

MQ

[7.0 * 5.0 * 1.2 mm]

Surface Mount Crystals

Fund.

3rd O.T.

Min.

6MHz

Max.

125MHz

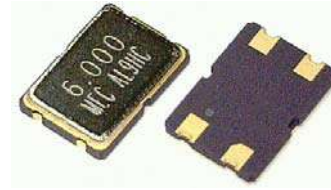


RoHS Compliance

Features

Specifications

- 1.2 mm height. Ideal for space-constrained applications such as PCMCIA
- A ceramic package with a seam sealed kovar lid.
- The whole package can be grounded via the top metal lid and the two bottom pads .



General Specifications

Item / Type	MQ series (7.0 * 5.0 * 1.2 mm)
Frequency Range & Crystal Cut	6.000 ~ 50.000 MHz , AT-cut , Fundamental Mode (see Table 1) 30.000 ~ 125.000 MHz , AT-cut , 3rd overtone (see Table 1)
Load Capacitance	Series or Parallel (8 to 32 pF) resonance
Drive Level	10μ W typica (100μ W max.)
Frequency Tolerance	± 5 ppm , ± 10 ppm , ± 20 ppm or ± 30 ppm at 25°C
Frequency Stability	See Table 2
Aging	ΔF / F : ±3 ppm / year (max.)
Storage Temperature Range	- 50°C to 105°C

Table 1

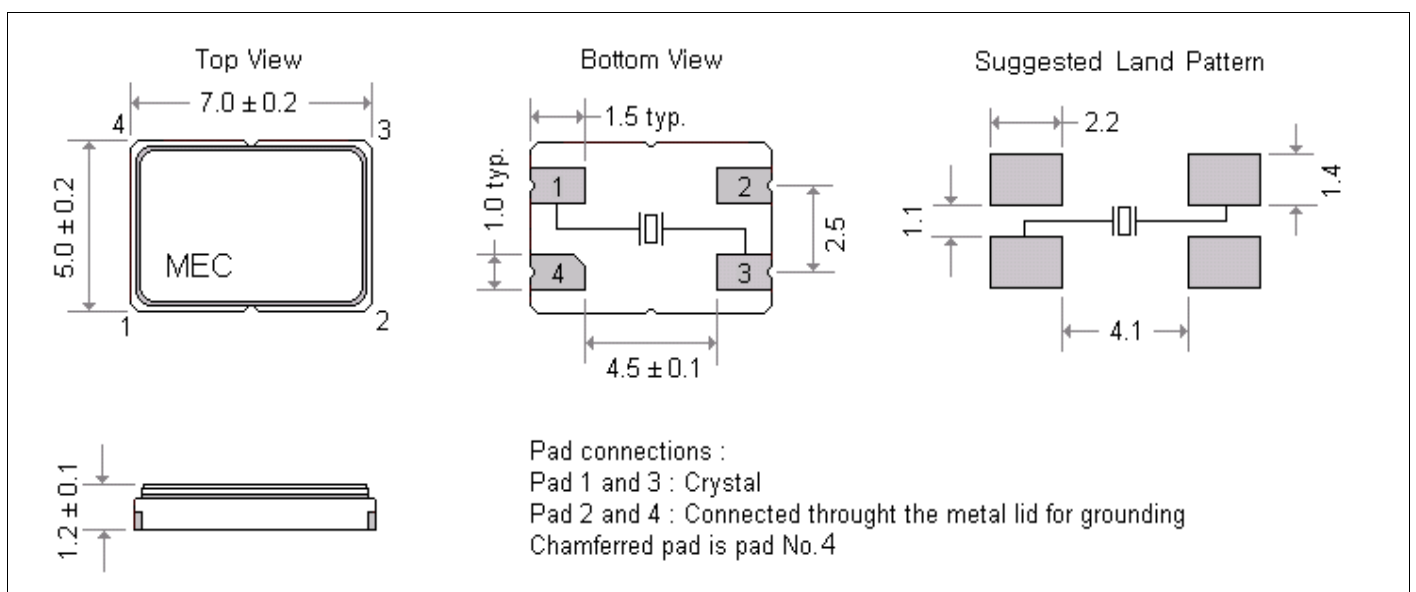
ESR (Equivalent Series Resistance)					
Freq.(MHz)	Osc. Mode	E.S.R.	Freq.(MHz)	Osc. Mode	E.S.R.
6.0 ~ 8.0	AT , Fund.	80 Ω	30.0~ 40.0	AT , 3rd	100 Ω
8.1 ~ 11.0	AT , Fund.	60 Ω	40.1~ 50.0	AT , 3rd	80 Ω
11.1~ 14.0	AT , Fund.	50 Ω	50.1~125.0	AT , 3rd	90 Ω
14.1~ 50.0	AT , Fund.	40 Ω			

Table 2

Frequency stability Vs Operating temperature range							
Stability code	Temp. (°C) \ ppm	± 5	± 10	± 15	± 20	± 25	± 30
X	-10 to 60°C	○	○	○	○	○	○
Y	-20 to 70°C	▲	○	○	○	○	○
I	-40 to 85°C			○	○	○	○

○ : available ; ▲ : contact Mercury

Outline Dimensions (Unit : mm)

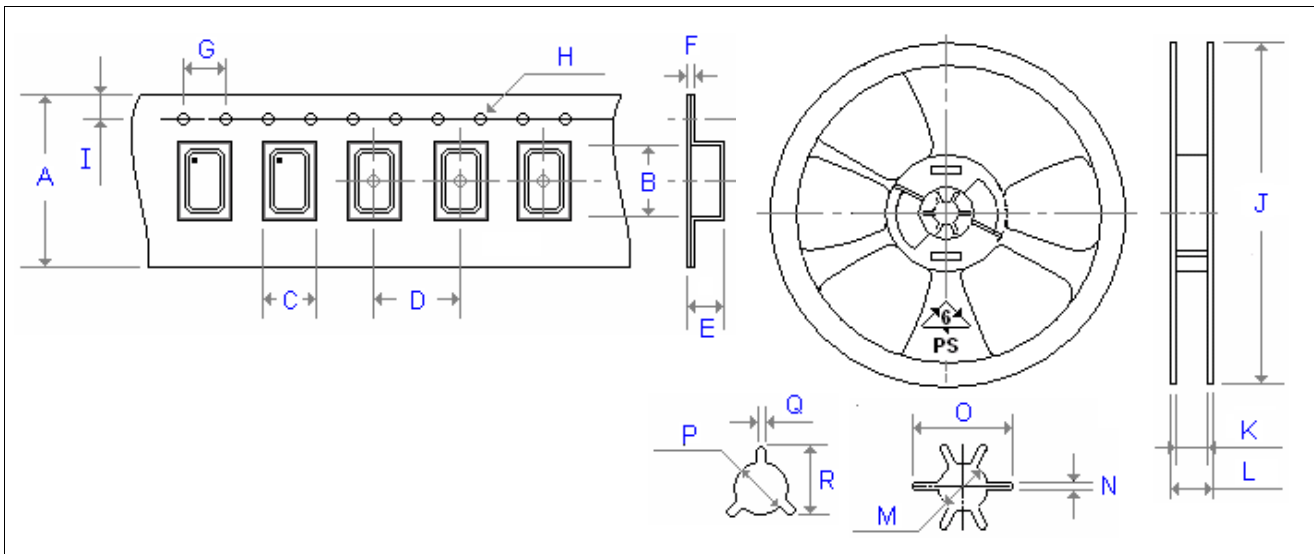


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Emboss Taping and Reel Specifications

[Crystal Units]

[M . C . F . Units]



Carrier Type Dimensions (unit : mm)

	A	B	C	D	E	F	G	H	I	pcs / reel
X22	8	2.7	2.3	4.0	1.2	0.3	4.0	Ø1.5	1.7	3000
X32	8 or 12	3.3	2.7	4.0	1.4	0.3	4.0	Ø1.5	1.7	3000
X42	12	4.3	2.7	8.0	1.3	0.3	4.0	Ø1.5	1.7	1000
MJ	16	5.4	3.6	8.0	1.6	0.3	4.0	Ø1.5	1.8	1000
MF	16	6.3	3.8	8.0	2.0	0.4	4.0	Ø1.5	1.7	1000
MQ	16	8.0	5.5	8.0	2.0	0.3	4.0	Ø1.4	1.8	1000
M49	24	14.0	5.6	8.0	4.5	0.4	4.0	Ø1.4	1.8	1000
ML49	24	14.0	5.6	8.0	3.7	0.4	4.0	Ø1.4	1.7	1000
MP4	24	13.0	5.6	8.0	5.5	0.5	4.0	Ø1.45	1.7	1000
MP5	24	13.0	5.6	8.0	5.5	0.5	4.0	Ø1.45	1.7	1000

Reel Dimensions (unit : mm)

	J	K	L	M	N	O	P	Q	R	pcs / reel
X22	180	11.5	8.5	13	2.2	22	-	-	-	3000
X32	180	18.5	12.5	13	2.2	22	-	-	-	3000
X42	180	18.5	12.5	13	2.2	22	-	-	-	1000
MJ	180	19.6	16.5	-	-	-	13.5	2.5	19.5	1000
MF	180	19.6	16.5	-	-	-	13.5	2.5	19.5	1000
MQ	180	19.6	16.5	-	-	-	13.5	2.5	19.5	1000
M49	330	30.0	25.0	-	-	-	13.5	2.5	19.5	1000
ML49	330	30.0	25.0	-	-	-	13.5	2.5	19.5	1000
MP4	330	30.0	25.0	-	-	-	13.5	2.5	19.5	1000
MP5	330	30.0	25.0	-	-	-	13.5	2.5	19.5	1000

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Mercury Green Program

Common points for all crystal products

Mercury Green Program

Mercury's Green Program is implemented in accordance with the European Union's directive on "Restriction of the use of certain Hazardous Substance(RoHS)". Mercury's Lead-Free and RoHS Compliant products follow the EU directive (2002/95/EC) and include test reports issued by SGS Group on hazardous substances levels for the six substances: lead(pb), cadmium(cd), mercury (Hg), hexavalent chromium(Cr+6), polybrominated biphenyl(PBB), and polybrominated diphenyl ether (PBDE).

- Crystal Green Program-Crystals
- Crystal Oscillator Green Program-XO、VCXO、VCTCXO、TCXO、OCXO
- Crystal Filter Green Program-Filters



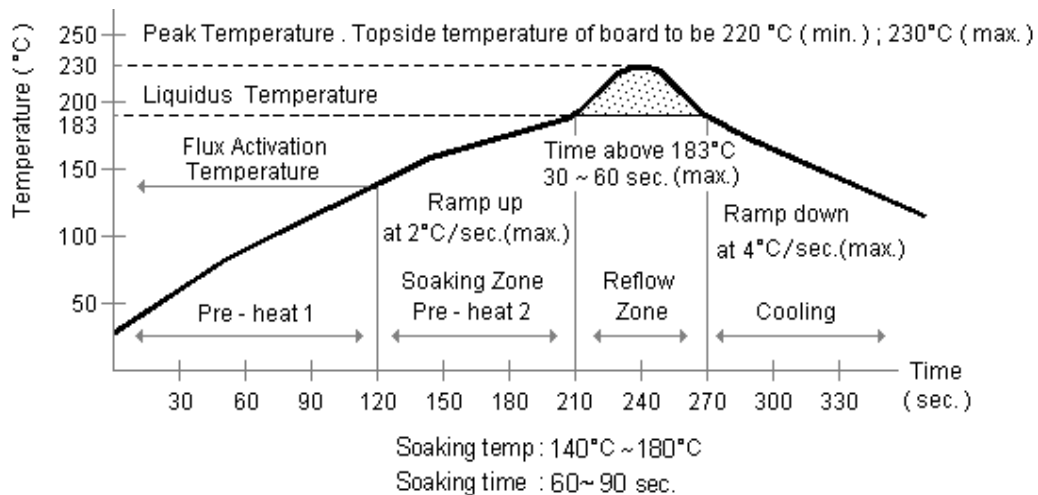
**RoHS Compliant Product
by Mercury**

Soldering conditions

- (1) Lead wires should be soldered within 3 seconds with the iron heated to a temperature of 380°C (max.).
- (2) In solder-dip mounting , it should be within 10 seconds with a temperature of 260°C (max.).
Heating the whole crystal unit in the dip mounting process should be avoided .
Upright mounting is recommended (to prevent applying heat directly to the body of a crystal unit) .
- (3) Heating the whole body of the crystal unit , for example , in a reflow oven may affect the performance.
The holder is small and is sealed by solder material by press sealing , so that such a reflow process is not allowed to be applied .

Suggested Reflow Profile [SMD type products]

(1) Low temperature solder reflow : For Sn62 , Pb36 , Ag2 , Sn63 , Pb37 alloy .



(2) High temperature solder reflow : For Sn96.5% , Ag3.5% , Cu0.5% alloy .

