

Product name FA-238 24.000000 MHz 18.0 +15.0-15.0

Product Number / Ordering code Q22FA23800338xx

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**

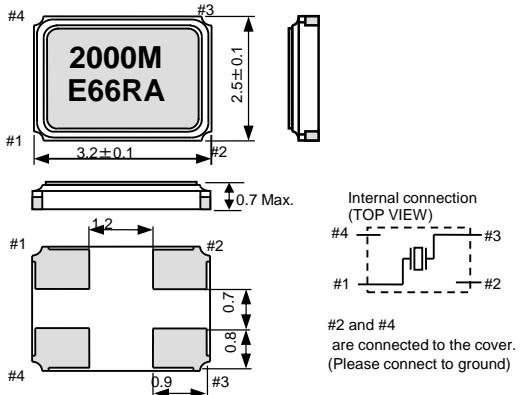
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Storage temperature	T_stg	-40	-	+125	°C	Storage as single product
Operating temperature	T_use	-40	-	+105	°C	

**2. Specifications(characteristics)**

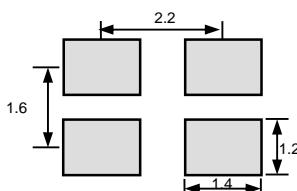
Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Nominal frequency	f_nom	—	24.000000	—	MHz	Fundamental
Frequency tolerance	f_tol	-15	-	+15	$\times 10^{-6}$	@+25°C
Frequency Stability over temperature	f_tem	-30	-	+30	$\times 10^{-6}$	-20°C to +70°C
Operating temperature	T_use	-20	-	+70	°C	
Level of drive	DL	10	100	200	μW	
Load capacitance	CL	—	18	—	pF	
Motional resistance (ESR)	R1	-	-	60	Ω	
Motional capacitance	C1	-	2.97	-	fF	
Motional inductance	L1	-	14.79	-	mH	
Shunt capacitance	C0	-	1.07	-	pF	
Frequency aging	f_age	-5	—	+5	$\times 10^{-6}$ /yea	@+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

Q22FA23800338xx

The recommended code is "17"

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

[ 2 ] Taping specification

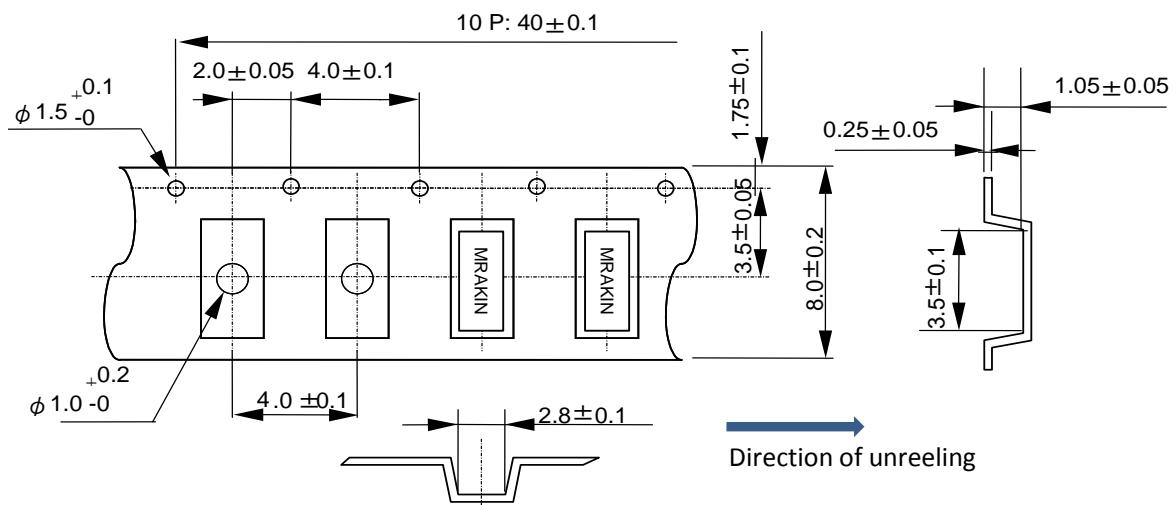
Subject to EIA-481 & IEC-60286

(1) Tape dimensions TE0804L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

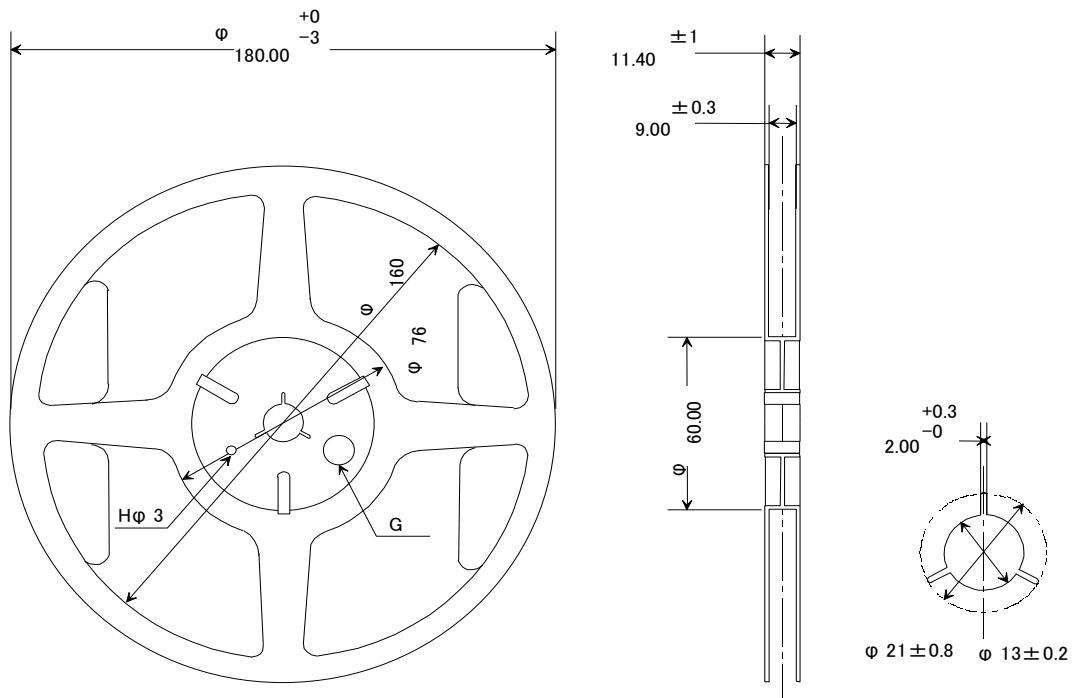


(2) Reel dimensions

Center material : PS

Material of the Reel : PS

Unit: mm



## 6. Reflow profile

## Reflow condition

Pre Heating Temperature  
 $T_{p1} \sim T_{p2} = +170^{\circ}C$

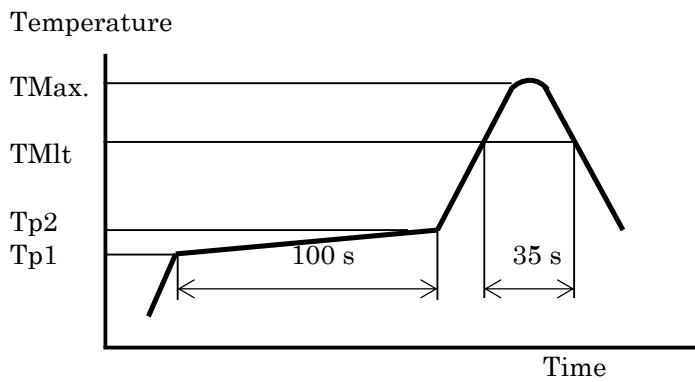
Heating Temperature  
TMI<sub>lt</sub> = +220 ° C

Peak Temperature  
TMax = +260 ° C

## Point of measuring In case of Solderability

In case of Solderability  
Terminal.

In case of Resistance to soldering heat Surface.



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