GREENRAY
frequency control solutions

# T1283

tcxo

RADIATION TOLERANT 50 krad (Si) TID
SINEWAVE OR CMOS OUTPUT


## Product Description

Greenray Industries' T1283 TCXO offers ultra low acceleration sensitivity for reliable phase noise performance in high vibration and shock sensitive applications. Precision analog temperature compensation provides a tight stability insensitive to radiation. Under high shock and vibration conditions the T1283 offers superior phase noise performance and features a rugged, go-anywhere package.

## Features

- 50 krad (Si) total ionizing dose
- Excellent phase noise performance under high shock/high vibration conditions
- Rugged package for high reliability; ideally suited for mobile applications
- g-Sensitivity down to a typical 0.07 ppb/g
- Frequency: 20 – 100 MHz
- Voltage Control for precise tuning or phase locking apps
- 17.3 mm sq. package
- +3.3 or +5 Vdc Supply
- CMOS output

## Applications

- High orbit transponders
- Low orbit satellites (nano/micro satellites)
- RF telemetry systems
- Multiband terminal
- Upconverter

REV: -

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
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www.greenrayindustries.com

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# T1283 SERIES
20 MHz to 100 MHz

tcxo

| Electrical Characteristics | | | | | | |
|---|---|---|---|---|---|---|
| Parameter | Conditions | Min | Typical | Max | Units | Ordering Code |
| Nominal Frequency | @ +25°C | 20 | | 100 | MHz | (FREQ.) |
| Frequency Stability | -20°C to +70°C | | ± 3.0 | | ppm | N36 |
| | -40°C to +85°C | | ± 5.0 | | ppm | T56 |
| Aging | 1st year | | | ± 1.0 | ppm | |
| Acceleration Sensitivity | Worst axis tested @ 90 Hz, 10 g | | | 0.8 | ppb/g | SG |
| | | | | 0.3 | ppb/g | LG |
| | | | | 0.07 | ppb/g | ULG |
| Frequency vs Voltage | For a 5% change | | | ± 0.3 | ppm | |
| Frequency vs Load | For a 5% change | | | ± 0.1 | ppm | |
| Voltage Control (EFC) | 0 to Supply, Positive Slope | | ± 5.0 | | ppm | |

| Phase Noise Performance | | | | | | |
|---|---|---|---|---|---|---|
| Parameter | Frequency Offset (Hz) | Min | Typical | Max | Units | Ordering Code |
| Static @ 100 MHz Nom. Freq. | 10 | | -80 | | dBc/Hz | |
| | 100 | | -110 | | dBc/Hz | |
| | 1 k | | -135 | | dBc/Hz | |
| | 10 k | | -150 | | dBc/Hz | |
| | 100 k | | -160 | | dBc/Hz | |

| DC Supply | | | | | | |
|---|---|---|---|---|---|---|
| Parameter | Conditions | Min | Typical | Max | Units | Ordering Code |
| Supply Voltage | | 3.0 | 3.3 | 3.6 | Vdc | B |
| | | 4.75 | 5.0 | 5.25 | Vdc | E |
| Supply Current | | | | 30 | mA | |

| RF Output | | | | | | |
|---|---|---|---|---|---|---|
| Parameter | Conditions | Min | Typical | Max | Units | Ordering Code |
| CMOS | | | | | | C |
| Load | | | 15 | | pF | |
| Level | | 0.8 Vdd "1" Level | | 0.2 Vdd "0" Level | V | |
| Symmetry | | 40 | 50 | 60 | % | |
| Rise / Fall Time | | | | 10 | nSec | |

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| Environmental and Mechanical Specifications | | | | |
|---|---|---|---|---|
| Test | Standard | Method | Condition | Description |
| Vibration | MIL-STD-202F | 214 | I.F | 0.3 PSD, 20.71 g RMS, 3min/axis |
| Shock | MIL-STD-202F | 213 | K | 30 g peak, sawtooth, 11 ms |

| Recommendations and General Information | |
|---|---|
| Parameter | Notes |
| Operating Temperature | -40°C to +85°C |
| Storage Temperature | -55°C to +105°C |
| Terminal Finish | Sn 100 (Lead-free), SnPb 63/37 (non-RoHS) |
| Package Weight | 3 grams |
| Soldering Instruction | Hand Solder |
| Shipping | Tray Pack |
| Marking | GRI Logo, Model #, Frequency, Serial #, Date Code<br>Addition marking upon request if space is available |

## Ordering Example

**T1283 - T 56 - B - SG - 40.0 MHz - LF**

| Model | Temp. Range | Stability | Supply Voltage | G-Sensitivity | Freq. (MHz) | Term. Finish |
|---|---|---|---|---|---|---|
| | N: -20 to +70°C<br>T: -40 to +85°C | 36: ±3ppm<br>56: ±5ppm | B: 3.3V<br>E: 5V | SG: ≤ 0.8 ppb/g<br>LG: ≤ 0.3 ppb/g<br>ULG: ≤ 0.07 ppb/g<br>HG: Customer-specific | 20 to 100 | LF: Sn 100 (Lead-free)<br>PB: SnPb 63/37 (non-RoHS) |

The Order ID (T1283-T56-B-SG-40.0MHz-LF) is only used to issue the preliminary quote. The Part Number (T1283-1) for the quoted Electrical Characteristics, Screenings, and other options, will be provided with the Greenray Sales Order.

Other specification options are available, please use the contact information below for more information.

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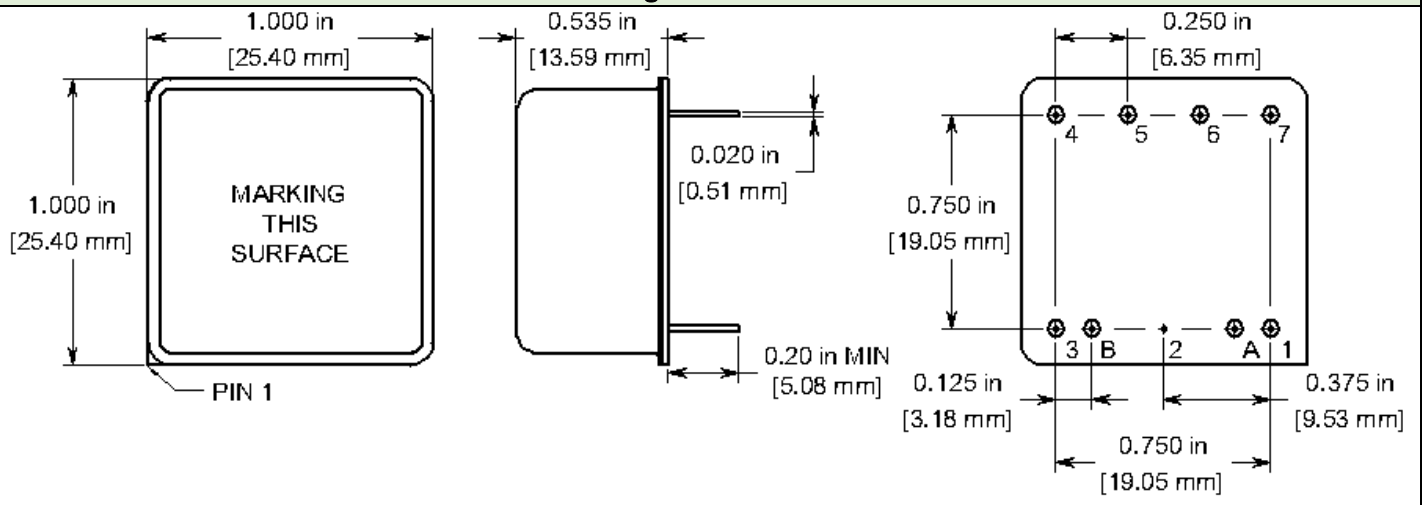
## Package Information




| PAD CONNECTIONS | |
|---|---|
| 1 | SUPPLY VOLTAGE (Vdd) |
| 2 | NO CONNECT (NC) |
| 3 | OUTPUT |
| 4 | GND |
| 5 | NO CONNECT (NC) |
| 6 | NO CONNECT (NC) |
| 7 | NO CONNECT (NC) |
| A | NO CONNECT (NC) |
| B | CONTROL VOLTAGE (EFC) |

(NC Pads may have internal connections and should be isolated)

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