

# CTS MXO45 Clock Oscillators

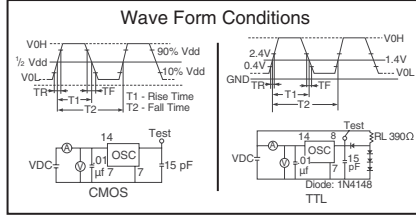
## Standard Output

- Frequency Tolerance: ±100ppm, 0°C - 70°C
- CMOS compatible • Fully hermetically-sealed package
- 8/14-pin compatible • Drives up to 10 standard TTL Loads • Input Voltage: +5V DC ±.5V

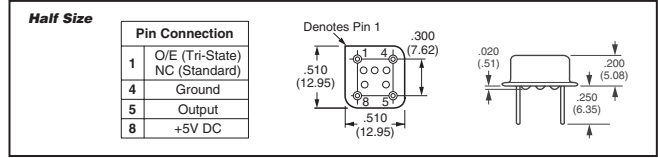
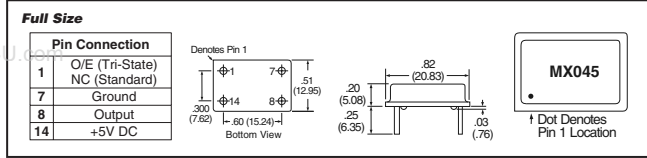
## Tri-State Output

Tri-State Logic uses the two standard logic levels of high (logic 1) and low (logic 0) but has added a third state that is not a logic level but an open circuit condition that effectively disconnects the output from your circuit with a high impedance (floating) state, thereby enabling the use of numerous oscillators on the same bus line. Also, by using the enable pin to control the output, the crystal is still running even when the output is disabled (stand-by mode), thus eliminating any start-up time for the oscillator. CTS HCMOS/TTL products utilize an Application Specific Integrated Circuit (ASIC) design strategy. Employing a single design family supporting both HCMOS/TTL applications helps in reducing costs and lead times. Utilizing ASIC technology reduces the number of components inside the XO (crystal oscillator), thus increasing reliability and further reducing cost.

**Features:** • CMOS/TTL compatible • Drives up to 10 standard TTL loads • 100ppm tolerance • Tri-State output • Fully hermetic resistance weld package



Parameter	Symbol	Condition	Minimum	Typical	Maximum	Units
Supply Voltage	VCC	—	4.5	5	5.5	V
Supply Current	ICC	1.0 - 7.0MHz	—	5	12	mA
	—	>7.0 - 25MHz	—	15	25	mA
Output Load	—	—	—	—	10	TTL
	—	—	—	—	40	mA
Output Current	IOH	VOH= 3.9V	—	—	-16	mA
	IOH	VOH= 0.4V	—	—	16	mA
Symmetry	Duty	1.0 - 50MHz	45	—	55	%
		>50 - 70MHz	40	—	60	%
Rise & Fall Time	Tr/Tf	1.0 - 25MHz	—	5	8	ns
	Tr/Tf	>25 - 70MHz	—	3	5	ns
Enable Input V	VIH	—	2	—	—	V
	VIL	—	—	—	0.8	V
Enable Input Load	Cin	—	—	—	10	pF
Tri-state Leakage	Iz	VIL= 0.8V	—	—	0.05	mA
Jitter	—	Peak-Peak	—	30	50	ps
Temperature	—	—	0°C - 70°C			—



Frequency (MHz)	Digi-Key Part No.	1	10	Price Each 100	250	500	CTS Part No.
<b>Full Size Clock Oscillator with Standard Output</b>							
1.000000	CTX101-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-1M0000
1.843200	CTX103-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-1M8432
2.000000	CTX104-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-2M0000
2.457600	CTX105-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-2M4576
3.686400	CTX106-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-3M6864
4.000000	CTX107-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-4M0000
4.915200	CTX108-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-4M9152
5.000000	CTX109-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-5M0000
5.068800	CTX110-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-5M0688
6.000000	CTX111-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-6M0000
6.144000	CTX122-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-6M1440
7.372800	CTX123-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-7M3728
8.000000	CTX112-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-8M0000
10.000000	CTX114-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-10M0000
12.000000	CTX131-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-12M0000
14.318180	CTX115-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-14M31818
16.000000	CTX116-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-16M0000
18.432000	CTX118-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-18M4320
19.660800	CTX124-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-19M6608
20.000000	CTX119-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-20M0000
24.000000	CTX125-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-24M0000
25.000000	CTX126-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-25M0000
25.175000	CTX127-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-25M1750
28.322000	CTX128-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-28M3220
32.000000	CTX129-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-32M0000
40.000000	CTX120-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-40M0000
50.000000	CTX121-ND	1.47	1.31	1.17	1.00	.88	MXO45-2C-50M0000
64.000000	CTX130-ND	1.93	1.71	1.52	1.30	1.16	MXO45-2C-64M0000
66.666600	CTX137-ND	1.93	1.71	1.52	1.30	1.16	MXO45-2C-66M6666
80.000000	CTX138-ND	3.10	2.75	2.45	2.09	1.85	MXO45-2C-80M0000
<b>Full Size Clock Oscillator with Tri-State Output</b>							
1.000000	CTX139-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-1M0000
1.843200	CTX140-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-1M8432
2.000000	CTX141-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-2M0000
2.457600	CTX142-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-2M4576
3.686400	CTX143-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-3M6864
4.000000	CTX144-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-4M0000
4.915200	CTX145-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-4M9152
5.000000	CTX146-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-5M0000
5.068800	CTX147-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-5M0688
6.000000	CTX148-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-6M0000
6.144000	CTX200-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-6M1440
7.372800	CTX201-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-7M3728
8.000000	CTX202-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-8M0000
10.000000	CTX203-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-10M0000
12.000000	CTX204-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-12M0000
14.318180	CTX205-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-14M31818
16.000000	CTX206-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-16M0000
18.432000	CTX207-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-18M4320
19.660800	CTX208-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-19M6608
20.000000	CTX209-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-20M0000
24.000000	CTX210-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-24M0000
25.000000	CTX211-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-25M0000
25.175000	CTX212-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-25M1750
28.322000	CTX213-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-28M3220
32.000000	CTX214-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-32M0000
40.000000	CTX215-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-40M0000
50.000000	CTX216-ND	1.47	1.31	1.17	1.00	.88	MXO45T-2C-50M0000
64.000000	CTX217-ND	1.93	1.71	1.53	1.30	1.16	MXO45T-2C-64M0000
66.666600	CTX218-ND	1.93	1.71	1.53	1.30	1.16	MXO45T-2C-66M6666
80.000000	CTX219-ND	3.10	2.75	2.45	2.09	1.85	MXO45T-2C-80M0000

Frequency (MHz)	Digi-Key Part No.	1	10	Price Each 100	250	500	CTS Part No.
<b>Half Size Clock Oscillator with Standard Output</b>							
1.000000	CTX150-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-1M0000
1.843200	CTX151-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-1M8432
2.000000	CTX152-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-2M0000
2.457600	CTX153-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-2M4576
3.686400	CTX154-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-3M6864
4.000000	CTX155-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-4M0000
4.915200	CTX156-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-4M9152
5.000000	CTX157-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-5M0000
5.068800	CTX158-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-5M0688
6.000000	CTX159-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-6M0000
6.144000	CTX160-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-6M1440
7.372800	CTX161-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-7M3728
8.000000	CTX162-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-8M0000
10.000000	CTX163-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-10M0000
12.000000	CTX164-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-12M0000
14.318180	CTX165-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-14M31818
16.000000	CTX166-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-16M0000
18.432000	CTX167-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-18M4320
19.660800	CTX168-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-19M6608
20.000000	CTX169-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-20M0000
24.000000	CTX170-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-24M0000
25.000000	CTX171-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-25M0000
25.175000	CTX172-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-25M1750
28.322000	CTX173-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-28M3220
32.000000	CTX174-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-32M0000
40.000000	CTX175-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-40M0000
50.000000	CTX176-ND	1.47	1.31	1.00	.88	.76	MXO45HS-2C-50M0000
64.000000	CTX177-ND	1.93	1.71	1.30	1.16	.99	MXO45HS-2C-64M0000
66.666600	CTX178-ND	1.93	1.71	1.30	1.16	.99	MXO45HS-2C-66M6666
80.000000	CTX179-ND	3.10	2.75	2.09	1.85	1.59	MXO45HS-2C-80M0000
<b>Half Size Clock Oscillator with Tri-State Output</b>							
1.000000	CTX180-ND	1.47	1.31	1.00	.88	.76	MXO45HST-2C-1M0000
1.843200	CTX181-ND	1.47	1.31	1.00	.88	.76	MXO45HST-2C-1M8432
2.000000	CTX182-ND	1.47	1.31	1.00	.88	.76	MXO45HST-2C-2M0000
2.457600	CTX183-ND	1.47	1.31	1.00	.88	.76	MXO45HST-2C-2M4576
3.686400	CTX184-ND	1.47	1.31	1.00	.88	.76	MXO45HST-2C-3M6864
4.000000	CTX185-ND	1.47	1.31	1.00	.88	.76	MXO45HST