

- ◆ Stability to  $\pm 20$  PPM
- ◆ +5.0Vdc Operation
- ◆ CMOS/TTL Compatible
- ◆ Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ Output Enable Option
- ◆ 14 Pin and 8 Pin Packages



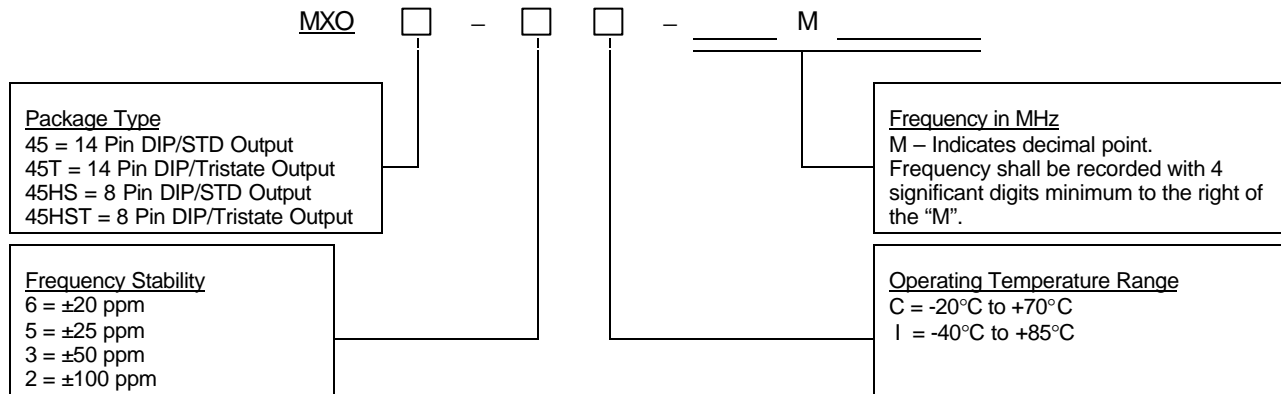
**Electrical Characteristics**

Parameter	Symbol	Conditions	Min	Typical	Max	Unit
Output Frequency Range	$f_o$	-	1.0	-	105.561	MHz
Stability (Note 1) (See Ordering Information)	$\Delta f/f$	-	-	-	20,25,50 or 100	ppm
Supply Voltage	$V_{cc}$	-	4.5	5.0	5.5	V
Operating Supply Current	$I_{cc}$	1.0 MHz to 7.0 MHz $C_L=50\text{pF}$ 7.1 MHz to 25 MHz $C_L=50\text{pF}$ 25.1 MHz to 50 MHz $C_L=50\text{pF}$ 50.1 MHz to 70 MHz $C_L=30\text{pF}$ 80.1 MHz to 105.561 MHz $C_L=15\text{pF}$	-	5 15 30 40 45	12 25 40 60 85	mA
Output Load CMOS	$C_L$	1.0 MHz to 50 MHz 50.1 MHz to 70 MHz 70.1 MHz to 105.561 MHz	-	-	50 30 15	PF
TTL		1.0 MHz to 105.561 MHz	-	-	10	TTL
Output Voltage Levels Logic '1' Level	$V_{OH}$	CMOS Load	$V_{cc}-0.4\text{V}$	-	-	V
Logic '0' Level	$V_{OL}$	TTL Load CMOS or TTL Load	$V_{cc}-0.6\text{V}$ -	- -	- 0.4	
Output Current	$I_{OH}$ $I_{OL}$	$V_{OH} = 3.9\text{V}$ $V_{CC} = 4.5\text{V}$ $V_{OL} = 0.4\text{V}$ $V_{CC} = 4.5\text{V}$	- -	- -	-16 +16	mA
Output Duty Cycle (50% Level)	SYM	1.0 MHz to 50 MHz 50.1 MHz to 70 MHz 70.1 MHz to 105.561 MHz	45 40 45	-	55 60 55	%
Rise & Fall Time (10% - 90% Level)	$t_R, t_F$	1.0 MHz to 25 MHz $C_L=50\text{pF}$ 25.1 MHz to 70 MHz $C_L=30\text{pF}$ 70.1 MHz to 105.561 MHz $C_L=15\text{pF}$	- - -	5 3 2	8 5 3	nS
Start Up Time	-		-	-	10	mS
Enable Function (Note 2)	-	See 'Enable Truth Table' on Page 2 or 3	-	-	-	-
Phase Jitter	$t_j$	Peak - Peak	-	30	50	pS

Notes:

1. Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and first year aging at an average operating temperature of  $40^{\circ}\text{C}$ .
2. Reference CTS Application Note 014-0002-0.

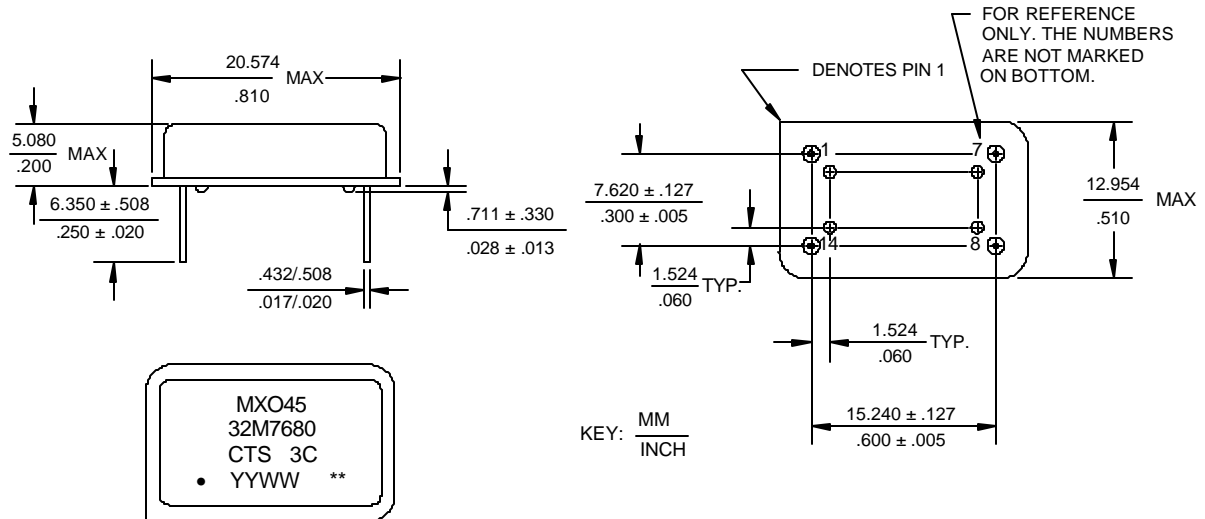
**ORDERING INFORMATION**



Example P/N: MXO45 – 3C – 32M7680 or MXO45HS – 3C – 32M7680

**MECHANICAL SPECIFICATIONS**

DIP 14



**Marking Notes:**

1. Frequency marked with 4 significant digits after the "M"
2. CTS XX – stability/temp. code.
3. \*\* – Manufacturing site code

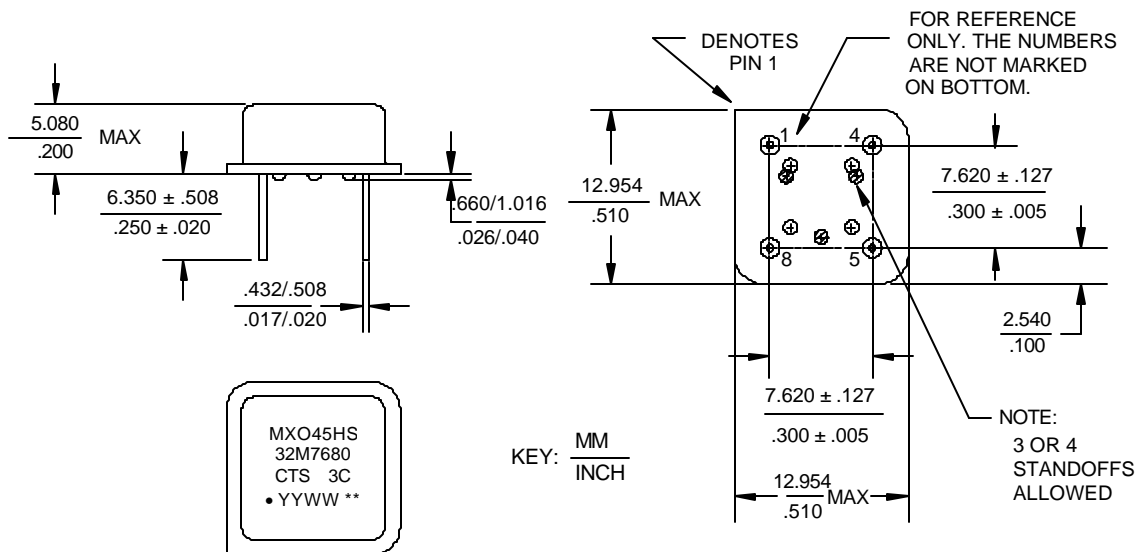
**Enable Truth Table**

Pin 1	Pin 8
"1"	Output
"0"	High Imp.
Open	Output

**PIN CONNECTIONS**

Pin	Symbol	Function
1	EOH	Output Enable or NC
7	GND	Circuit and Package Ground
8	Output	RF Output
14	V <sub>CC</sub>	Supply Voltage

DIP 8



**Marking Notes:**

1. Frequency marked with 4 significant digits after the "M"
2. CTS XX – stability/temp. code.
3. \*\* – Manufacturing site code

**Enable Truth Table**

Pin 1	Pin 5
"1"	Output
"0"	High Imp.
Open	Output

**PIN CONNECTIONS**

Pin	Symbol	Function
1	EOH	Output Enable or NC
4	GND	Circuit and Package Ground
5	Output	RF Output
8	V <sub>CC</sub>	Supply Voltage

**ENVIRONMENTAL SPECIFICATIONS**

- Storage Temperature: -55°C to +125°C
- Temperature Cycle: 400 cycles, -55°C to +125°C, 10 min dwell, 1 min transfer
- Mechanical Shock: 1,500g's, 0.5mS, ½ sinewave, 3 shocks each direction, in 3 planes
- Sinusoidal Vibration: 0.06" D.A., 10 to 55 Hz and 20g's, 55 to 2,000 Hz, 3 cycles per plane
- 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<sup>-8</sup> cc/sec air equivalent
- High Temperature Operating Bias: 2,000 hours at 125°C, disregarding frequency shift
- Frequency Aging: < 5 ppm shift in 1,000 hours at 85°C
- Solderability: 90% coverage using: (no pre-conditioning required)
  - A) R Flux
  - B) Solder bath temperature of 245°C ± 5°C
  - C) Solder composition 63% Sn/ 37% Pb

**QUALITY AND RELIABILITY**

Quality Systems meet or exceed the requirements of ISO 9000: 2000 standards.  
 Reliability Audits are performed on this or similar products with results available upon request.