



## MHz RANGE CRYSTAL UNIT

## FA-20H

- Nominal frequency range : 12 MHz to 54 MHz
- External dimensions : 2.5×2.0×0.55 mm
- Overtone order : Fundamental
- Applications : Mobile phone, Bluetooth, W-LAN  
ISM band radio, Clock for MPU


 Product Number  
Q24FA20H0xxxx18


## Specifications (characteristics)

Item	Symbol	Specifications		Conditions / Remarks
		For RF Reference	For Clock	
Nominal frequency range	f_nom	12 MHz to 54 MHz		Fundamental Please contact us about available frequencies.
Storage temperature range	T_stg	-40 °C to +125 °C		Storage as single product.
Operating temperature range	T_use	-40 °C to +85 °C (+105 °C)		Please contact us about +85 °C < T_use
Level of drive	DL	100 $\mu$ W Max.	200 $\mu$ W Max.	Recommended: 10 $\mu$ W
Frequency tolerance	f_tol	$\pm 10 \times 10^{-6}$	$\pm 30 \times 10^{-6}$	+25 °C Please contact us for inquiries.
Frequency versus temperature characteristics	f_tem	$\pm 10 \times 10^{-6}$	$\pm 30 \times 10^{-6}$	-20 °C to +75 °C Please contact us for inquiries.
Load capacitance	CL	6 pF to $\infty$		Please specify.
Motional resistance (ESR)	R1	As per below table1.		-20 °C to +75 °C
Frequency aging	f_age	$\pm 1 \times 10^{-6}$ to $\pm 3 \times 10^{-6}$ / year Max. *1		+25 °C, First year

\*1 Please contact us for available frequency tolerances as they are dependent upon the nominal frequency.

Table 1. Motional resistance (ESR) R1

Frequency	Motional resistance
12 MHz $\leq$ f_nom < 16 MHz	150 $\Omega$ Max.
16 MHz $\leq$ f_nom < 25 MHz	80 $\Omega$ Max.
25 MHz $\leq$ f_nom < 30 MHz	60 $\Omega$ Max.
30 MHz $\leq$ f_nom < 35 MHz	50 $\Omega$ Max.
35 MHz $\leq$ f_nom $\leq$ 54 MHz	40 $\Omega$ Max.

## Product name

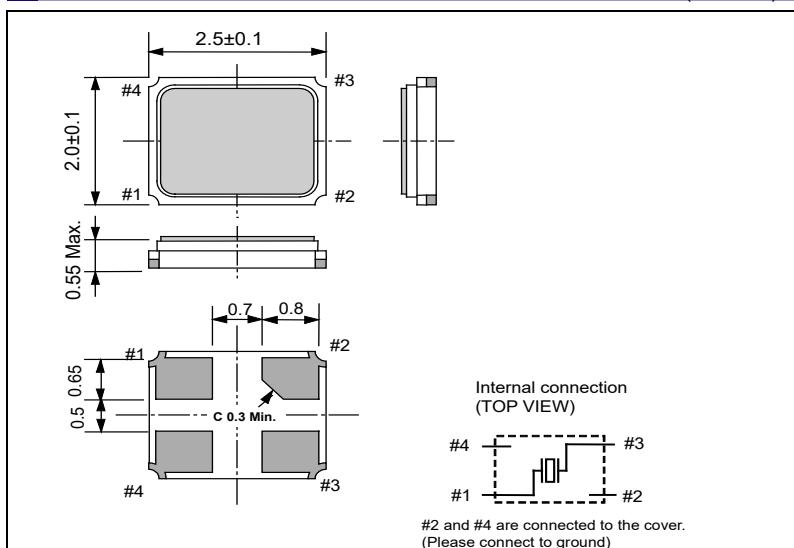
 Product name  
(Standard form) FA-20H 24.00000MHz 12.0 +10.0-10.0

 ① Model ② Frequency ③ Load capacitance(pF) ④ Frequency tolerance( $\times 10^{-6}$ , +25 °C)

In addition to the above mentioned specification item, please specify frequency temperature characteristics and operating temperature range in case of inquiry.

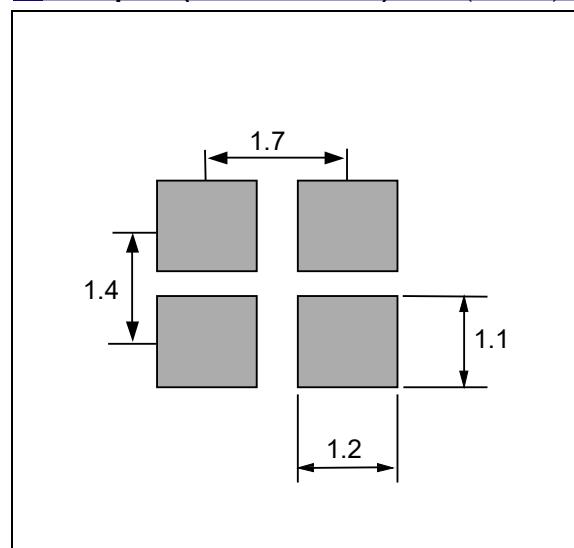
## External dimensions

(Unit:mm)



## Footprint (Recommended)

(Unit:mm)



► **Explanation of the mark that are using it for the catalog**

	► Pb free.
	► Complies with EU RoHS directive. *About the products without the Pb-free mark. Contains Pb in products exempted by EU RoHS directive. (Contains Pb in sealing glass, high melting temperature type solder or other.)
	► Designed for automotive general equipment.
	► Designed for automotive applications related to driving and safety.

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