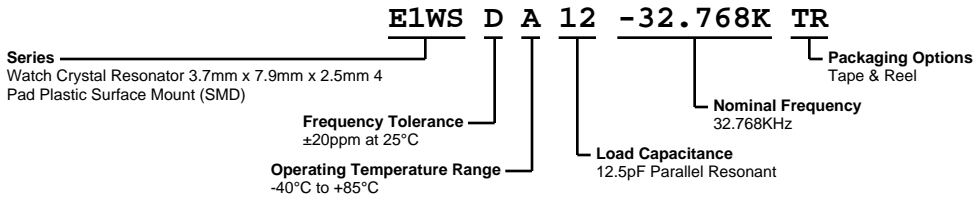


# E1WSDA12-32.768K TR

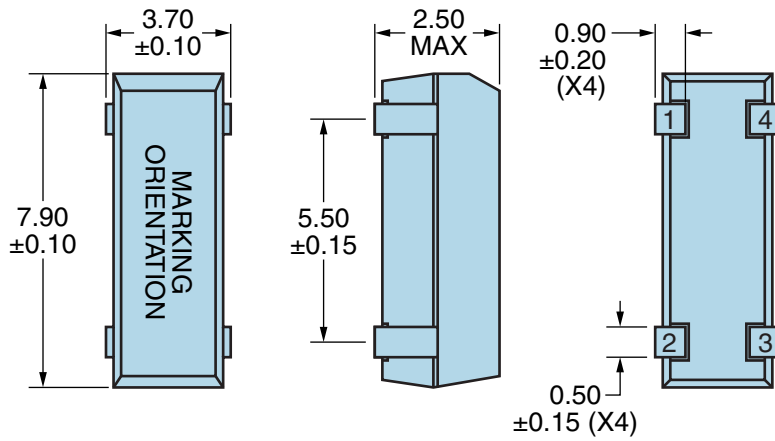


## ELECTRICAL SPECIFICATIONS

Nominal Frequency	32.768KHz
Frequency Tolerance	$\pm 20\text{ppm}$ at 25°C
Frequency Stability Temperature Coefficient	$-0.034 \pm 0.006$ (ppm/(Change in °C) <sup>2</sup> ) Maximum
Turn over Temperature	25°C $\pm 5^\circ\text{C}$
Aging at 25°C	$\pm 3\text{ppm/year}$ Maximum
Operating Temperature Range	-40°C to +85°C
Load Capacitance	12.5pF Parallel Resonant
Shunt Capacitance (C0)	1.35pF Typical
Motional Capacitance	3.0fF Typical
Equivalent Series Resistance	50,000 Ohms Maximum
Mode of Operation	Fundamental
Drive Level	1 $\mu$ Watt Maximum
Crystal Cut	Tuning Fork
Storage Temperature Range	-55°C to +125°C
Insulation Resistance	500 Megaohms Minimum (Measured at 100Vdc)

# E1WSDA12-32.768K TR

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



### Pad Connections

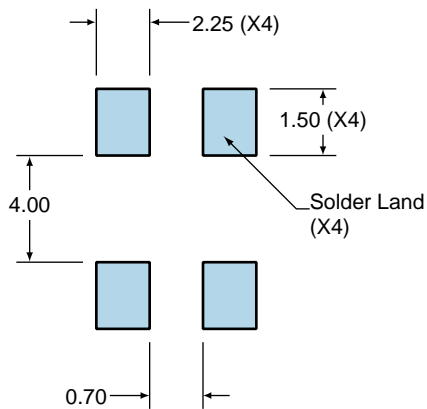


PIN	CONNECTION
1	Crystal
2	No Connect to Pin 3
3	No Connect to Pin 2
4	Crystal

LINE	MARKING
1	XXXXXX XXXXXX=Ecliptek Manufacturing Identifier

## Suggested Solder Pad Layout

All Dimensions in Millimeters

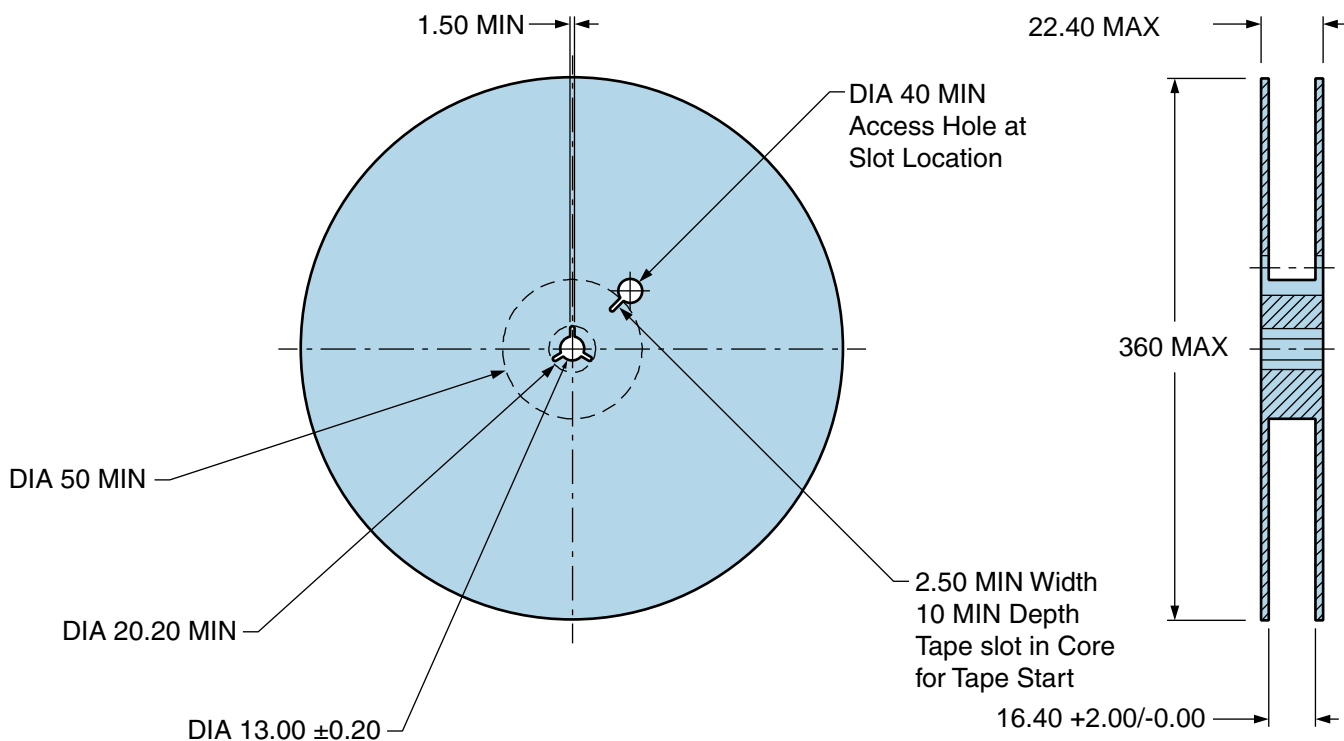
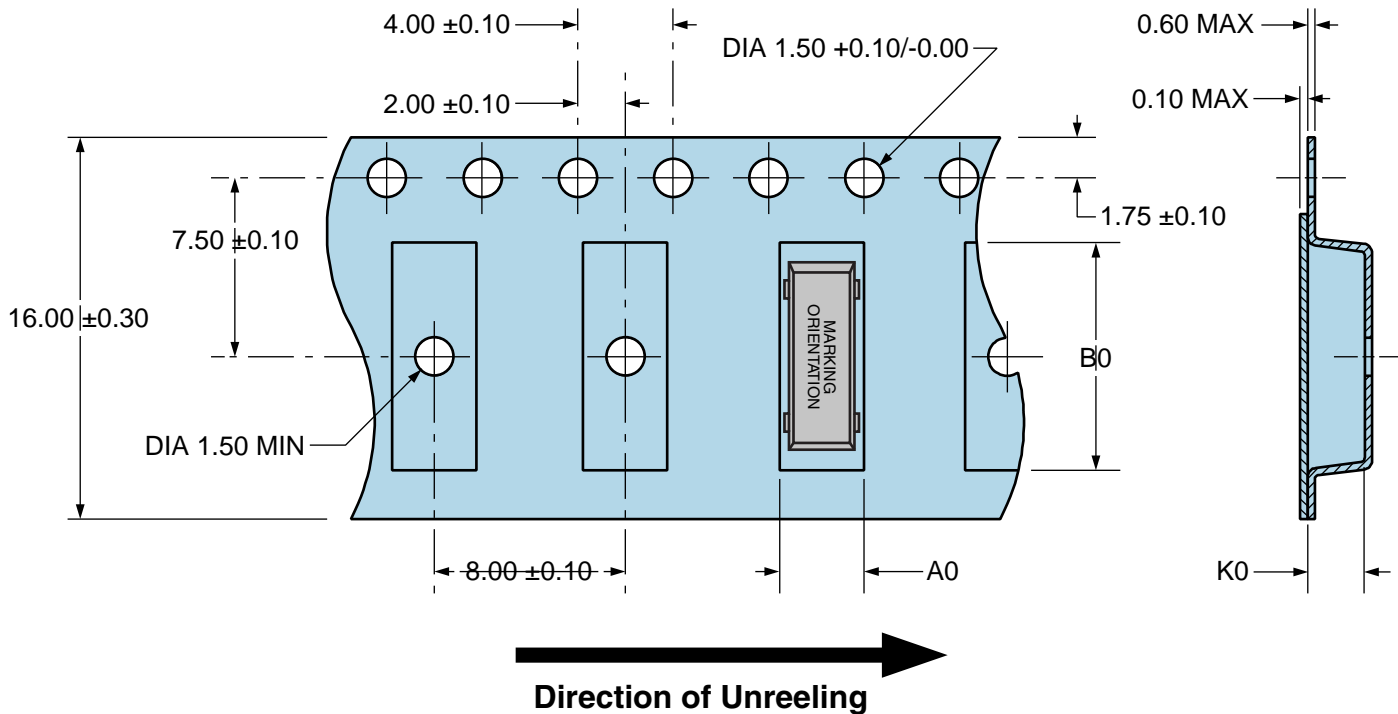


All Tolerances are ±0.1

# E1WSDA12-32.768K TR

## Tape & Reel Dimensions

All Dimensions in Millimeters  
 Compliant to EIA-481  
 Quantity Per Reel: 3,000 units



## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 230°C

<b><math>T_s</math> MAX to <math>T_L</math> (Ramp-up Rate)</b>	5°C/second Maximum
<b>Preheat</b>	
- 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
<b>Ramp-up Rate (<math>T_L</math> to <math>T_p</math>)</b>	5°C/second Maximum
<b>Time Maintained Above:</b>	
- Temperature ( $T_L$ )	150°C
- Time ( $t_L$ )	200 Seconds Maximum
<b>Peak Temperature (<math>T_p</math>)</b>	230°C Maximum
<b>Target Peak Temperature (<math>T_p</math> Target)</b>	230°C Maximum 2 Times
<b>Time within 5°C of actual peak (<math>t_p</math>)</b>	10 seconds Maximum 2 Times
<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
<b>Additional Notes</b>	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 device leads only.)

### High Temperature Manual Soldering

260°C Maximum for 5 seconds Maximum, 2 times Maximum. (Temperatures shown are applied to device leads only.)