

actual size

# Quartz Crystal · MQ1 (UM-1)

- Pin Type Crystal, 7.9 x 3.3 mm
- high frequency stability
- wave soldering temperature: 260 °C max.
- package height 8.0 mm max.



RoHS compliant



Pb free



REACH compliant



Conflict mineral free

## GENERAL DATA

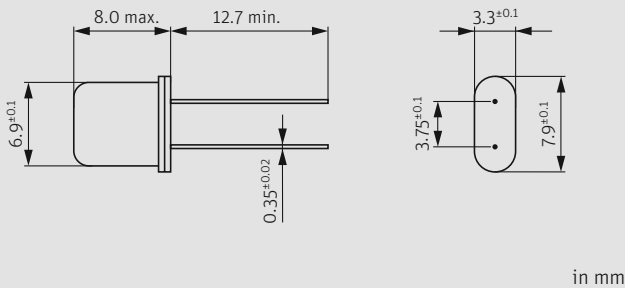
TYPE	MQ1 (UM-1)
frequency range	0.9216 / 1.0 MHz* (fund. SL-cut) 4.00 ~ 40.0 MHz (fund. AT-cut) 20.0 ~ 105.0 MHz (3rd OT AT-cut) 50.0 ~ 175.0 MHz (5th OT AT-cut) 70.0 ~ 250.0 MHz (7th OT AT-cut)
frequency tolerance at 25 °C	±5 ppm ~ ±30 ppm
load capacitance $C_L$	8 pF ~ 32 pF or series
shunt capacitance $C_0$	< 7 pF
storage temperature	-55 °C ~ +125 °C
drive level max.	500 µW (100 µW recommended)
aging	< ±3 ppm first year

\* other frequencies upon request

## ESR (SERIES RESISTANCE RS)

frequency in MHz	vibration mode	ESR max. in Ω	ESR typ. in Ω
0.92 / 1.000	fund. - SL	3000	800
4.00 ~ 4.9999	fund. - AT	150	80
5.00 ~ 9.9999	fund. - AT	80	40
10.0 ~ 14.999	fund. - AT	40	20
15.0 ~ 40.000	fund. - AT	30	15
20.0 ~ 49.999	3rd OT - AT	80	40
50.0 ~ 105.00	3rd OT - AT	60	30
50.0 ~ 175.00	5th OT - AT	150	80
70.0 ~ 119.99	7th OT - AT	200	150
120.0 ~ 250.00	7th OT - AT	180	120

## DIMENSIONS



## TABLE 1: FREQUENCY STABILITY VS. TEMPERATURE

		±3 ppm	±5 ppm	±10 ppm	±30 ppm	±50 ppm	±100 ppm
0 °C ~ +60 °C		○	○	○			
-20 °C ~ +70 °C	STD.		○	○	●		
-40 °C ~ +85 °C	T1			○	○	●	
-40 °C ~ +90 °C	T4				○	○	○
-40 °C ~ +105 °C	T2				○	○	○
-40 °C ~ +125 °C	T3					○	○
-10 °C ~ +60 °C	SL						○
-20 °C ~ +70 °C	SL						○

● standard ○ available

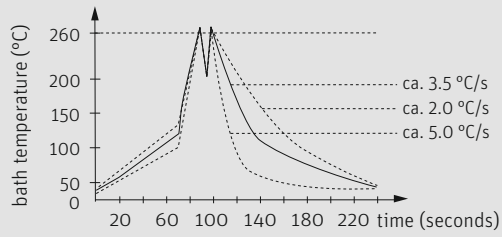
## ORDER INFORMATION

Q	frequency	type	load capacitance in pF	tolerance at 25 °C	stability vs. temp. range	option
Quartz	0.9216 ~ 250.0 MHz	MQ1	8 pF ~ 32 pF S for series	±5 ppm ~ ±30 ppm ±50 ppm for SL-cut ±30 ppm std.	see table 1 ±100 ppm for SL-cut	blank = -20 °C ~ +70 °C T1 = -40 °C ~ +85 °C T2 = -40 °C ~ +105 °C T3 = -40 °C ~ +125 °C T4 = -40 °C ~ +90 °C FU = for fundamental frequencies ≥ 20 MHz 30T = 3rd overtone 50T = 5th overtone 70T = 7th overtone MP = middle pin LL = lead length in mm PT = plastic tray

Example: Q 30.0-MQ1-30-30/50-FU (Suffix LF = RoHS compliant / Pb free pins)

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## WAVE SOLDERING PROFILE



## MARKING

frequency  
company code / date code