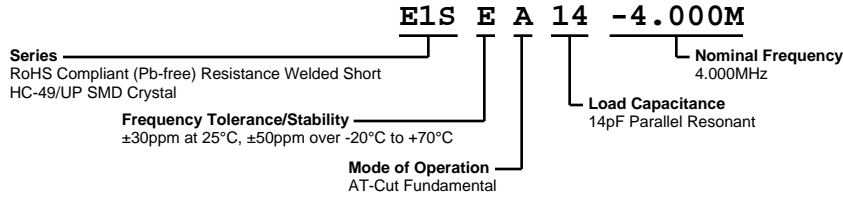


# E1SEA14-4.000M



**ECLIPTEK**  
CORPORATION



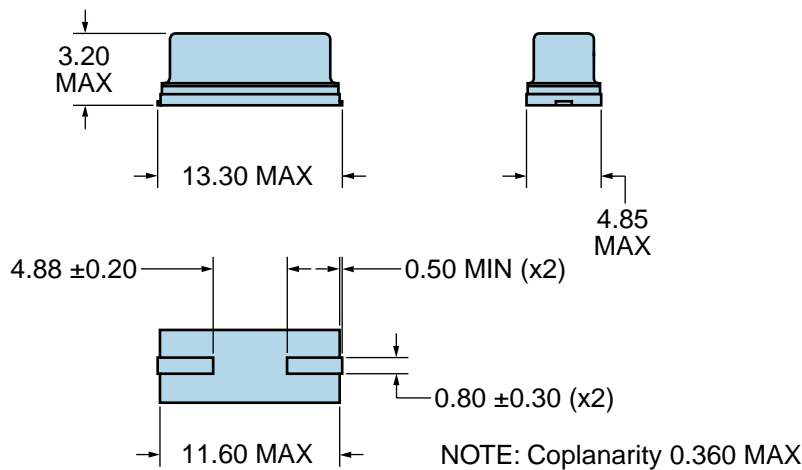
## ELECTRICAL SPECIFICATIONS

Nominal Frequency	4.000MHz
Frequency Tolerance/Stability	±30ppm at 25°C, ±50ppm over -20°C to +70°C
Aging at 25°C	±5ppm/year Maximum
Load Capacitance	14pF Parallel Resonant
Shunt Capacitance (C0)	7pF Maximum
Equivalent Series Resistance	200 Ohms Maximum
Mode of Operation	AT-Cut Fundamental
Drive Level	1mWatt Maximum
Storage Temperature Range	-40°C to +125°C
Insulation Resistance	500 Megaohms Minimum at 100Vdc

## ENVIRONMENTAL & MECHANICAL SPECIFICATIONS

Fine Leak Test	MIL-STD-883, Method 1014 Condition A
Gross Leak Test	MIL-STD-883, Method 1014 Condition C
Lead Termination	Sn 2µm - 6µm
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

## MECHANICAL DIMENSIONS (all dimensions in millimeters)

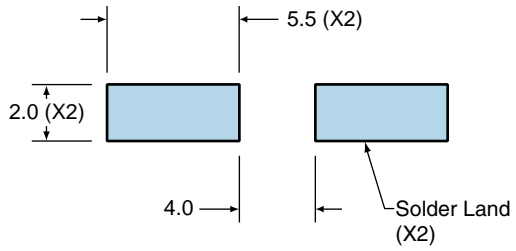


LINE	MARKING
1	<b>E4.000M</b> E=EclipseTek Designator M=MHz

# E1SEA14-4.000M

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

**$T_S$  MAX to  $T_L$  (Ramp-up Rate)**  $3^\circ\text{C/second}$  Maximum

#### Preheat

- Temperature Minimum ( $T_S$  MIN)  $150^\circ\text{C}$
- Temperature Typical ( $T_S$  TYP)  $175^\circ\text{C}$
- Temperature Maximum ( $T_S$  MAX)  $200^\circ\text{C}$
- Time ( $t_s$  MIN) 60 - 180 Seconds

**Ramp-up Rate ( $T_L$  to  $T_P$ )**  $3^\circ\text{C/second}$  Maximum

#### Time Maintained Above:

- Temperature ( $T_L$ )  $217^\circ\text{C}$
- Time ( $t_L$ ) 60 - 150 Seconds

**Peak Temperature ( $T_P$ )**  $260^\circ\text{C}$  Maximum for 10 Seconds Maximum

**Target Peak Temperature ( $T_P$  Target)**  $250^\circ\text{C} \pm 5^\circ\text{C}$

**Time within  $5^\circ\text{C}$  of actual peak ( $t_p$ )** 20 - 40 seconds

**Ramp-down Rate**  $6^\circ\text{C/second}$  Maximum

**Time  $25^\circ\text{C}$  to Peak Temperature (t)** 8 minutes Maximum

**Moisture Sensitivity Level** Level 1

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C

<b>T<sub>s</sub> MAX to T<sub>L</sub> (Ramp-up Rate)</b>	5°C/second Maximum
<b>Preheat</b>	
- Temperature Minimum (T <sub>s</sub> MIN)	N/A
- Temperature Typical (T <sub>s</sub> TYP)	150°C
- Temperature Maximum (T <sub>s</sub> MAX)	N/A
- Time (t <sub>s</sub> MIN)	30 - 60 Seconds
<b>Ramp-up Rate (T<sub>L</sub> to T<sub>P</sub>)</b>	5°C/second Maximum
<b>Time Maintained Above:</b>	
- Temperature (T <sub>L</sub> )	150°C
- Time (t <sub>L</sub> )	200 Seconds Maximum
<b>Peak Temperature (T<sub>P</sub>)</b>	245°C Maximum
<b>Target Peak Temperature (T<sub>P</sub> Target)</b>	245°C Maximum 2 Times / 230°C Maximum 1 Time
<b>Time within 5°C of actual peak (t<sub>p</sub>)</b>	10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time
<b>Ramp-down Rate</b>	5°C/second Maximum
<b>Time 25°C to Peak Temperature (t)</b>	N/A
<b>Moisture Sensitivity Level</b>	Level 1

### Low Temperature Manual Soldering

185°C Maximum for 10 seconds Maximum, 2 times Maximum.

### High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum.