Model 1188

Stratum 3E, 25.8 x 25.8 mm OCXO

Features

- 10 to 40 MHz Frequency Range
- Compliant to Stratum 3E of GR-1244-CORE
- Through-Hole Configuration
- 3.3V, 5.0V or 12V operation
- Low Jitter/Phase Noise

25.8 x 25.8 x 12.7 mm

Applications

- Telecom Switching
- Wireless Communication

Description

The CTS Model 1188 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	Aging	Output	Voltage Control		Frequency Code
1188	— 28	G	E	D	H	N	—	xxMxxx

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

Code	Supply
B	12V ±5%
D	5.0V ±5%
E	3.3V ±5%

Code	Output
H	HCMOS
S	Sinewave

Code	Spec.
N	Fixed freq.
V	EFC

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

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

Code	Per day	Per year	
C	1 ppb	0.1 ppm	≤ 40MHz
D	0.5 ppb	60 ppb	≤ 20MHz
L	0.3 ppb	30 ppb	≤ 10MHz

Part Number Example: 1188-28GEDHN-10M000

* 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 11.4	3.3 5.0 12.0	3.465 5.25 12.6	Vdc
Power Consumption	Warm-up Steady State; T_A = 25°C	- -	- 1.0	3.6 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} ±5%	-	±2	±5	ppb
Freq. vs Load	15 pf ±5%	-	-	±1	ppb
Freq. vs Time (Aging)	At time of shipment	- -	- -	±1 ±100 ±500	ppb/day ppb/year ppb/10 yrs
Short Term Stability (ADEV)	1.0 sec – still air	- -	0.01	0.02	ppb
Warm-up time	T_A = 25°C, within 100 ppb of freq. @ 60 minutes	-	-	5	minutes
Electronic Frequency Control (EFC)					
Input Impedance	Z_I	50	-	-	kΩ
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) 5.0V (HCMOS)	V_{OL}: - V_{OH}: 90% V_{CC}	- -	10% V_{CC} -	Vdc
Rise/Fall Times	10% to 90%, 10pf load	-	-	7	ns
Duty Cycle	@50% of output signal	45	50	55	%

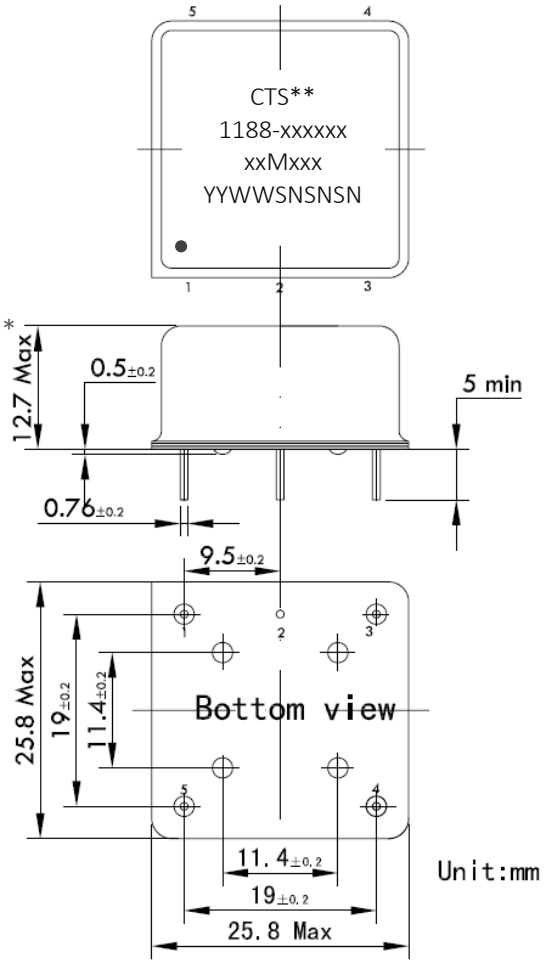
Electrical Specifications (Continued)

Parameter	Conditions & Remarks		Min	Typical	Max	Unit
Sinewave Output (option)	Into 50 Ω		5	7	9	dBm
Harmonics			-	-	-35	dBc
Phase Noise (for 3.3V, 10 MHz LVCMOS)		10 Hz	-	-120	-	dBc/Hz
		100 Hz	-	-140	-	
		1 kHz	-	-145	-	
		10 kHz	-	-150	-	
		100 kHz	-	-155	-	
Subharmonics	F_{NOM} > 20MHz		-	-	-30	dBc
Spurious			-	-	-70	dBc
Reference Voltage (optional)	V_{CC} = 3.3V, 4ma max		2.7	2.8	2.9	Vdc
	V_{CC} = 5.0V, 4ma max		4.4	4.5	4.6	
	V_{CC} = 12.0V, 4ma max		4.9	5.0	5.1	

Mechanical and Environmental

Soldering	Hand solder only. 245°C for 10 seconds
MSL	Level 1
Shock :	500 G's 1 ms, half sine, 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 :	MIL-STD-202F, Method 215J.
Storage Temperature Range:	-45°C to +95°C

Mechanical Specifications



Marking	
**	Mfg Site Code
SNSNSN	Serial Number
YYWW	Date Code

Pin Assignments

Pin	Function
1	RF Output
2	Ground/Case
3	V_C; Voltage Control
4	V_{REF}; Reference voltage
5	V_{CC}

* Consult factory for 11.56mm maximum height option.