



KEEN SIDE
electronics

SPECIFICATION

PN: KSE-7L32768K7Z2400A3

PN: KSE-7L32768K7Z240ZA3

Crystal Resonators

7L 3.2*1.5mm TUNING FORK WATCH CRYSTAL 32.768KHZ

FEATURE

- Wide Frequency range
- Small size
- Tape & Reel

APPLICATIONS

- Microprocessor Systems
- Consumer Electronics

ELECTRICAL SPECIFICATIONS

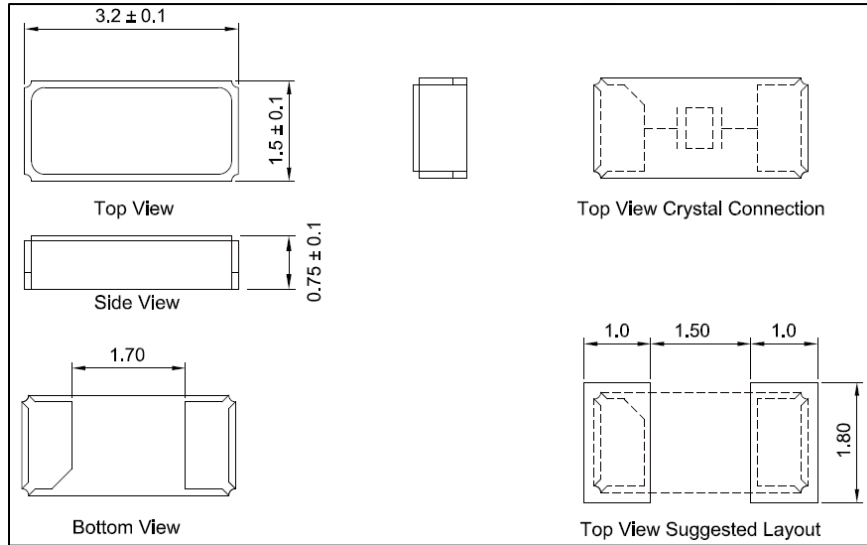
Frequency	32.768KHz
Frequency Tolerance (at 25°C)	±20ppm
Load Capacitance(CL)	7PF
Equivalent Series Resistance(ESR)	70KΩ Max
Turnover Temperature	25 ± 5°C
Frequency Temperature Curve	-0.04ppm/°C ² MAX
Operating Temperature Range	-40 °C to +85 °C
Storage Temperature Range	-55 °C to +125 °C
Shunt Capacitance (C0)	1.2pF Typical
Dynamic Capacitance (C1)	3.7fF Typical
Driver Level (DL)	1 μW Typical
Insulation Resistance	500MΩ MIN at DC100V±15V
Aging @25°C first year (Max)	±3ppm/year max

REMARK: SPECIFICATIONS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE CONFIRM WITH OUR SALES ENGINEER.

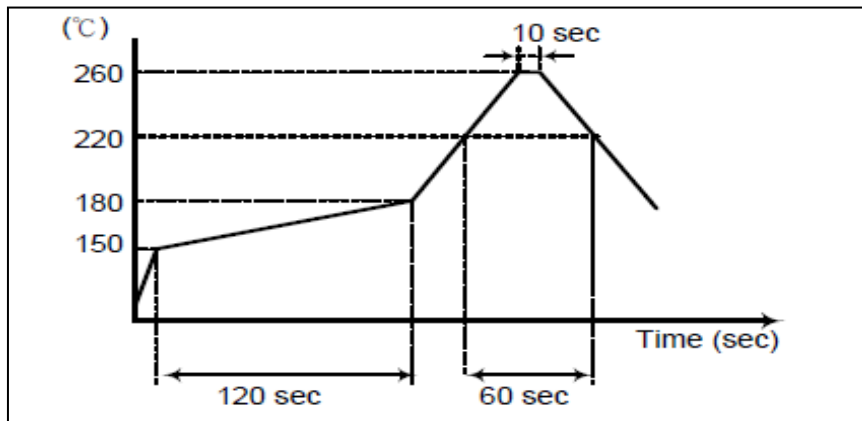
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DIMENSION (Unit: mm)

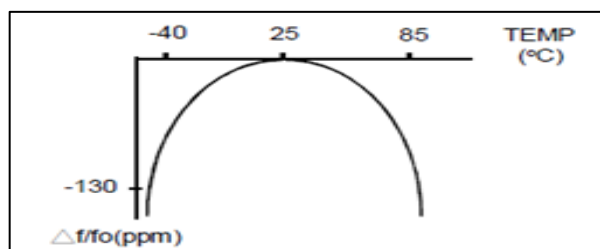


REFLOW CONDITION



The reflow temperature profile may vary depending on the product model, specifications and frequency range. Refer to the individual product specifications for details

Frequency VS Temperature Curve



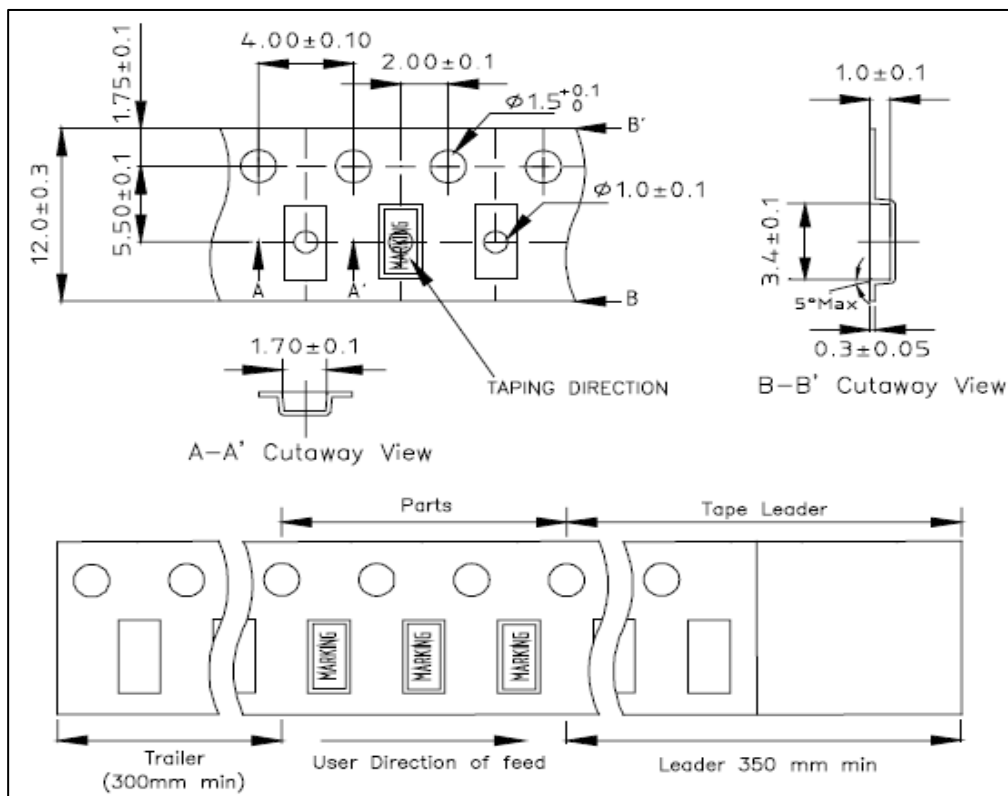
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Note:

- 1 Tuning fork products oscillate at frequency bands that are close to the washing frequency of ultrasonic cleaning machine, which may cause resonance deteriorating the electrical characteristics in devices, and even damaging the overall structure of devices. Therefore, using ultrasonic cleaning machine to clean tuning fork devices should be avoided. If the use of this method to clean tuning fork devices is required, it's suggested to check the functionality of devices before and after the cleaning process.
- 2 Avoid mounting and processing by Ultrasonic welding this method has a possibility of an excessive vibration spreading inside the crystal products and becoming the cause of characteristic deterioration and not oscillating.
- 3 Manual soldering heat resistance Pressing a soldering iron of 400°C on the terminal electrode for four seconds (twice).

CARRIER TYPE



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RELIABILITY TEST SPECIFICATIONS

Test item	Equipment	Condition	Specification
1.SOLDERABILITY TEST	RC-328A	1.Solderability:235±5℃, 5±0.5S 2.Heat resistance:260±5℃,10±1S restoration of 1 hour	MIL-STD-883E Method 2003.7
2. HERMETICITY TEST	HELIOT-306S	FC-84 FLUOROCARBON,BUBBLE MACHINE	MIL-STD-883E Method 1014.10
3. VIBRATION TEST	HG-V4、 S&A 250B	Enable Crystal(10g) from 10-55-10Hz,X、 Y、 Z horizontal,1 Minute vibration/time, 1time/ 2 hours.	MIL-STD-883E Method 2007.3
4. MECHANICAL SHOCK	HPC-200、 S&A 250B	Device are shocked to half sine wave (1000G) three mutually perpendicular axes each 3 times . 1m sec.duration time.	JIS C60068-2-6
5. DROP TEST	HARD BOARD.S&A250B	150CM height,fall freely onto concrete floor 3 times.	JIS C6701
6. HIGH&LOW TEMP STORAGE TEST(Static test)	H-PTH-80CK & HM101-3ABN, S&A 350B/250B	High temperature: 100℃±3℃,100±12hrs; Low temperature:-40℃±3℃,1000±12hrs	JIS C600682-2 JIS C600682-1
7. TEMP &HUM CYCLING TEST	H-PTH-80CK CHAMBE, S&A 350B/250B	Temperature:-10℃±2℃~65℃±2℃,Humidity:93±3%,1 cycle need 24 hrs. 5cycles.	MIL-STD-883E Method 1005.8
8. HIGH TEM. & HUM. STORAGE TEST	H-PTH-80CK CHAMBE, S&A350B/250B	Temperature:40℃±3, RH:90~95%,1000 hrs	JIS C600682-3
9.AGING TEST	H-PTH-80CK CHAMBE, S&A350B/250	Temperature:40℃±2, Humidity:85+3,-2%,Store 96 hrs	JIS C5023

REVISION RECORD (KSE-7L32768K7Z2400A3)

Rev	Revise contents	Reason	Reviser	Checked	Approved
A1	Initial released	--			