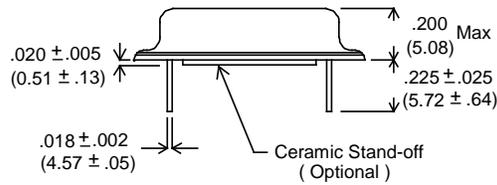




"T200" Series (CMOS), 5.0 to 15.0 VDC High Reliability Hybrid Microcircuit Crystal Oscillators

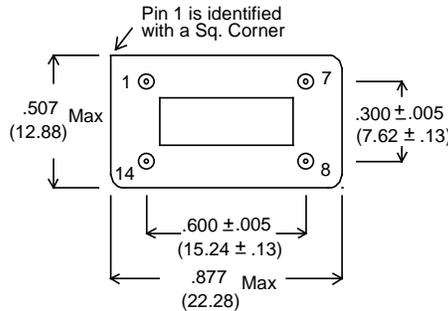
Features

- Ruggedized Crystal Mount
- Tristate Output Option
- 100% Screening Options
- Low Phase Noise
- Hermetically Sealed Metal Package
- ECCN: EAR99



Applications

- High Shock & Vibration Applications
- Navigation Systems
- Aerospace Instrumentation
- Gun Launched Munitions
- Industrial Controls



PIN #	FUNCTION
1	N/C
7	GND/CASE
8	OUTPUT
14	B+
All Others	Missing

Package Specifications & Outline:

- Header & Leads Material: Kovar
- Cover Material: Nickel
- Seal: Hermetic – Resistance Welded
- Weight: 4.0 Gms typical, 5.0 Gms Max.
- Thermal Resistance, Junction to Case (θ_{JC}): 22 °C / Watt
- Lead Soldering, Temp./Time: 260 °C, 10 Secs. Max.
- Header Finish: 100 to 250 μ inches nickel
- Lead Finish: 50 to 80 μ inches gold over 100 to 250 μ inches nickel

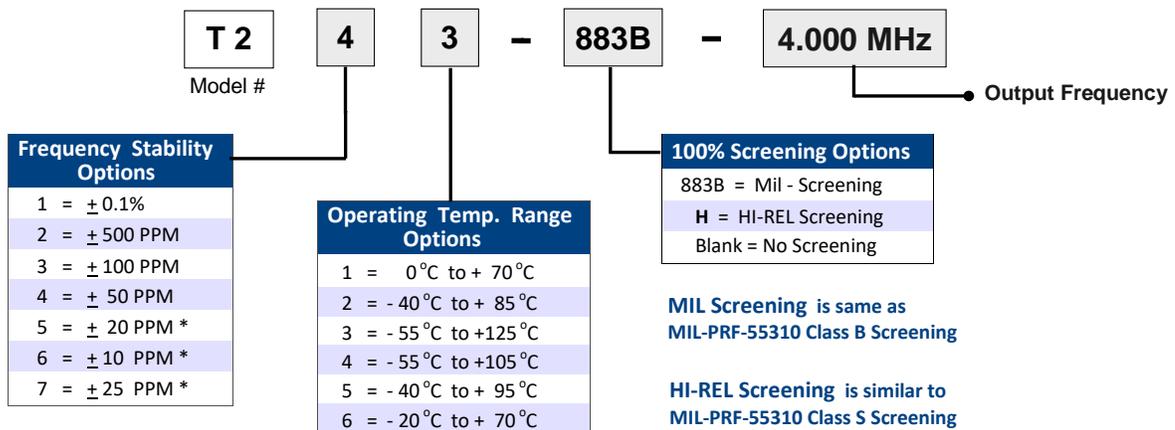
Dimensions: Inches (mm)

Hot Solder Tinning per MIL-PRF-55310 is optional at additional cost.

Contact Xsis Electronics at xis@xis.com for any special requirements.

ORDERING INFORMATION (Please build your part number from options below) :

P/N EXAMPLE: T243 - 883B - 4.000 MHz = CMOS Output, ± 50 PPM over -55 °C to +125 °C, 883B Screening, and 4.000 MHz



* Frequency Stability Options 5, 6 & 7 are not available for all operating temperature ranges.



“T200” Series (CMOS), 5.0 to 15.0 VDC
High Reliability Hybrid Microcircuit Crystal Oscillators

Electrical Specifications:

Parameter	Specification Limits
Output Frequency Range	5.25 Hz - 12 MHz
Frequency Accuracy at +25 °C	± 15 PPM
Frequency Stability Vs Temperature	See Ordering Information on Page 1
Operating Temperature Range	See Ordering Information on Page 1
Supply Voltage (Vdd) (See Note Below)	+ 5 VDC to +15 VDC ± 10%
Input Current (No Load)	5 mA Max. @ +5 VDC 25 mA Max. @ +15 VDC
Output Waveform	Square Wave, CMOS Compatible
Output Duty Cycle (at 50% Output Level)	60/40% Max.
Output High Level	0.9 Vdd Min.
Output Low Level	0.1 Vdd Max.
Output Load	200 K Ω // 50 pF
Rise & Fall Times (Typical Load)	150 nS Max. @ 5 VDC 50 nS Max. @ 15 VDC (10% to 90% Output Levels)
Start-Up Time	≤ 10 MHz 20 mS Max. > 10 MHz 10 mS Max.
Phase Jitter (10 KHz - 20 MHz Integrated)	0.15 pS rms Typical
Freq. Stability Vs Supply Voltage	± 4 PPM Max. for ± 10% change in Supply Voltage
Aging at 70 °C	± 3 PPM Max. first year, ± 2 PPM Max. per year thereafter
Storage Temperature	-65 °C to +125 °C

For special requirements, such as, tighter output symmetry, faster start-up time, PIND screening, etc., please contact Xsis Electronics at xisis@xisis.com or call us at 913-631-0448.

Note: Input Voltage must be specified. Minimum input voltage required depends on the Output Frequency And operating temperature range. Consult with factory for your specific application. Any voltage, other than 5 VDC will be marked on the part along with the standard part number.



“T200” Series (CMOS), 5.0 to 15.0 VDC
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Packaging: ESD protective conductive foam tray.

Thermal Characteristics:

Junction to case Thermal Constant (θ_{JC}): 22 °C / Watt

Junction to Ambient (Device floating in free air) Thermal Constant (θ_{JA}): 85 °C / Watt

Hi-Rel Screening:

When HI-REL option is selected, Xsis Oscillators are subjected to 100% screening similar to Class “S” screening in accordance with MIL-PRF-55310. Refer to www.xsis.com for additional details about HI-REL screening.

Environmental Specifications:

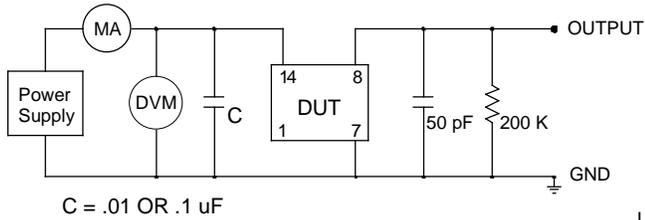
T200 series oscillators are designed to meet or exceed the Environmental tests specified below. Customized screening and environmental testing are also available to meet your special requirements.

Test	Test Conditions
Vibration	0.06” DA, 30 G peak, 10 - 2000 Hz, MIL-STD-202, Method 204, Cond. G
Shock	1500 G, 0.5 ms, half-Sine, MIL-STD-883, Method 2002, Cond. B
Temperature Cycling	MIL-STD-883, Method 1010, Cond. C
Thermal Shock	MIL-STD-202, Method 107, Cond. B
Seal (Fine and Gross)	MIL-STD-883, Method 1014 Cond. A & C
Burn-in	160 Hours, 125 °C, Nominal Supply Voltage & Load
Frequency Aging	30 days at 70 °C, ± 1.5 PPM Max.
Altitude	MIL-STD-202, Method 105, Cond. C
Constant Acceleration	MIL-STD-883, Method 2001, 5000 G
Moisture Resistance	MIL-STD-202, Method 106, Vibration Sub Cycle Omitted
Solderability	MIL-STD-202, Method 208
Resistance to Soldering Heat	MIL-STD-202, Method 210, Cond B. or C as applicable
Resistance to Solvents	MIL-STD-202, Method 215
Internal Water Vapor Content	MIL-STD-883, Method 1018
ESD Classification	MIL-STD-883, Method 3015, Class 1C, HBM 1000 to 1999
Moisture Sensitivity Level	J-STD-020, MSL=1

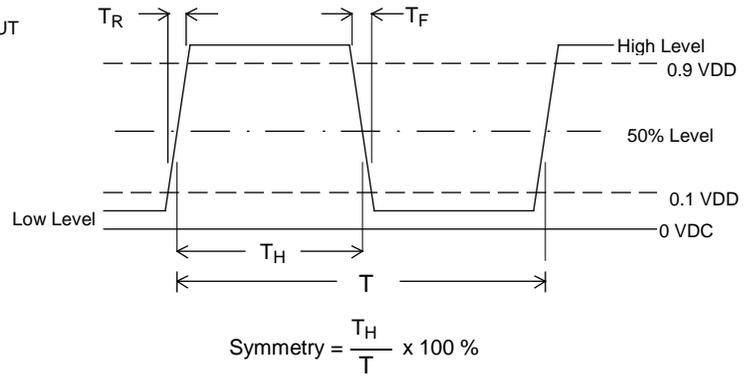


"T200" Series (CMOS), 5.0 to 15.0 VDC High Reliability Hybrid Microcircuit Crystal Oscillators

CMOS Test Circuit



CMOS Output Waveform



Typical Freq. Stability Vs. Temperature

