# **EURO** QUARTZ

# X42-W CRYSTALS WI-FI APPLICATIONS

# 4 x 2.5 x 0.7mm SMD

#### FEATURES

- Miniature package: 4.0 x 2.5 x 0.6mm
- Gold-plated ceramic base with metal seam-welded package
- Very low ageing
- Optimized for Wi-Fi applications
- High shock and vibration resistance

### DESCRIPTION

X42-W crystals are micro-miniature surface-mount mount crystals. The crystals have a gold plated ceramic base with a seam welded metal lid providing a stable crystal with very low ageing. The rugged construction ensures that this crystal has high shock and vibration resistance. The crystal has been optimized for WI-Fi applications: Bluetooth/ Bluetooth Low Energy (BLE), Bluetooth Smart, Zigbee, ISM, Wi-Fi / WLAN, LPWAN and others.

### SPECIFICATION

Operating Mode:AT-Cut FundamentalCalibration Tolerance at 25°C: $\pm 10$ ppmFrequency stability $\pm 10$ ppm $-20^{\circ}$ to $+70^{\circ}$ C $\pm 10$ ppm $-40^{\circ}$ to $+85^{\circ}$ C $\pm 15$ ppm $-40^{\circ}$ to $+105^{\circ}$ C $\pm 30$ ppmStorage Temperature: $-50^{\circ} \sim +105^{\circ}$ CEquivalent Series Resistance:See tableLoad Capacitance (CL):Series or from 8pF to 32pF (Customer specified CL)Ageing: $<\pm 3$ ppm per first year at $+25^{\circ}$ CDrive level: $10 \ \mu$ W typ, $100 \ \mu$ W max.Reflow Soldering: $10s \ maximum at 260^{\circ}$ C twice or $180s \ at 230^{\circ}$ C, once.Packaging: $12$ mm ElA tape and reel	Standard Frequencies*:	16.0, 19.2, 20.0, 24.0, 25.0, 26.0, 27.120, 30.0, 32.0, 37.40, 38.40, 40.0, 48.0, 52.0MHz
Frequency stability $-20^{\circ}$ to $+70^{\circ}$ C $\pm 10$ ppm $-40^{\circ}$ to $+85^{\circ}$ C $\pm 15$ ppm $-40^{\circ}$ to $+105^{\circ}$ C $\pm 30$ ppmStorage Temperature: $-50^{\circ} \sim +105^{\circ}$ CEquivalent Series Resistance:See tableLoad Capacitance (CL):Series or from 8pF to 32pF (Customer specified CL)Ageing: $<\pm 3$ ppm per first year at $+25^{\circ}$ CDrive level:10 $\mu$ W typ, 100 $\mu$ W max.Reflow Soldering:10s maximum at 260°C twice or 180s at 230°C, once.	Operating Mode:	AT-Cut Fundamental
$\begin{array}{cccc} -20^{\circ} \ \mbox{to} +70^{\circ}\mbox{C} & \pm 10\mbox{ppm} \\ -40^{\circ} \ \mbox{to} +85^{\circ}\mbox{C} & \pm 15\mbox{ppm} \\ -40^{\circ} \ \mbox{to} +105^{\circ}\mbox{C} & \pm 30\mbox{ppm} \\ \hline \mbox{Storage Temperature:} & -50^{\circ}\mbox{$\sim$} +105^{\circ}\mbox{C} \\ \hline \mbox{Equivalent Series Resistance:} & See \ table \\ \hline \mbox{Load Capacitance (CL):} & Series \ \mbox{or from 8pF to 32pF} \\ (Customer \ specified \ CL) \\ \hline \mbox{Ageing:} & <\pm 3\ \mbox{ppm per first year at} +25^{\circ}\mbox{C} \\ \hline \mbox{Drive level:} & 10\ \mu\mbox{W typ}, 100\ \mu\mbox{W max}. \\ \hline \mbox{Reflow Soldering:} & 10\ \mbox{maximum at} 260^{\circ}\mbox{C twice} \\ & \mbox{or 180s at} 230^{\circ}\mbox{C, once.} \\ \hline \end{array}$	Calibration Tolerance at 25°C:	±10ppm
-40° to +85°C ±15ppm   -40° to +105°C ±30ppm   Storage Temperature: -50°~+105°C   Equivalent Series Resistance: See table   Load Capacitance (CL): Series or from 8pF to 32pF (Customer specified CL)   Ageing: <±3 ppm per first year at +25°C	Frequency stability	
-40° to +105°C ±30ppm   Storage Temperature: -50°~+105°C   Equivalent Series Resistance: See table   Load Capacitance (CL): Series or from 8pF to 32pF (Customer specified CL)   Ageing: <±3 ppm per first year at +25°C	-20° to +70°C	±10ppm
Storage Temperature: -50°~+105°C   Equivalent Series Resistance: See table   Load Capacitance (CL): Series or from 8pF to 32pF (Customer specified CL)   Ageing: <±3 ppm per first year at +25°C	-40° to +85°C	±15ppm
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or 180s at 230°C, once.	Drive level:	10 μW typ,100 μW max.
Packaging: 12mm FIA tape and reel	Reflow Soldering:	
rackaging.	Packaging:	12mm EIA tape and reel

\*Note: Custom frequencies are available.

### **EQUIVALENT SERIES RESISTANCE (ESR)**

Frequency Range MHz	Crystal Cut/ Mode	ESR Ω Max.
16.0 ~ 27.12	AT Fund.	50
30.0 ~ 52.00	AT Fund.	40

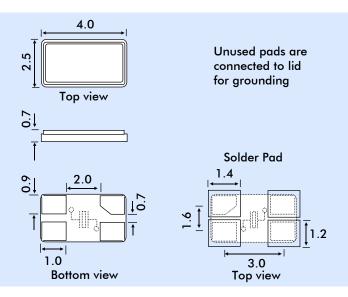
### ENVIRONMENTAL PERFORMANCE

Compliant
-55° to +105°C
85% RH, 85°C for 48 hours
Leak rate 2x10-8 ATM -cm³/s max.
MIL-STD-202F Method 208E
260°C for 10 sec (see diagram)
MIL-STD-202F Method 204,
35±5 mins, 50 to 2000Hz
MIL-STD-202F Method 213B, test
Condition E, 50g 11ms.





#### **OUTLINE & DIMENSIONS**



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

#### PART NUMBER GENERATION

(Either SR for series or CL in pF)

Part numbers for X42-W crystals are generated as follows:

Example:	16.00	0MHz	X42	-W-18	BpF
Nominal Frequ	ency 🔶	)			
Package size a WiFi o	nd ptimisatior	ריי ו			
Load Capacita	nce 📢				