: C range = -20°C to +70°C | - | 7 | 10 | ppb, pk-pk |
| | I range = -40°C to +85°C | - | ± 1 | ± 3 | |
| vs Supply Voltage | ± 5% | - | ± 1 | ± 3 | ppb |
| Aging | Per day, at time of shipment | - | ±0.5 | ± 1 | ppb/day |
| | first year | - | - | ± 100 | ppb/year |
| | 10 years | - | - | ± 700 | ppb/ 10years |
| 24-Hour Holdover Stability | Inclusive of 40°C temp change and 24 hours aging drift (after 8 hours operation following 24 hours off – see Note 1) | - | - | 11 | ppb, pk-pk |
| Total Free-Run Accuracy | Under all operating conditions for 10 years | - | - | ±2.5 | ppm |



1190100-XXX

OCXO 22 X 25.4 mm

Stratum 3E

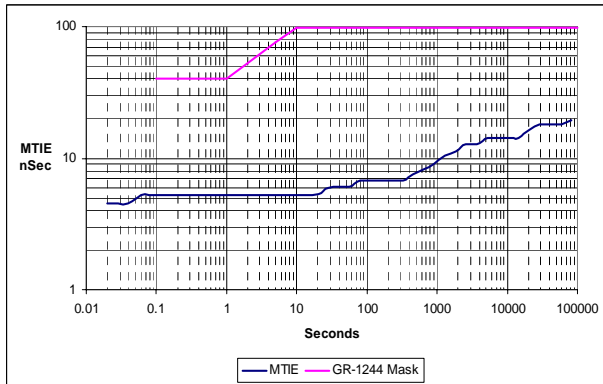
| Parameter | Conditions & Remarks | Min | Typical | Max | Unit |
|---|---|---------------------|---------|--------------------|---------|
| Frequency Stability continued | | | | | |
| Drift | 24 hours, at constant temperature (after 8 hours operation following 24 hours off – see Note 1) | - | - | ±1 | ppb |
| Short Term Stability ADEV (in still air) | 1.0 sec | - | < 0.01 | 0.02 | ppb |
| | 10 sec | - | 0.01 | 0.03 | ppb |
| | 100 sec | - | 0.02 | 0.05 | ppb |
| | 1000 sec | - | 0.05 | 0.1 | ppb |
| | 10,000 sec | - | 0.07 | 0.2 | ppb |
| Wander Generation | MTIE and TDEV per Stratum 3E requirements of Telcordia GR-1244-CORE and GR-253-CORE | | | | |
| Warm-Up Time | T _A =25°C; to within 50ppb of freq. @ 30 min | - | - | 5 | minutes |
| Phase Noise | | | | | |
| | 10 Hz | - | -120 | -110 | dBc/Hz |
| | 100 Hz | - | -135 | -130 | dBc/Hz |
| | 1 kHz | - | -145 | -140 | dBc/Hz |
| | 10 kHz | - | -152 | -145 | dBc/Hz |
| Spurious | | | | | |
| | | - | - | -70 | dBc |
| Output Parameters | | | | | |
| Output Signal Square Wave | | | HCMOS | | |
| Amplitude | V _{OL} | - | - | 10%V _{CC} | Vdc |
| | V _{OH} | 90% V _{CC} | - | - | |
| Rise / Fall Times | 10% to 90% @ 10pf load | - | - | 8 | ns |
| Duty Cycle | @ 50 % of output signal | 45 | 50 | 55 | % |

Note 1: 8 hours operation required if off for 24 hours
 24 hours operation required if off for up to 1 week
 48 hours operation required if off for up to 1 month

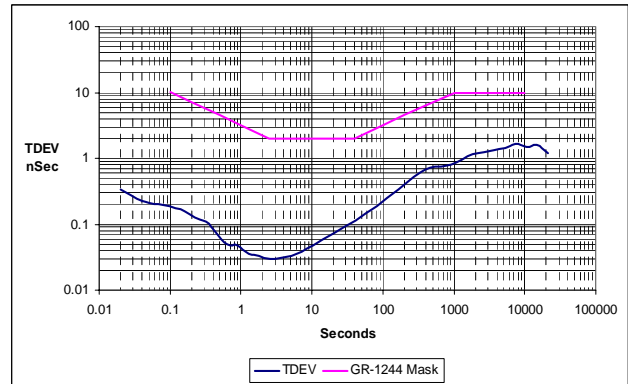
Options and Part Number :

| Dash No. | Supply Voltage | Operating Temp. Range | Part Number |
|----------|----------------|-----------------------|-------------|
| -001 | +5.0 Vdc | -20°C to +70°C | 1190100-001 |
| -002 | +5.0 Vdc | -40°C to +85°C | 1190100-002 |
| -003 | +3.3 Vdc | -20°C to +70°C | 1190100-003 |
| -004 | +3.3 Vdc | -40°C to +85°C | 1190100-004 |

Typical Wander Generation MTIE performance



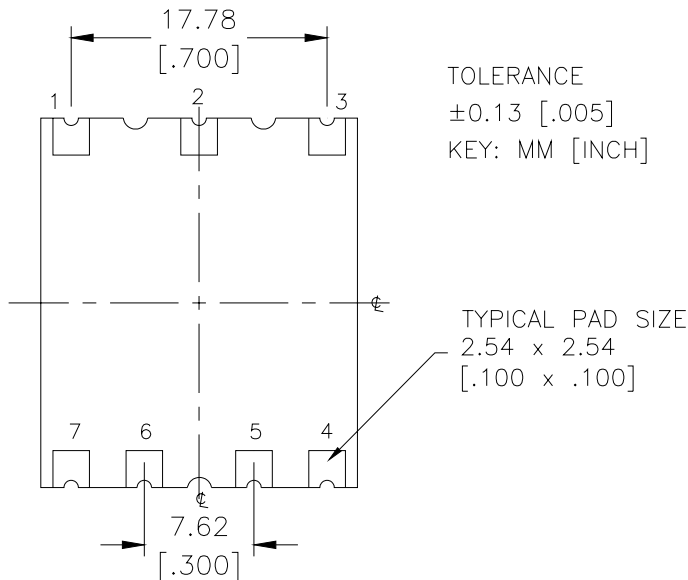
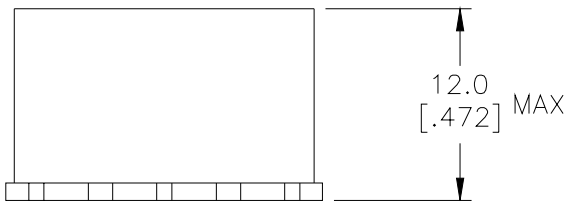
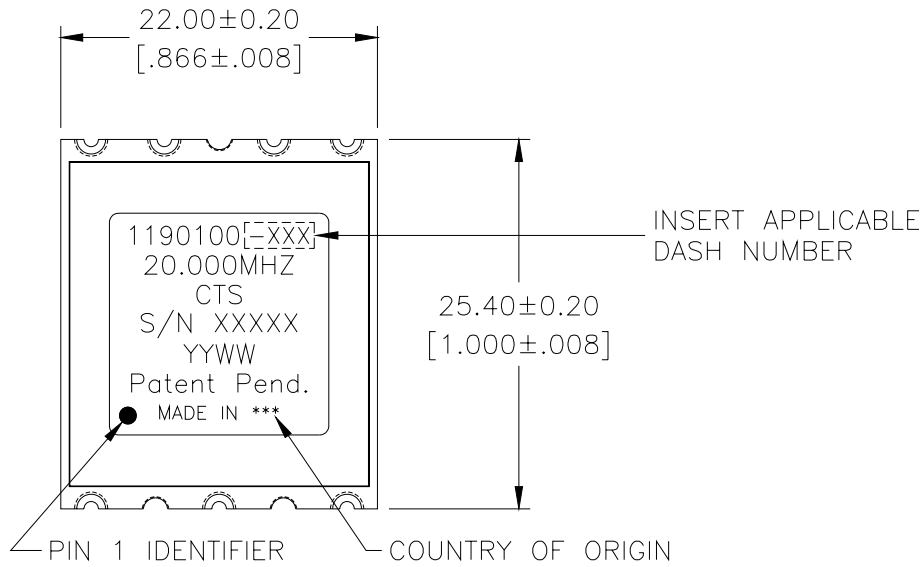
Typical Wander Generation TDEV performance



Wander Generation and Holdover Test Report available upon request.

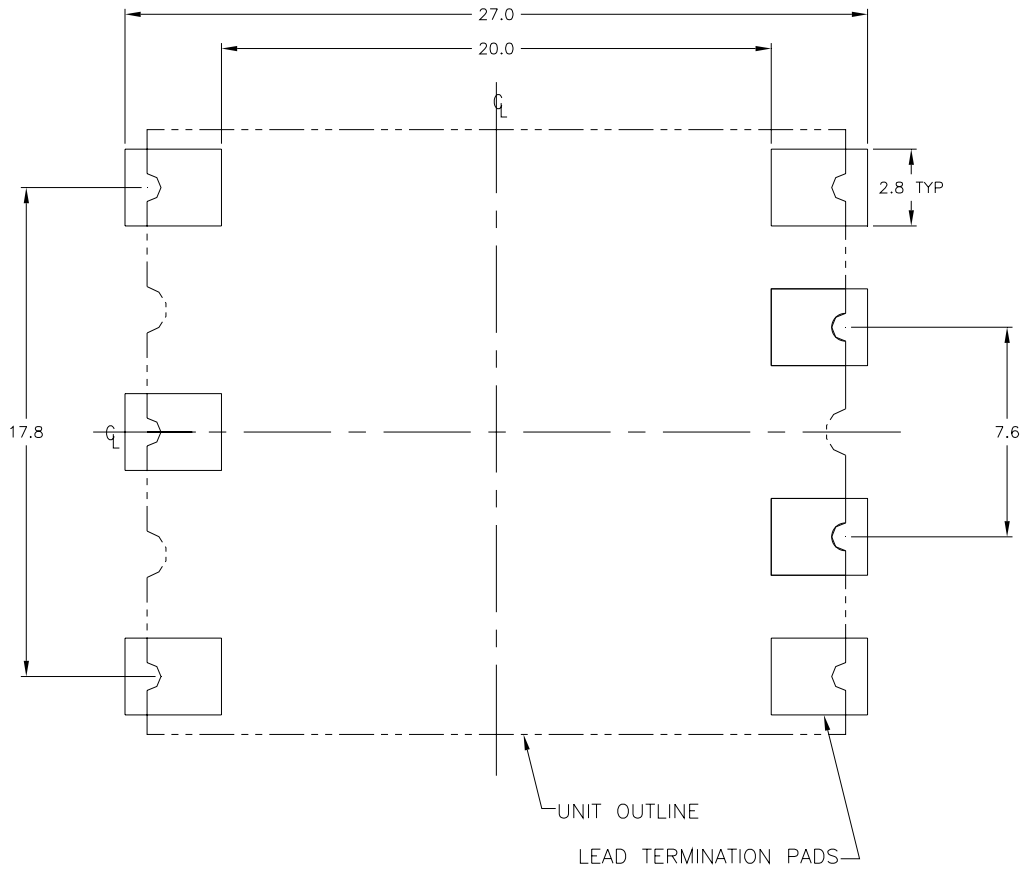
| Environmentals | |
|----------------------------|--|
| Soldering | Maximum reflow temperature, 245°C for 10 seconds, 240°C for 20 seconds, per IPC/JEDEC J-STD-020C |
| MSL | Level 1 |
| RoHS | Lead-Free. Fully compliant to RoHS Directive 2002/95/EC |
| Shock : | 500 G's, 1msec, 5 shocks in each of 6 directions |
| Sinusoidal Vibration : | 10 Hz to 55 Hz with a double amplitude of 0.75mm, 10 g's peak from 55 Hz to 2000Hz, for 30 minutes in each of three perpendicular directions |
| Random Vibration : | 5.35 G's RMS. 20 to 500 Hz, per MIL-STD-202F, Method 214, 15 minutes each axis. |
| Seal : | Non hermetic |
| Marking Permanency : | per MIL-STD-202F, Method 215J. |
| Attachment Method : | SMT |
| Storage Temperature Range: | -40°C to +85°C |

MECHANICAL SPECIFICATIONS PACKAGE DRAWING



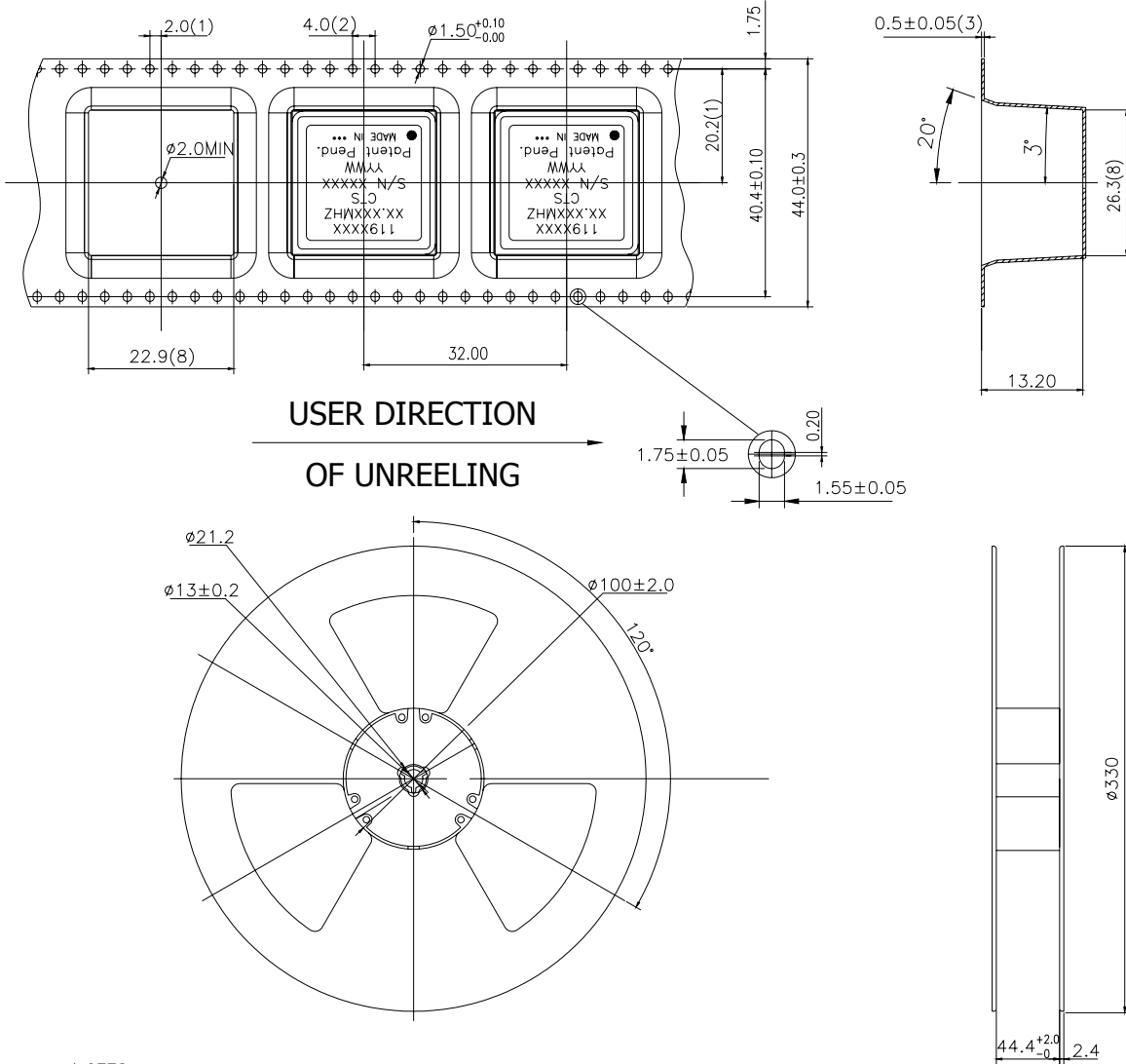
| PAD | FUNCTION |
|-----|----------------------|
| 1 | N/C |
| 2 | N/C |
| 3 | Supply Voltage - Vcc |
| 4 | RF Output |
| 5 | N/C |
| 6 | N/C |
| 7 | Ground/Case |

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



RECOMMENDED LAND PATTERN

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

