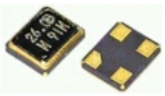
EUROQUARTZ

X21 CRYSTALS

2.0 x 1.6 x 0.6mm SMD — 20.0MHz to 54.0MHz

- **Frequency range 20MHz to 54MHz, fundamental mode**
- **Ultra-miniature package 2.0 x 1.6 x 0.6mm**
- **Packaged in standard EIA tape and reel**
- **Exceptionally low ageing**
- **High shock and vibration resistance**
- **Ideal for PDAs, hand-held GPS, PCMCIA etc.**



DESCRIPTION

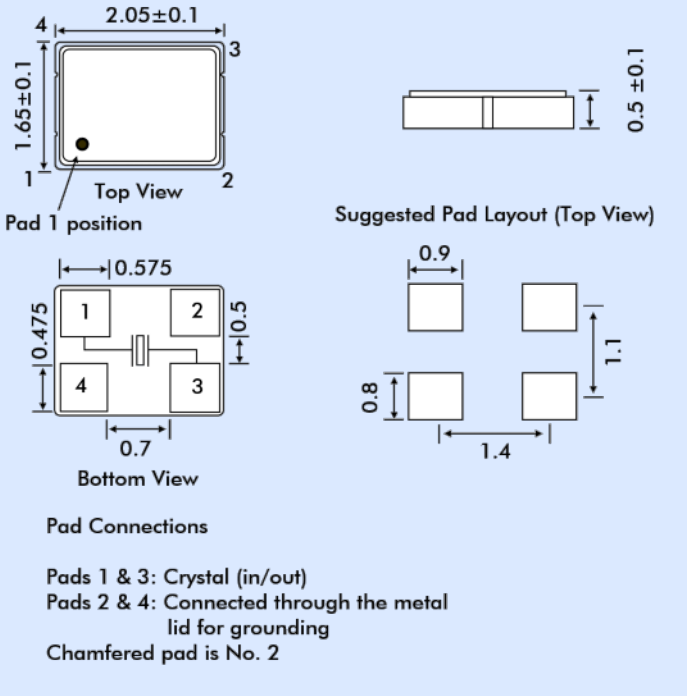
X21 crystals are ultra-miniature AT-cut crystals covering the frequency range 20MHz to 54MHz in fundamental mode. Their exceptionally small size (2.0 x 1.6mm) and low mass coupled with high shock and vibration resistance makes these crystals ideal for miniaturized handheld equipment and similar high-density applications.

SPECIFICATION

Frequency Range	
AT-Cut Fundamental:	20.0MHz to 54.0MHz
Calibration Tolerance at 25°C:	±10ppm, ±20ppm or ±30ppm
Frequency stability	
-10° to +60°C	from ±5ppm *(contact Euroquartz)*
-20° to +70°C	from ±10ppm
-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

Note: The entire crystal package may be grounded via the top metal lid and pads 2 and 4 on the underside of the unit.

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.
20.0~23.999	120
24.0~29.999	100
30.0~37.999	80
38.0~54.000	60

PART NUMBER GENERATION

Part numbers for X21 crystals are generated as follows:

Example: 20.000MHz X21/10/30/-10+60/12pF/80R

- Nominal Frequency
- Package
- Calibration tolerance at 25°C (±ppm)
- Temperature Stability over temp. range (±ppm)
- Operating Temp. Range (°C) *(Lower and upper limits)*
- Load Capacitance *(Either SR for series or CL in pF)*
- Equivalent Series Resistance *(Optional - use when special value is required)*

EUROQUARTZ LIMITED Blacknell Lane CREWKERNE Somerset UK TA18 7HE
Tel: +44 (0)1460 230000 Fax: +44 (0)1460 230001 info@euroquartz.co.uk www.euroquartz.co.uk