

Product name FA-238 20.000000 MHz 12.0 +50.0-50.0

Product Number / Ordering code Q22FA23800001xx

Please refer to the 5.Packing information about xx (last 2 digits)

Pb free / Complies with EU RoHS directive

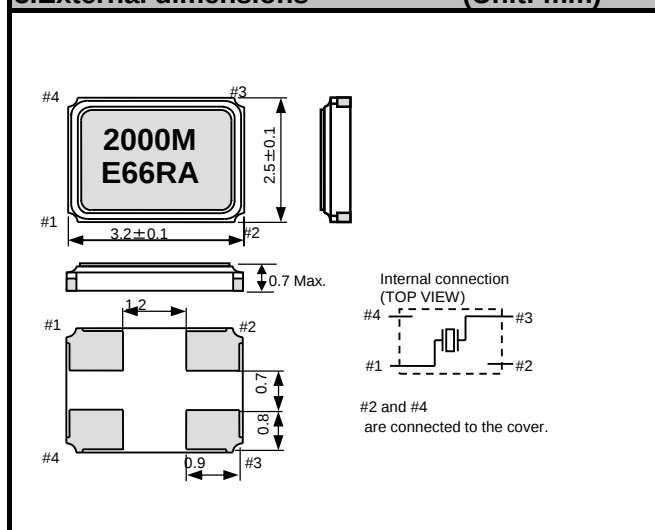
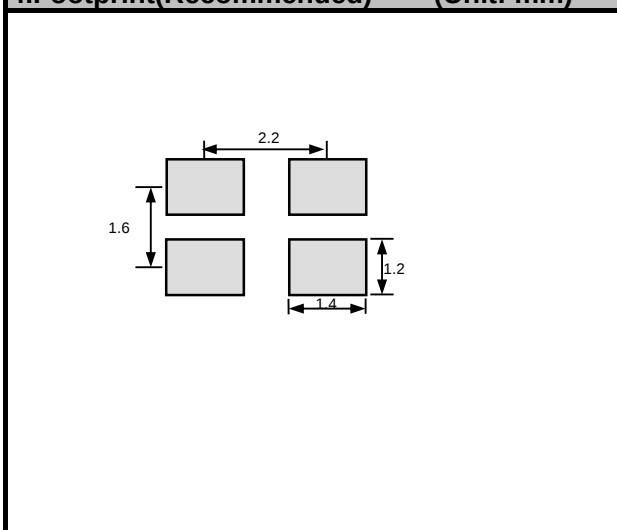
Reference weight Typ. 16 mg

1.Absolute maximum ratings

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Storage temperature	T_stg	-40	-	+125	°C	Storage as single product
Operating temperature	T_use	-40	-	+105	°C	

2.Specifications(characteristics)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Nominal frequency	f_nom	-	20.000000	-	MHz	Fundamental
Frequency tolerance	f_tol	-50	-	+50	x 10 ⁻⁶	@+25°C
Frequency Stability over temperature	f_tem	-30	-	+30	x 10 ⁻⁶	-20°C to +70°C
Operating temperature	T_use	-20	-	+70	°C	
Level of drive	DL	10	100	200	μW	
Load capacitance	CL	-	12	-	pF	
Motional resistance (ESR)	R1	-	-	60	Ω	
Motional capacitance	C1	-	2.56	-	fF	
Motional inductance	L1	-	24.76	-	mH	
Shunt capacitance	C0	-	0.98	-	pF	
Frequency aging	f_age	-5	—	+5	x10 ⁻⁶ / year	@+25°C, First year

3.External dimensions (Unit: mm)**4.Footprint(Recommended) (Unit: mm)****5.Packing information**

[1] Product number last 2 digits code (xx) description

The recommended code is "17"

Q22FA23800001xx

Code	Condition	Code	Condition
01	Any Q'ty vinyl bag(Tape cut)	14	1000pcs / Reel
11	Any Q'ty / Reel	15	2000pcs / Reel
12	250pcs / Reel	00	3000pcs / Reel
13	500pcs / Reel	17	4000pcs / Reel

(1) Tape dimensions TE0804L

Material of the Top Tape : PET+PE

[illegible]

Material of the Reel : PS

Technical drawing of a mechanical part, likely a wheel or disc, showing three views: front view, side view, and a detail view of a hole.

Front View: A circular part with a central hub and five spokes. The outer diameter is $\phi 180.00$ with a tolerance of $+0/-3$. The inner hub diameter is $\phi 76$. The distance from the center to the outer edge is 160 . The thickness of the part is 11.40 with a tolerance of ± 1 . The distance from the center to the inner hub is 9.00 with a tolerance of ± 0.3 . The part has a central hole with diameter $\phi 3$ and a hole in the hub with diameter $\phi 60.00$. The part is labeled with 'H' and 'G'.

Side View: A cross-section view showing the thickness of the part, which is 11.40 with a tolerance of ± 1 . The distance from the center to the inner hub is 9.00 with a tolerance of ± 0.3 . The distance from the center to the outer edge is 160 . The part is labeled with 'H' and 'G'.

Detail View: A circular detail view of a hole with diameter $\phi 21 \pm 0.8$. The hole has a depth of 2.00 with a tolerance of $+0.3/-0$. The hole is labeled with 'H' and 'G'.

6. Reflow profile

Reflow condition

Pre Heating Temperature

$Tp1 \sim Tp2 = +170^{\circ}C$

Heating Temperature

$TMit = +220^{\circ}C$

Peek Temperature

$TMax. = +260^{\circ}C$

Point of measuring

In case of Solderability
Terminal.

In case of Resistance to soldering heat
Surface.

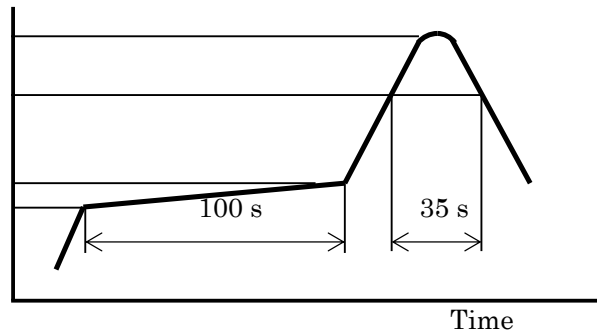
Temperature

$TMax.$

$TMit$

$Tp2$

$Tp1$



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