

# Data Sheet

Customer : \_\_\_\_\_  
Product : Tuning Fork SMD Type / KHz Band Crystal Resonators  
HSQCX Series  
Size : C3215 / C2012 / C1610  
Issued Date : 01-Oct.-2025  
Edition : Ver.1

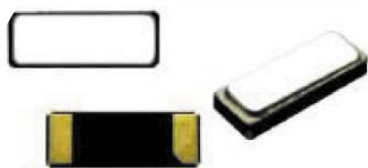
## Record of change

Date	Ver.	Description	Page

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01-Oct.-2025	01-Oct.-2025	01-Oct.-2025	
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**Tuning Fork**  
**32.768KHz**  
3215 Series

- Seam surface mount package
- Designed for time of day clocks applications
- Small compact size with performance and economy
- Excellent shock and environmental characteristics

Applications: Mobile Phone, Notebook, Bluetooth, GPS

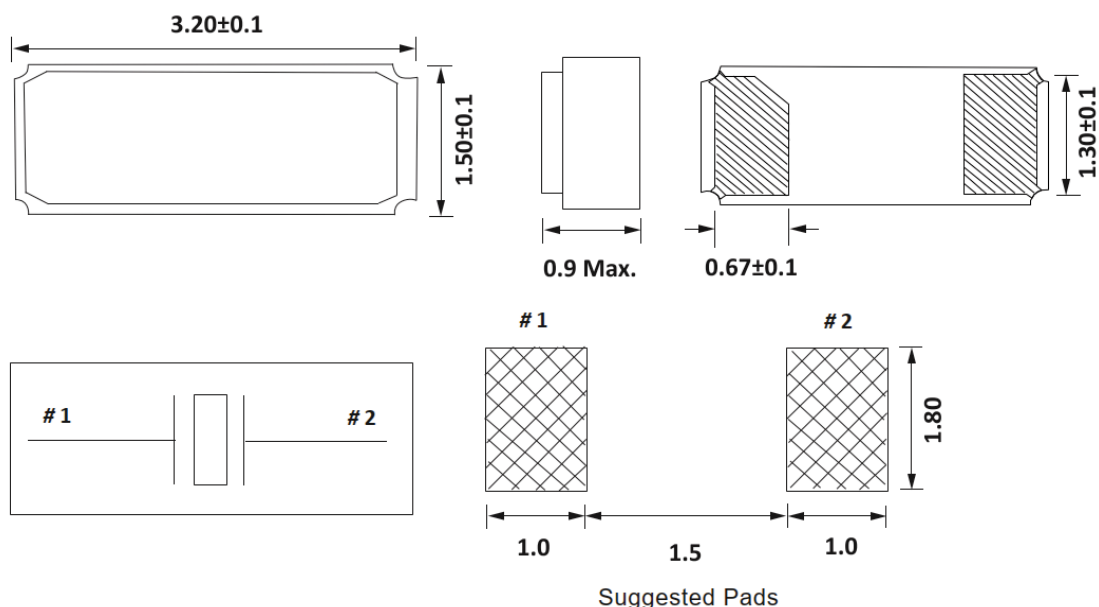
### Electrical Specifications

Model	3215
Frequency Range	32.768KHz
Frequency Tolerance (at 25°C)	±20ppm
Frequency Stability Over Operating Temperature Range	-0.04~-0.02ppm / °C <sup>2</sup>
Operating Temperature Range	-40°C ~ +85°C
Shunt Capacitance (C0)	1.1pF Typ.
Drive Level	0.5uW Max. ( 0.1uW Typ )
Load Capacitance	7pF, 9pF, 12.5pF
Aging (at 25°C)	±5ppm / year Max.
Storage Temperature Range	-55°C ~ +125°C

### Equivalent Series Resistance (ESR)

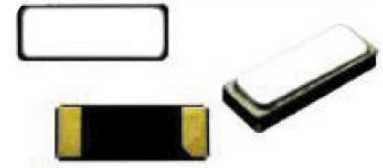
Fundamental	
32.768KHz	70KΩ Max.

Dimensions : Unit mm



- Seam surface mount package
- Designed for time of day clocks applications
- Small compact size with performance and economy
- Excellent shock and environmental characteristics

Applications: Mobile Phone, Notebook, Bluetooth, GPS



**Tuning Fork  
32.768KHz  
2012 Series**

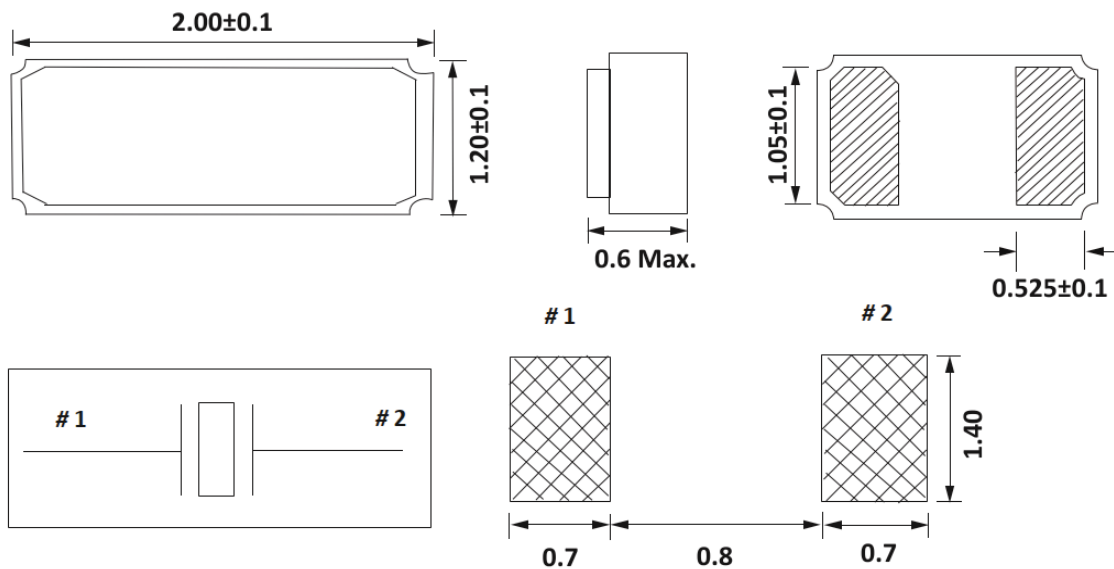
### Electrical Specifications

Model	2012
Frequency Range	32.768KHz
Frequency Tolerance (at 25°C)	±20ppm
Frequency Stability Over Operating Temperature Range	-0.04ppm / °C² Max.
Operating Temperature Range	-40°C ~ +85°C
Shunt Capacitance (C0)	1.15pF Typ.
Drive Level	0.5uW Max. ( 0.1uW Typ )
Load Capacitance	7pF, 9pF, 12.5pF
Aging (at 25°C)	±3ppm / year Max.
Storage Temperature Range	-55°C ~ +125°C

### Equivalent Series Resistance (ESR)

Fundamental	
32.768KHz	80KΩ Max.

Dimensions : Unit mm



Suggested Pads



**Tuning Fork**  
**32.768KHz**  
1610 Series

- Seam surface mount package
- Designed for time of day clocks applications
- Small compact size with performance and economy
- Excellent shock and environmental characteristics

Applications: Mobile Phone, Notebook, Bluetooth, GPS

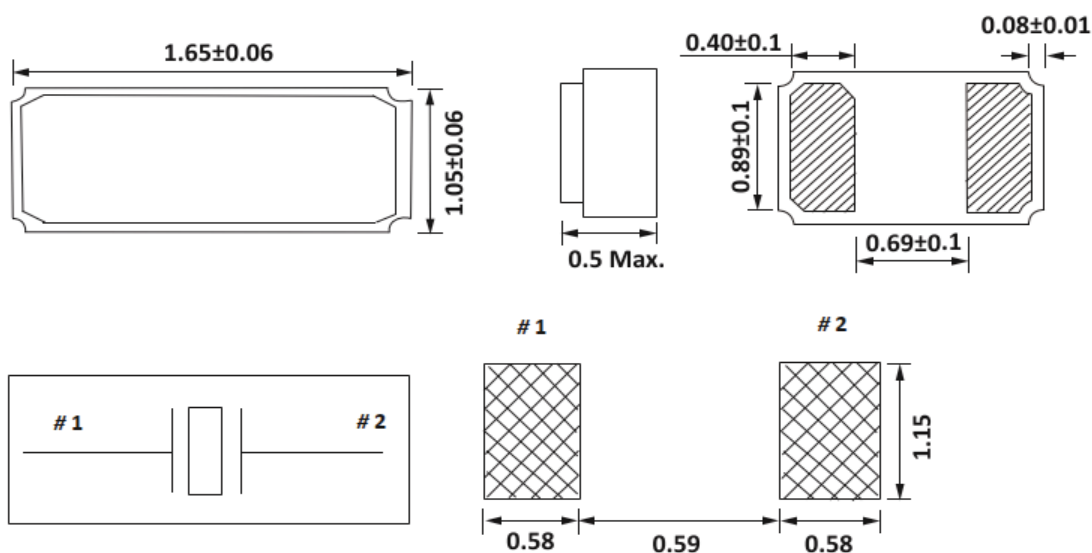
### Electrical Specifications

Model	1610
Frequency Range	32.768KHz
Frequency Tolerance (at 25°C)	±20ppm
Frequency Stability Over Operating Temperature Range	-0.04ppm / °C² Max.
Operating Temperature Range	-40°C ~ +85°C
Shunt Capacitance (C0)	1.25pF Typ.
Drive Level	0.5uW Max. ( 0.1uW Typ )
Load Capacitance	7pF, 9pF, 12.5pF
Aging (at 25°C)	±3ppm / year Max.
Storage Temperature Range	-55°C ~ +125°C

### Equivalent Series Resistance (ESR)

Fundamental	
32.768KHz	90KΩ Max.

Dimensions : Unit mm



Suggested Pads