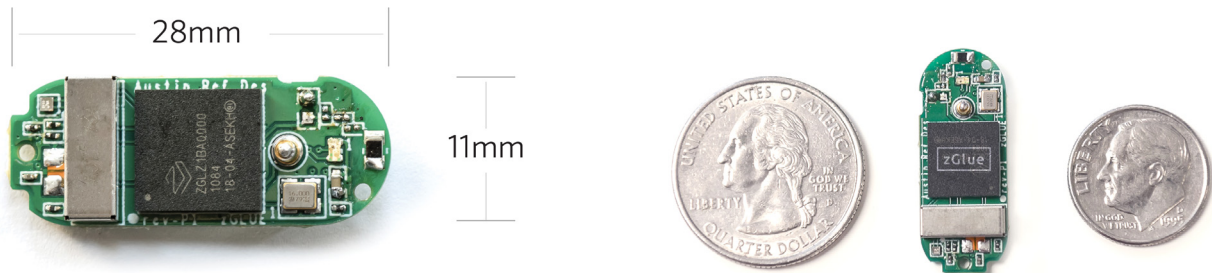# zGlue

Enabling a Do-it-Yourself Chip Approach for the IoT

28mm

11mm

HOW DID WE FIT SO MUCH INTO SO LITTLE?

Tiny and highly integrated, zOrigin can be adapted to a variety of designs, such as smart jewelry, fitness/health bands, and panic buttons.

zGlue's mission is to democratize innovation. The company, founded in 2014, believes that anyone, with or without an engineering degree, should be able to quickly and easily build a personalized hardware product. With this vision in mind, the Mountain View, California-based company has developed a 2.5D stacked chip that integrates a variety of components needed by smart, connected devices: processors, sensors, memory, and communications.

Challenge

- Needed a tiny, low-power PMIC with a power charger IC in the power path

Solution

- **MAX77734**

Benefits

- Facilitated company's quest to create a tiny, low-power, highly integrated platform for IoT designs

Traditionally, developing a 2.5D chip takes 5 to 18 months due to the complexity and integration process. **zGlue** has reduced this time down to weeks, thanks to its programmable interposer, which allows blocks to be dragged and dropped on top of the stack as if it were a blank canvas. The interposer is also active with components such as passives, resistors, capacitors, general-purpose IO (GPIO) expenders, and power management IC (PMIC) functions built in. This approach reduces overhead costs, shrinks solution size, and facilitates fast time to market.

"The MAX77734 is a great chip for managing different power rails in wearables and space-constrained designs."

         - **Omar Alnaggar**, Director of Hardware Engineering, zGlue

Challenges

The company's zOrigin product, slated to be widely available later in 2018, is a low-power, low-cost, wireless wearable reference design built with its ZiP chip-stacking technology. Customers will be able to use zOrigin as is or as a starting point for their own wearable or other IoT design. They can expect to have their resulting customized IC manufactured in volume in weeks by zGlue's manufacturing partner. Available in a 11mm x 28mm form factor, zOrigin includes a tiny Bluetooth Low Energy modules, fitness/health tracking sensors, an LED, a vibration motor, and a battery.

To create zOrigin, zGlue needed a PMIC with very low power and also very small size. The company's engineering team also wanted wearables created with the reference design to be usable while being charged.

Solution and Benefits

zGlue found its PMIC answer in Maxim's **MAX77734**, a highly integrated, ultra-low-power solution with safe charging and low-noise low-dropout (LDO) linear regulator for hearables and IoT designs. Available in a 2.23mm x 1.97mm WLP, the MAX77734 features a linear-mode Li+ battery charger, analog multiplexer, and dual-channel current sink driver. It extends battery life with its 200nA factory-ship mode, 500nA shutdown current, and 4.5µA quiescent current with LDO enabled.

"The MAX77734 is a great chip for managing different power rails in wearables and space-constrained designs," said Omar Alnaggar, director of Hardware Engineering at zGlue. "We also couldn't find a single power charger IC in the power path until we evaluated the MAX77734—this enables wearable devices to be used while being charged. And the PMIC's tiny size meets our requirements."

The MAX77734 will be included in the library of zCAD, the company's development software. As zGlue prepares to go into full production with zOrigin, the company envisions a world where the next great IoT idea isn't bogged down by lengthy or costly development cycles. By empowering designers to create their own chips using its chip-stacking technology, the company wants to enable the creation of smart, connected things that are smaller, faster, and cheaper than what is possible with traditional SoC and PCB integration technologies.

"Wearables and IoT designers care about size and performance and can't find the technology they need," said Alnaggar. "They view our technology as a solution for miniaturization. We do small things in a great way."

Learn more at www.maximintegrated.com