

Home Products Quick Quote My Parts List Site Map Contact Us



EHH11 Series Oscillator

Quartz Crystal Clock Oscillators XO (SPXO) HCMOS/TTL (CMOS) 5.0Vdc 8 Pin DIP Metal Thru-Hole



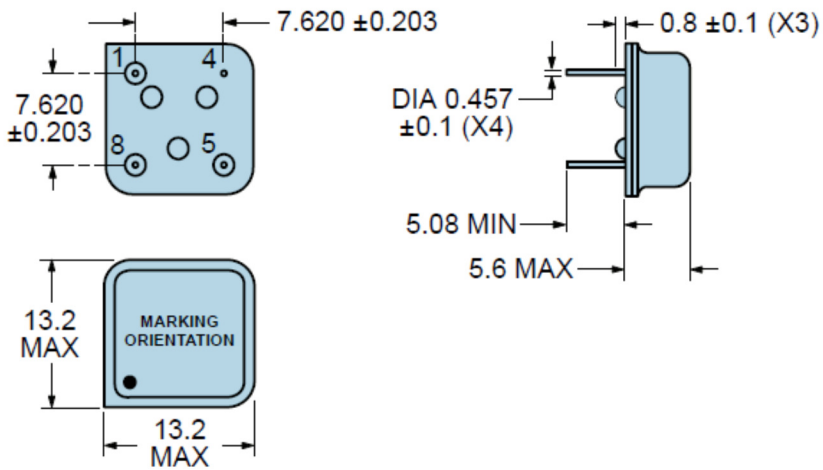
Revision A 06/26/2012

Electrical Specifications

Nominal Frequency	1.000MHz to 155.520MHz <i>Some frequencies within this range may not be available.</i>
Frequency Tolerance/Stability	(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°C, Shock, and Vibration) ±100ppm Maximum ±50ppm Maximum ±25ppm Maximum ±20ppm Maximum
Operating Temperature Range	0°C to +70°C -40°C to +85°C
Supply Voltage (V_{DD})	5.0V _{DC} ±10%
Input Current	50mA Maximum (No Load)
Output Voltage Logic High (V_{OH})	I _{OH} = -16mA 2.4V _{DC} Minimum with TTL Load, V _{DD} -0.4V _{DC} Minimum with HCMOS Load
Output Voltage Logic Low (V_{OL})	I _{OL} = +16mA 0.4V _{DC} Maximum with TTL Load, 0.5V _{DC} Maximum with HCMOS Load
Duty Cycle	50 ±10% (Measured at 1.4V _{DC} with TTL Load or at 50% of waveform with HCMOS Load over Nominal Frequency range of 1MHz to 70MHz; Measured at 50% of waveform over Nominal Frequency range of 70.000001MHz to 155.52MHz) 50 ±5% (Measured at 50% of waveform with TTL Load or with HCMOS Load)
Rise Time/Fall Time	Measured at 0.8V _{DC} to 2.0V _{DC} with TTL Load; Measured at 20% to 80% of waveform with HCMOS Load 6nSec Maximum over Nominal Frequency of 1MHz to 70MHz 4nSec Maximum over Nominal Frequency of 70.000001MHz to 155.52MHz
Load Drive Capability	10TTL Load or 50pF HCMOS Load Maximum over Nominal Frequency of 1MHz to 70MHz 5TTL Load or 15pF HCMOS Load Maximum over Nominal Frequency of 70.000001MHz to 155.52MHz
Output Logic Type	CMOS
Pin 1 Connection	Tri-State (Disabled Output:High Impedance)
Tri-State Input Voltage (V_{IH} and V_{IL})	+2.2V _{DC} Minimum to enable output, +0.8V _{DC} Maximum to disable output (High Impedance), No Connect to enable output.
Absolute Clock Jitter	±250pSec Maximum, ±100pSec Typical
One Sigma Clock Period Jitter	±50pSec Maximum, ±30pSec Typical
Start Up Time	10mSec Maximum
Aging (at 25°C)	±5ppm/year Maximum

Storage Temperature Range -55°C to +125°C

Mechanical Dimensions



All Dimensions in Millimeters

Pin 1: Tri-State (High Impedance)

Pin 5: Output

Pin 4: Ground/Case Ground

Pin 8: Supply Voltage

Marking Specifications

Line 1: **ECLIPTEK**

Line 2: **XXXXXXM**

- XXXXXX = Nominal Frequency (5 Digits + Decimal)
- M = Frequency unit of measure (MHz)

Line 3: **XXXXX**

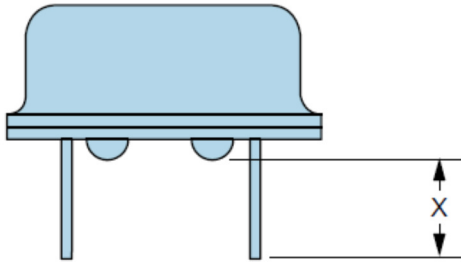
- XXXXX = Ecliptek Manufacturing Identifier

Environmental and Mechanical Specifications

Fine Leak Test:	MIL-STD-883, Method 1014, Condition A
Gross Leak Test:	MIL-STD-883, Method 1014, Condition C
Lead Integrity:	MIL-STD-883, Method 2004
Mechanical Shock:	MIL-STD-202, Method 213, Condition C
Resistance to Soldering Heat:	MIL-STD-202, Method 210
Resistance to Solvents:	MIL-STD-202, Method 215
Solderability:	MIL-STD-883, Method 2003
Temperature Cycling:	MIL-STD-883, Method 1010
Vibration:	MIL-STD-883, Method 2007, Condition A
Thermal Resistance (θ_{JA}):	63°C/W (degrees Celsius per Watt)
Thermal Resistance (θ_{JC}):	21°C/W (degrees Celsius per Watt)

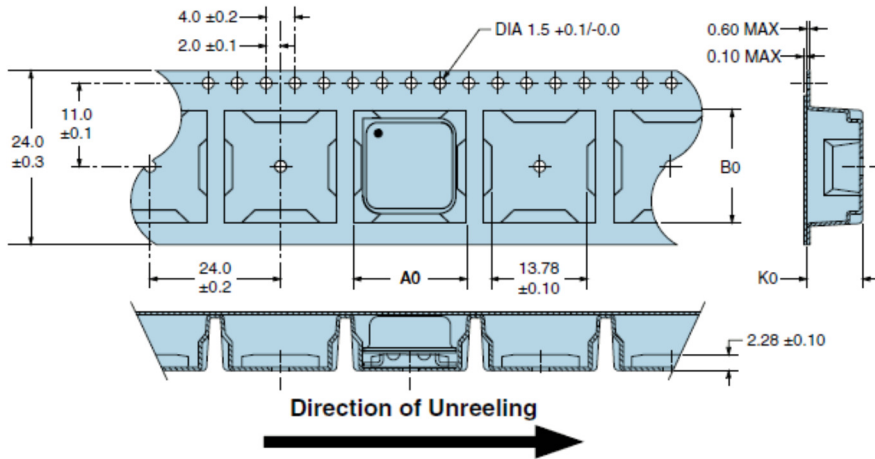
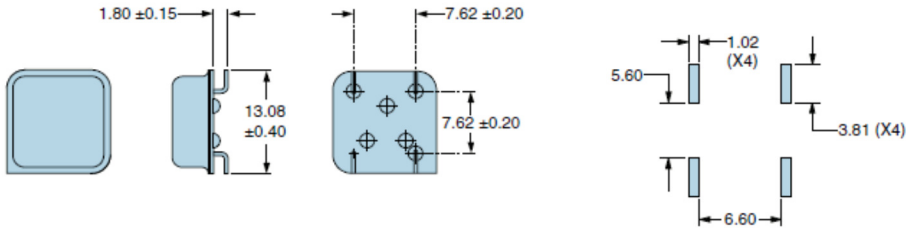
EHH11 Value Added Options

Custom Lead Length Options for EHH11 Oscillators



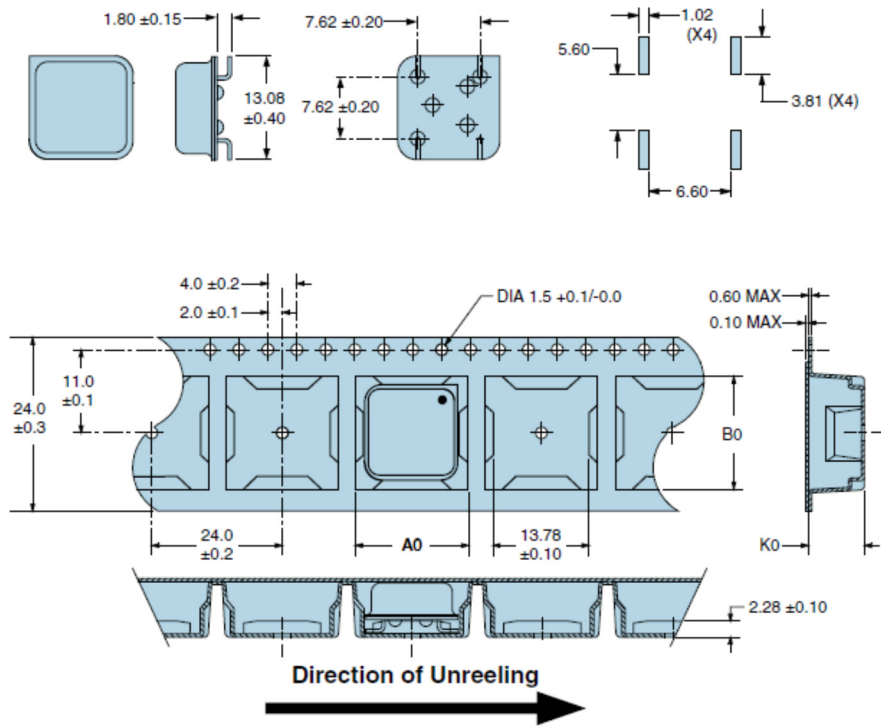
X DIMENSION		ECLIPTEK PART NUMBER SUFFIX
Millimeters	Inches	
2.540 ±0.500	0.100 ±0.020	CB
3.175 ±0.500	0.125 ±0.020	CC
3.810 ±0.500	0.150 ±0.020	CD
4.445 ±0.500	0.175 ±0.020	CE

Gull Wing Option G with Recommended Solder Pad Layout and Carrier Tape



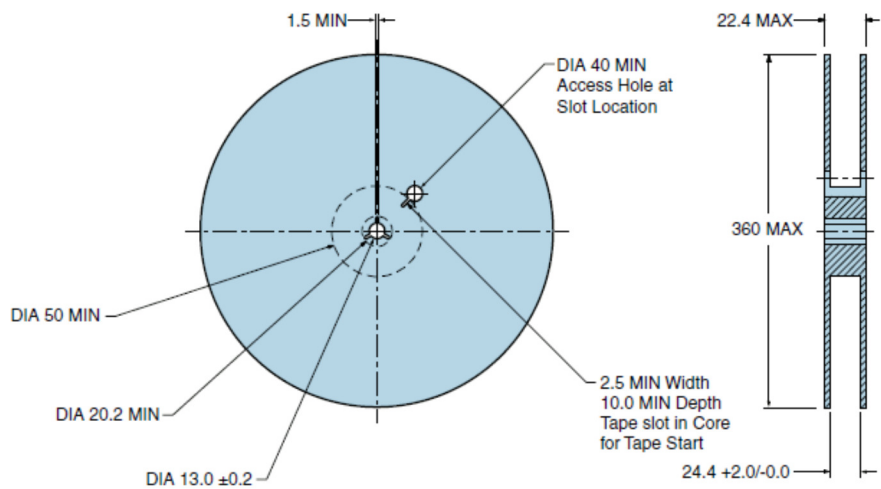
All Dimensions in Millimeters
Ecliptek Part Number Suffix: G

Gull Wing Option G2 with Recommended Solder Pad Layout and Carrier Tape



All Dimensions in Millimeters
Ecliptek Part Number Suffix: G2

Gull Wing Option G1 and G2 Reel Dimensions

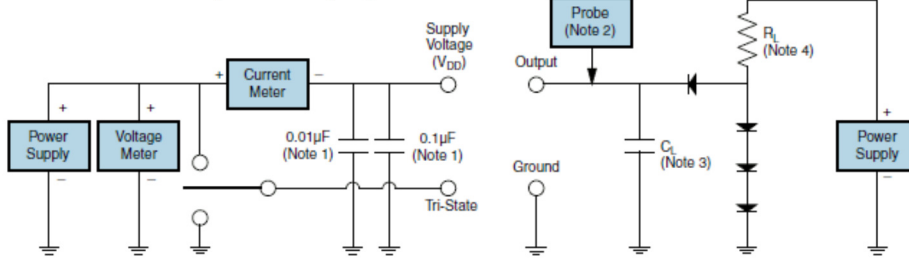


All Dimensions in Millimeters

TTL Test Circuit

Output Load Drive Capability	R_L Value (Ohms)	C_L Value (pF)
10TTL	390	15
5TTL	780	15

Table 1: R_L Resistance Value and C_L Capacitance Value Vs. Output Load Drive Capability



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.

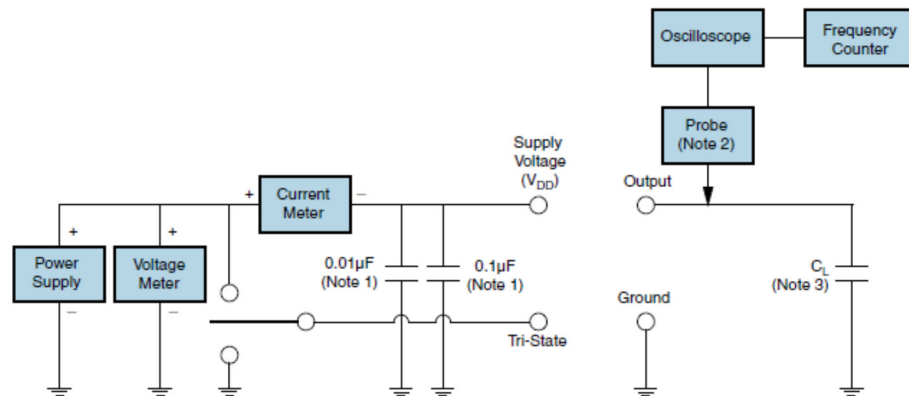
Note 2: A low capacitance (<12pF), 10X Attenuation Factor, High Impedance (>10Mohms), and High bandwidth (>300MHz) passive probe is recommended.

Note 3: Capacitance value C_L includes sum of all probe and fixture capacitance.

Note 4: Resistance value R_L is shown in Table 1. See applicable specification sheet for "Load Drive Capability".

Note 5: All diodes are MMBD7000, MMBD914, or equivalent.

CMOS Test Circuit

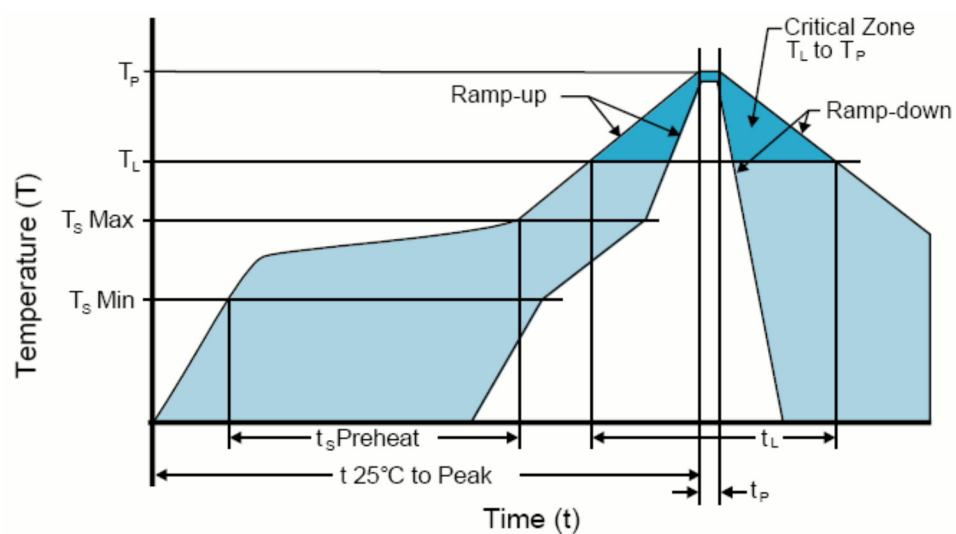


Note 1: An external 0.01µF ceramic bypass capacitor in parallel with a 0.1µF high frequency ceramic bypass capacitor close (less than 2mm) to the package ground and supply voltage pin is required.

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_L) includes sum of all probe and fixture capacitance.

Solder Reflow Profile



High Temperature Solder Bath (Wave Solder)

Note: Temperatures shown are applied to back of PCB board and device leads only. Do not use this method for product with the Gull Wing Option.

T_S MAX to T_L (Ramp-up Rate)	3°C/second Maximum
Preheat	
- Temperature Minimum (T _S MIN)	150°C
- Temperature Typical (T _S TYP)	175°C
- Temperature Maximum (T _S MAX)	200°C
- Time (t _S)	60 - 180 Seconds
Ramp-up Rate (T_L to T_P)	3°C/second Maximum
Time Maintained Above:	
- Temperature (T _L)	217°C
- Time (t _L)	60 - 150 Seconds
Peak Temperature (T_P)	260°C Maximum for 10 Seconds Maximum
Target Peak Temperature (T_P Target)	250°C +0/-5°C
Time within 5°C of actual peak (t_p)	20 - 40 seconds
Ramp-down Rate	6°C/second Maximum
Time 25°C to Peak Temperature (t)	8 minutes Maximum
Moisture Sensitivity Level	Level 1

Low Temperature Solder Bath (Wave Solder)

Note: Temperatures shown are applied to back of PCB board and device leads only.
Do not use this method for product with the Gull Wing Option.

T_S MAX to T_L (Ramp-up Rate)	5°C/second Maximum
Preheat	
- Temperature Minimum (T _S MIN)	N/A
- Temperature Typical (T _S TYP)	150°C
- Temperature Maximum (T _S MAX)	N/A
- Time (t _S)	30 - 60 Seconds
Ramp-up Rate (T_L to T_P)	5°C/second Maximum
Time Maintained Above:	
- Temperature (T _L)	150°C
- Time (t _L)	200 Seconds Maximum
Peak Temperature (T_P)	245°C Maximum
Target Peak Temperature (T_P Target)	245°C Maximum 1 Time / 235°C Maximum 2 Times
Time within 5°C of actual peak (t_p)	5 seconds Maximum 1 Time / 15 seconds Maximum 2 Times
Ramp-down Rate	5°C/second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1

Low Temperature Infrared/Convection

Note: Temperatures shown are applied to body of device. Use this method only for product with the Gull Wing Option.

T_S MAX to T_L (Ramp-up Rate)	5°C/second Maximum
Preheat	
- Temperature Minimum (T _S MIN)	N/A
- Temperature Typical (T _S TYP)	150°C
- Temperature Maximum (T _S MAX)	N/A
- Time (t _S)	60 - 120 Seconds
Ramp-up Rate (T_L to T_p)	5°C/second Maximum
Time Maintained Above:	
- Temperature (T _L)	150°C
- Time (t _L)	200 Seconds Maximum
Peak Temperature (T_p)	185°C Maximum
Target Peak Temperature (T_p Target)	185°C Maximum 2 Times
Time within 5°C of actual peak (t_p)	10 seconds Maximum 2 Times
Ramp-down Rate	5°C/second Maximum
Time 25°C to Peak Temperature (t)	N/A
Moisture Sensitivity Level	Level 1

High Temperature Manual Soldering

Note: Temperatures listed are applied to device leads only. This method can be utilized with both Gull Wing and Non-Gull Wing devices.
260°C Maximum for 5 seconds Maximum, 2 times Maximum.

Low Temperature Manual Soldering

Note: Temperatures listed are applied to device leads only. This method can be utilized with both Gull Wing and Non-Gull Wing devices.
185°C Maximum for 10 seconds Maximum, 2 times Maximum.

1 - Build A Part Number

Select the parameters that meet your requirements and then click Next

**Frequency in Megahertz
(1 to 155.52):**

Some frequencies within this range may not be available

Frequency Tolerance/Stability: ±100ppm Maximum

Operating Temperature Range: 0°C to +70°C

Duty Cycle: 50 ±10(%)


Cut Leads: Standard Leads

Gull Wing: No Gull Wing

 Next

2 - Next Page

Access these Part Number specific resources and tools


 P/N Specific Data Sheet

 Automated Quick Quote

 Request Sample

 Download IPC-1752

 My Parts List 

 My Part Number 

EHH11 45 ET T TS -30.000M -G

Value Added Options

CB = Cut Leads to 2.540 ±0.500 (0.100" ±0.020")
 CC = Cut Leads to 3.175 ±0.500 (0.125" ±0.020")
 CD = Cut Leads to 3.810 ±0.500 (0.150" ±0.020")
 CE = Cut Leads to 4.445 ±0.500 (0.175" ±0.020")
 G = Gull Wing (Tape & Reel)
 G2 = Gull Wing (Tape & Reel)

Nominal Frequency**Pin 1 Connection**

TS = Tri-State (Disabled Output: High Impedance)

Duty Cycle

Blank = 50 ±10(%)
 T = 50 ±5(%)

Operating Temperature Range

Blank = 0°C to +70°C
 ET = -40°C to +85°C

Frequency Tolerance/Stability

00 = ±100ppm Maximum
 20 = ±20ppm Maximum
 25 = ±25ppm Maximum
 45 = ±50ppm Maximum

Series

Quartz Crystal Clock Oscillators XO (SPXO)
 HCMOS/TTL (CMOS) 5.0Vdc 8 Pin DIP Metal Thru-
 Hole



TOOLS

- [Quick Quote](#)
- [SmartSearch](#)
- [Compliance Documents](#)
- [Chipset Cross Reference](#)
- [Competitor Cross Reference](#)

PRODUCT

- [Crystals](#)
- [Oscillators](#)
- [Part Search](#)
- [REACH Resources](#)
- [RoHS Resources](#)
- [End of Life](#)

ECLIPTEK

- [Authorized Distributors](#)
- [Contact](#)
- [About](#)
- [News](#)
- [Our Quality](#)
- [ISO9001](#)
- [Feedback](#)

TERMS

- [Privacy Policy](#)
- [Terms of Sale](#)
- [Legal](#)