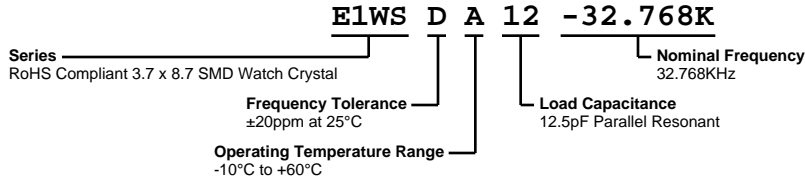


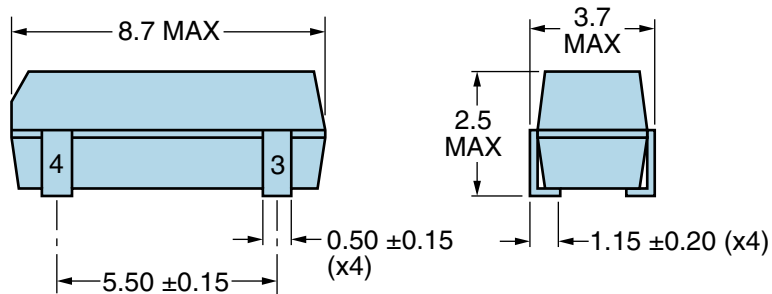
# E1WSDA12-32.768K



## ELECTRICAL SPECIFICATIONS

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

## MECHANICAL DIMENSIONS (all dimensions in millimeters)



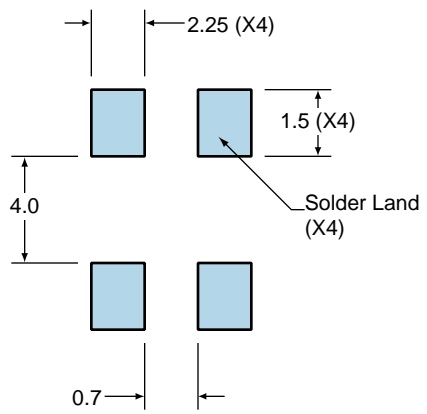
PIN	CONNECTION
1	Crystal
2	No Connect
3	No Connect
4	Crystal

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

# E1WSDA12-32.768K

## Suggested Solder Pad Layout

All Dimensions in Millimeters



All Tolerances are  $\pm 0.1$

## Recommended Solder Reflow Methods



### Low Temperature Infrared/Convection 230°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 ( $T_P$ )** 230°C Maximum

**Target Peak Temperature ( $T_P$  Target)** 230°C Maximum 2 Times

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

**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.