

## SMD Quartz Crystal Unit

## 4E Series

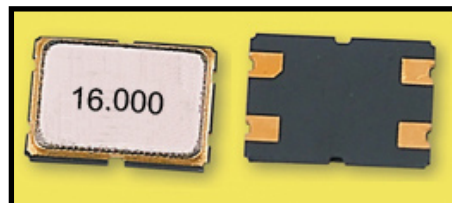
# MEC Crystals

Seam Sealed Ceramic SMD Package (2.5 x 2.0 mm)

(4 Pads)

### Features:

- High precision and high frequency stability.
- Excellent heat resistance and environmental characteristics.
- Applications in PAD, DSC, DVC, and PC.
- **RoHs Compliant (Pb Free)**



### Electrical Specifications:

Frequency Range	12.000 - 48.000 MHz
Frequency Tolerance (at 25°C)	±10ppm, ±20ppm, or specify.
Frequency Stability over Operating Temperature Range	±10ppm, ±20ppm, or specify.
Aging (at 25°C) 1st year(Max)	±3ppm / year
Operating Temperature	-10°C to +60°C, -20°C to +70°C, -40°C to +85°C
Storage Temperature Range	-55°C ~ +125°C
Shunt Capacitance(Co)	3pF maximum
Drive Level(Typical)	10µW ~ 100µW
Load Capacitance	Series, 12pF, 16pF, 20pF, 30pF, 32pF or specify
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
12.000 - 23.999MHz	100 max	AT / Fundamental
24.000 - 48.000MHz	60 max	AT / Fundamental

### Part Numbering System:

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

① Series

4E
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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
12	12pF
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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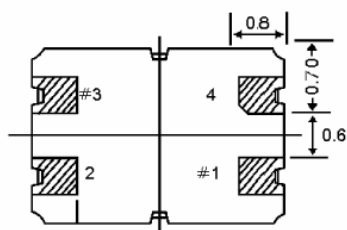
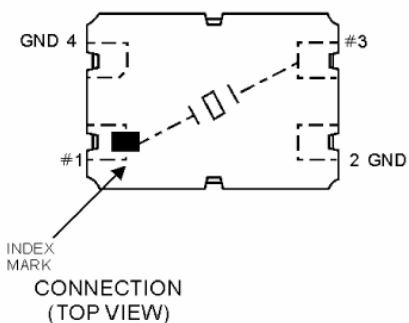
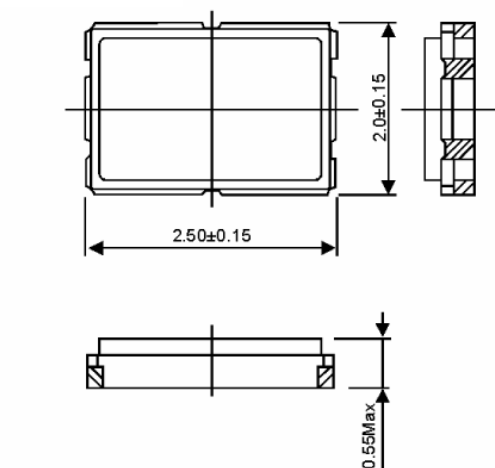
4E Series



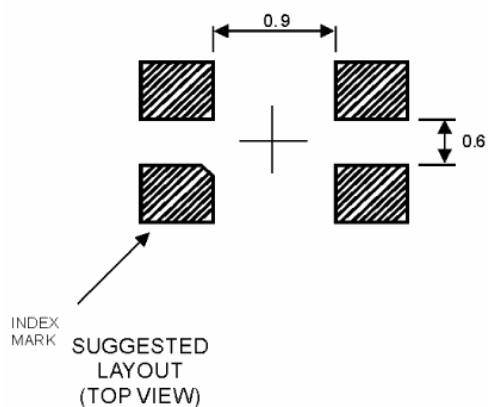
Seam Sealed Ceramic SMD Package (2.5 x 2.0 mm)

(4 Pads)

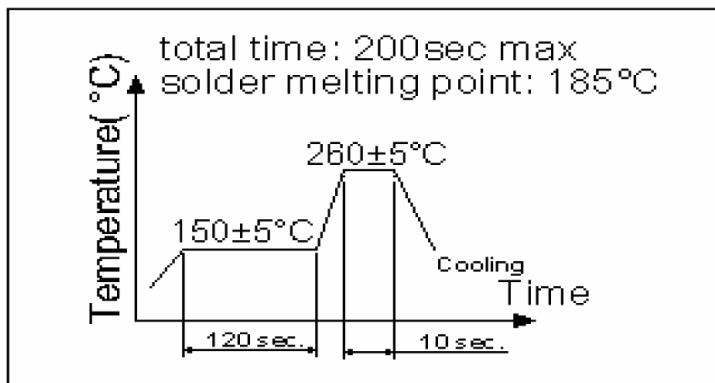
## Dimensions:



(BOTTOM VIEW)



## Reflow Conditions:



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