

# MTXO OSCILLATOR

## 10 MHz to 50 MHz

Tight Stability Quartz Crystal Oscillator

### DESCRIPTION

Statek's MTXO/MTXOHG are small, low power, clean reference sources that fill the stability gap between conventional clock oscillators and TCXO reference sources. Manufactured for high-reliability applications that require a stable reference, these oscillators offer a total frequency tolerance as low as  $\pm 5$  ppm over  $-55^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$  as well as high-shock survivability.

### FEATURES

- 3.2 x 2.5 mm hermetically sealed ceramic package
- High shock resistance (HG version) up to 75,000 g
- Tight frequency stability
- Ultra-low Allan deviation and phase jitter
- Ultra-low period jitter (1.7 ps rms)
- Low acceleration sensitivity
- Low current consumption; 1.5 mA 40 MHz no load
- Military testing per MIL-PRF-55310 product level B available
- CMOS output; clipped sine option
- Fundamental frequency; no PLL artifacts
- Industrial temperature range option
- Designed and manufactured in the USA

### APPLICATIONS

#### Industrial, Defense and Aerospace

- RF Telemetry
- Master Clock
- Communications
- Navigation
- Handheld Devices and Instrumentation

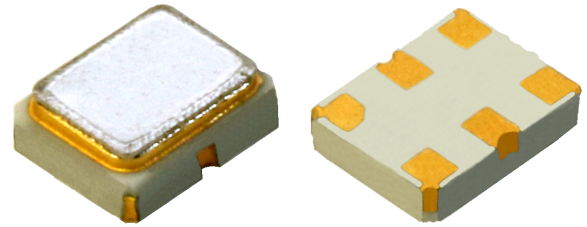
### PACKAGING OPTIONS

- Tray Pack
- Tape and Reel (per EIA 481). See Tape and Reel datasheet 10109.

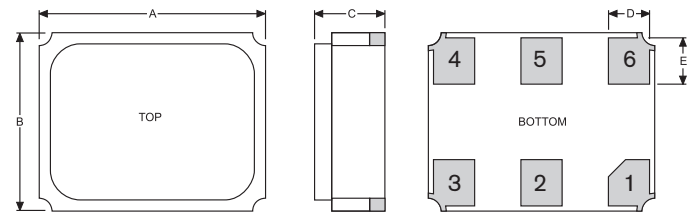
### PIN CONNECTIONS

1. N/C
2. N/C Do not connect (Electrically Isolate!)\*
3. Ground
4. Output
5. N/C Do not connect (Electrically Isolate!)\*
6.  $V_{DD}$

\* Including Ground

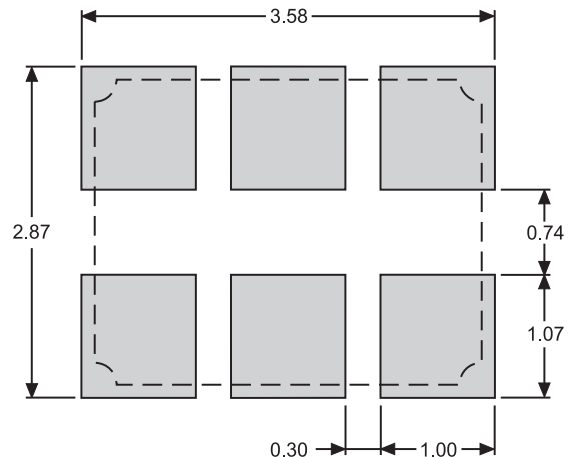


### DIMENSIONS



DIM (mm)	Termination	MINIMUM	TYPICAL	MAXIMUM
A		3.27	3.35	3.48
B		2.56	2.64	2.73
C	SM1	1.02	1.12	1.25
	SM3/SM5	1.14	1.24	1.37
D		0.48	0.61	0.74
E		0.63	0.76	0.89

### SUGGESTED LAND PATTERN



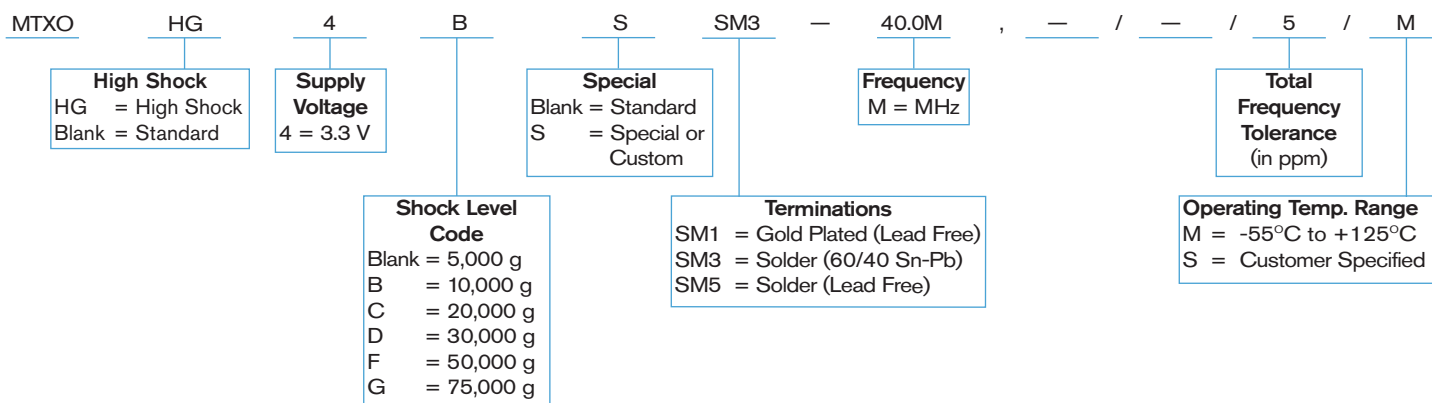
## SPECIFICATIONS

Specifications are typical at 25°C unless otherwise noted. Specifications are subject to change without notice. Tighter specifications available.

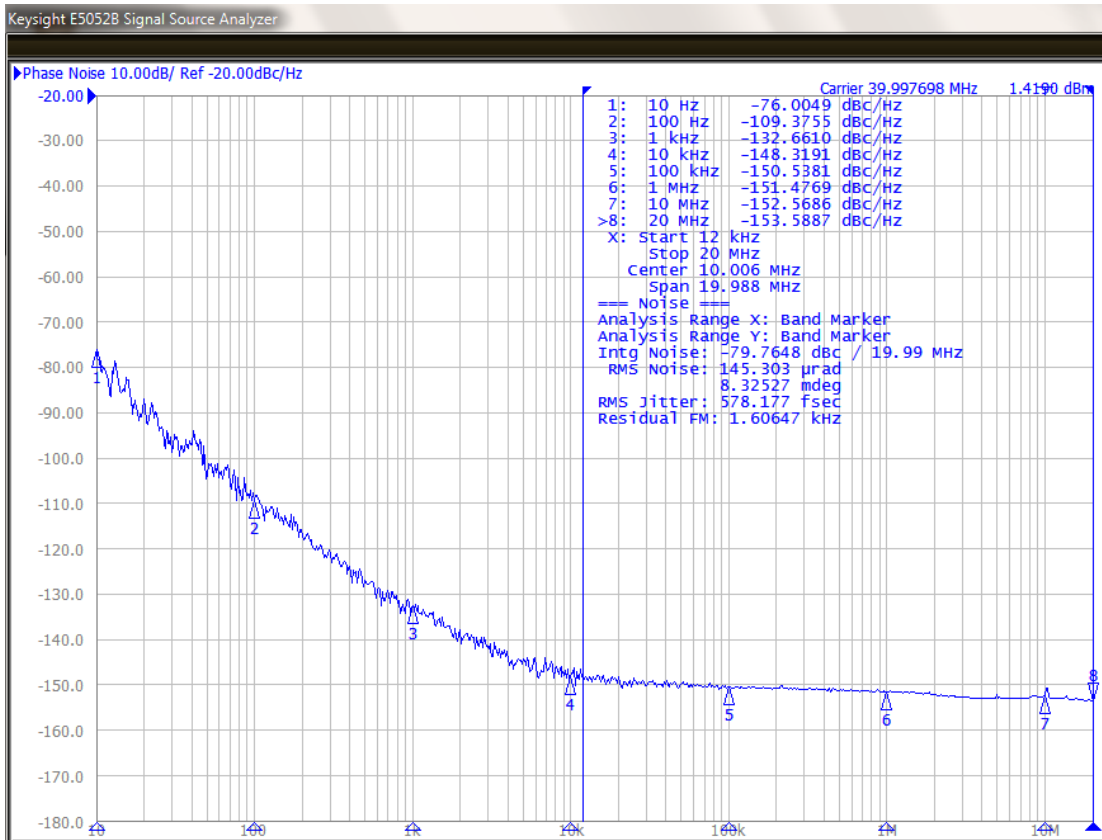
Frequency Range	10 MHz to 50 MHz
Supply Voltage	3.3 V ± 10%
Total Frequency Tolerance <sup>1</sup>	As low as ±5 ppm (Military)
Typical Supply Current <sup>2</sup>	3 mA
Output Voltage Levels	$V_{OH} > 0.8 V_{DD}$ $V_{OL} < 0.2 V_{DD}$
Output Load (CMOS)	10 pF
Start-up Time	5 ms MAX
Rise/Fall Time	5 ns MAX
Duty Cycle	45% MIN, 55% MAX
Shock Survival	STD: 5,000 g, 0.5 ms, ½ sine HG: Up to 75,000 g, 0.5 ms, ½ sine
Vibration Survival <sup>3</sup>	20 g, 10-2,000 Hz swept sine
Operating Temperature Range <sup>4</sup>	-55°C to +125°C (Military)
Typical Period Jitter (rms)	1.7 ps over 10,000 cycles
Storage Temperature Range	-55°C to +125°C
Max Process Temperature	260°C for 20 seconds
MIN/MAX Supply Voltage ( $V_{DD}$ )	-0.3 V / 3.6 V
Moisture Sensitivity Level (MSL)	This product is hermetically sealed and is not moisture sensitive.

1. Includes aging first year.
2.  $V_{DD} = 3.3$  V, 10 pF load, frequency at 40 MHz.
3. Per MIL-STD-202, Method 204, Condition D. Random vibration testing also available.
4. Other temperature ranges available.

## HOW TO ORDER STATEK MTXO OSCILLATOR



# PHASE NOISE AND JITTER PERFORMANCE



Typical phase noise [dBc/Hz]

Offset Frequency	40 MHz
10 Hz	-76
100 Hz	-109
1 kHz	-133
10 kHz	-148
100 kHz	-150
1 MHz	-151
10 MHz	-152
20 MHz	-153

Integrated RMS phase jitter<sup>1</sup>

Frequency	V <sub>DD</sub> = 3.3 V
40 MHz	580 fs

1. 12 kHz to 20 MHz, unless noted otherwise.

