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## Strategic Alliance Formed by Mercury United Electronics, Inc. & Micro Oscillator, Inc.

Mercury United Electronics, Inc. & Micro Oscillator, Inc. have formed a strategic alliance to bring *micro power* silicon oscillators, pulse generators, and inductive proximity sensors to the market. This collaboration combines the unique patented silicon expertise of Micro Oscillator and the assembly, packaging & test expertise of Mercury United Electronics.



### Silicon Oscillators - "SH" Series

This silicon based, patented (*United States Patent No: 6,281,732*), ultra-low *micro power* Si-gate CMOS oscillators produces a square wave output with an ultra-fast start up time and requires no external components, other than power supply bypass capacitors. It also produces a total frequency error of less than 1.0%.

Silicon Oscillators are typically available in plastic molded packaging. However, the "SH" Series is packaged in a lead-free, RoHS Compliant, hermetically sealed & metal-lid grounded, ceramic leadless package that provides a superior Moisture Sensitivity Level (MSL 1 - Unlimited), insuring proper mounting.



Sample quantities are available at a frequency of 32.768KHz, with other frequencies available in the near future.

The package sizes are: 3.2 x 2.5 x 1.0mm & 5.0 x 3.2 x 1.2mm. Applications include low speed USB's, remote controls, display drives, motor & building controls, home appliances, advanced battery chargers and as a replacement for ceramic resonators.

### **Frequency Shift Keyed Silicon Oscillators - “FH” Series**

The Frequency Shift Keyed Silicon Oscillators, “FH” Series, are equivalent to the Silicon Oscillators, “SH” Series, described above with one added feature.

The input on Pin 1 can be toggled between logic high & logic low. If the input on Pin 1 is logic high or there is no connection, the output is at the nominal frequency. Whereas, toggling Pin 1 to logic low, produces an increase or shift in the frequency by approximately 5%. This allows the binary signals to be transmitted as two distinct frequencies.

This product is ideal for applications for remote controls, data transmission and where microprocessor clocks are used.

### **Silicon Precision Monostable Pulse Generators – “PG” Series**

This Silicon Precision Monostable Pulse Generator generates a single output pulse, also called a ‘One-Shot’, normally at a high level. The negative edges of the input pulse, produces a negative going output with a constant pulse width and no external components are required. An ultra-low supply current, very fast recovery & start up times and its retriggerable capability make this a very attractive product. With a pulse width of 10  $\mu$  seconds being the most popular, a pulse width from 5  $\mu$  seconds to 600  $\mu$  seconds can be manufactured.

Many uses for this pulse generator include watchdog timers, frequency discriminators, envelope detection & missing pulse detection, suitable for light weight, compact consumer electronic devices & ideal for high density boards.

Mr. Fred Mirow, President of Micro Oscillator, comments, “When you combine these package implementations with the internal frequency resistor, the user gets the benefit of a fixed frequency oscillator, a frequency shift keyed oscillator & a precision monostable pulse generator, without having to worry about an external resistor tolerance and performance degradation over temperature.”



“It is a trend that quartz and silicon technologies are merging. This collaboration brings to the market, the first hermetically sealed silicon oscillators that are suitable for harsh environment applications, such as the automotive industry. These products will have the same quality performance that current Mercury United customers have become accustomed to”, says Jason Yen, Vice President of Engineering at Mercury United.

For more information about these products, please visit <http://www.MercuryUnited.com> or contact any of Mercury United Electronics’ Authorized Franchised Distributors.

*Mercury United Electronics, Inc. is a Quartz Crystal Manufacturer of Frequency Control Products since 1973, including Crystals, Oscillators, Low EMI Spread Spectrum Clocks, Silicon Oscillators, Pulse Generators, TCXO’s, VCTCXO’s, VCXO’s, OCXO’s and Monolithic Crystal Filters. Mercury United is located in Southern California and offers 1 to 3 week Quick-Turn manufacturing. Mercury Electronic Industrial Co., Ltd is headquartered in Taipei Taiwan, with the latest state-of-the-art, high volume production equipment. Mercury Electronic Technology Inc. is located in Kun Shan, China. Contact Mercury at <http://www.MercuryUnited.com> (Tel) 909-466-0427 (Fax) 909-466-0762. E-mail: [sales-us@mercury-crystal.com](mailto:sales-us@mercury-crystal.com) (U.S.A) or [sales-tw@mercury-crystal.com](mailto:sales-tw@mercury-crystal.com) (Taiwan)*

*Micro Oscillator, Inc. (MOI) is expanding its product offering. In the same way that MOI revolutionized the way that microcontrollers are clocked with its all-silicon CMOS based clock oscillators, similar breakthrough technology design approaches have been used to spawn a new family of patented and patent pending Oscillators & Inductive Proximity Sensor Products. MOI is a Pennsylvania Corporation that received support from the Commonwealth of Pennsylvania’s Ben Franklin Partnership through the Ben Franklin Technology Center of Southeastern Pennsylvania. MOI produced the first fully functional CMOS clock oscillator. These silicon oscillators can replace ceramic resonators and crystal oscillators in microcontroller based systems. The patented temperature compensation technology allows for precise frequency accuracy over the temperature and voltage range without using ceramic resonators, quartz crystals or other external components for frequency determination. The Micro Oscillators are very durable, reliable, and are currently used in harsh environment military systems. For more information, please go to <http://www.micro-oscillator.com> or at [sales@micro-oscillator.com](mailto:sales@micro-oscillator.com) or call a representative at 512- 470-2835.*