MHz Range Crystal unit   FA-128

Product name   FA-128   24.000000 MHz 6.0 +30.0-30.0
Product Number / Ordering code   Q22FA12800125xx
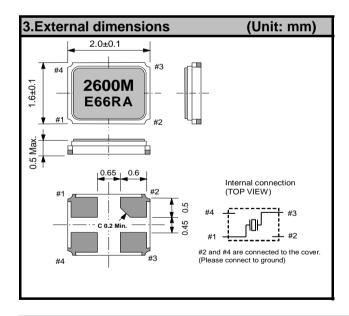
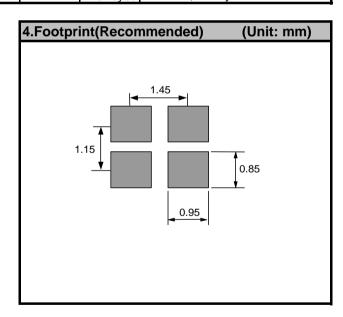Please refer to the 5.Packing information about xx (last 2 digits)

Pb free / Complies with EU RoHS directive
Reference weight Typ. 7 mg

1.Absolute maximum ratings

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

2.Specifications(characteristics)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions / Remarks
Nominal frequency	f_nom	—	24.000000	—	MHz	Fundamental
Frequency tolerance	f_tol	-30	-	+30	$\times 10^{-6}$	@+25ºC
Frequency Stability over temperature	f_tem	-30	-	+30	$\times 10^{-6}$	-20ºC to +75ºC
Operating temperature	T_use	-20	-	+75	ºC	
Level of drive	DL	10	-	100	µW	
Load capacitance	CL	—	6	—	pF	
Motional resistance (ESR)	R1	-	-	80	Ω	
Motional capacitance	C1	-	1.94	-	fF	
Motional inductance	L1	-	22.63	-	mH	
Shunt capacitance	C0	-	0.60	-	pF	
Frequency aging	f_age	-5	—	+5	$\times 10^{-6}$ /yea	@+25ºC, First year

3.External dimensions   (Unit: mm)

2600M
E66RA

Internal connection
(TOP VIEW)

C 0.2 Min.

#2 and #4 are connected to the cover.
(Please connect to ground)

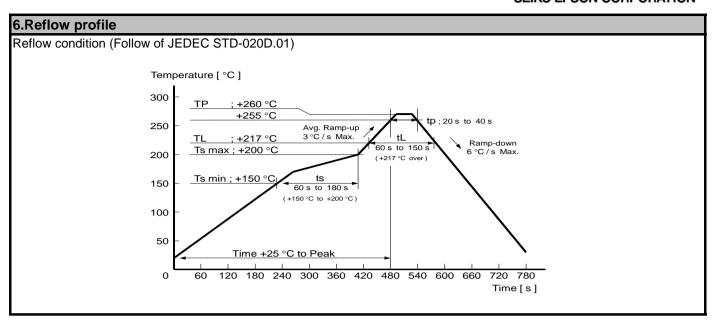## 4.Footprint(Recommended)   (Unit: mm)

5.Packing information

[1]Product number last 2 digits code (xx) description   The recommended code is "18"

Q22FA12800125xx

Code	Condition	Code	Condition
01	Any Q'ty vinyl bag(Tape cut)	00	3000pcs / Reel
11	Any Q'ty / Reel	18	5000pcs / Reel
12	250pcs / Reel		
14	1000pcs / 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

$10P : 40 \pm 0.15$

2.0 ± 0.1 4.0 ± 0.1

$\phi 1.5 \begin{smallmatrix} +0.1 \\ -0 \end{smallmatrix}$

0.7 ± 0.1

0.25 ± 0.05

1.75 ± 0.1

3.5 ± 0.05

8.0 ± 0.2

2.2 ± 0.1

MRAKING

MRAKING

$\phi 0.5 \pm 0.05$

4.0 ± 0.1

1.8 ± 0.1

Direction of unreeling

(2) Reel dimensions
Center material : PS
Material of the Reel : PS

Unit: mm

$\phi 180.00 \begin{smallmatrix} +0 \\ -3 \end{smallmatrix}$

11.40 ± 1

9.00 ± 0.3

$\phi 160$

$\phi 76$

$\phi 60.00$

$2.00 \begin{smallmatrix} +0.3 \\ -0 \end{smallmatrix}$

$H\phi 3$

G

$\phi 21 \pm 0.8$ $\phi 13 \pm 0.2$

6.Reflow profile

Reflow condition (Follow of JEDEC STD-020D.01)

Temperature [°C]

TP ; +260 °C
+255 °C
TL ; +217 °C
Ts max ; +200 °C
Ts min ; +150 °C

Avg. Ramp-up
3 °C / s Max.

tp ; 20 s to 40 s

Ramp-down
6 °C / s Max.

tL
60 s to 150 s
(+217 °C over)

ts
60 s to 180 s
(+150 °C to +200 °C)

Time +25 °C to Peak

300 250 200 150 100 50

0   60   120 180 240 300 360 420 480 540 600 660 720 780

Time [s]

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