

Quartz Crystal Unit

4M Series

Seam Sealed Ceramic SMD Package (5.0 x 3.2mm)

(4 Pads)

MEC Crystals

Features:

- Ultra thin, thickness 1.0mm
- Leadless type
- High precision characteristics covering up to high frequency range
- Automatic mounting
- Embossed taping specification
- Suitable for reflow soldering
- Ideally suited for disc drives, NB, PCs and hand-held products.

- RoHs Compliant (Pb Free)

Electrical Specifications:

Frequency Range	10.000MHz ~ 48.000MHz
Frequency Tolerance	±30ppm @ 25°C (Typical), or specify (±10ppm ~ ±50ppm available)
Frequency Stability Over Temperature	±50ppm @ -20°C to +70°C (Typical), or specify (±10ppm ~ ±100ppm available)
Aging (at 25°C)	±3ppm, ±5ppm / year
Operating Temperature Range	-20°C ~ +70°C Standard -40°C ~ +85°C Extended -10°C ~ +60°C Available
Storage Temperature Range	-55°C ~ +125°C
Shunt Capacitance (C0)	5.0pF max
Drive Level (Typical)	10µW ~ 100µW
Load Capacitance (CL)	Series, 16pF, 20pF, 30pF, 32pF or specify
Equivalent Series Resistance ESR	see chart
Shock Resistance	Drop test of 3 times on 2mm stainless plate from 75cm height



Equivalent Series Resistance (ESR) and Mode of Operation (Mode)

Frequency Range	E.S.R. (Ω)	Mode
10.000MHz ~ 30.000MHz	60 max	Fundamental / AT
30.000MHz ~ 48.000MHz	45 max	Fundamental / AT

Part Numbering System:

4M **16.000** **F** **16** **X** **10** **30**
① ② ③ ④ ⑤ ⑥ ⑦

① Series

4M

② Frequency

Frequency
ex. 16.000

③ Mode of Vibration

Code	Cut-Mode
F	AT Fund

④ Load Capacitance CL

Code	Load Capacitance
S	Series
16	16pF
20	20pF
30	30pF
32	32pF

⑤ Operating Temperature

Code	Ranges
A	-10°C ~ +60°C
B	-20°C ~ +70°C
X	-40°C ~ +85°C

⑥ Frequency Tolerance

Code	Tolerance
10	± 10 ppm
15	± 15 ppm
20	± 20 ppm
25	± 25 ppm
30	± 30 ppm
50	± 50 ppm
or specify	

⑦ Frequency Stability

Code	Stability
10	± 10 ppm
15	± 15 ppm
20	± 20 ppm
25	± 25 ppm
30	± 30 ppm
50	± 50 ppm
or specify	

Remark: Specifications are subject to change without prior notice. Please confirm with our sales engineer.

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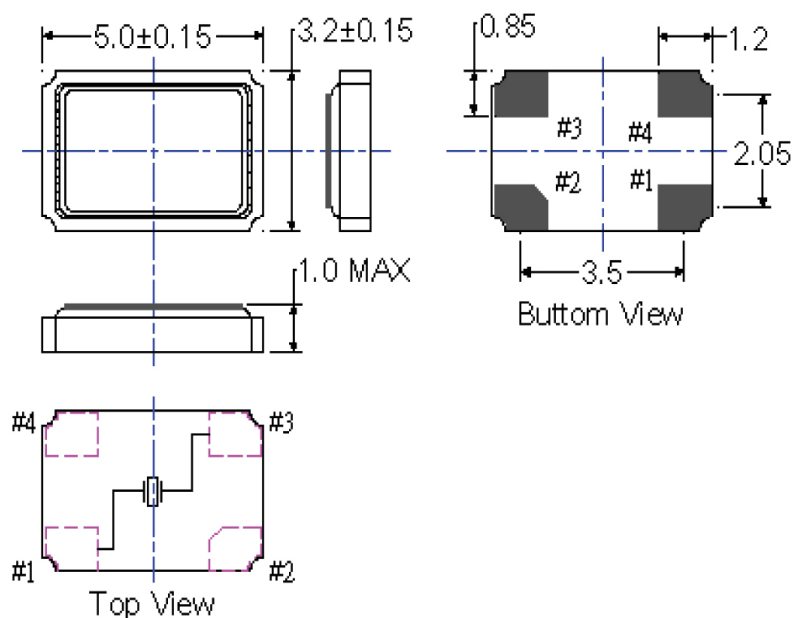
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Seam Sealed Ceramic SMD Package (5.0 x 3.2mm)

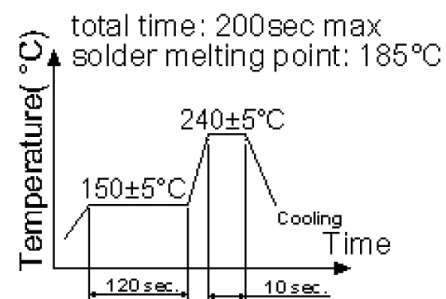
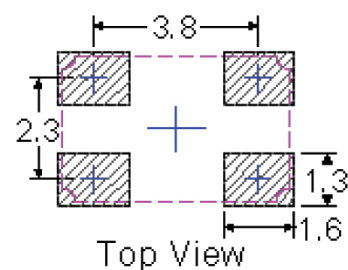
(4 Pads)



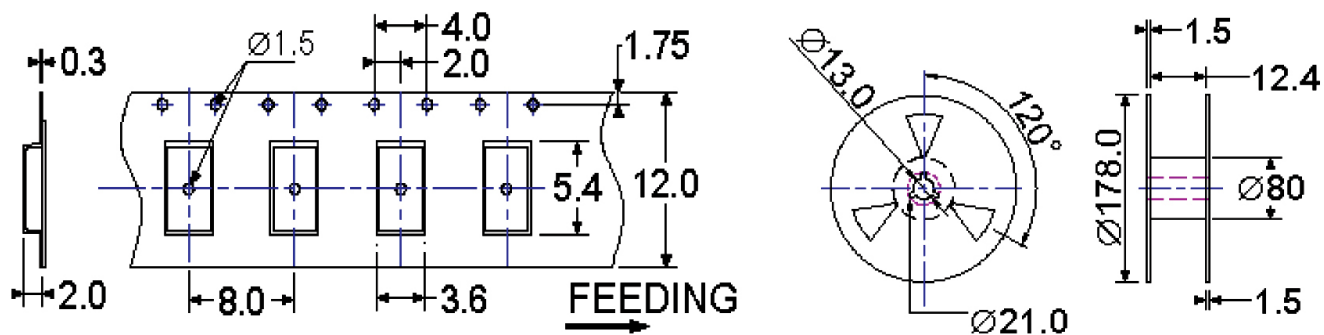
Dimensions:



Reference Land Pattern:



Packing:



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