

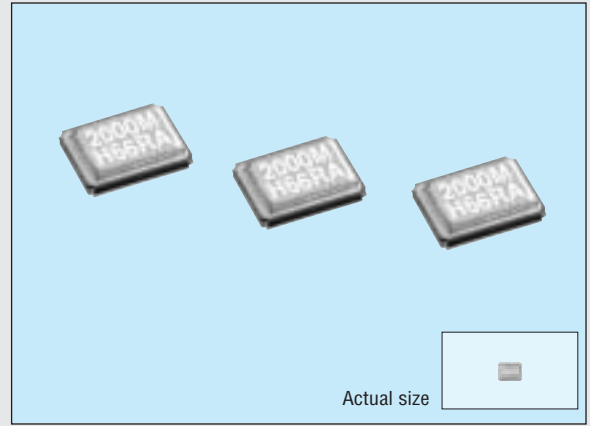
THIN SMD HIGH-STABILITY CRYSTAL UNIT

# FA-23H

Product number (please refer to page 1)

**Q24FA23Hxx xx 00**

- Featuring tiny size with good tuneability for GSM RF discrete circuit.
- Suite for Bluetooth and W - LAN with stable temperature frequency characteristics.
- Good shock-resistance construction meets handheld equipment requirement.
- 0.7 mm Max. thickness is equal to SMD-type IC.



## Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency range	f	16.000 MHz to 32.000 MHz Standard : 16.000 MHz / 26.000 MHz / 32.000 MHz	Fundamental mode For the out of standard specifications, please contact us for inquiries.	
Recommended applications		Bluetooth / GSM / Mobile communication device		
Temperature range	Storage temperature	T <sub>STG</sub>	-40 °C to +125 °C	
	Operating temperature	T <sub>OPR</sub>	-40 °C to +85 °C	Specified equivalent series must be satisfied
	Operable temperature	T <sub>USE</sub>	As per below table	Specified equivalent series and frequency temperature characteristics must be satisfied.
Drive level	Maximum drive level	GL	2 mW Max.	
	Recommended drive level	DL	10 μW to 100 μW	
Frequency tolerance (standard)	Δf/f	±10 x 10 <sup>-6</sup>	Ta=+25 °C For the out of standard specifications, please contact us for inquiries.	
Frequency temperature characteristics (standard)		±10 x 10 <sup>-6</sup>	-20 °C to +70 °C For the out of standard specifications, please contact us for inquiries.	
Load capacitance	C <sub>L</sub>	10 pF (standard)	For the out of standard specifications, please contact us for inquiries.	
Series resistance	R <sub>1</sub>	As per below table	Operable temperature range, DL = 100 μW	
Shunt capacitance	C <sub>0</sub>	5 pF Max.		
Insulation resistance	IR	500 MΩ Min.		
Aging	fa	±1 x 10 <sup>-6</sup> / year Max.	Ta=+25 °C, first year	
Shock resistance	S. R.	±2 x 10 <sup>-6</sup> Max.	100 g dummy (Seiko Epson Standard) drop from 1500 mm height on to the concrete 3 directions 10 times.	

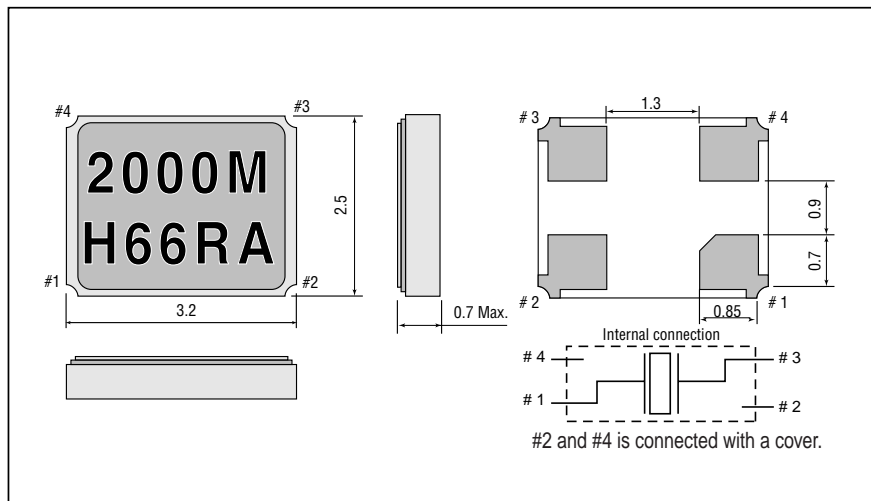
## Frequency temperature characteristics

Temperature range	Series resistance
0 °C to +50 °C	±5 x 10 <sup>-6</sup> Min.
-10 °C to +60 °C	±7 x 10 <sup>-6</sup> Min.
-20 °C to +70 °C	±10 x 10 <sup>-6</sup> Min.
-30 °C to +80 °C	±15 x 10 <sup>-6</sup> Min.
-40 °C to +85 °C	±20 x 10 <sup>-6</sup> Min.

## Series resistance (R1)

Frequency	Series resistance
16.0 MHz ≤ f < 20.0 MHz	80 Ω Max.
20.0 MHz ≤ f < 25.0 MHz	60 Ω Max.
25.0 MHz ≤ f < 30.0 MHz	50 Ω Max.
30.0 MHz ≤ f ≤ 32.0 MHz	40 Ω Max.

## External dimensions



(Unit: mm)

## Recommended soldering pattern

(Unit: mm)

