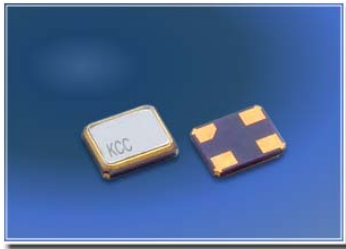


K.C.C Crystal (M221 Series)



Features & Applications

- 2.5x2.0x0.6mm Size
- Ceramic Package
- High Frequency Stability
- Excellent Vibration Resistance & Shock Resistance
- RoHS & REACH Compliant, Pb Free

General Specifications

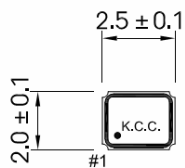
Parameter	M221
Frequency Range	12.0 ~ 50.0 MHz
Frequency Tolerance	±10~50 ppm @25°C
Frequency stability	±15~100 ppm @25°C
Operating Temperature Range	-10 to +70°C or specify (-40 ~ +150°C is available)
Storage Temperature Range	-55 to +125°C
Load Capacitance	Series or Parallel (4 to 39 pF) resonance
Shunt Capacitance	5.0 pF (Max.)
Drive Level	15 / 30 / 50 / 100 / 200 / 500 or special requirement
Aging	± 5 ppm per year (Max.)

Equivalent Series Resistance (ESR)

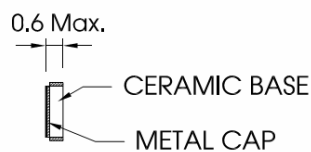
Frequency Range	Vibration Mode	ESR (Ω Max.)
12.000 ~ 15.999MHz	F	300
16.000 ~ 29.999MHz	F	100
30.000 ~ 50.000MHz	F	70

※F: Fundamental/AT

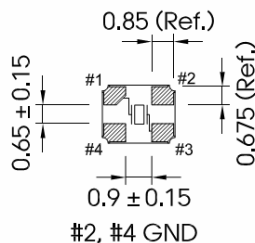
Outline and Dimensions [Unit: mm]



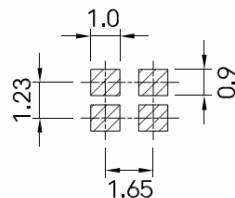
[Top View]



[Side View]



[Bottom View]



[Suggested layout]

Order Part No.:

Product name: **X 25.000 M221 - 20 - 4P - G T Z**
 ① ② ③ ④ ⑤ ⑥⑦⑧

- ① KCC Crystal
- ② Frequency (Standard ± 30ppm)
- ③ Size Type : M221=2.5x2.0x0.6mm
- ④ Load capacitance(pF)
- ⑤ Pad : 2 or 4 pad
- ⑥ RoHS Compliant
- ⑦ Operating temperature : T= -40°C to +85°C
- ⑧ Frequency stability code (±ppm)