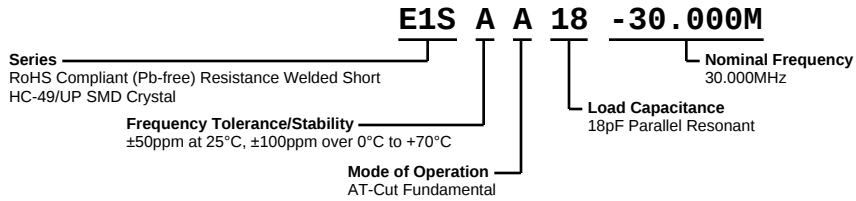


# E1SAA18-30.000M



**ECLIPTEK**  
CORPORATION



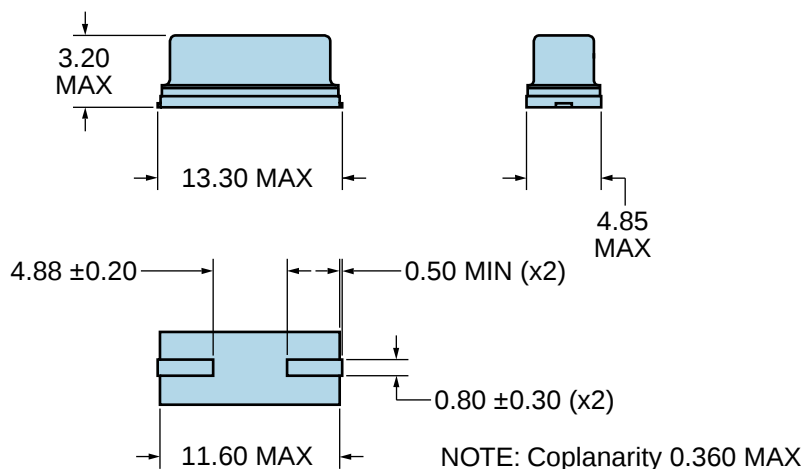
## ELECTRICAL SPECIFICATIONS

|                               |                                                                                                              |
|-------------------------------|--------------------------------------------------------------------------------------------------------------|
| Nominal Frequency             | 30.000MHz                                                                                                    |
| Frequency Tolerance/Stability | $\pm 50\text{ppm}$ at $25^\circ\text{C}$ , $\pm 100\text{ppm}$ over $0^\circ\text{C}$ to $+70^\circ\text{C}$ |
| Aging at $25^\circ\text{C}$   | $\pm 5\text{ppm}/\text{year}$ Maximum                                                                        |
| Load Capacitance              | 18pF Parallel Resonant                                                                                       |
| Shunt Capacitance (C0)        | 7pF Maximum                                                                                                  |
| Equivalent Series Resistance  | 40 Ohms Maximum                                                                                              |
| Mode of Operation             | AT-Cut Fundamental                                                                                           |
| Drive Level                   | 1mWatt Maximum                                                                                               |
| Storage Temperature Range     | $-40^\circ\text{C}$ to $+125^\circ\text{C}$                                                                  |
| 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 $2\mu\text{m}$ - $6\mu\text{m}$   |
| 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)

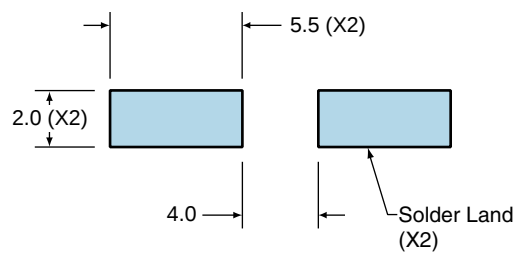


| LINE | MARKING                                             |
|------|-----------------------------------------------------|
| 1    | <b>E30.000M</b><br>E=EclipseTek Designator<br>M=MHz |

# E1SAA18-30.000M

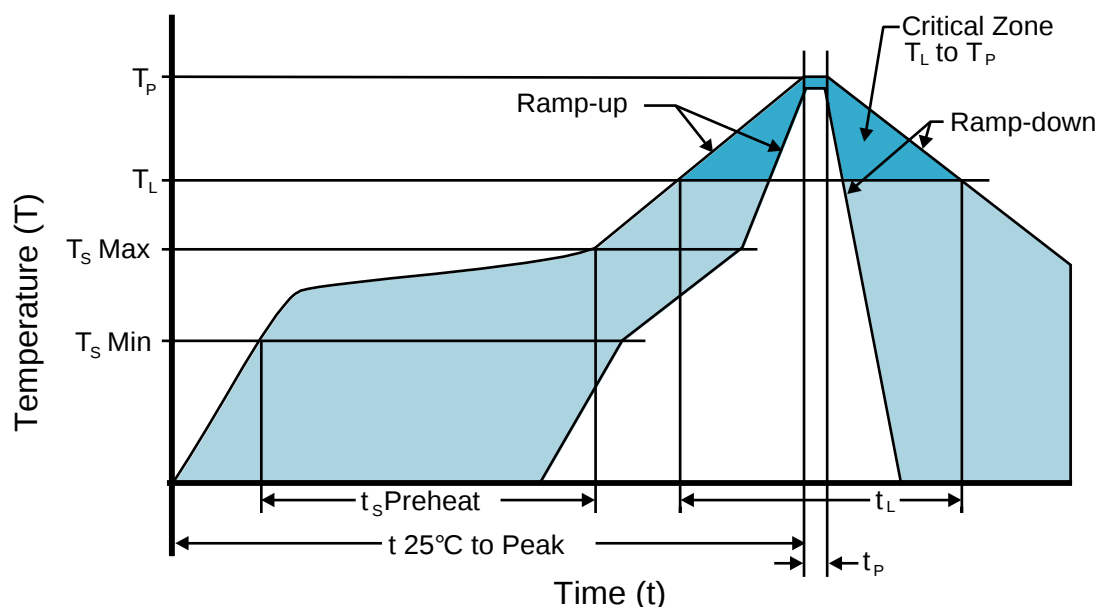
## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

## Recommended Solder Reflow Methods



### High Temperature Infrared/Convection

|                                                     |                    |
|-----------------------------------------------------|--------------------|
| T <sub>s</sub> MAX to T <sub>L</sub> (Ramp-up Rate) | 3°C/second Maximum |
|-----------------------------------------------------|--------------------|

#### Preheat

|                                            |                  |
|--------------------------------------------|------------------|
| - Temperature Minimum (T <sub>s</sub> MIN) | 150°C            |
| - Temperature Typical (T <sub>s</sub> TYP) | 175°C            |
| - Temperature Maximum (T <sub>s</sub> MAX) | 200°C            |
| - Time (t <sub>s</sub> MIN)                | 60 - 180 Seconds |

|                                                  |                    |
|--------------------------------------------------|--------------------|
| Ramp-up Rate (T <sub>L</sub> to T <sub>p</sub> ) | 3°C/second Maximum |
|--------------------------------------------------|--------------------|

#### Time Maintained Above:

|                                 |                  |
|---------------------------------|------------------|
| - Temperature (T <sub>L</sub> ) | 217°C            |
| - Time (t <sub>L</sub> )        | 60 - 150 Seconds |

|                                    |                                      |
|------------------------------------|--------------------------------------|
| Peak Temperature (T <sub>p</sub> ) | 260°C Maximum for 10 Seconds Maximum |
|------------------------------------|--------------------------------------|

|                                                 |               |
|-------------------------------------------------|---------------|
| Target Peak Temperature (T <sub>p</sub> Target) | 250°C +0/-5°C |
|-------------------------------------------------|---------------|

|                                                  |                 |
|--------------------------------------------------|-----------------|
| Time within 5°C of actual peak (t <sub>p</sub> ) | 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 |
|----------------------------|---------|

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 245°C

$T_s$  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 ( $t_s$  MIN) 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 2 Times / 230°C Maximum 1 Time

Time within 5°C of actual peak ( $t_p$ ) 10 seconds Maximum 2 Times / 80 seconds Maximum 1 Time

Ramp-down Rate 5°C/second Maximum

Time 25°C to Peak Temperature (t) N/A

Moisture Sensitivity Level 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.