

DATE: June 15, 2023

# 产品规格书

SPECIFICATION FOR APPROVAL



用户名称	CUSTOMER:	<u>Quartz 1</u>
产品描述	DESCRIPTION:	Monolithic Crystal Filter UM-5*2 21.4MHz
产品部品号	MANUFACTURER PART NO.:	FT21M20B
用户部品号	CUSTOMER PART NO.:	
使用于机型	USED IN MODEL:	

承 认 APPROVAL		
工程部 TECHNOLOGY DEPT.	品质部 QUALITY DEPT.	采购部 PURCHASING DEPT.



深圳市炬焯科技有限公司

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# 1. QUARTZ CRYSTAL UNIT SPECIFICATION

## 1. General

1.1 Model Name : FT21M20B

1.2 Holder type : UM-5\*2

## 2. Electrical Specification :

2.1 Frequency: 21.400MHz

2.2 Mode of Oscillation AT Fundamental

2.3 Pass Band Width :  $\pm 10\text{KHz}$  min ( at 3dB )

2.4 Stop Band Width:  $\pm 28\text{KHz}$  max ( at 40dB )

2.5 Pass Band Ripple : 1.0dB max

2.6 Insertion Loss : 2.0dB max

2.7 Attenuation Guarantee : 65dB min (  $f_0+300\sim 1000\text{KHz}$  )

80dB min (  $f_0-200\sim 1000\text{KHz}$  )

2.8 Terminating Impedance : IN:  $2000\Omega//2.0\text{pF}$

OUT:  $2000\Omega//2.0\text{pF}$

Coupling capacitance(C2): 6.0pF

2.9 Insulation resistance : More than 500M ohms at DC 100V

3. Operable temperature range :  $-20^\circ\text{C}$  To  $+70^\circ\text{C}$

4. Storage temperature range :  $-40^\circ\text{C}$  To  $+85^\circ\text{C}$

## 4. Mechanical Data

4.1 Sealing Test : Reduced Pressure (260mmHg of mercury)

5. Dimensions and marking : Refer to page. 3

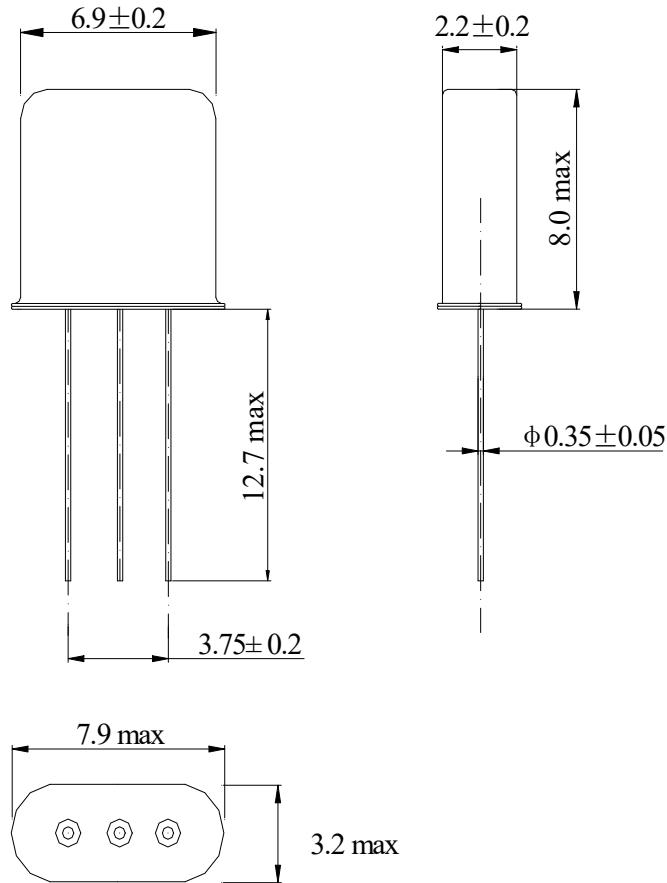
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## MARKING & DIMENSIONS

\*Appearance: Mark Shall Be Clear, Appearance Shall Be Smooth And No Damage.

\*Dimensions: Unit: mm



\*Marking should be printed as following:

Logo, Nominal Frequency

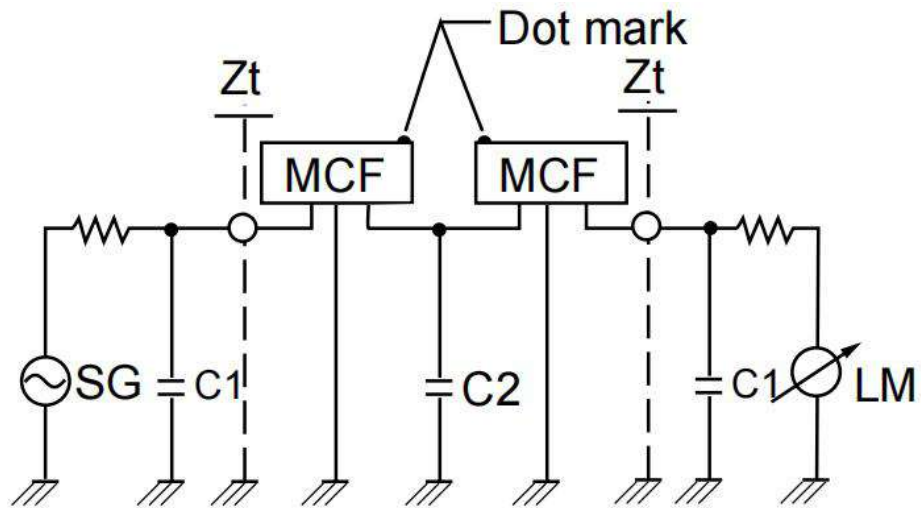
Logo: FT

Nominal Frequency:

Marking: Laser marking or Ink marking.

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## TEST CIRCUIT



4-POLE MCF

Zt: Terminating Impedance

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## 6.MECHANICAL/ENVIRONMENTAL CHARACTERISTICS

NO.	ITEM	SPECIFICATIONS
6.1	<b><i>Resistance to Cold</i></b>	The units should satisfy its frequency and resistance specifications stated in Table 1 after being subjected to stand at $-40\pm 3^{\circ}\text{C}$ for 2 hours. The units are then allowed to stand at room temperature for approx 2 hours before checking.
6.2	<b><i>Resistance to Heat</i></b>	The units should satisfy its frequency and resistance specifications stated in Table 1 after being subjected to stand at $100\pm 2^{\circ}\text{C}$ for 2 hours. The units are then allowed to stand at room temperature for approx 2 hours before checking.
6.3	<b><i>Temperature Cycle</i></b>	The units should satisfy its frequency and resistance specifications stated in Table 1 after the units are subjected to stand in a Low Temperature Chamber at $-40\pm 3^{\circ}\text{C}$ for 30 minutes and to stand in a High Temperature Chamber at $100 \pm 2^{\circ}\text{C}$ for 30 minutes, with 2 to 3 minutes standby at room temperature in between the chamber transfers. This consist of one cycle; and units are subjected continuously for 5 cycles. After cycling, the units are allowed to stand at room temperature for approx 2 hours before checking.
6.4	<b><i>Aging</i></b>	The units should satisfy its frequency and resistance specifications stated in Table 1 after the units are subjected to stand 720 (30 days) $\pm 12$ hours in an $85\pm 3^{\circ}\text{C}$ chamber. The units are allowed to stand at room temperature approx 2 hours before checking.
6.5	<b><i>Resistance to Damp</i></b>	The units should satisfy its frequency and resistance specifications stated in Table 1 after the units are subjected to stand in the test chamber capable of maintaining $60\pm 2^{\circ}\text{C}$ temperature and 90 to 95%(RH) relative humidity for 500 hours. The units are then allowed to stand for approx 2 hours in room temperature before checking
6.6	<b><i>Bending Strength of Lead Wire Termination</i></b>	The unit's lead wire should withstand a weight of 450g in mass suspended from its original draw-out axis, and turning the body at a bending rate of 2 to 3 secs. until it IS approx $90^{\circ}$ from the original axis; and returning back to its original position at the same bending rate. After this, the same method is repeated on the opposite $90^{\circ}$ position. There should be no abnormalities detected on the unit.

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6.7	<b>Tensile Strength Termination</b>	The units should withstand a tensile force applied to the termination in the direction of its draw-out axis of up to 900g maintained as is for 30±5 seconds. There should be no abnormalities detected on the unit.
6.8	<b>Solder ability</b>	Under JIS C 5033 , at least 90% of the lead wire periphery surface is covered with new solder up to the point where it is dipped on a molten solder.
6.9	<b>Resistance to Soldering Heat</b>	The units are measured for its frequency and resistance in accordance with Table 1 after immersion into molten solder with a temperature of 350±10°C for 3 to 4 seconds and at a depth up to a point 2.0 to 2.5 mm from the base root.
6.10	<b>Dropping Test</b>	<ul style="list-style-type: none"> <li>● Unit Drop Test The units are measured for its frequency and resistance in accordance with Table 1 after allowing the units to fall freely from 20 cm of height 3 times on a firm wood .</li> <li>● Shipping Carton Drop Test The units are measured for its frequency and resistance in accordance with Table 1 after dropping the units packaged inside a shipping carton box (randomly positioned) from a 50 cm height in each planar sides of the carton on a concrete floor.</li> </ul>
6.11	<b>Vibration Test</b>	The units are measured for its frequency and resistance in accordance with Table 1 after subjecting to 2 hours of vibration with 1.5 mmp-p amplitude with 10-55-10Hz frequency sweep within 1 minute. Three perpendicular plane (axes) of vibration are available; however each unit is allowed to vibrate in only one plane, thus each plane requires approx 1/3 of the total units.

TABLE 1	
Electrical Specification	Should satisfy stated in 2.3 2.4 2.5 2.6
	Should satisfy stated in 2.7 2.10

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