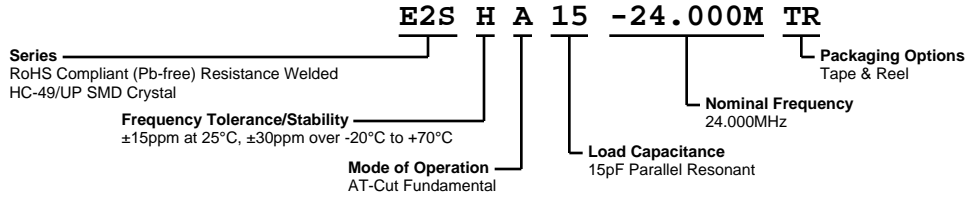


E2SHA15-24.000M TR



ECLIPTEK
CORPORATION



ELECTRICAL SPECIFICATIONS

| | |
|--------------------------------------|--------------------------------------------|
| Nominal Frequency | 24.000MHz |
| Frequency Tolerance/Stability | ±15ppm at 25°C, ±30ppm over -20°C to +70°C |
| Aging at 25°C | ±5ppm/year Maximum |
| Load Capacitance | 15pF 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°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 | E24.000M E=Ecliptek Designator M=MHz |

E2SHA15-24.000M TR

Suggested Solder Pad Layout

All Dimensions in Millimeters

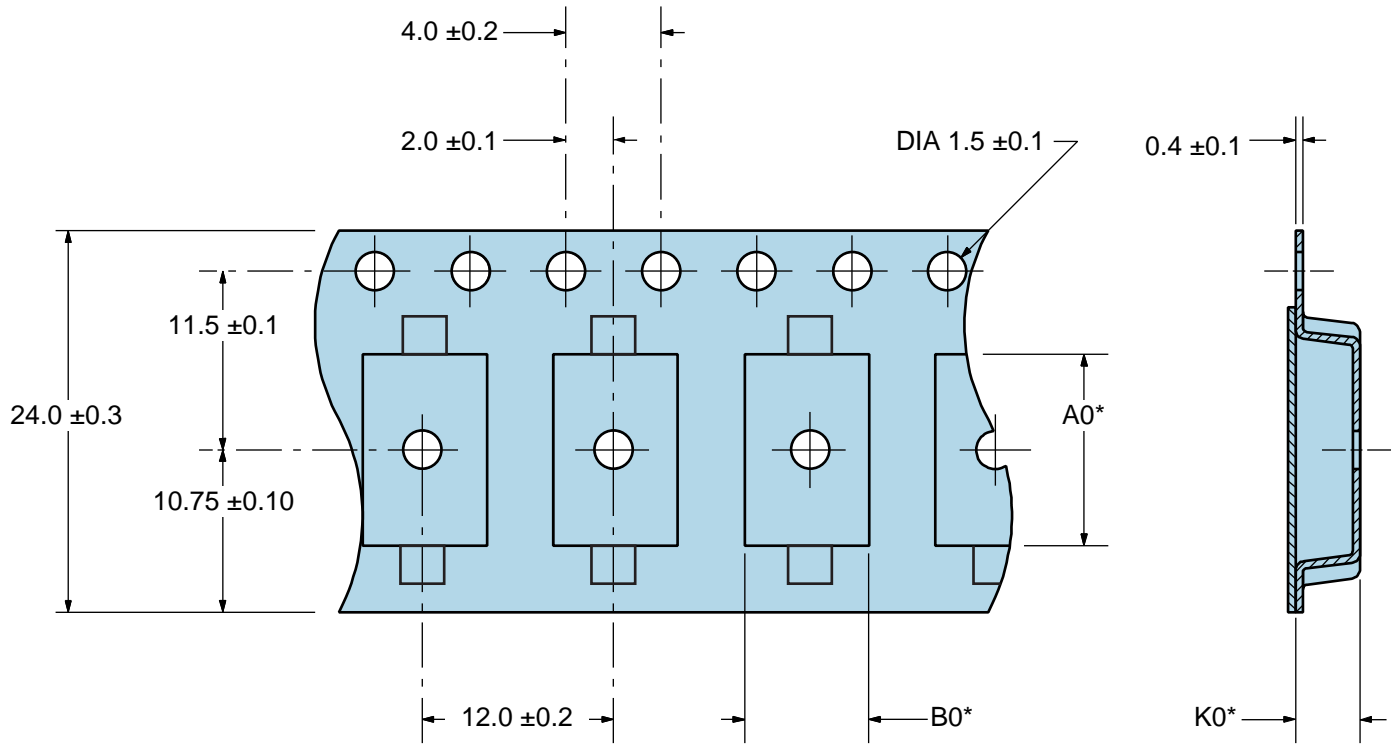


All Tolerances are ± 0.1

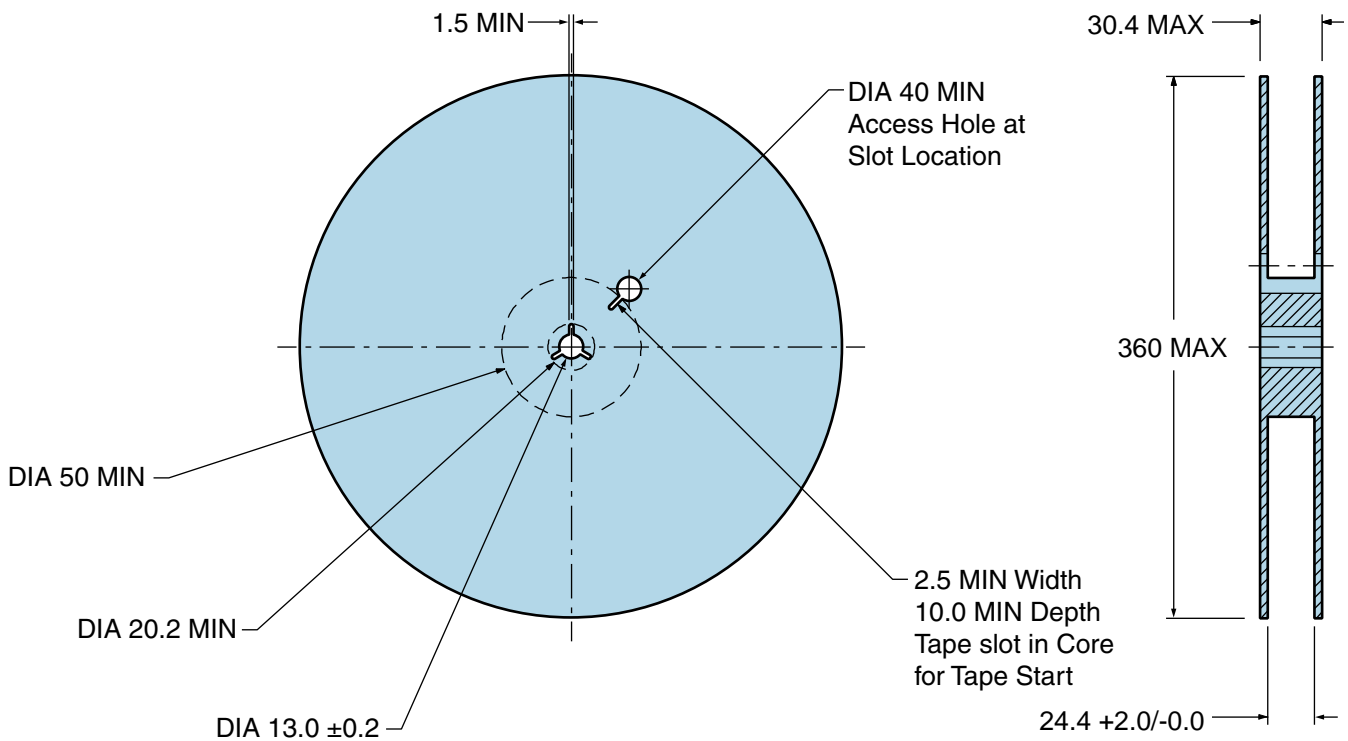
E2SHA15-24.000M TR

Tape & Reel Dimensions

Quantity Per Reel: 1,000 units



*Compliant to EIA 481A



Recommended Solder Reflow Methods



High Temperature Infrared/Convection

| | |
|----------------------------------------------------------------|--------------------------------------|
| 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 MIN) | 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 |

E2SHA15-24.000M TR

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.