Epson Enables Next Generation of Power Efficient IoT and Wearable Solutions with Launch of Industry Breakthrough Low-Power, Compact 32.768kHz Crystal

Tuesday 11 November, 2025

New FC1610BN crystal unit combines ultra-low ESR, stability, and miniature size to unlock smaller, smarter, and longer-lasting devices

Los Alamitos, CA – November 11, 2025
– Epson, a leading global supplier of high-performance components including quartz crystal-based inertial sensors and semiconductors, today announced the release of the FC1610BN 32.768 kHz crystal unit, the industry's ultra-low power, smallest ESR quartz crystal for next-generation wearable and IoT devices. Measuring just 1.6 × 1.0 × 0.5 mm, the new timing component addresses one of the toughest challenges in modern electronics: delivering accurate, stable timing in ever-shrinking devices without compromising power efficiency or reliability.

Crystals are indispensable for generating precise clock signals in microcontrollers, wireless interfaces, and sensors. Yet as devices get smaller and integrate more functionality, traditional crystals often struggle with higher ESR, increased power draw, longer startup times, and unstable oscillation which all shorten battery life and constrain design options. The FC1610BN crystal unit breaks this tradeoff with an exceptionally low equivalent series resistance (ESR) of ~45 k? at +25 °C (and ?70 k? across –40 °C to +105 °C), along with a ±20 ppm frequency tolerance.

Key features and benefits:

- Ultra-low power consumption; lower ESR means reduced drive levels, less current draw, and longer battery life.
- Faster, more reliable startup; for stable oscillation for Bluetooth® Low Energy (BLE), wireless links, and real-time system synchronization.
- Smaller, smarter designs; compact package enabling tighter board layouts, slimmer form factors, or larger batteries.
- Robust stability; qualified for a ±20 ppm frequency tolerance and ±3 ppm aging(first year), for dependable performance

These advantages make the FC1610BN crystal ideal for wearables (rings, bracelets, smart glasses, hearing aids), portable medical devices (heart rate and blood pressure monitors), and compact IoT equipment where space, stability, and ultra-low power matter most.

“With the FC1610BN, Epson is enabling the next wave of IoT and wearable innovation,” said Jonny Lee, Product Marketing Manager at Epson Microdevices. “Designers can now deliver devices that are smaller, smarter, and more responsive — without sacrificing reliability or battery life. By pushing the boundaries of ESR and power efficiency, we're giving engineers new freedom to reimagine what's possible in ultra-compact electronics.”

The FC1610BN crystal unit is available now in multiple load capacitance options (7 pF, 9 pF, 12.5 pF) to support diverse design requirements. Epson also provides 3D CAD models, footprints, IBIS data, and evaluation services to accelerate time-to-market for developers.

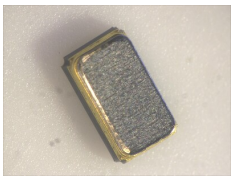
Epson's unique vertical integration, from manufacturing synthetic quartz crystals through advanced packaging, along with proprietary manufacturing innovations, enables the crystal's exceptionally-low ESR and stability across extended temperatures, underpinning the FC1610BN's performance.

By minimizing ESR, enhancing efficiency and reliability, and extending battery life, Epson's new crystal empowers engineers to deliver smaller, more capable products that delight end users and stand the test of time.

About Epson Microdevices - Precision. Performance. Proven.

Epson Microdevices is a leading global supplier of high-performance components, including semiconductors and quartz crystal-based inertial sensors and timing devices such as crystal units and oscillators. Epson Microdevices integrates Japanese manufacturing excellence with marketing, sales, and engineering expertise to deliver world-class products and services. A pioneer in the crystal device

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Precise Clock Signals :: Microcontrollers :: Wireless Interfaces :: Sensors :: ESR :: Battery Life :: IoT And Wearable Innovation ::

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market since the 1960s, Epson's in-house production of raw quartz and semiconductors drives innovation in quality, power savings, miniaturization, and performance. For more information, visit https://epson.com/microdevices.

About Epson

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