

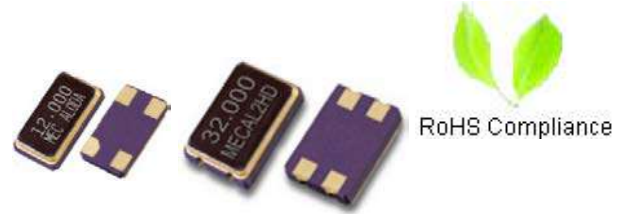
# Quartz Crystals

<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>
----------------------------------	---------------------------------	---------------------------------	---------------------------------	----------------------	--	--------------------------------------

## 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 $\mu$ W typical ( 100 $\mu$ W max. )			
Frequency Tolerance	$\pm$ 10 ppm , $\pm$ 20 ppm or $\pm$ 30 ppm ( max. ) at 25°C			
Aging	$\Delta$ F / F : $\pm$ 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 $\Omega$	Fund.	8.0 ~ 9.9 MHz	150 $\Omega$	Fund.	8.0 ~ 11.9	80 $\Omega$	Fund.	6.0 ~ 8.0	80 $\Omega$	Fund.
15.0 ~ 29.9 MHz	50 $\Omega$		10.0 ~ 14.9 MHz	80 $\Omega$		12.0 ~ 15.9	60 $\Omega$		8.1 ~ 11.0	60 $\Omega$	
30.0 ~ 54.0 MHz	40 $\Omega$		15.0 ~ 19.9 MHz	50 $\Omega$		16.0 ~ 50.0	40 $\Omega$		11.1 ~ 14.0	50 $\Omega$	
			20.0 ~ 52.0 MHz	40 $\Omega$					14.1 ~ 50.0	40 $\Omega$	
			40.0 ~ 200.0 MHz	80 $\Omega$	3rd				40.1 ~ 50.0	80 $\Omega$	3rd
									50.1 ~ 200.0	90 $\Omega$	

## Frequency stability Vs Operating temperature range

Stability code	Temp. (°C) \ ppm	Frequency stability vs Operating temperature range					
		$\pm$ 5	$\pm$ 10	$\pm$ 15	$\pm$ 20	$\pm$ 25	$\pm$ 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>	
Pad connections : Pad 1, 3: Crystal ; Pad 2, 4: Ground Chamfered pad is pad No.2				Pad connections : Pad 1, 3: Crystal ; Pad 2, 4: Ground Chamfered pad is pad No.2			
MF				MQ			
<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>		<b>Top View</b>	<b>Bottom View</b>	<b>Suggested Layout</b>	
Pad connections : Pad 1, 3: Crystal ; Pad 2, 4: Ground Chamfered pad is pad No.3				Pad connections : Pad 1, 3: Crystal ; Pad 2, 4: Ground Chamfered pad is pad No.4			