

July 14, 2009

**Epson Toyocom Commercializes Compact, High Accuracy Crystal Oscillators
– New SG-211S*E series supports low voltage, high temperature applications –**

Epson Toyocom Corporation, the leader in crystal devices, has announced the commercial development and volume production of the new “SG-211S*E” series of compact, highly accurate simple clock oscillators (SPXO). The new crystal oscillators support voltages as low as 1.8 V and temperatures as high as 90 °C.

Epson Toyocom has long sold compact and highly accurate SPXO for use as reference clocks in wireless networks, Bluetooth, and other near field communication applications.

Demand for smaller wireless devices is on the rise, as are the temperatures of components contained in compact housings. This, along with strong demand for low voltages to maximize battery run time, indicates a clear need for devices that support high temperatures and low voltages.

To meet these market needs, Epson Toyocom upgraded its already compact and highly accurate crystal oscillators with support for voltages as low as 1.8 V and a frequency tolerance of $\pm 15 \times 10^{-6}$ at temperatures up to 90 °C.

The SG-211S*E series also has 5 dB (detuning frequency: 1 kHz) lower phase noise^(*1) than earlier products, making it an excellent choice for the low phase noise requirements of reference clocks in wireless communication.

Main Features

- ◆ High accuracy suited to wireless communication (frequency tolerance: $\pm 15 \times 10^{-6}$)
- ◆ Maintains accuracy at temperatures between -40 °C and 90 °C
- ◆ Support for voltages as low as 1.8 V
- ◆ Small size (2.5 mm × 2.0 mm)
- ◆ Achieves low phase noise

Main specifications

	SG-211SEE	SG-211SDE	SG-211SCE
Output frequency range	2.375 MHz – 60.000 MHz		
Supply voltage	1.8 V Typ. (1.6 V – 2.2 V)	2.5 V (2.2 V – 2.7 V)	3.3 V (2.7 V – 3.63 V)
Current consumption (60 MHz, No load condition)	4.5 mA Max.	5.0 mA Max.	6.0 mA Max.
Frequency tolerance / Operation temperature range	$\pm 15 \times 10^{-6}$, $\pm 20 \times 10^{-6}$ / -40 °C to +90 °C		
External dimensions	2.5 × 2.0 × 0.7t mm Typ.		

Glossary

(*1) Phase noise

Energy that is radiated near the oscillation frequency, and that occurs due to the internal and external environmental factors (noise) of a crystal oscillation circuit. Wireless signal transmission errors can occur when this noise value is too high.

For product enquiries, please locate your regional Epson Toyocom representative at:
http://www.epsontoyocom.co.jp/english/company/place/kaigai_network.html

About Epson Toyocom

Epson Toyocom Corporation is the global leader in crystal devices, which serve as the heart and pulse for a wide range of electronic products for consumers and industry. Utilizing its innovative hybrid quartz microfabrication technology, QMEMS, Epson Toyocom offers technological expertise in timing, sensing, and optical devices, and maintains its leadership position by providing customer-specific combinations and solutions. <http://www.epsontoyocom.co.jp/english/>