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**Epson Toyocom Announces Smallest-Class VCXO for Mobile Handsets
with Support for Terrestrial Digital Broadcasts**

Epson Toyocom Corporation has announced that it is preparing to release a new series of voltage-controlled X'tal (crystal) oscillators (VCXO) that support mobile handsets capable of receiving terrestrial digital TV broadcasts. Measuring just 3.2 x 2.5 mm, the VG-4231CE Series will be among the smallest-footprint crystal solutions in the industry yet will offer frequency control characteristics equivalent to their predecessors. This will allow them to meet the ongoing demand for miniaturization while also easily handling the complicated timing of high-quality image recording signals. Samples will begin shipping in February 2006.

Demand is rising for VCXOs that are small yet offer good characteristics, especially in burgeoning applications such as tuners for receiving one-segment digital multimedia broadcasting (DMB) services that deliver terrestrial digital TV broadcasts to mobile handsets. Other applications include applications as clocks for controlling the timing of video signals, which have become increasingly complicated due to the advent of high-quality image recording as so forth.

In response to these needs, the VG-4231CE Series, despite a package that is among the smallest in the industry (3.2 x 2.5 x 1.2 mm), offers a frequency control range of $\pm 100 \times 10^{-6}$ or better. In addition, circuit design is facilitated by providing 1 M Ω or more of voltage controlled input resistance. The new VCXOs will be available in supply voltages of 2.8 V and 3.3 V.

Main specifications

Parameter	VG-4231CE ***M Specifications		Remark
	DNBM/GNBM	DNCM/GNCM	
Supply voltage	2.8 V \pm 0.2 V	3.3 V \pm 0.3 V	
Control voltage	1.4 V \pm 1.4 V	1.65 V \pm 1.65 V	Vc pin
Output frequency	27 MHz		
Frequency tolerance / Temperature range	$\pm 35 \times 10^{-6}$ (-20 °C to +70 °C) $\pm 50 \times 10^{-6}$ (-40 °C to +85 °C)		D**M G**M
Frequency control range	$\pm 100 \times 10^{-6}$ Min.		
Input resistance	1 M Ω Min.		DC level
Current consumption	1.8 mA Typ. (3.3 V)		No load