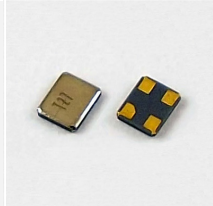


## ULTRA MINIATURE CERAMIC SMD CRYSTAL (2.0 x 1.6 x 0.46mm)

### FEATURES:

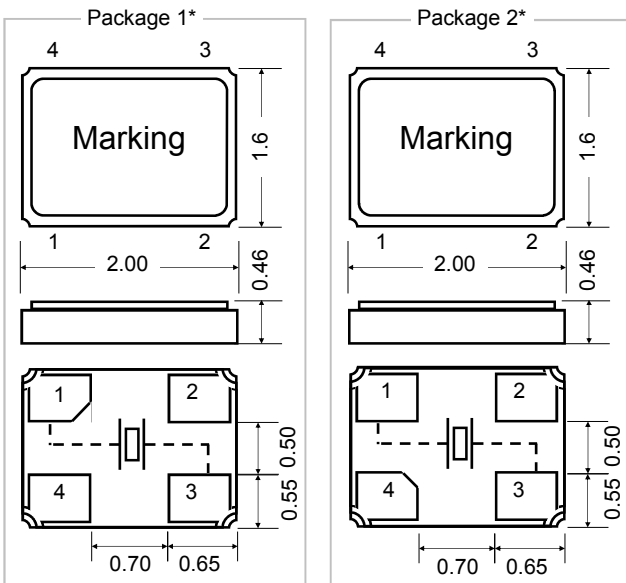
- TIGHT TOLERANCE AND STABILITY AVAILABLE
- AUTOMOTIVE GRADE AEC-Q200 QUALIFIED VERSION AVAILABLE
- SUITABLE FOR ROHS REFLOW



### ■ SPECIFICATION

<b>FREQUENCY RANGE</b>	16.000MHz ~ 60.000MHz		
<b>STANDARD FREQUENCIES</b>	20.000000MHz 22.000000MHz 24.576000MHz 28.636363MHz 36.000000MHz	20.480000MHz 24.000000MHz 26.000000MHz 32.000000MHz 40.000000MHz	20.250000MHz 24.545450MHz 27.000000MHz 32.768000MHz 60.000000MHz
<b>FREQUENCY TOLERANCE @ 25°C</b>	±10ppm ~ 50ppm (See P/N guide for other options)		
<b>FREQUENCY STABILITY</b>	±10ppm ~ 50ppm (See P/N guide for other options)		
<b>OPERATING TEMPERATURE RANGE</b>	STD: 0°C ~ 70°C, Option: -40°C ~ 85°C (See P/N guide for other options)		
<b>STORAGE TEMPERATURE RANGE</b>	-55°C ~ 125°C		
<b>LOAD CAPACITANCE</b>	STD: 8pF (See P/N guide for other options)		
<b>SHUNT CAPACITANCE</b>	3.5pF max.		
<b>INSULATION RESISTANCE</b>	500MΩ min. @ 100V <sub>DC</sub> ± 15V <sub>DC</sub>		
<b>DRIVE LEVEL</b>	200μW max.		
<b>AGING @ 25°C ± 3°C</b>	±2.0ppm / 1 <sup>st</sup> year max.		
<b>EQUIVALENT SERIES RESISTANCE</b>	16.000MHz ~ 20.000MHz: 150Ω max. 25.001MHz ~ 40.000MHz: 60Ω max.	20.001MHz ~ 25.000MHz: 80Ω max. 40.001MHz ~ 60.000MHz: 50Ω max.	
<b>OPERATION MODE</b>	AT cut, Fundamental		

### ■ PACKAGE DIMENSIONS

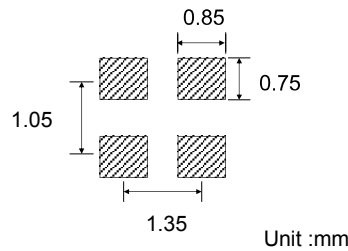


Pin Configuration	
1	Xtal
2	GND
3	Xtal
4	GND

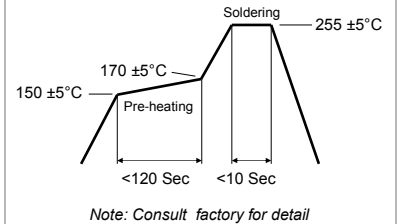
\* Package 1 and 2 are provided interchangeably based on material availability.  
\*\* Different chamfer location between package 1 and 2.

Unit : mm

### ■ SOLDER PATTERN



### ■ REFLOW PROFILE



### ■ PART NUMBERING GUIDE

**CS21 - F - 50 - 50 - HM - 08 - 26.000M - TR**

<b>Product series</b> CS21	<b>Stability</b> 50: ± 50ppm 30: ± 30ppm 25: ± 25ppm 15: ± 15ppm 10: ± 10ppm XX: Two digit for Stability	<b>Load Capacitance</b> 08: 8pF 10: 10pF 12: 12pF 16: 16pF 18: 18pF 20: 20pF 22: 22pF 24: 24pF 28: 28pF 32: 32pF S: Series	<b>Options</b> Q: AEC-Q200 Qualified TR: Tape and reel
<b>Mode</b> F: Fundamental	<b>Tolerance @ 25°C</b> 50: ± 50ppm 30: ± 30ppm (standard) 25: ± 25ppm 15: ± 15ppm 10: ± 10ppm XX: Two digit for Tolerance	<b>Operating Temperature</b> A: -55 B: -50 C: -40 D: -35 E: -30 F: -20 G: -10 H: 0 J: 50 K: 60 M: 70 N: 75 P: 80 Q: 85 R: 90 S: 100 T: 105 U: 125 X: custom	<b>Frequency</b> M: MHz

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