DESCRIPTION

An increasing number of applications require the use of high-temperature oscillators. For these applications, DEI offers the GSHTXO1201, GSHTXO1202 , and GSHTXO1203 oscillators. These oscillators are designed to operate at temperatures up to 225°C with high shock survivability.

GSHTXO1201	GSHTXO1202	GSHTXO1203
320 kHz - 50 MHz	320 kHz - 50 MHz	1 MHz - 50 MHz

FEATURES

- High temperature operation up to 225°C
- Excellent stability over temperature
- Fast start-up
- High shock resistance
- CMOS and TTL compatible
- Optional output enable/disable
- Low EMI emission
- Hermetically sealed ceramic package

PIN CONNECTIONS

1. Enable/Disable (E or T) or No Connection (N)
2. Ground
3. Output
4. V_{DD}

APPLICATIONS

Industrial

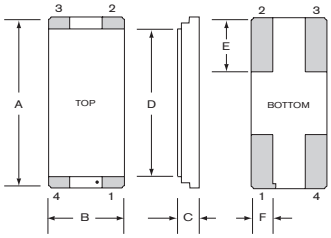
- Downhole instrumentation
- Rotary shaft sensors
- Underground boring tools

DIMENSIONS

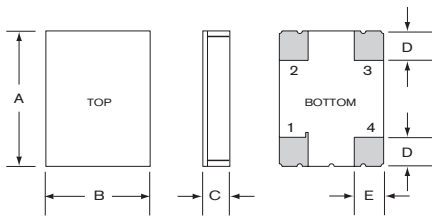
	GSHTXO1201 MAXIMUM		GSHTXO1202 MAXIMUM		GSHTXO1203 MAXIMUM	
DIM	inches	mm	inches	mm	inches	mm
A	0.405	10.29	0.263	6.68	0.136	3.40
B	0.190	4.83	0.204	5.18	0.107	2.70
C (SM1)	0.055	1.40	0.055	1.40	0.043	1.09
C (SM3/SM5)	0.063	1.60	0.063	1.60	0.048	1.21
D	0.350	8.89	0.065	1.65	0.041	1.10
E	0.135	3.43	0.070	1.78	0.031	0.85
F	0.060	1.52	———		———	

PACKAGE DIMENSIONS

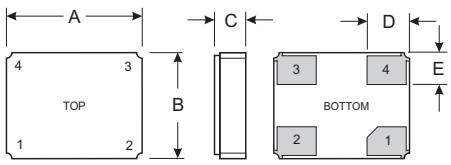
GSHTXO1201



GSHTXO1202

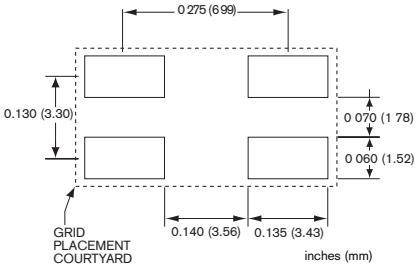


GSHTXO1203

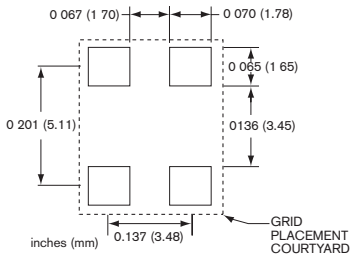


SUGGESTED LAND PATTERN

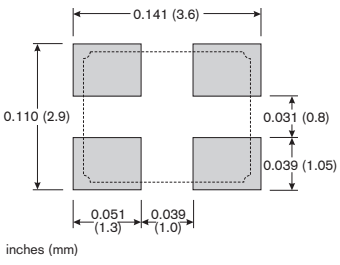
GSHTXO1201



GSHTXO1202



GSHTXO1203



SPECIFICATIONS

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

Supply Voltage[1, 2]	3.3 V ± 10%		
	5.0 V ± 10%		
Calibration Tolerance	± 50 ppm, or tighter as required		
Frequency Stability	± 100 ppm for 25°C to 150°C		
Over Temperature	± 150 ppm for 25°C to 175°C		
	± 175 ppm for 25°C to 200°C		
	± 250 ppm for 25°C to 225°C		
Total Tolerance[3]	± 200 ppm for 25°C to 200°C		
	± 300 ppm for 25°C to 225°C		
Supply Current (Typical)		3.3 V	5.0 V
	24 MHz	3.0 mA	8.0 mA
	32 MHz	5.0 mA	10.0 mA
	50 MHz	6.0 mA	14.0 mA
Output Load (CMOS)	15 pF		
Start-up Time	5 ms MAX		
Rise/Fall Time	10 ns MAX		
Duty Cycle*	40% MIN, 60% MAX		
Aging, first year	5 ppm MAX at 25°C		
Aging	100 ppm MAX at 200°C		
Shock, survival[4]	Std: 3,000 g, 0.3 ms, 1/2 sine		
	HG: 10,000 g, 0.3 ms, 1/2 sine		
Vibration, survival[5]	20 g, 10-2,000 Hz swept sine		
Operating Temp Range	-55°C up to 225°C		

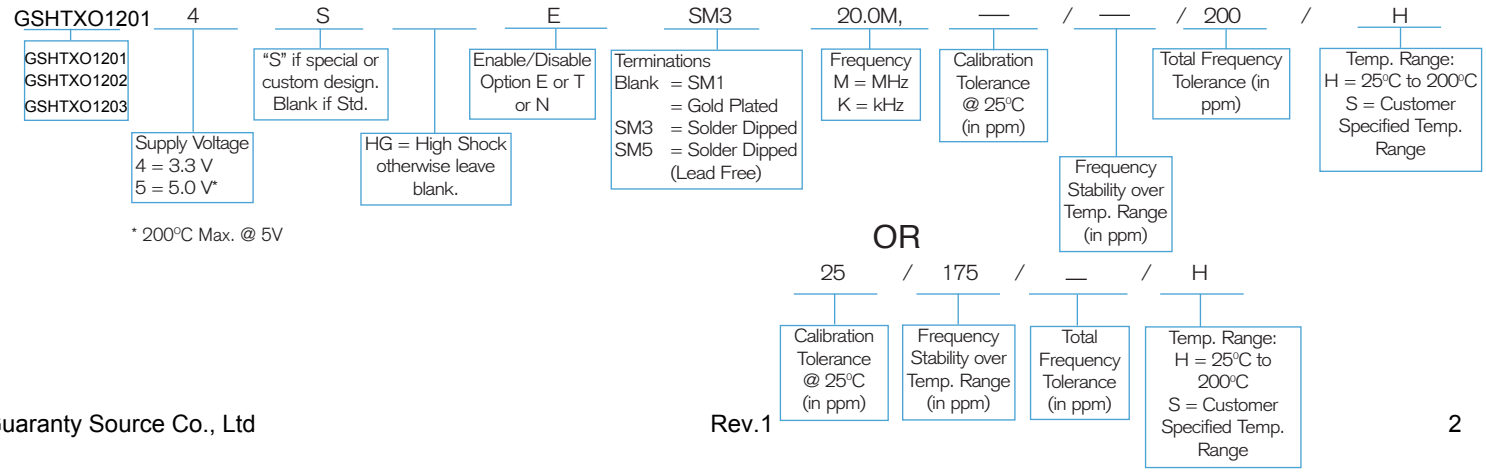
1. All frequencies, voltages, temperature ranges and enable/disable options may not be available. Contact factory.
2. 225°C only available at 3.3V.
3. Total Tolerance = Calibration Tolerance + Frequency Stability over temperature.
4. For GSHTXO1201 and GSHTXO1202 oscillators only. The specification for std. oscillators is 5,000 g and for GSHTXO1203 HG it is 10,000 g.
5. Per MIL-STD-202G, Method 204D, Condition D. Random vibration testing available.

Note: All parameters are measured at ambient temperature with a 10 MΩ, 15 pF load.
*Tighter duty cycle available. Contact factory.

PACKAGING OPTIONS

GSHTXO1201, GSHTXO1202, GSHTXO1203 - Tray Pack
- 16 mm tape, 7" or 13" reels
Per EIA 481 (see Tape and Reel data sheet # 10109)

HOW TO ORDER



ABSOLUTE MAXIMUM RATINGS

Supply Voltage V_{DD}	-0.5 V to 7.0 V
Storage Temperature	-55°C to 125°C
Maximum Process Temperature	260°C, 20 seconds

ENABLE/DISABLE OPTIONS (E/T/N)

DEI offers three enable/disable options: E, T and N. Both the E-version and T-version have Tri-State outputs and differ in whether the oscillator continues to run internally when the output is put into the high Z state: it stops in the E-version and continues to run in the T-version. So, the E-version offers very low current consumption when the oscillator is disabled and the T-version offers very fast output recovery when the oscillator is re-enabled. The N-version does not have PIN 1 connected internally and so has no enable/disable capability. The following table summarizes the three options.

COMPARISON OF ENABLE/DISABLE OPTIONS E AND T

	E	T
When enabled (PIN 1 is high)*		
Output	Freq. output	Freq. output
Oscillator	Oscillates	Oscillates
Current consumption	Normal	Normal
When disabled (PIN 1 is low)		
Output	High Z state	High Z state
Oscillator	Stops	Oscillates
Current consumption	Very low	Lower than normal
When re-enabled (PIN 1 changes from low to high)		
Output recovery	Delayed	Immediate

*When PIN 1 is allowed to float, it is held high by an internal pull-up resistor.