

# Quartz Crystals

<b>X42</b> 4.0 * 2.5 * 0.7 mm	<b>MJ</b> 5.0 * 3.2 * 0.9 mm	<b>MF</b> 6.0 * 3.5 * 1.0 mm	<b>MQ</b> 7.0 * 5.0 * 1.0 mm	<b>Surface Mount</b>	<b>X42, MJ, MF, MQ</b> <b>Fundamental</b>	<b>MJ, MQ</b> <b>3rd Overtone</b>
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## Features

### Specifications

- Exhibits extremely low aging with a high shock and vibration resistance
- The entire package can be grounded via the top metal lid and the two bottom pads
- This low 0.6mm package height is ideal for height constrained applications



## General Specifications

Item / Type	X42 series	MJ series	MF series	MQ series
Package Dimensions	(4.0 * 2.5 * 0.8 mm)	(5.0 * 3.2 * 1.0 mm)	(6.0 * 3.5 * 1.1 mm)	(7.0 * 5.0 * 1.1 mm)
Frequency Range	12.0 ~ 54.0 MHz (Fund.)	8.0 ~ 52.0 MHz (Fund.)	8.0 ~ 50.0 MHz (Fund.)	6.0 ~ 50.0 MHz (Fund.)
	40.0 ~ 200.0 MHz (3rd)	40.0 ~ 125.0 MHz (3rd)	40.0 ~ 125.0 MHz (3rd)	40.0 ~ 200.0 MHz (3rd)
Crystal Cut	AT - Cut ; 3rd overtone			
Load Capacitance	Series or Parallel (8 to 32 pF) resonance			
Drive Level	10 μW typical (100μW max.)			
Frequency Tolerance	± 10 ppm, ± 20 ppm or ± 30 ppm (max.) at 25°C			
Aging	ΔF / F : ± 3 ppm / year (max.)			
Storage Temp. Range	- 50°C to 105°C			

## ESR (Equivalent Series Resistance)

X42			MJ			MF			MQ		
Freq. (MHz)	E.S.R.	Mode	Freq. (MHz)	E.S.R.	Mode	Freq. (MHz)	E.S.R.	Mode	Freq. (MHz)	E.S.R.	Mode
12.0 ~ 14.9 MHz	80 Ω	Fund.	8.0 ~ 9.9 MHz	150 Ω	Fund.	8.0 ~ 11.9	80 Ω	Fund.	6.0 ~ 8.0	80 Ω	Fund.
15.0 ~ 29.9 MHz	50 Ω		10.0 ~ 14.9 MHz	80 Ω		12.0 ~ 15.9	60 Ω		8.1 ~ 11.0	60 Ω	
30.0 ~ 54.0 MHz	40 Ω		15.0 ~ 19.9 MHz	50 Ω		16.0 ~ 50.0	40 Ω		11.1 ~ 14.0	50 Ω	
			20.0 ~ 52.0 MHz	40 Ω					14.1 ~ 50.0	40 Ω	
			40.0 ~ 200.0 MHz	80 Ω	3rd				40.1 ~ 50.0	80 Ω	3rd
									50.1 ~ 200.0	90 Ω	

## Frequency stability Vs Operating temperature range

Stability code	Temp. (°C) \ ppm	Frequency stability vs Operating temperature range					
		± 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)

X42				MJ			
<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>		<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>	
<b>MF</b>				<b>MQ</b>			
<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>		<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>	