

# EH3900TS-16.000M TR

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## REGULATORY COMPLIANCE (Data Sheet downloaded on May 9, 2018)


[Click badges to download compliance docs](#)

Regulatory Compliance standards are subject to updates by governing bodies. Click the badges to download the latest compliance docs for this part number directly from Ecliptek.



## ITEM DESCRIPTION

Quartz Crystal Clock Oscillators XO (SPXO) LVCMOS (CMOS) 1.8Vdc 4 Pad 3.2mm x 5.0mm Ceramic Surface Mount (SMD) 16.000MHz  $\pm 100$ ppm 0°C to +70°C

## ELECTRICAL SPECIFICATIONS

Nominal Frequency	16.000MHz
Frequency Tolerance/Stability	$\pm 100$ ppm Maximum (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°, 260°C Reflow, Shock, and Vibration)
Aging at 25°C	$\pm 5$ ppm/Year Maximum
Operating Temperature Range	0°C to +70°C
Supply Voltage	1.8Vdc $\pm 5\%$
Input Current	3.5mA Maximum (No Load)
Output Voltage Logic High (Voh)	90% of Vdd Minimum (IOH = -8mA)
Output Voltage Logic Low (Vol)	10% of Vdd Maximum (IOL = +8mA)
Rise/Fall Time	6nSec Maximum (Measured at 20% to 80% of waveform)
Duty Cycle	50 $\pm 10$ (%) (Measured at 50% of waveform)
Load Drive Capability	15pF Maximum
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (High Impedance)
Tri-State Input Voltage (Vih and Vil)	90% of Vdd Minimum or No Connect to Enable Output, 10% of Vdd Maximum to Disable Output (High Impedance)
Standby Current	10 $\mu$ A Maximum (Pin 1 = Ground)
RMS Phase Jitter	20pSec Typical, 30pSec Maximum (Fj = 12kHz to 20MHz)
Period Jitter (RMS)	15pSec Typical
Period Jitter (pk-pk)	100pSec Typical, 200pSec Maximum
Start Up Time	10mSec Maximum
Storage Temperature Range	-55°C to +125°C

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

ESD Susceptibility	MIL-STD-883, Method 3015, Class 1, HBM: 1500V
Fine Leak Test	MIL-STD-883, Method 1014, Condition A
Flammability	UL94-V0
Gross Leak Test	MIL-STD-883, Method 1014, Condition C
Mechanical Shock	MIL-STD-883, Method 2002, Condition B
Moisture Resistance	MIL-STD-883, Method 1004
Moisture Sensitivity	J-STD-020, MSL 1
Resistance to Soldering Heat	MIL-STD-202, Method 210, Condition K
Resistance to Solvents	MIL-STD-202, Method 215
Solderability	MIL-STD-883, Method 2003
Temperature Cycling	MIL-STD-883, Method 1010, Condition B
Vibration	MIL-STD-883, Method 2007, Condition A

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### MECHANICAL DIMENSIONS (all dimensions in millimeters)



PIN	CONNECTION
1	Tri-State
2	Case Ground
3	Output
4	Supply Voltage

LINE	MARKING
1	<b>E16.000</b> <i>E=Ecliptek Designator</i>
2	<b>XXXXX</b> <i>XXXXX=Ecliptek Manufacturing Identifier</i>

### Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ±0.1

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## OUTPUT WAVEFORM & TIMING DIAGRAM



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## Test Circuit for CMOS Output



Note 1: An external 0.01µF ceramic bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

Note 2: A low capacitance (<12pF), 10X attenuation factor, high impedance (>10Mohms), and high bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value C<sub>L</sub> includes sum of all probe and fixture capacitance.

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## Tape & Reel Dimensions

Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

Compliant to EIA-481

