



METAL DIP CLOCK OSCILLATOR

FEATURES

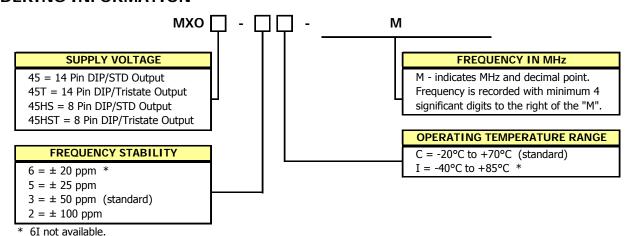
- Standard 14 Pin or 8 Pin DIP Footprint
- HCMOS/TTL Compatible
- Fundamental and 3RD Overtone Crystals
- Frequency Range 1.0 105.561 MHz
- Frequency Stability, ±50 ppm Standard (±25 ppm and ±20 ppm available)
- +5.0Vdc Operation
- Operating Temperature to -40°C to +85°C
- Output Enable Option
- RoHS/Green Compliant (6/6)



The MXO45/MXO45HS is a DIP packaged Clock oscillator offering reliable performance at an economical cost. The enhanced stability means it is the perfect choice for today's communications applications that require tight frequency control.



ORDERING INFORMATION



Not all performance combinations and frequencies may be available. Contact your local CTS Representative or CTS Customer Service for availability.

Example Part Number: MXO45-3C-32M7680 or MXO45HS-3C-32M7680



ELECTRICAL CHARACTERISTICS

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT
	Maximum Supply Voltage	V_{CC}	-	-0.5	-	7.0	V
Absolute Maximums	Storage Temperature	T_{STG}	-	-55	-	125	°C
	Frequency Range	f_0	-	1.0	-	105.561	MHz
	Frequency Stability (See Note 1 and Ordering Information)	Δf/f _O	-	-	-	20,25,50 or 100	± ppm
Absol	Operating Temperature Commercial Industrial	T _A	-	-20 -40	25	70 85	°C
	Supply Voltage	V_{CC}	± 10 %	4.5	5.0	5.5	V
	Supply Current	I _{CC}	$ \begin{array}{llllllllllllllllllllllllllllllllllll$		10 30 40	25 50 100	mA
	Output Load CMOS	CL	1.0 MHz to 50 MHz 50.1 MHz to 80 MHz 80.1 MHz to 105.561 MHz	- - -		50 30 15	pF
	TTL		1.0 MHz to 105.561 MHz	-	-	10	TTL
Parameters	Output Voltage Levels Logic '1' Level Logic '0' Level	V _{OH}	CMOS Load 10 TTL LOAD CMOS TTL Load	0.9*V _{CC} V _{CC} -0.6V -	-	- 0.1*V _{CC} 0.4	V
Electrical and Waveform Parameters	Output Current Logic '1' Level Logic '0' Level	I _{OH} I _{OL}	$V_{OH} = 3.9V$ $V_{CC} = 4.5V$ $V_{OL} = 0.4V$ $V_{CC} = 4.5V$			-16 16	mA
al an	Output Duty Cycle	SYM	@ 50% Level	45	-	55	%
Electrica	Rise and Fall Time	T _R , T _F		1 1 1	8 4 2.5	10 8 5	ns
	Start Up Time	T _S	Application of V _{CC}	-	-	10	ms
	Enable Function (See Note 2) Enable Input Voltage Disable Input Voltage	V _{IH} V _{IL}	Pin 1 Logic '1', Output Enabled Pin 1 Logic '0', Output Disabled	2.0	-	- 0.8	V
	Enable Time	T_{PLZ}	Pin 1 Logic '1'	-	-	100	ns
	Period Jitter, Pk-Pk	-	-	-	-	50	
	Period Jitter, RMS	-	-	-	-	5	ps
	Phase Jitter, RMS	-	Bandwidth 12 kHz - 20 MHz	-	-	1	

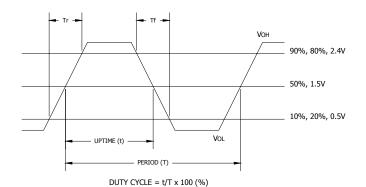
Notes:

 $^{1. \ \, \}text{Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and first year aging.}$

^{2.} Reference CTS Application Note 014-0002-0.



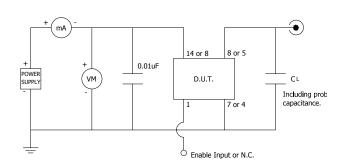
CMOS/TTL OUTPUT WAVEFORM



ENABLE TRUTH TABLE

PIN 1	PIN 5 or PIN 8
Logic '1'	Output
Open	Output
Logic '0'	High Imp.

TEST CIRCUIT, CMOS LOAD

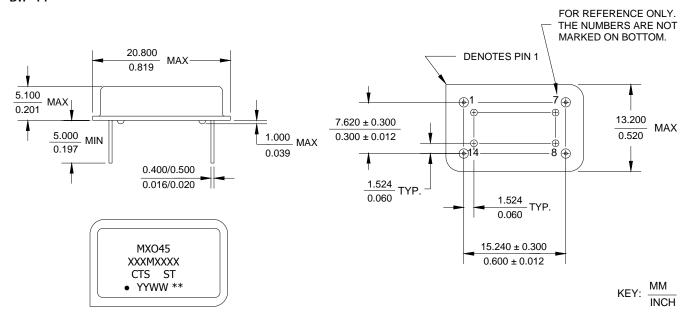


D.U.T. PIN ASSIGNMENTS

PIN	SYMBOL	DESCRIPTION
1	EOH	Enable Input or No Connect
7 or 4	GND	Circuit & Package Ground
8 or 5	Output	RF Output
14 or 8	V_{CC}	Supply Voltage

MECHANICAL SPECIFICATIONS

PACKAGE DRAWING DIP-14



MARKING INFORMATION

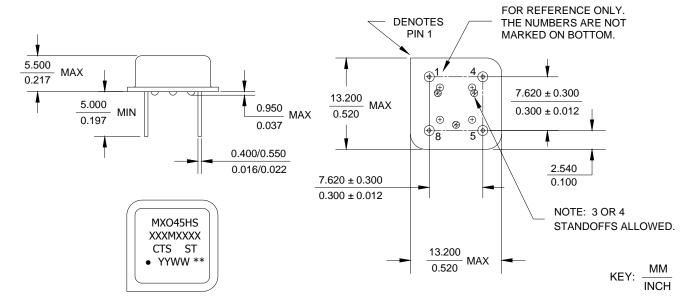
- 1. Model Name: MXO45 or MXO45T.
- 2. XXXMXXXX Frequency marked with 4 significant digits after the 'M'.
- 3. ST Frequency stability/temperature code. (Reference Ordering Information.)
- 4. YYWW Date code, YY year, WW week.
- 5. ** Manufacturing Site Code.

NOTES

- 1. Lead finish (e1), SnAgCu.
- 2. Reflow conditions per JEDEC J-STD-020.



PACKAGE DRAWING DIP-8



MARKING INFORMATION

- 1. Model Name: MXO45HS or MXO45HST.
- 2. XXXMXXXX Frequency marked with 4 significant digits after the 'M'.
- 3. ST Frequency stability/temperature code. (Reference Ordering Information.)
- 4. YYWW Date code, YY year, WW week.
- 5. ** Manufacturing Site Code.

NOTES

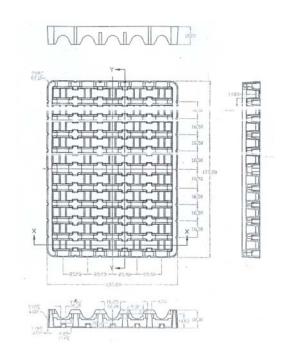
- 1. Lead finish (e1), SnAgCu.
- 2. Reflow conditions per JEDEC J-STD-020.

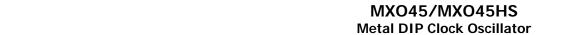
PACKAGING

Product is packaged in plastic trays.

Typical packaging format is as follows:

- 50 pcs./Plastic Tray.
 Tray size is approximately 180x136x18mm (LxWxH).
- 2 Trays/Anti-Static Bag (100 pcs.)
 or
 10 Trays/Anti-Static Bag (500 pcs.).
 Bag height for 10 Trays is approximately 175mm.
- 1 Anti-Static Bag/Cardboard Carton.
- Master-pack multiple Cardboard Cartons in a larger carton.
 8 Cardboard Cartons (10 trays per carton) is approximately 460x380x400mm (LxWxH).







ENVIRONMENTAL SPECIFICATIONS

Temperature Cycle: 400 cycles from -55°C to +125°C, 10 minute dwell at each temperature, 1

minute transfer time between temperatures.

Mechanical Shock: 1,500g's, 0.5mS duration, ½ sinewave, 3 shocks each direction along 3

mutually perpendicular planes (18 total shocks).

Sinusoidal Vibration: 0.06 inches double amplitude, 10 to 55 Hz and 20g's, 55 to 2,000 Hz, 3 cycles

each in 3 mutually perpendicular planes (9 times total).

Gross Leak: No leak shall appear while immersed in an FC40 or equivalent liquid at

+125°C for 20 seconds.

Fine Leak: Mass spectrometer leak rates less than 2x10⁻⁸ ATM cc/sec air equivalent.

Resistance to Solder Heat: Product must survive 3 reflows of +260°C peak, 10 seconds maximum.

High Temperature Operating Bias: 2,000 hours at +125°C, maximum bias, disregarding frequency shift.

Frequency Aging: 1,000 hours at +85°C, full bias, less than ±5 ppm shift.

Moisture Sensitivity Level: Level 1 per JEDEC J-STD-020.

QUALITY AND RELIABILITY

Quality systems meet or exceed the requirements of ISO 9000:2000 standards.