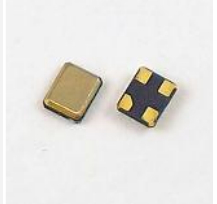


## ULTRA MINIATURE CERAMIC SMD CRYSTAL (2.5 x 2.0 x 0.55mm)

### FEATURES:

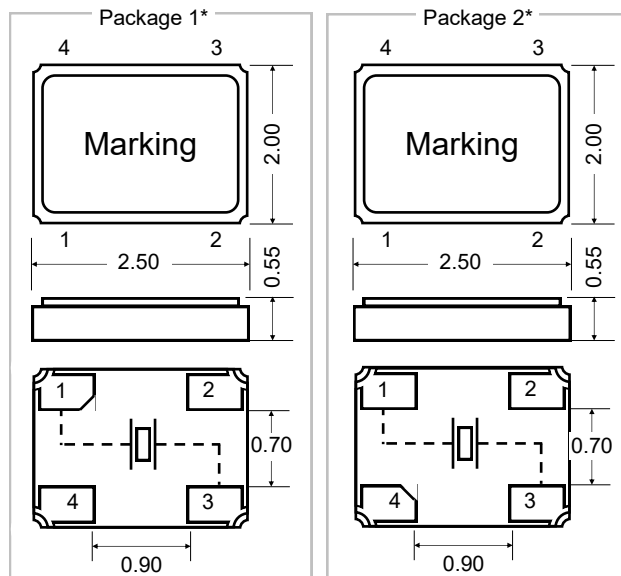
- WIDE FREQUENCY RANGE
- AUTOMOTIVE GRADE AEC-Q200 QUALIFIED VERSION AVAILABLE
- SUITABLE FOR REFLOW



### SPECIFICATION

|                              |  |
|------------------------------|--|
| FREQUENCY RANGE              | 12.000MHz ~ 60.000MHz  |
| FREQUENCY TOLERANCE @ 25°C   | ±10ppm ~ 100ppm (See P/N guide for other options)  |
| FREQUENCY STABILITY          | ±10ppm ~ 100ppm (See P/N guide for other options)  |
| OPERATING TEMPERATURE RANGE  | STD: 0°C ~ 70°C, Option: -40°C ~ 85°C (See P/N guide for other options)  |
| STORAGE TEMPERATURE RANGE    | -55°C ~ 125°C  |
| LOAD CAPACITANCE             | STD: 8pF (See P/N guide for other options)   |
| SHUNT CAPACITANCE            | 3.5pF max.   |
| INSULATION RESISTANCE        | 500MΩ min. @ 100V <sub>DC</sub> ± 15V <sub>DC</sub>  |
| DRIVE LEVEL                  | 300μW max.   |
| AGING @ 25°C ± 3°C           | ±2.0ppm / 1 <sup>st</sup> year max.  |
| EQUIVALENT SERIES RESISTANCE | 12.000MHz - 16.000MHz: 180Ω max.<br>16.001MHz - 20.000MHz: 150Ω max.<br>20.001MHz - 30.000MHz: 100Ω max.<br>30.001MHz - 40.000MHz: 60Ω max.<br>40.001MHz - 60.000MHz: 50Ω max. |
| OPERATION MODE               | AT cut, Fundamental  |

### PACKAGE DIMENSIONS

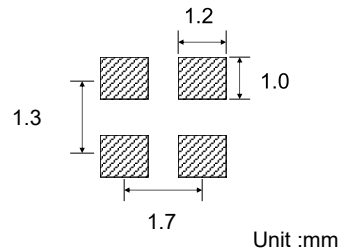


\* Package 1 and 2 are provided interchangeably based on material availability.  
\*\* Different chamfer location between package 1 and 2.

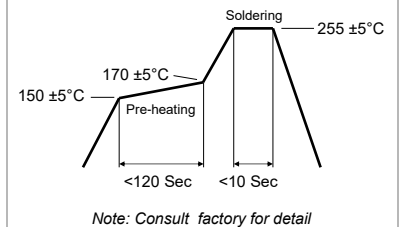
| Pin Configuration |      |
|-------------------|------|
| 1                 | Xtal |
| 2                 | GND  |
| 3                 | Xtal |
| 4                 | GND  |

Unit : mm

### SOLDER PATTERN



### REFLOW PROFILE



### PART NUMBERING GUIDE

**CS22 - F 50 50 HM 08 - 26.000M - TR**

|                               |  |  |  |
|-------------------------------|--|--|--|
| <b>Product series</b><br>CS22 | <b>Stability</b><br>00: ± 100ppm<br>50: ± 50ppm<br>30: ± 30ppm<br>25: ± 25ppm<br>20: ± 20ppm<br>15: ± 15ppm<br>10: ± 10ppm<br>XX: Two digit for Stability        | <b>Load Capacitance</b><br>07: 7pF<br>08: 8pF<br>10: 10pF<br>12: 12pF<br>16: 16pF<br>18: 18pF<br>20: 20pF<br>22: 22pF<br>24: 24pF<br>28: 28pF<br>32: 32pF<br>S: Series   | <b>Options</b><br>Q: AEC-Q200 Qualified<br>TR: Tape and reel |
| <b>Mode</b><br>F: Fundamental | <b>Tolerance @ 25°C</b><br>00: ± 100ppm<br>50: ± 50ppm<br>30: ± 30ppm<br>25: ± 25ppm<br>20: ± 20ppm<br>15: ± 15ppm<br>10: ± 10ppm<br>XX: Two digit for Tolerance | <b>Operating Temperature</b><br>A: -55<br>B: -50<br>C: -40<br>D: -35<br>E: -30<br>F: -20<br>G: -10<br>H: 0<br>J: 50<br>K: 60<br>M: 75<br>N: 70<br>P: 80<br>Q: 85<br>R: 90<br>S: 100<br>T: 105<br>U: 125<br>X: custom | <b>Frequency</b><br>M: MHz                                   |

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