

- Frequency range 12MHz to 60MHz, fundamental mode
- Ultra-miniature package 2.5 x 2.0 x 0.6mm
- Packaged in standard EIA tape and reel
- Ideal for PDAs, hand-held GPS, PCMCIA etc.



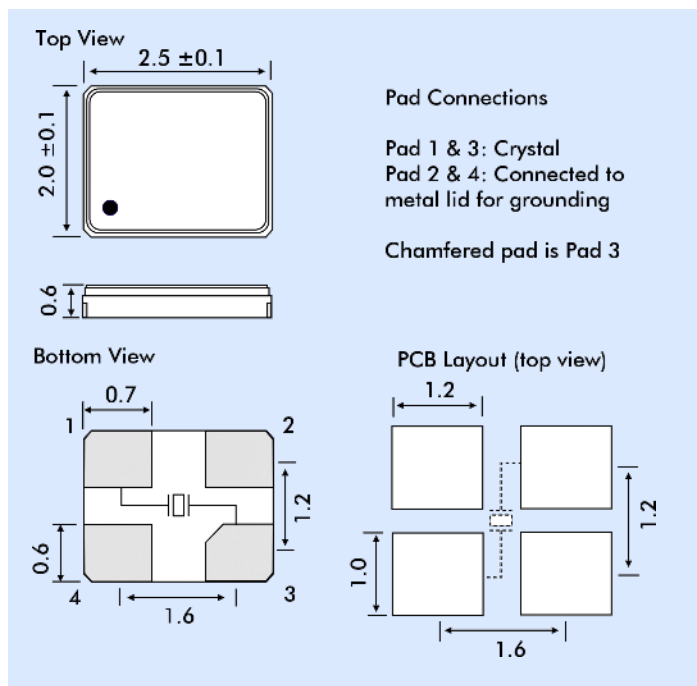
### DESCRIPTION

X22 crystals are ultra-miniature AT-cut crystals covering the frequency range 12MHz to 60MHz in fundamental mode. Their small size (2.5 x 2.0mm) and low mass makes these crystals ideal for miniaturized hand-held equipment and similar high-density applications.

### SPECIFICATION

Frequency Range	AT-Cut Fundamental: 12.0MHz to 60.0MHz
Calibration Tolerance at 25°C:	±5, ±10ppm, ±20ppm, ±30ppm
Frequency stability	
-10° to +60°C	from ±5ppm
-20° to +70°C	from ±5ppm
-40° to +85°C	from ±15ppm
Storage Temperature:	-50~+105°C
Equivalent Series Resistance:	See table
Shunt Capacitance (C0):	2pF to 4pF typical, 5pF maximum
Load Capacitance (CL):	Series or from 8pF to 32pF
Ageing:	<±3ppm per year at +25°C
Drive level:	10 μW typ., 100 μW max.
Reflow Soldering:	10s maximum at 260°C twice or 180s at 230°C, once.
Packaging:	EIA tape and reel

### OUTLINE & DIMENSIONS



\* Note: These parts may be supplied with the chamfered pad in different positions. However, the crystal connection is always as shown above.

### EQUIVALENT SERIES RESISTANCE

Frequency Range MHz	ESR Ω Max.
12.0~15.999	300
16.0~29.999	100
30.0~60.000	70

### PART NUMBER GENERATION

Part numbers for X22 crystals are generated as follows:

