# kHz Range Crystal unit

## MC-146

## SEIKO EPSON CORPORATION

Product name Product Number / Ordering code

#### MC-146 32.768000 kHz 12.5 +20.0-20.0 Q13MC14610002xx

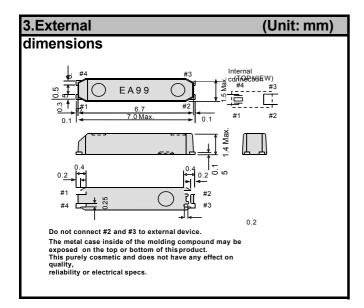
Please refer to the 5.Packing information about xx (last 2 digits)

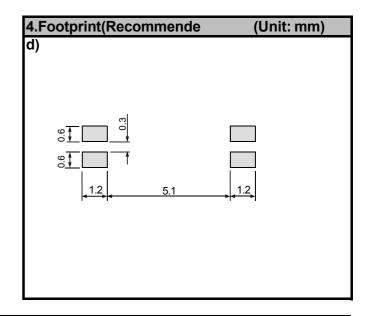
Complies with EU RoHS

directive Reference weight Typ.

1.Absolute maximum ratings						
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions / Remarks
Storage temperature	T_stg	-55	-	125	°C	Storage as single product
Maximum drive level	GL	-	-	1.0	μW	

2.Specificatoins(characteristics)						
Parameter	Symbol	Min.	Тур.	Max.	Unit	Conditions / Remarks
Nominal frequency	f_nom	-	32.768	-	kHz	
Operating temperature	T_use	-40	-	85	°C	
Level of drive	DL	-	-	1.0	μW	
Frequency tolerance	f_tol	-20.0	-	+20.0	x 10⁻6	+25°C DL=0.1µW
Turnover temperature	Ti	20	25	30	°C	
Parabolic coefficient	В	-	-	-0.04	x 10 <sup>-6</sup> /°C <sup>2</sup>	
Load capacitance	CL	-	12.5	-	pF	
Motional resistance (ESR)	R1	-	45	65	kΩ	
Motional capacitance	C1	-	1.9	-	fF	
Shunt capacitance	C0	-	0.8	-	pF	
Motional inductance	L1	-	11.7	-	kH	
Frequency aging	f_age	-3	-	3	x10 <sup>-6</sup> /yea	@+25°C, First year





The recommended code is "0X"

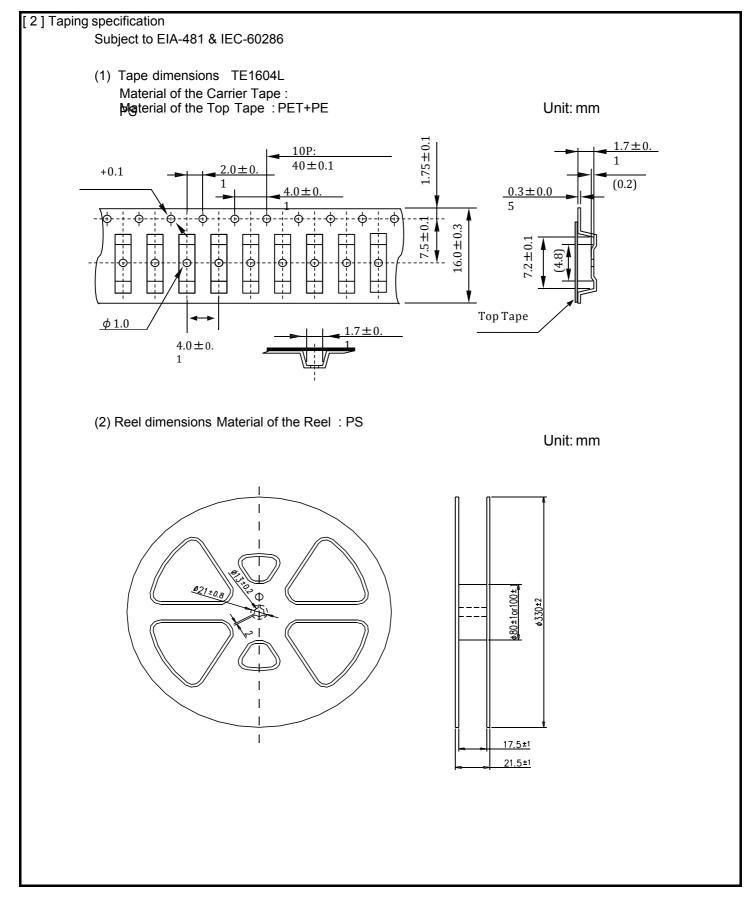
#### 5.Packing information

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

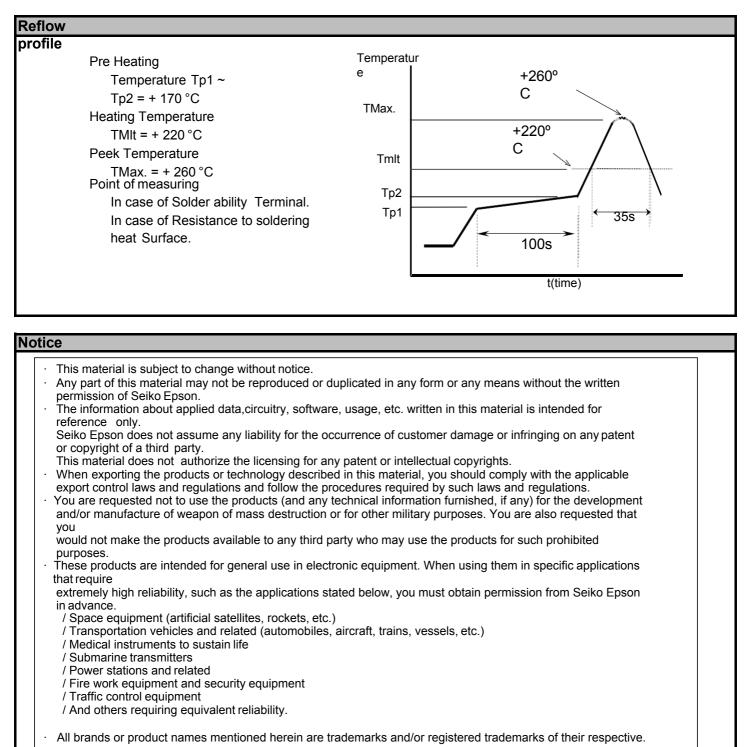
Q13MC14610002xx

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	0X	9000pcs / Reel

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