EUROQUARTZ

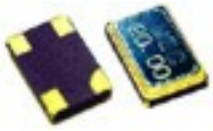
MF & MF2 CRYSTALS

6 x 3.5mm SMD, 4 pad and 2 pad — 8MHz to 125MHz

FEATURES

- **Miniature size: 6.0mm x 3.5mm height**
- **Tight tolerances available**
- **High shock and vibration resistance**
- **Ideal for PDAs, GPS, PCMCIA and hand-held equipment**

RoHS

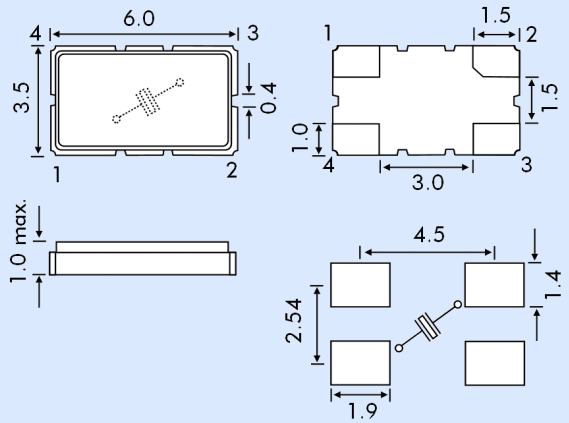


DESCRIPTION

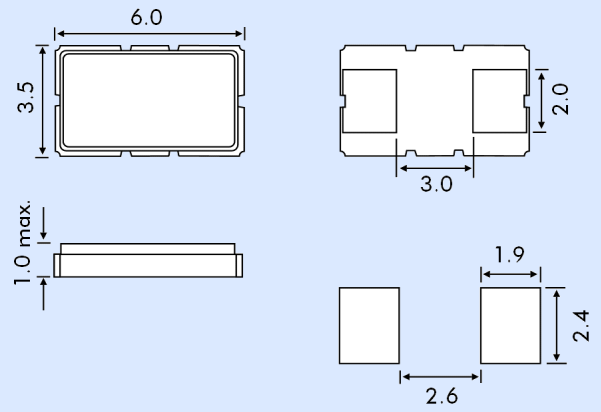
Miniature surface mount MF crystals incorporate a ceramic substrate and hermetically-sealed metal lid. The combination of compact size and low mass with a high-specification crystal make MF crystals ideal for high density applications as well as hand-held and communications equipment.

OUTLINE & DIMENSIONS

MF



MF2



SPECIFICATION

Frequency Range	
AT-Cut Fundamental:	8.0MHz to 50.0MHz
AT-Cut 3rd Overtone:	30.0MHz to 125.0MHz
Calibration Tolerance at 25°C*:	from ±5ppm (±10, ±20 or ±30ppm standard)
Frequency stability	
-10° to +60°C	from ±5ppm
-20° to +70°C	from ±10ppm
-40° to +90°C	from ±15ppm
-55 to +125°C	from ±20ppm
Storage Temperature:	-55°~+105°C
Equivalent Series Resistance:	*See table*
Shunt Capacitance (C0):	2pF to 4pF typical, 7pF maximum
Load Capacitance (CL):	Series or from 8pF to 32pF (*Customer specified CL*)
Ageing:	<±3ppm per year at +25°C
Drive level:	100 µW maximum
Reflow Soldering:	10s maximum, 260°C twice or 180s at 230°C, once.
Package:	Ceramic base, metal lid, Hermetic seal
Packaging:	16mm EIA tape and reel 1000 pieces per reel

EQUIVALENT SERIES RESISTANCE

Frequency Range MHz	Crystal Cut/ Mode	ESR Ohms Max.
10.0 ~ 12.0	AT Fund.	80
12.1 ~ 16.0	AT Fund.	60
16.1 ~ 50.0	AT Fund.	40
30.0 ~ 40.0	AT 3rd OT	100
40.1 ~ 50.0	AT 3rd OT	80
50.1 ~ 125	AT 3rd OT	50

PART NUMBER GENERATION

Example: 12.000MHz MF/20/30/-10+60/18pF/60R

- 12.000MHz — Nominal Frequency
- MF/ — Package MF = 4 pad, MF2 = 2 pad
- 20/ — Calibration tolerance at 25°C (±ppm)
- 30/ — Temperature Stability over temp. range (±ppm)
- -10+60/ — Operating Temp. Range (°C) *(Lower and upper limits)*
- 18pF/ — Load Capacitance *(Either SR for series or CL in pF)*
- 60R — Equivalent Series Resistance *(Optional - use when special value is required)*

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