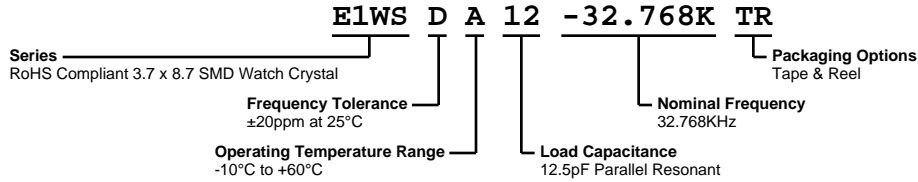


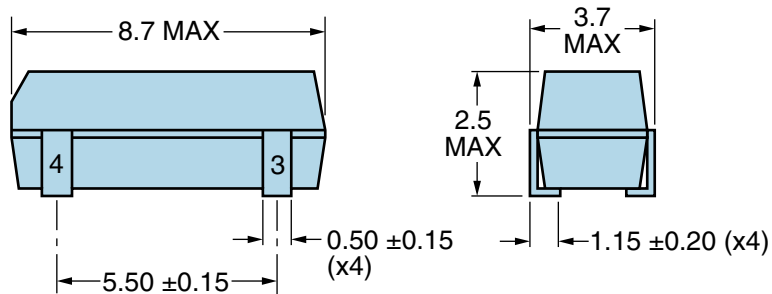
# E1WSDA12-32.768K TR



## ELECTRICAL SPECIFICATIONS

Nominal Frequency	32.768KHz
Frequency Tolerance	$\pm 20$ ppm at 25°C
Frequency Stability	Parabolic $-0.042$ ppm/(Change in °C) <sup>2</sup> Maximum
Aging at 25°C	$\pm 3$ ppm/year Maximum
Operating Temperature Range	-10°C to +60°C
Load Capacitance	12.5pF Parallel Resonant
Shunt Capacitance (C0)	0.85pF Typical, 2pF Maximum
Motional Capacitance	2.0fF Typical
Equivalent Series Resistance	60,000 Ohms Maximum
Mode of Operation	Tuning Fork, Turn Over Temperature at 25°C $\pm 5$ °C
Drive Level	1 $\mu$ Watt Maximum
Storage Temperature Range	-40°C to +85°C
Insulation Resistance	500 Megaohms Minimum at 100Vdc

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



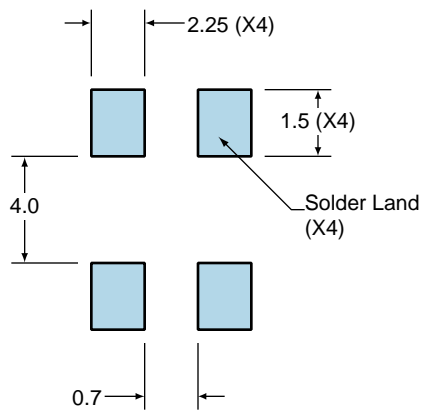
PIN	CONNECTION
1	Crystal
2	No Connect
3	No Connect
4	Crystal

LINE	MARKING
1	<b>C2KXXXXX</b> C2K=Frequency Code XXXXX=Lot Code (5 Digits Maximum)

# E1WSDA12-32.768K TR

## Suggested Solder Pad Layout

All Dimensions in Millimeters

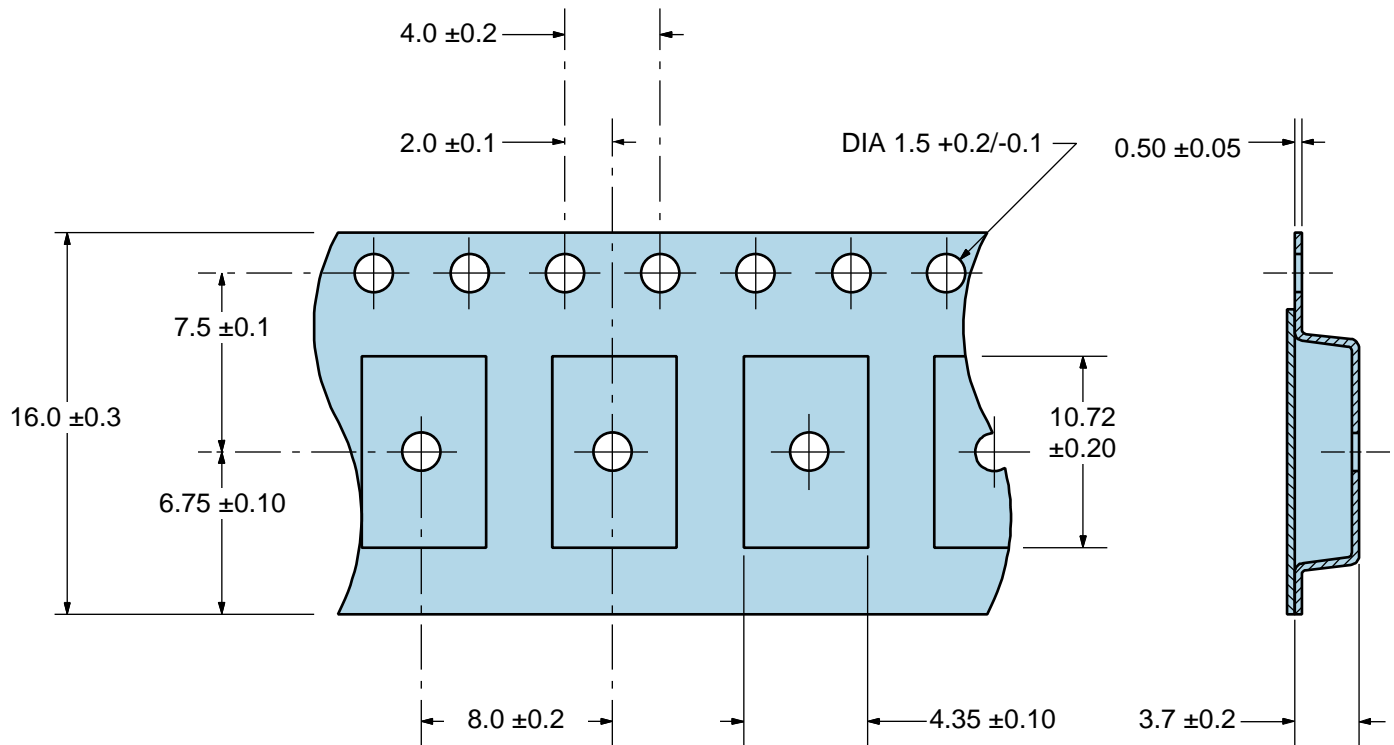


All Tolerances are  $\pm 0.1$

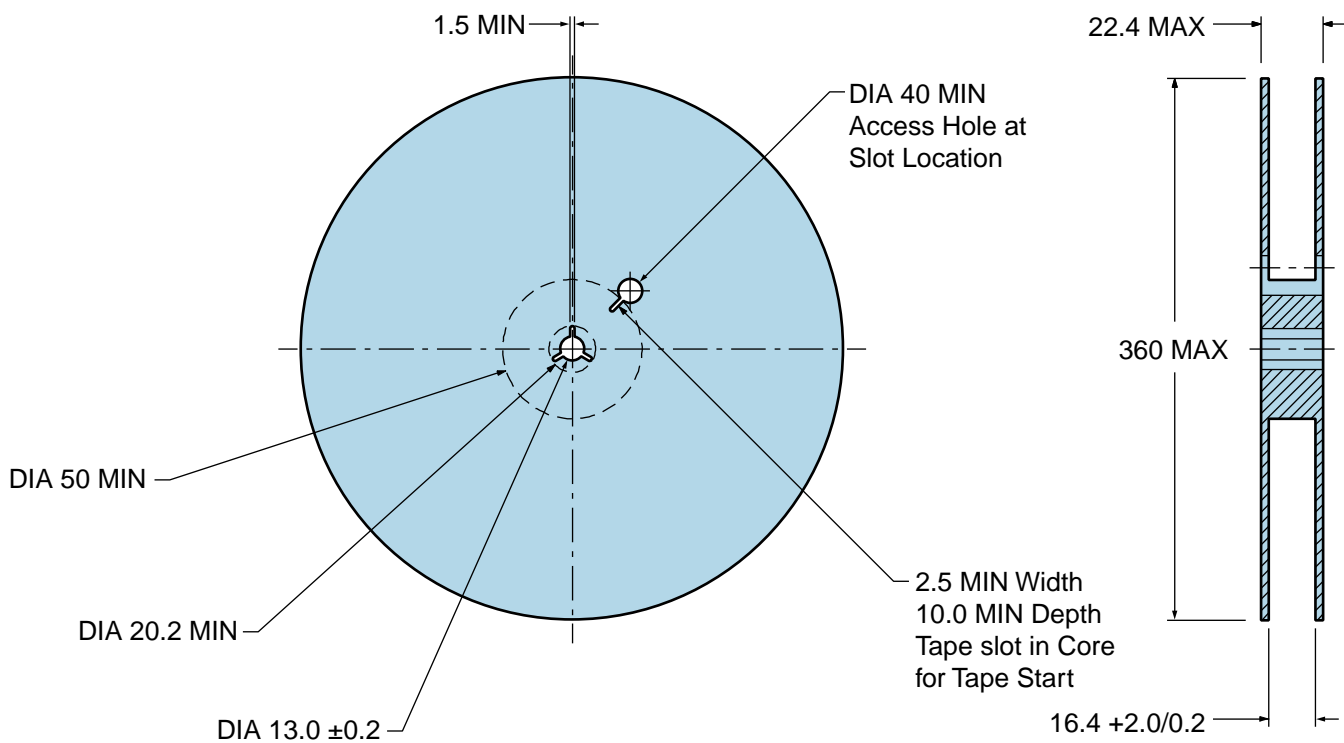
# E1WSDA12-32.768K TR

## Tape & Reel Dimensions

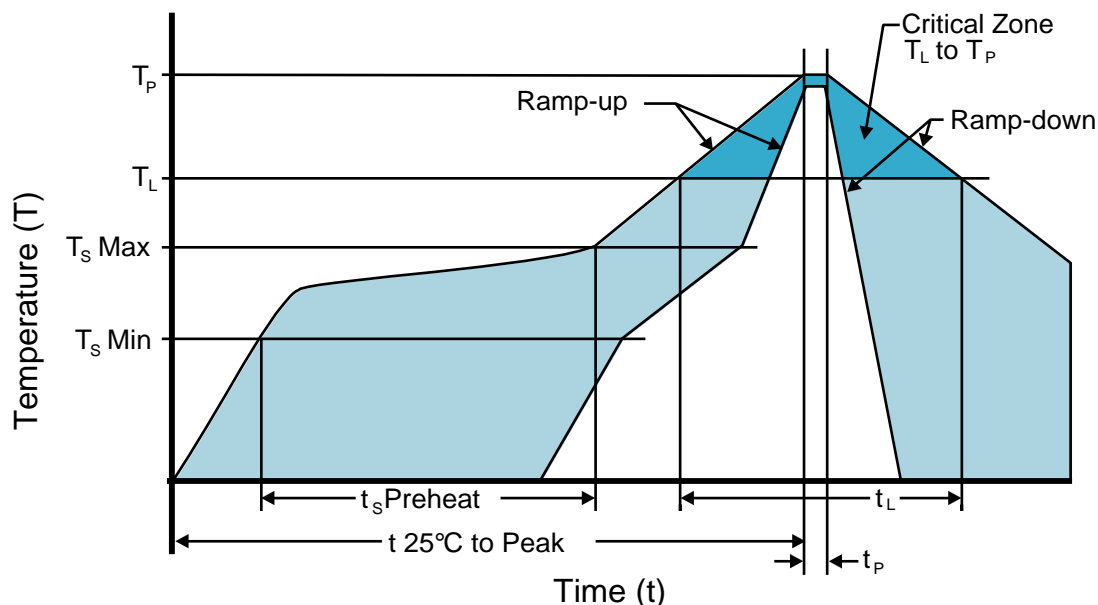
Quantity Per Reel: 3,000 units



\*Compliant to EIA 481A



## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection $230^\circ\text{C}$

$T_S$  MAX to  $T_L$  (Ramp-up Rate)  $5^\circ\text{C}/\text{second}$  Maximum

#### Preheat

- Temperature Minimum ( $T_S$  MIN) N/A  
 - Temperature Typical ( $T_S$  TYP)  $150^\circ\text{C}$   
 - Temperature Maximum ( $T_S$  MAX) N/A  
 - Time ( $t_S$  MIN) 30 - 60 Seconds

Ramp-up Rate ( $T_L$  to  $T_P$ )  $5^\circ\text{C}/\text{second}$  Maximum

#### Time Maintained Above:

- Temperature ( $T_L$ )  $150^\circ\text{C}$   
 - Time ( $t_L$ ) 200 Seconds Maximum

Peak Temperature ( $T_P$ )  $230^\circ\text{C}$  Maximum

Target Peak Temperature ( $T_P$  Target)  $230^\circ\text{C}$  Maximum 2 Times

Time within  $5^\circ\text{C}$  of actual peak ( $t_p$ ) 10 seconds Maximum 2 Times

Ramp-down Rate  $5^\circ\text{C}/\text{second}$  Maximum

Time  $25^\circ\text{C}$  to Peak Temperature (t) N/A

Moisture Sensitivity Level Level 1

### Low Temperature Manual Soldering

$185^\circ\text{C}$  Maximum for 10 seconds Maximum, 2 times Maximum.

### High Temperature Manual Soldering

$260^\circ\text{C}$  Maximum for 5 seconds Maximum, 2 times Maximum.