

PRESS RELEASE

RIVER ELETEC CORPORATION Unveils the World's Smallest AT-Cut Crystal Unit in Groundbreaking Development

- Introducing the World's Smallest Crystal Case[®] with Wafer-Level Vacuum Packaging (MDS) -

In a pioneering achievement, RIVER ELETEC CORPORATION (hereinafter “RIVER”) has successfully developed the world’s smallest MHz AT-cut Crystal Unit, tentatively named “MDS-AT0806” (dimensions: 0.8mm x 0.6mm x 0.3mm max).

Japan, December 13, 2024:



MDS-AT0806 (1 graduation = 1.0 mm)

This astonishingly miniaturized resonator boasts a volume reduction of approximately 60% and a weight reduction of around 75% compared to its predecessor, the ultra-small “FCX-08” (1.2mmx1.0mmx0.3mm max). This significant downscaling caters to the evolving demands for compact and lightweight components in sectors like IoT-driven medical and wearable technologies. We are already supplying prototypes to overseas manufacturers for their next-generation products.

Building on a legacy of innovation, RIVER introduced the groundbreaking Crystal Case[®] in 2017, establishing the earliest applications of solid-phase diffusion bonding for wafer-level vacuum packaging (MDS) in crystal products. The synergy of this MDS technology with RIVER’s photolithographic microfabrication technique has been validated through the successful deployment and shipment of over 15 million units of the world’s smallest tuning fork crystal unit, the TFX-05X (1.2mm x 1.0mm x 0.35mm max). This high reliability is well-recognized in the market. The new MHz AT-cut crystal unit MDS-AT0806 leverages advanced microfabrication and sealing innovations, achieving unprecedented miniaturization. This level of precision is critical for maintaining high-frequency accuracy in such compact dimensions.

For more details and sample requests, visit the RIVER website or contact our sales department. RIVER continues to pioneer unseen technologies, delivering cutting-edge solutions and contributing to industry advancement.

Product Highlights

- World's Smallest Dimensions: 0.8mm x 0.6mm x 0.3mm max MHz AT-cut crystal unit.
- Compact and Lightweight:
 - Approximately 60% volume reduction compared to the FCX-08 (1.2mm x 1.0mm x 0.3mm max).
 - About 75% weight reduction.
- Advanced Technologies:
 - Wafer-level vacuum packaging (MDS) using solid-phase diffusion bonding.
 - Enhanced frequency stability through photolithographic microfabrication technique.
- Proven Reliability:
 - Over 15 million units shipped of the TFX-05X (MDS technology and Crystal Case®).
 - Providing prototypes for next-generation products.
- Diverse Applications:
 - Meets the needs for miniaturization and space-saving in medical, wearable tech, and more.
- Exceptional Dimensional Accuracy:
 - Achieves high-frequency accuracy through precise microfabrication and innovative sealing techniques.
- Applications: Communication equipment, supercomputers, measuring instruments

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