

MHz Range Crystal unit FA-238V

SEIKO EPSON CORPORATION

Product name FA-238V 12.000000 MHz 12.0 +20.0-20.0

Product Number / Ordering code Q22FA23V00529xx

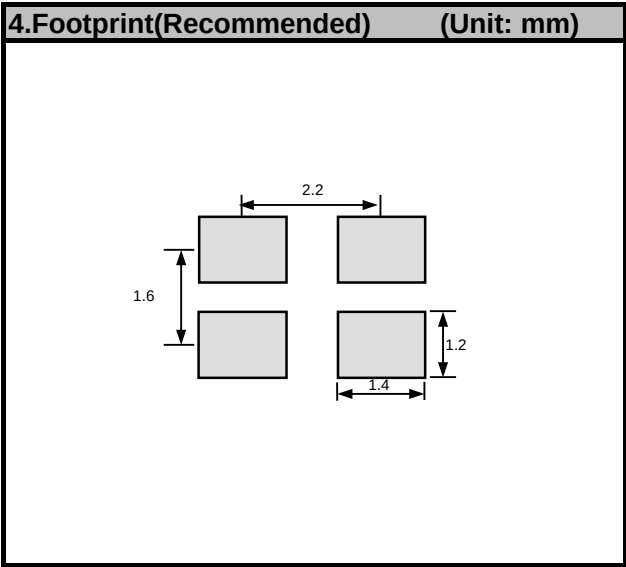
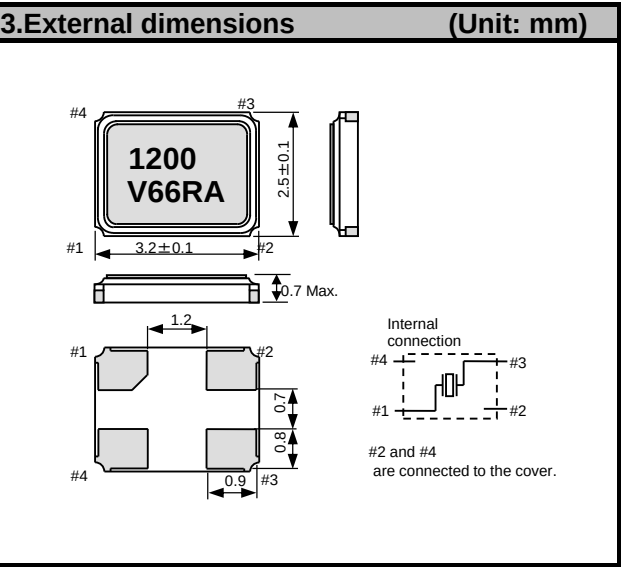
Please refer to the 5.Packing information about xx (last 2 digits)

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	-	12.000000	-	MHz	Fundamental
Frequency tolerance	f_tol	-20	-	+20	x 10 ⁻⁶	@+25°C
Frequency Stability over temperature	f_tem	-20	-	+20	x 10 ⁻⁶	-40°C to +85°C
Operating temperature	T_use	-40	-	+85	°C	
Level of drive	DL	10	100	200	μW	
Load capacitance	CL	-	12	-	pF	
Motional resistance (ESR)	R1	-	-	100	Ω	
Motional capacitance	C1	-	2.01	-	fF	
Motional inductance	L1	-	87.68	-	mH	
Shunt capacitance	C0	-	0.96	-	pF	
Frequency aging	f_age	-5	—	+5	x10 ⁻⁶ /yea	@+25°C, First year



5.Packing information

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

The recommended code is "17"

Q22FA23V00529xx

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

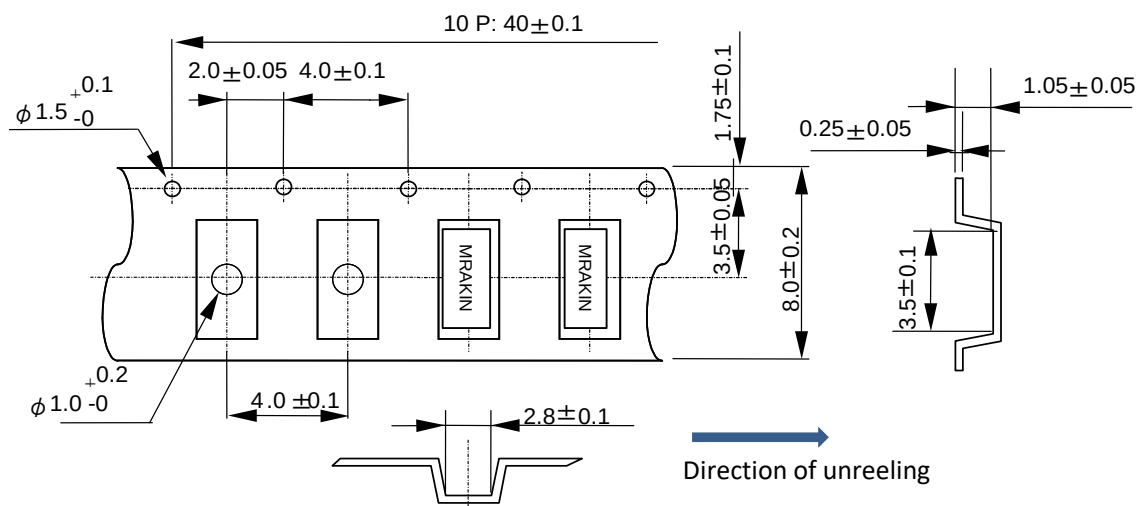
Subject to EIA-481 & IEC-60286

(1) Tape dimensions TE0804L

Material of the Carrier Tape : PS

Material of the Top Tape : PET+PE

Unit: mm

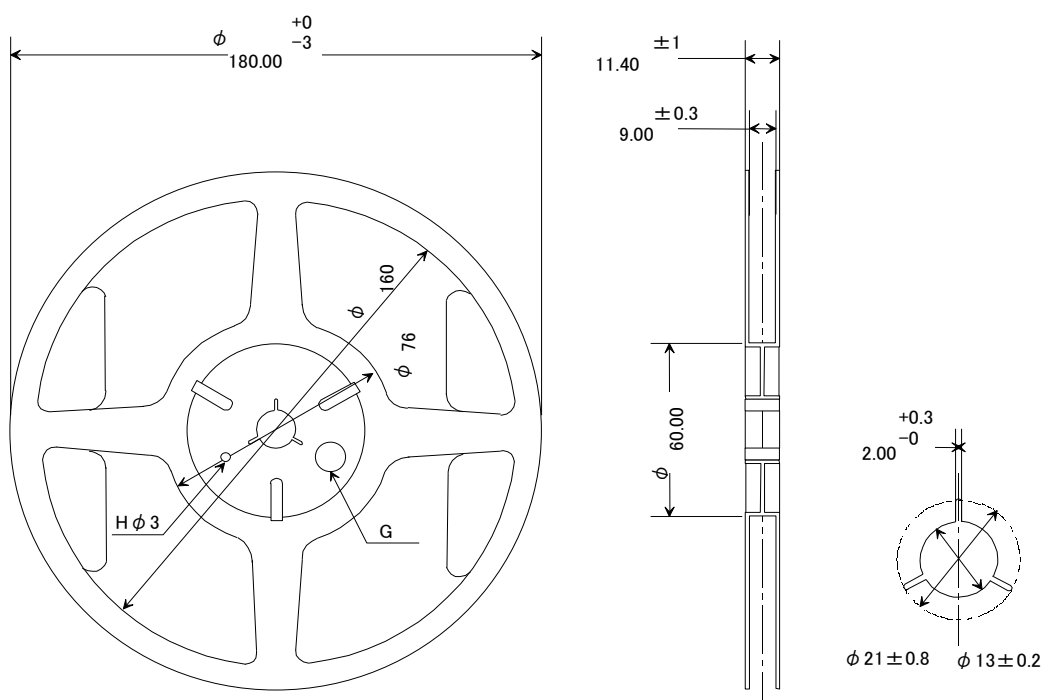


(2) Reel dimensions

Center material : PS

Material of the Reel : PS

Unit: mm



6. Reflow profile

Reflow condition

Pre Heating Temperature

$T_{p1} \sim T_{p2} = +170^{\circ} \text{C}$

Heating Temperature

$T_{Mlt} = +220^{\circ} \text{C}$

Peak Temperature

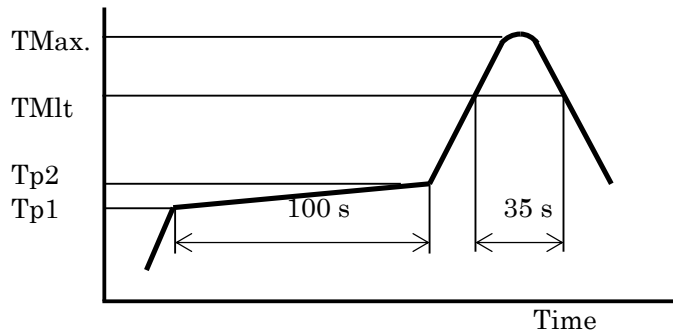
$T_{Max.} = +260^{\circ} \text{C}$

Point of measuring

In case of Solderability
Terminal.

In case of Resistance to soldering heat
Surface.

Temperature



7. Notice

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