

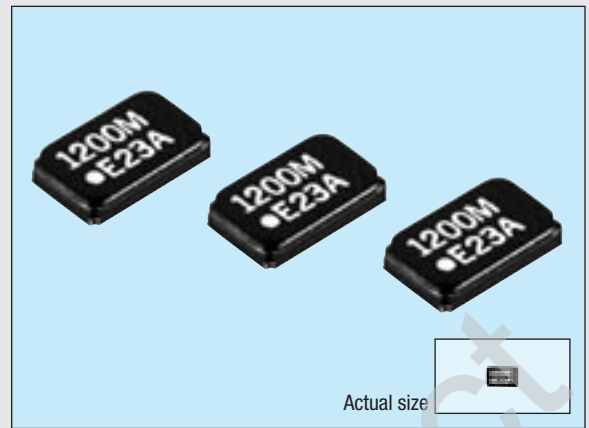
THIN SMD HIGH-FREQUENCY CRYSTAL UNIT

FA-248

Product number (please refer to page 1)

Q22FA248xxxxx00

- High-density mounting-type SMD.
- Excellent shock resistance.
- Capable of covering a wide frequency range. (from 12 MHz to 27 MHz)
- 0.9 mm Typ. thickness is equal to SMD-type IC.
- Most suitable for small communication devices.
- Available for lead (Pb)-free soldering.
- Lead (Pb)-free terminal product.



Specifications (characteristics)

Item	Symbol	Specifications	Remarks	
Nominal frequency	f	12.000 MHz to 27.000 MHz	Fundamental mode 27 MHz < f ≤ 32 MHz Please contact us for inquiries.	
Temperature range	Storage temperature	TSTG	-40 °C to +125 °C	Stored as bare product after unpacking
	Operating temperature	TOPR	-20 °C to +70 °C / -40 °C to +85 °C	Specified equivalent series must be satisfied.
	Operable temperature	TUSE	As per below table	Specified equivalent series and frequency temperature characteristics must be satisfied.
Recommended drive level	DL	10 μW to 100 μW		
Frequency tolerance	Δf/f	±10 x 10 ⁻⁶ , ±15 x 10 ⁻⁶ , ±20 x 10 ⁻⁶ *1	Ta = +25 °C ±3 °C	
Frequency temperature characteristics		±15 x 10 ⁻⁶ , ±20 x 10 ⁻⁶ (Standard) *1 As per below table	-20 °C to +70 °C	
Load capacitance	CL	10 pF to ∞	Please specify	
Series resistance	R _i	As per below table	Operable temperature range, DL = 100 μW	
Shunt capacitance	C _o	5.0 pF Max.		
Insulation resistance	IR	500 MΩ Min.		
Aging	fa	±2 x 10 ⁻⁶ / year Max.	Ta = +25 °C ±1 °C, first year	
Shock resistance	S.R.	±5 x 10 ⁻⁶ Max.	100 g dummy (Seiko Epson Standard) drop from 1500 mm height on to the concrete 3 directions 10 times.	

*1 Please ask tighter tolerance.

Frequency temperature characteristics

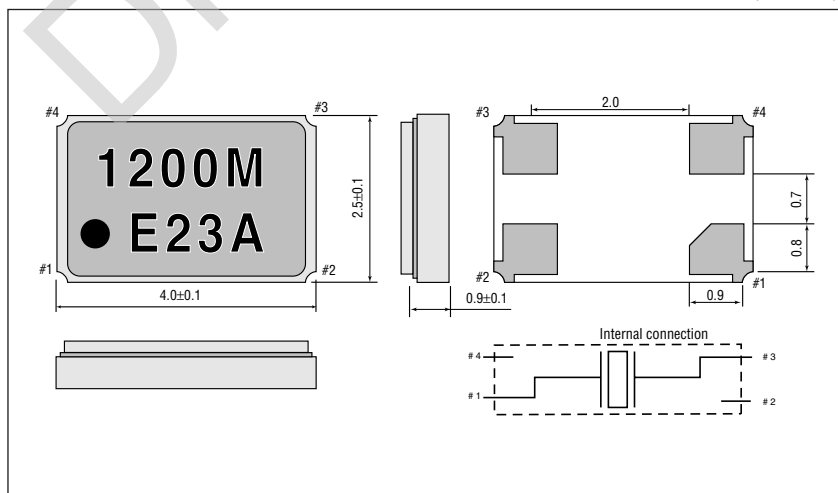
Operable temperature	Frequency tolerance
0 °C to +50 °C	±5 x 10 ⁻⁶ Min.
-10 °C to +60 °C	±7 x 10 ⁻⁶ Min.
-20 °C to +70 °C	±10 x 10 ⁻⁶ Min.
-30 °C to +80 °C	±15 x 10 ⁻⁶ Min.
-40 °C to +85 °C	±20 x 10 ⁻⁶ Min.

Series resistance (R1)

Frequency	Series resistance
12.0 MHz ≤ f < 13.0 MHz	70 Ω Max.
13.0 MHz ≤ f < 16.0 MHz	60 Ω Max.
16.0 MHz ≤ f < 20.0 MHz	50 Ω Max.
20.0 MHz ≤ f ≤ 27.0 MHz	40 Ω Max.

External dimensions

(Unit: mm)



Recommended soldering pattern

(Unit: mm)

