# MHz Range Crystal unit

FA-238

Product name FA-238 20.000000 MHz 12.5 +30.0-30.0 Product Number / Ordering code Q22FA23800322xx

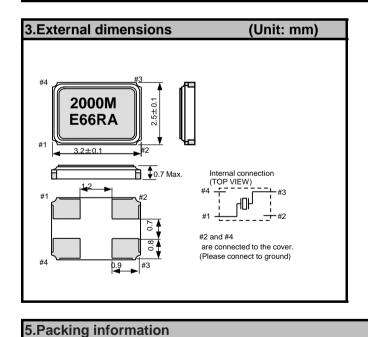
Please refer to the 5.Packing information about xx (last 2 digits)

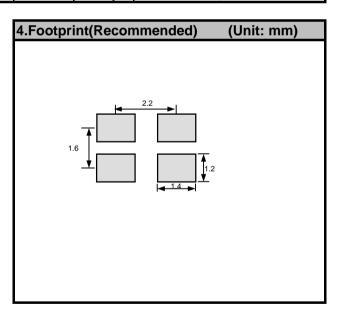
Pb free / Complies with EU RoHS directive

Reference weight Typ. 16 mg

1.Absolute maximum ratings						
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions / Remarks
Storage temperature	T_stg	-40	-	+125	°C	Storage as single product
Operating temperature	T_use	-40	-	+105	оС	

2.Specifications(characteristics)						
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions / Remarks
Nominal frequency	f_nom	_	20.000000	_	MHz	Fundamental
Frequency tolerance	f_tol	-30	-	+30	x 10- <sup>6</sup>	@+25°C
Frequency Stability over temperature	f_tem	-30	-	+30	x 10 <sup>-6</sup>	-20°C to +70°C
Operating temperature	T_use	-20	-	+70	٥C	
Level of drive	DL	10	100	200	μW	
Load capacitance	CL	_	12.5	=	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 <sup>-6</sup> /yea	@+25°C, First year

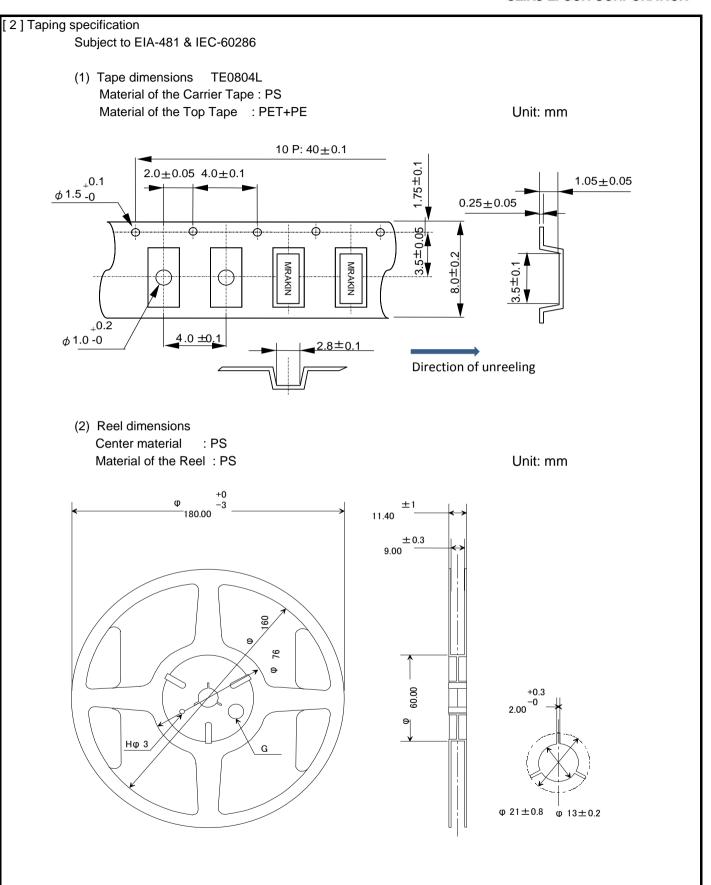




[ 1 ]Product number last 2 digits code (xx) description					The recommended code is "17"		
		Q22FA23	800322xx				
		Code	Condition	Code	Condition		
		01	Any Q'ty vinyl bag(Tape cut)	14	1000pcs / Reel		
		11	Any O'ty / Reel	15	2000pcs / Reel		

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

### SEIKO EPSON CORPORATION



## 6.Reflow profile

Reflow condition

Pre Heating Temperature  $Tp1 \sim Tp2 = +170 \circ C$ Heating Temperature

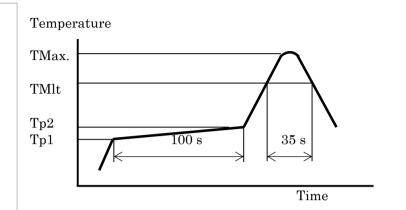
TMlt = +220 ° C

Peek Temperature

TMax. = +260 ° C

Point of measuring
In case of Solderability
Terminal.

In case of Resistance to soldering heat Surface.



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