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FOR IMMEDIATE RELEASE

CTS Releases IoT Enhanced Crystal Designs

Lisle, IL – Lisle, IL – CTS Corporation [NYSE: CTS] announces the release of five new quartz crystal models, 412W, 416W, 402W, 425W, 403W, with specific enhanced design parameters targeted for wireless protocols used in today’s Internet of Things [IoT] applications.



The new CTS crystal series provide the advanced circuit elements needed for new chipset oscillator designs, operating at lower battery power and gain margins, to effectively perform. Designed with low ESR (Equivalent Series Resistance) and low plating capacitance to ensure quick start-up over wide temperatures ranges, CTS IoT crystals are optimized for long-term reliability and performance.

Additional features include, operating temperature range to -40°C to +105°C, tight tolerance and stability options, small load capacitance values and a variety of package sizes; making these crystals ideal for consumer and industrial IoT applications. Standard product features, common market applications and new platforms are summarized below. Please refer to individual data sheets on our website to see more performance characteristics.

Product Features

- Low Plating Capacitance, <3.0pF
- Low ESR Ranges
- Small Load Capacitance Options
- Temperature Range to -40°C to +125°C
- Stability Options – ±10ppm to ±150ppm
- Fundamental Crystal Designs
- Small Ceramic Surface Mount Package
- Tape and Reel Packaging

Common Wireless Frequencies Available

- | | | | |
|------------|------------|------------|------------|
| - 12.00MHz | - 20.00MHz | - 27.12MHz | - 38.40MHz |
| - 13.56MHz | - 24.00MHz | - 30.00MHz | - 40.00MHz |
| - 16.00MHz | - 25.00MHz | - 32.00MHz | - 48.00MHz |
| - 19.20MHz | - 26.00MHz | - 37.40MHz | - 52.00MHz |

[Consult data sheet and contact factory for availability of frequencies not listed.]

Market Applications

- Wireless Communications
- Low Power MCUs, SoCs, RF ICs
- M2M Communications
- WiFi, ZigBee, ZigBeeRF4CE
- Z-Wave, Sigfox, SimpleLink
- Bluetooth, Bluetooth Low Energy
- LoRa, LPWAN, 6LowPan, WLAN
- Near Field Communication
- Low Drive Chipsets
- ISM Band Applications
- Home/Building Automation
- Industrial Monitoring & Control

Product Summary

MODEL	PACKAGE SIZE [mm]	FREQUENCY [MHz]	TOLERANCE @ +25°C	TEMPERATURE STABILITY	TEMPERATURE RANGE	ESR MAXIMUM [Ohm]	CO PARAMETERS [pF]
412W	1.2 x 1.0	32 – 80 Fundamental	±7ppm ±10ppm ±15ppm ±20ppm ±25ppm ±30ppm	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	-20°C to +70°C -30°C to +85°C -40°C to +85°C -40°C to +105°C -40°C to +125°C	100 – 60	1.0 Typ. <3.0 Max.
416W	1.6 x 1.2	24 – 52 Fundamental	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	-20°C to +70°C -30°C to +85°C -40°C to +85°C -40°C to +105°C -40°C to +125°C	150 – 80	1.0 Typ. <3.0 Max.
402W	2.0 x 1.6	16 – 52 Fundamental	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	-20°C to +70°C -30°C to +85°C -40°C to +85°C -40°C to +105°C -40°C to +125°C	150 – 50	1.0 Typ. <3.0 Max.
425W	2.5 x 2.0	16 – 52 Fundamental	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	-20°C to +70°C -30°C to +85°C -40°C to +85°C -40°C to +105°C -40°C to +125°C	100 – 40	1.0 Typ. <3.0 Max.
403W	3.2 x 2.5	10 – 54 Fundamental	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm	±10ppm ±15ppm ±20ppm ±25ppm ±30ppm ±50ppm ±100ppm	-20°C to +70°C -30°C to +85°C -40°C to +85°C -40°C to +105°C -40°C to +125°C	150 – 35	1.0 Typ. <3.0 Max.

Sales Contact

Production volume and samples are available now. For more information call +1-800-982-5737 (North America), +65-6481-1466 (Asia) or +1-508-435-6831 (all other regions), E-mail: frequencysales@ctscorp.com, see our website for more information as well as to contact a CTS Sales Representative or one of CTS's many distribution partners.

About CTS

CTS (NYSE: CTS) is a leading designer and manufacturer of products that Sense, Connect, and Move. The company manufactures sensors, actuators, and electronic components in North America, Europe, and Asia. CTS provides solutions to OEMs in the aerospace, communications, defense, industrial, information technology, medical, and transportation markets.

For more information on CTS Corporation, please visit www.ctscorp.com.



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