

EB15K7E2H-32.768K TR **ELECTRICAL SPECIFICATIONS**

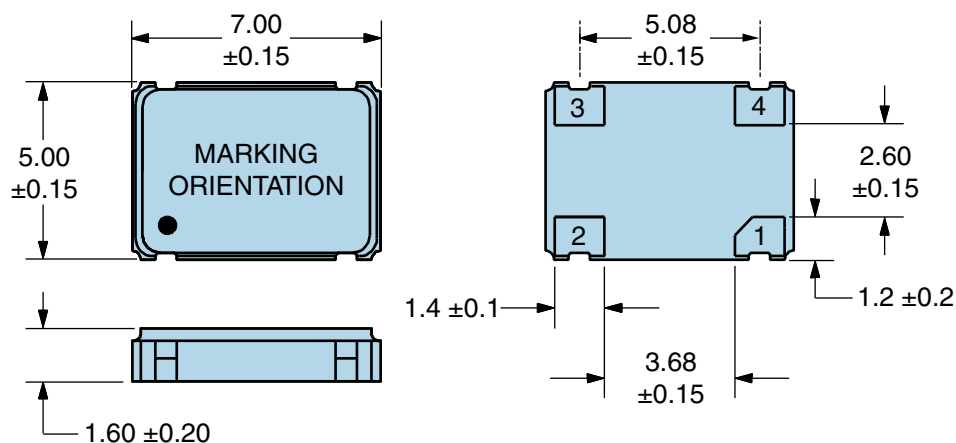
Nominal Frequency	32.768KHz
Frequency Tolerance/Stability	±25ppm Maximum over 0°C to +70°C (Inclusive of all conditions: Calibration Tolerance at 25°C, Frequency Stability over the Operating Temperature Range, Supply Voltage Change, Output Load Change, First Year Aging at 25°C, Shock, and Vibration)
Aging at 25°C	±5ppm/year Maximum
Supply Voltage	2.5Vdc ±5%
Input Current	600µA Maximum
Output Voltage Logic High (Voh)	90% of Vdd Minimum (IOH= -2mA)
Output Voltage Logic Low (Vol)	10% of Vdd Maximum (IOL= +2mA)
Rise/Fall Time	0.5µSec Maximum (Measured at 20% to 80% of waveform)
Duty Cycle	50 ±5(%) (Measured at 50% of waveform)
Load Drive Capability	15pF Maximum
Output Logic Type	CMOS
Logic Control / Additional Output	Tri-State
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	10µA Maximum (Disabled Output: High Impedance)
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

EB15K7E2H-32.768K TR

MECHANICAL DIMENSIONS (all dimensions in millimeters)

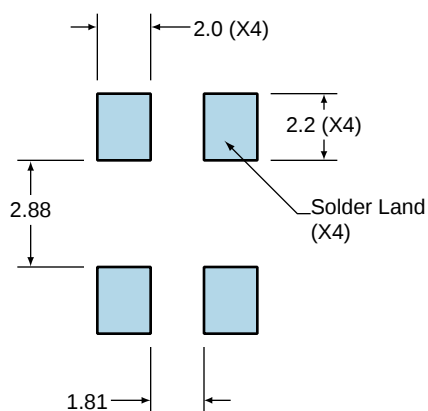


PIN	CONNECTION
1	Tri-State
2	Case/Ground
3	Output
4	Supply Voltage

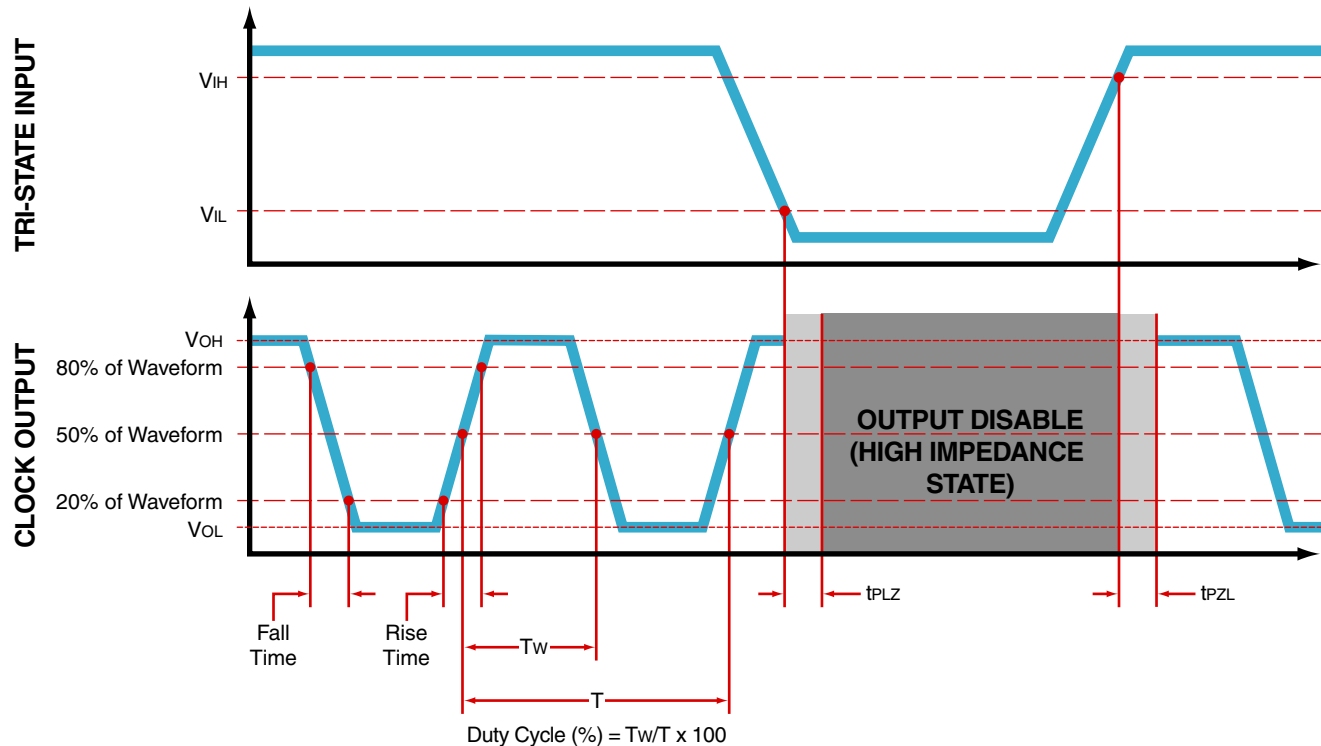
LINE	MARKING
1	ECLIPTEK
2	32.768K
3	XXXXXX XXXXXX=Ecliptek Manufacturing Identifier

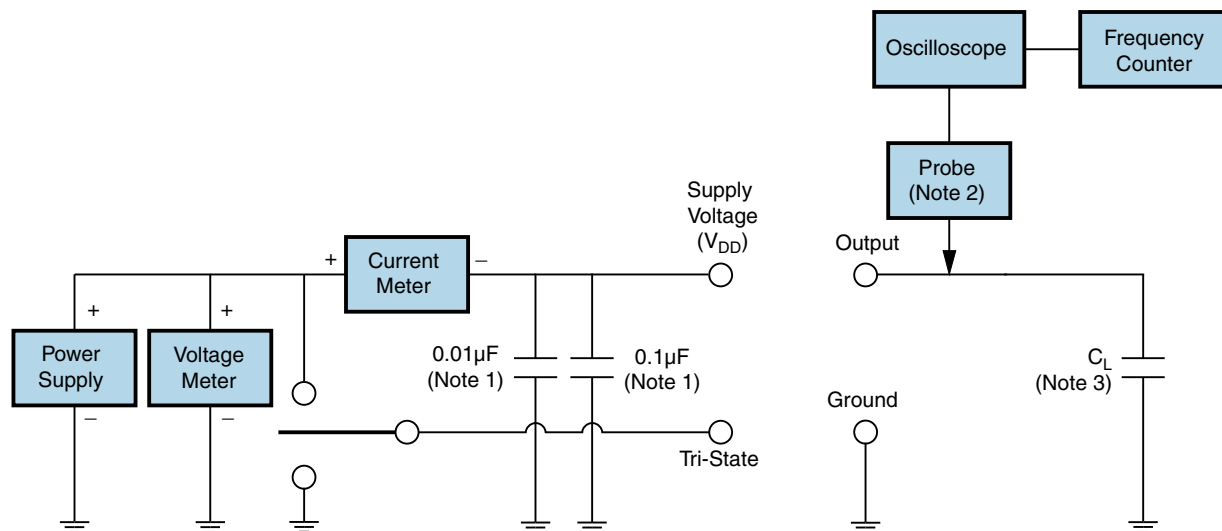
Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are ± 0.1

EB15K7E2H-32.768K TR**OUTPUT WAVEFORM & TIMING DIAGRAM**

EB15K7E2H-32.768K TR**Test Circuit for CMOS Output**

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

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

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

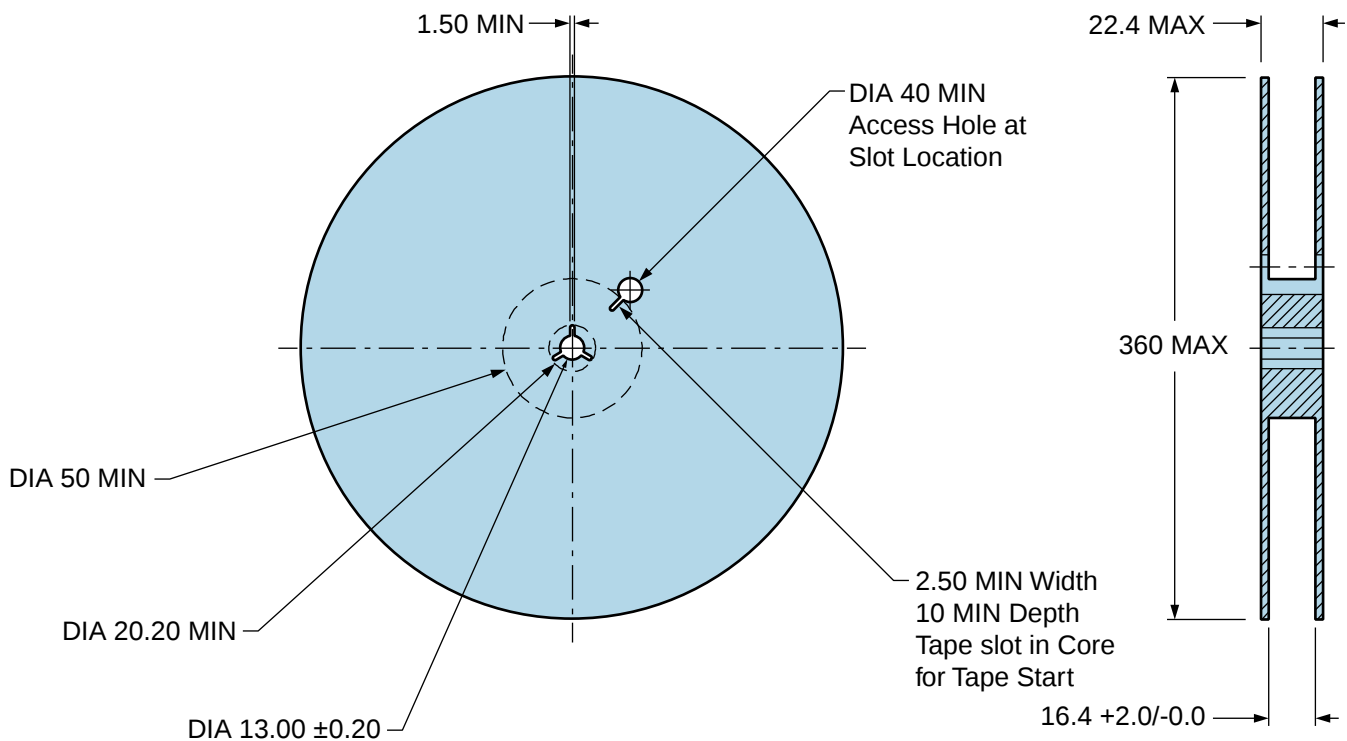
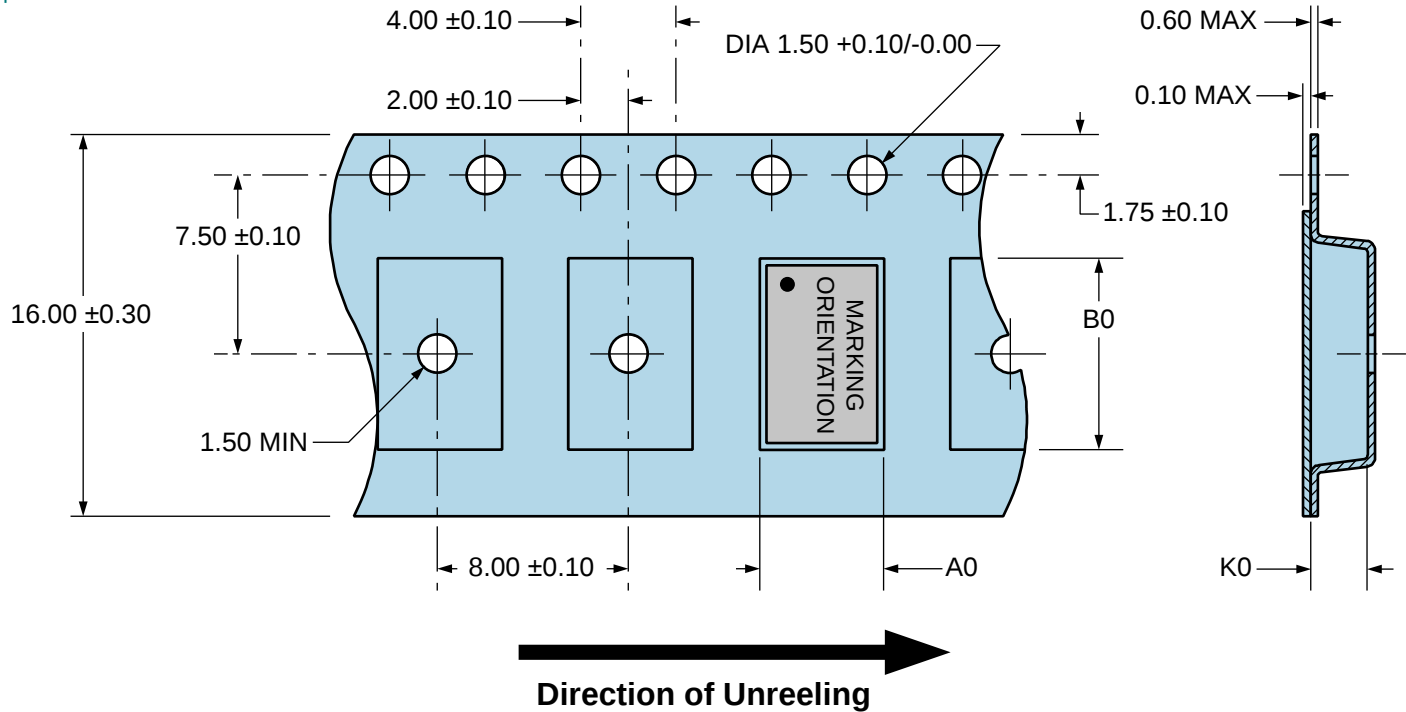
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Tape & Reel Dimensions

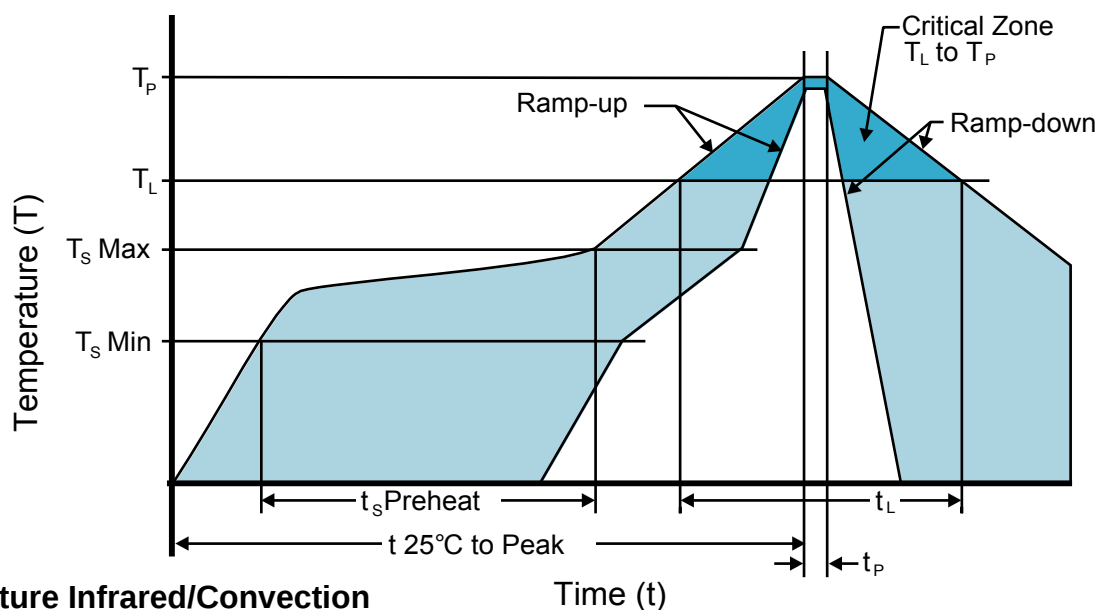
Quantity Per Reel: 1,000 units

All Dimensions in Millimeters

Compliant to EIA-481



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

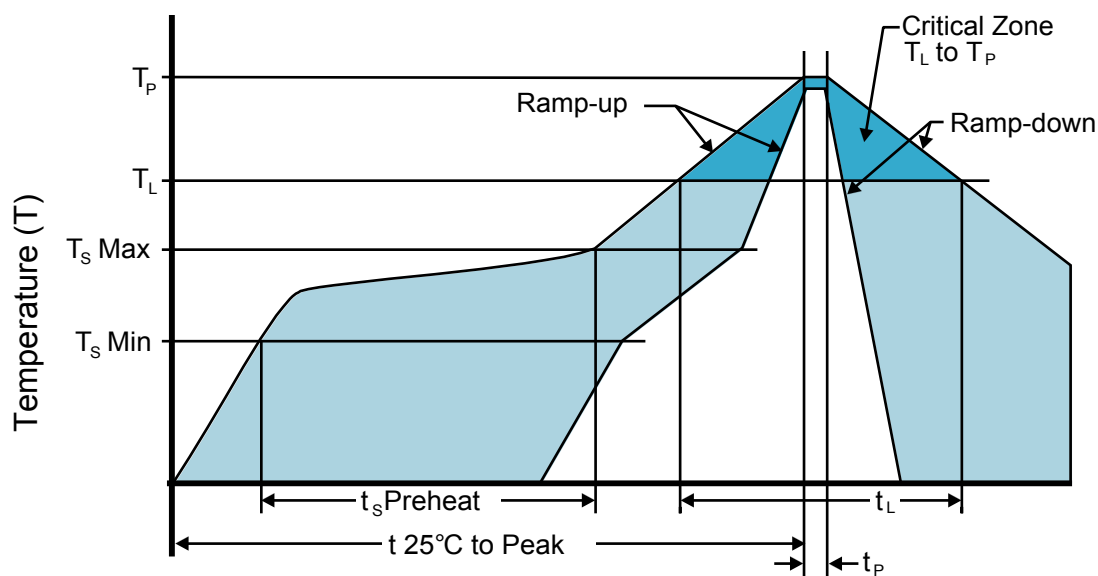
Ramp-down Rate 6°C/Second Maximum

Time 25°C to Peak Temperature (t) 8 Minutes Maximum

Moisture Sensitivity Level Level 1

Additional Notes Temperatures shown are applied to body of device.

Recommended Solder Reflow Methods



Low Temperature Infrared/Convection 240°C

Ts MAX to Tl (Ramp-up Rate) 5°C/Second Maximum

Preheat

- Temperature Minimum (Ts MIN) N/A
 - Temperature Typical (Ts TYP) 150°C
 - Temperature Maximum (Ts MAX) N/A
 - Time (ts MIN) 60 - 120 Seconds

Ramp-up Rate (Tl to Tp) 5°C/Second Maximum

Time Maintained Above:

- Temperature (Tl) 150°C
 - Time (tL) 200 Seconds Maximum

Peak Temperature (Tp) 240°C Maximum

Target Peak Temperature (Tp Target) 240°C Maximum 2 Times / 230°C Maximum 1 Time

Time within 5°C of actual peak (tp) 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

Additional Notes Temperatures shown are applied to body of device.

Low Temperature Manual Soldering

185°C Maximum for 10 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)

High Temperature Manual Soldering

260°C Maximum for 5 Seconds Maximum, 2 times Maximum. (Temperatures shown are applied to body of device.)