

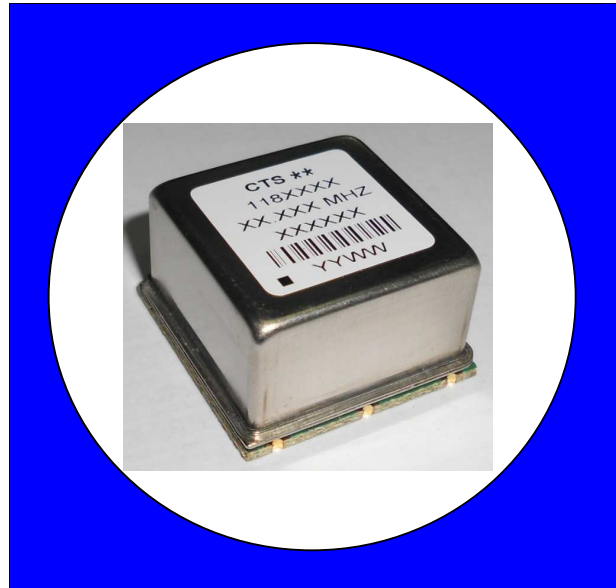
FEATURES

- Compliant to Stratum 3E per GR-1244-Core and GR-253-Core
- For use with Zarlink SONET/SDH/10GbE System Synchronizer/SETS
- 20 MHz
- 3.3V or 5.0V operation
- Low Jitter/Phase Noise
- Through-Hole or Surface Mount Configuration
- Fully compliant to RoHS Directive 2002/95/EC

DESCRIPTION

The CTS model 1180026 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

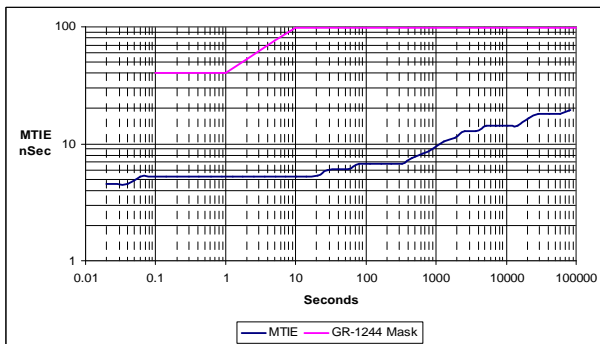
Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Operating Conditions					
Operating Temperature Range	T _{OP}	-40	-	+85	°C
Supply Voltage, Vcc (Note 1)	3.3V	3.135	3.3	3.465	Vdc
	5.0 V	4.750	5.0	5.250	
Power Consumption	during warm up	-	3.5	4.0	W
	steady state @ +25°C	-	1.5		W
Start-Up Time	To 90% output amplitude			50	mSec
Load	Output to Ground	5	10	15	pf
Frequency Stability					
Frequency	f _{NOM}	-	20.000	-	MHz
Initial Tolerance	Δf/f _{NOM} ; T _A =25°C; at time of shipment	-	± 0.3	± 0.5	ppm
Frequency vs Temperature	Over Operating Temperature, pk-pk (Note 1)	-	7	10	ppb, pk-pk
vs Supply Voltage	Vcc ± 5%	-	± 1		ppb
Aging	Per day, at time of shipment	-	±0.5	± 1	ppb/day
	20 years	-	-	± 1	ppm
24-Hour Holdover Stability (Note 2)	At constant temperature	-	± 0.5	± 1	ppb, pk-pk
	Inclusive of variable operating temp and 24 hours aging drift (after 8 hours operation, following 24 hours off period – see Note 2)	-	-	11	
Total Free-Run Accuracy	Under all operating conditions for 20 years. Ref to f _{NOM}	-	-	±2.1	ppm

Parameter	Conditions & Remarks	Min	Typical	Max	Unit
Frequency Stability continued					
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 10ppb of freq. @ 60 min	-	-	15	minutes
Phase Noise					
	Offset = 1 Hz	-	-70	-60	dBc/Hz
	10 Hz	-	-103	-100	dBc/Hz
	100 Hz	-	-130	-125	dBc/Hz
	1 kHz	-	-140	-130	dBc/Hz
	10 kHz	-	-142	-135	dBc/Hz
Sub-Harmonics					
		-	-	-25	dBc
Output Parameters					
Output Signal Square Wave			HCMOS		
Amplitude	V _{OL}	-	-	10%V _{CC}	Vdc
	V _{OH}	90% V _{CC}	-	-	
Rise / Fall Times	20% to 80% @ 10pf load	-	4	7	ns
Duty Cycle	@ 50 % of output signal	40	50	60	%

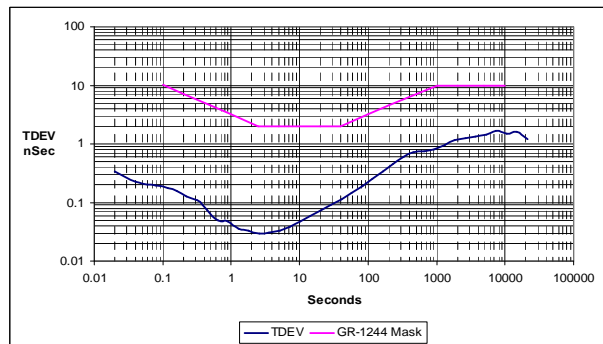
Note 1: See Dash Number Table below for Input Supply Voltage and Operating Temperature Range options

Note 2: 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

Typical Wander Generation MTIE Performance of 1180026-018



Typical Wander Generation TDEV Performance of 1180026-018



Wander Generation and Holdover Test Report available upon request

Dash Number Table (CTS Dash No. = -XXX)

No Air-Flow Shield				With Air-Flow Shield			
CTS Dash No.	Package Specification	Vcc	Operating Temperature Range	CTS Dash No.	Package Specification	Vcc	Operating Temperature Range
-001	Figure 1	+5.0 Vdc	0°C to +70°C	-011	Figure 3	+5.0 Vdc	0°C to +70°C
-002	Figure 1	+5.0 Vdc	-40°C to +85°C	-012	Figure 3	+5.0 Vdc	-40°C to +85°C
-003	Figure 1	+3.3 Vdc	0°C to +70°C	-013	Figure 3	+3.3 Vdc	0°C to +70°C
-004	Figure 1	+3.3 Vdc	-40°C to +85°C	-014	Figure 3	+3.3 Vdc	-40°C to +85°C
-005	Figure 2	+5.0 Vdc	0°C to +70°C	-015	Figure 4	+5.0 Vdc	0°C to +70°C
-006	Figure 2	+5.0 Vdc	-40°C to +85°C	-016	Figure 4	+5.0 Vdc	-40°C to +85°C
-007	Figure 2	+3.3 Vdc	0°C to +70°C	-017	Figure 4	+3.3 Vdc	0°C to +70°C
-008	Figure 2	+3.3 Vdc	-40°C to +85°C	-018	Figure 4	+3.3 Vdc	-40°C to +85°C

Complete CTS orderable part number includes 1180026-XXX (where -XXX = CTS Dash No. from this table)

Environmentals	
Reflow 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	50 G's, 11 msec, 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	Hermetic resistance weld
Marking Permanency	per MIL-STD-202F, Method 215J.
Surface Mount Base	High Temperature FR-4
Storage Temperature	-55°C to +125°C

PIN #	FUNCTION
1	RF OUTPUT
4	GROUND / CASE
7	N/C
8	DO NOT CONNECT
14	Vcc

Dimension Key: [MM] Inch

Tolerance unless otherwise specified : [± .13] ± .005

MECHANICAL SPECIFICATIONS
PACKAGE DRAWINGS

Figure 1

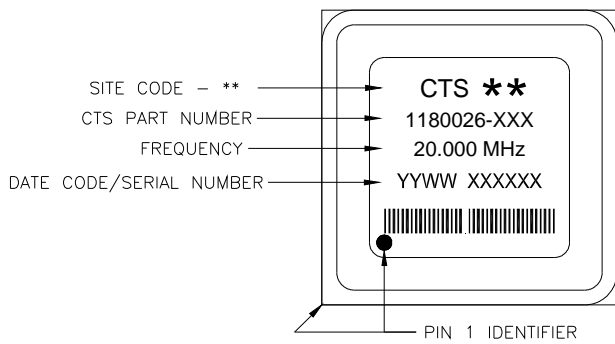
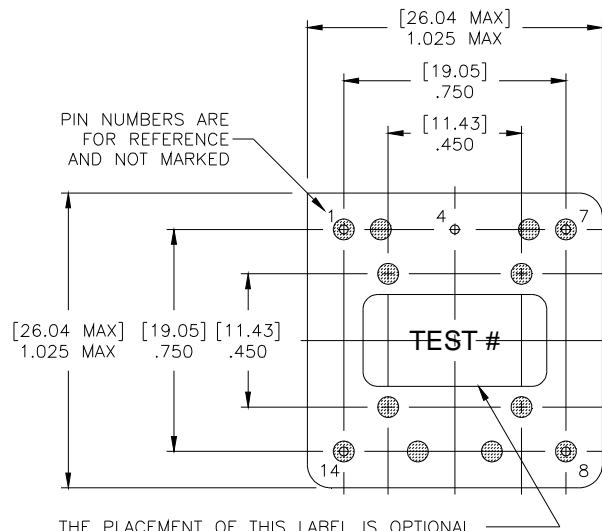
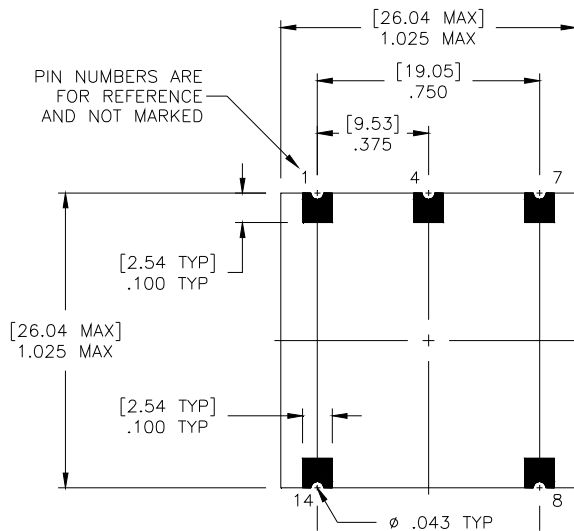
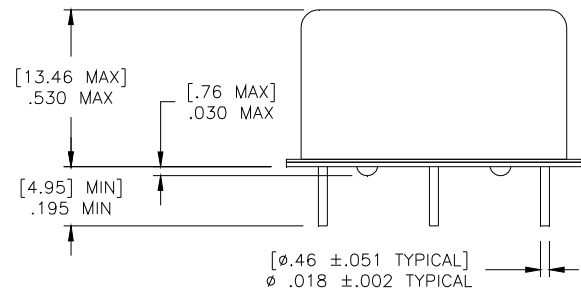
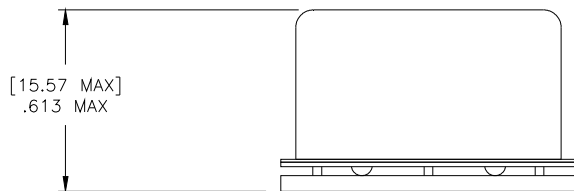
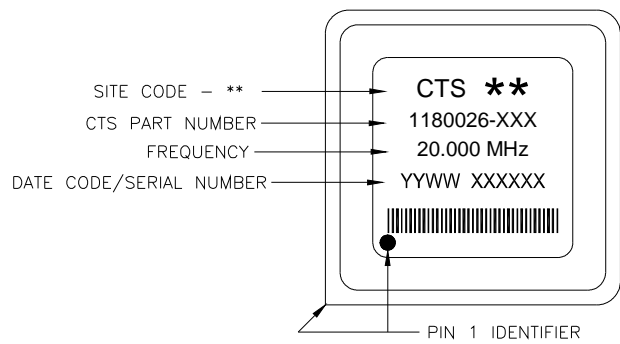


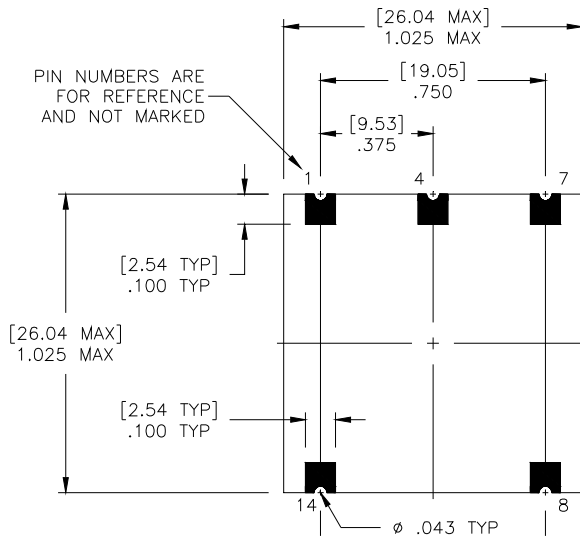
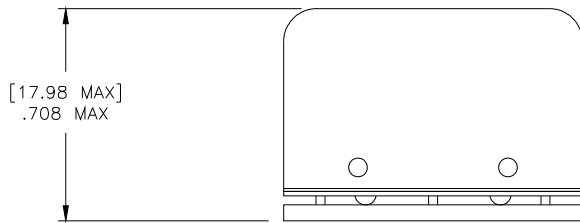
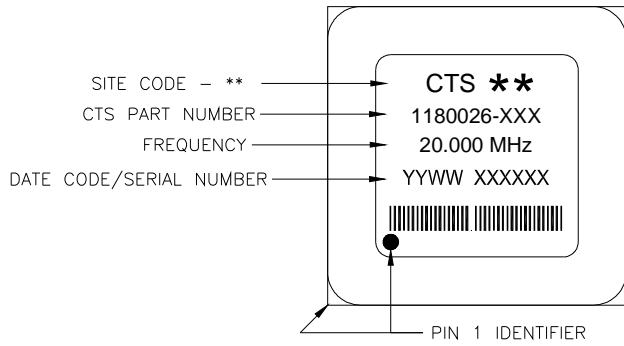
Figure 2



PAD TERMINATION FINISH : GOLD PLATED,
<10 MICRINCH, OVER NICKEL PLATED COPPER

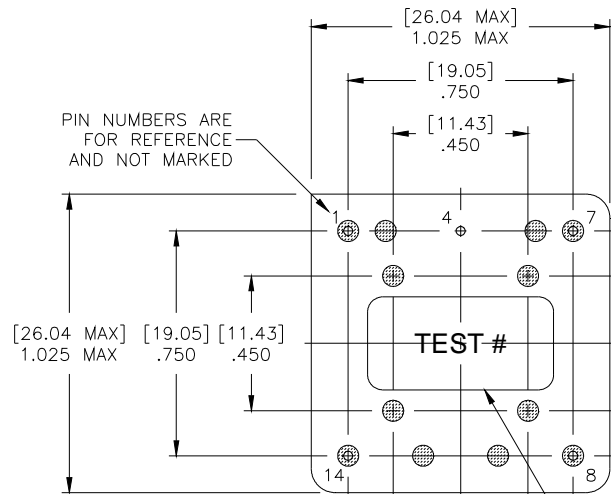
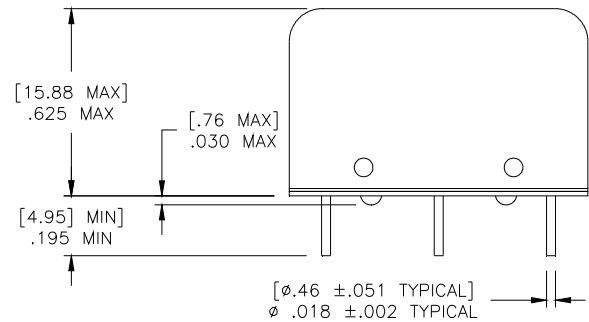
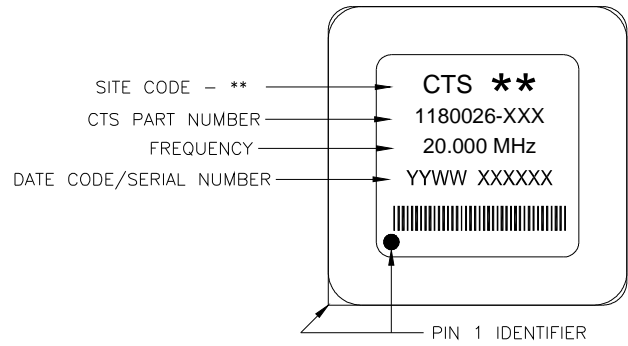
LEAD TERMINATION FINISH : SOLDER COATED, 96.5/3.5 Sn/Ag

Figure 3



PAD TERMINATION FINISH : GOLD PLATED,
<10 MICROINCH, OVER NICKEL PLATED COPPER

Figure 4



THE PLACEMENT OF THIS LABEL IS OPTIONAL

LEAD TERMINATION FINISH : SOLDER COATED, 96.5/3.5 Sn/Ag