

SMD Quartz Crystal Unit

4F Series

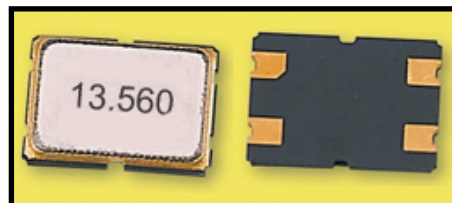


Seam Sealed Ceramic SMD Package (7.0 x 5.0 mm)

(4 Pads)

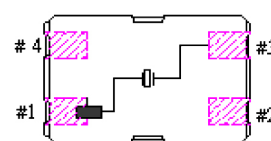
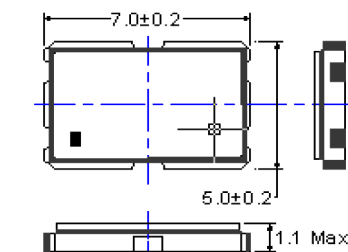
Features:

- Ultra thin, thickness 1.1mm
- Leadless type
- High precision characteristic covering up to high frequency range
- Automatic mounting
- Embossed tapping specification
- Reflow soldering
- **RoHs Compliant (Pb Free)**

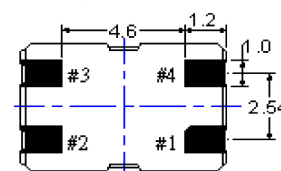


Electrical Specifications:

Frequency Range	6.000MHz ~ 110.000MHz
Frequency Tolerance	±10ppm ~ ±50ppm max.
Frequency Stability over Operating Temperature Range	-10°C ~ +60°C (±30ppm) -20°C ~ +70°C (±20ppm) -40°C ~ +85°C (±20ppm) or specify
Aging (at 25°C)	±1ppm, ±3ppm / year maximum
Operating Temperature	-10°C to +60°C ~ -40°C to +85°C
Storage Temperature Range	-55°C ~ +125°C
Shunt Capacitance	5pF maximum
Drive Level	10µW ~ 100µW (10µW Typical)
Load Capacitance	Series, 16pF, 20pF, 30pF, 32pF or specify
Shock Resistance	Drop test of 3 times on 2mm stainless plate from 75cm height



Connection (Top View)



(Bottom View)

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

Frequency Range	E.S.R. (Ω)	Mode
6.000MHz ~ 15.999MHz	40 max	Fundamental / AT
16.000MHz ~ 32.000MHz	35 max	Fundamental / AT
30.000MHz ~ 44.999MHz	80 max	3rd Overtone / AT
45.000MHz ~ 89.999MHz	70 max	3rd Overtone / AT
90.000MHz ~ 110.000MHz	75 max	3rd Overtone / AT

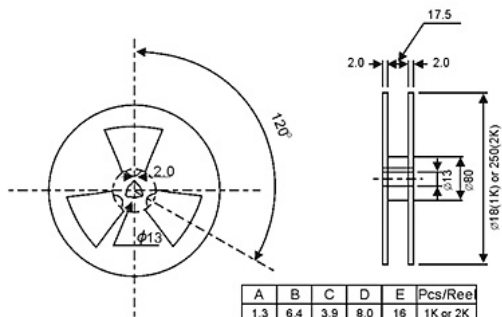
Part Numbering System:

4F 16.000 F 16 X 10 30
 ① ② ③ ④ ⑤ ⑥ ⑦

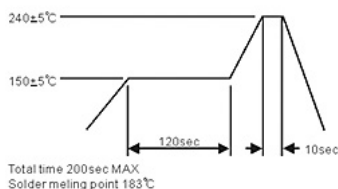
① Series	② Frequency	③ Mode of Vibration	④ Load Capacitance CL	⑤ Operating Temperature	⑥ Frequency Tolerance	⑦ Frequency Stability
4F	Frequency ex. 16.000	Code Cut-Mode F AT Fund 3 AT 3rd OT	Code Load Capacitance S Series 16 16pF 20 20pF 30 30pF 32 32pF	Code Ranges A -10°C ~ +60°C B -20°C ~ +70°C X -40°C ~ +85°C	Code Tolerance 10 ± 10 ppm 15 ± 15 ppm 20 ± 20 ppm 25 ± 25 ppm 30 ± 30 ppm 50 ± 50 ppm or specify	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.

Packing:

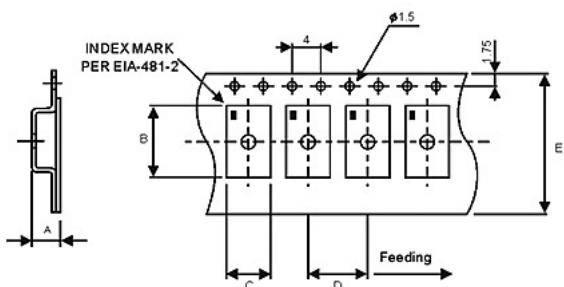


REFLOW CONDITION (EXAMPLE):



REMARK:

1. 230 mm (9.05) minimum leader which consist of carrier and / or cover tape followed by a minimum of 160 mm (6.3) of empty carrier tape sealed with cover tape.
2. 160 mm (6.3) minimum trailer of empty carrier tape sealed with cover tape.



Pad Layout:

