

## **Extraordinary touch, realistically reproduced! Haptic Feedback Actuator: Industry's First Haptic Solid State Button for Smart Phones breathtaking CES**

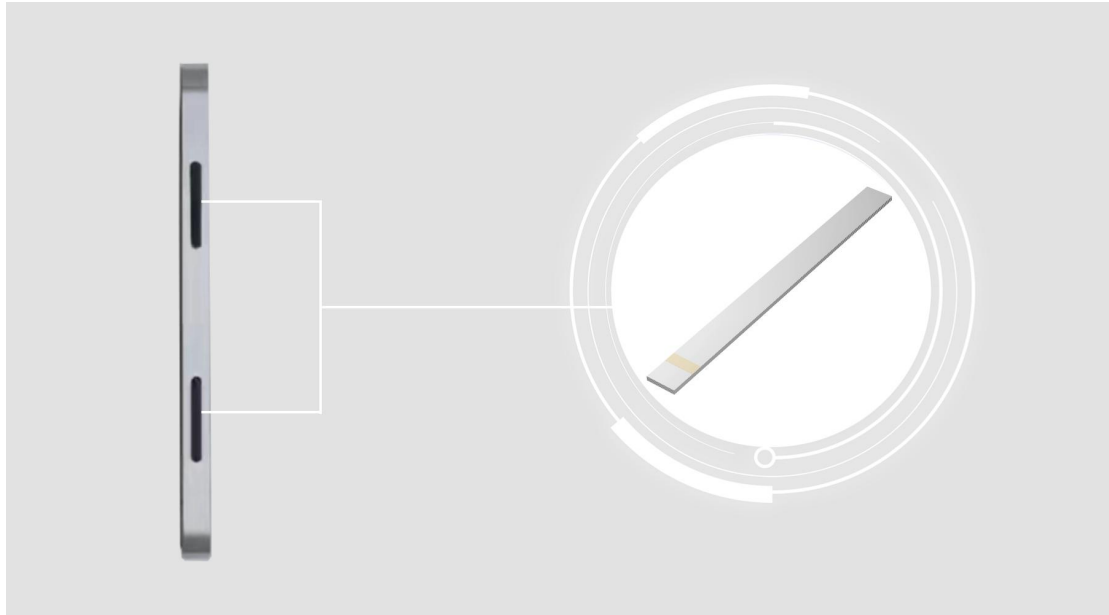
Appreciate the richer and more realistic press touch, and experience more delicate and natural touch sliding.

January 9, the world's most influential consumer electronics industry exhibition - International Consumer Electronics Show (CES) in the LAS VEGES Convention Center was officially opened, all kinds of advanced technology products are displayed together. It is noteworthy that the industry's first haptic solid-state buttons applied to smart phones with haptic feedback actuators as the core components made a stunning debut, reshaping people's perceptions of cell phone touch interactions, and bringing interactive technology innovation to the smart phone "metamorphosis" iteration.



The world's first haptic solid-state button for smart phones with a haptic feedback actuator as the core component

**Haptic feedback actuator : first haptic solid-state buttons for smart phones**

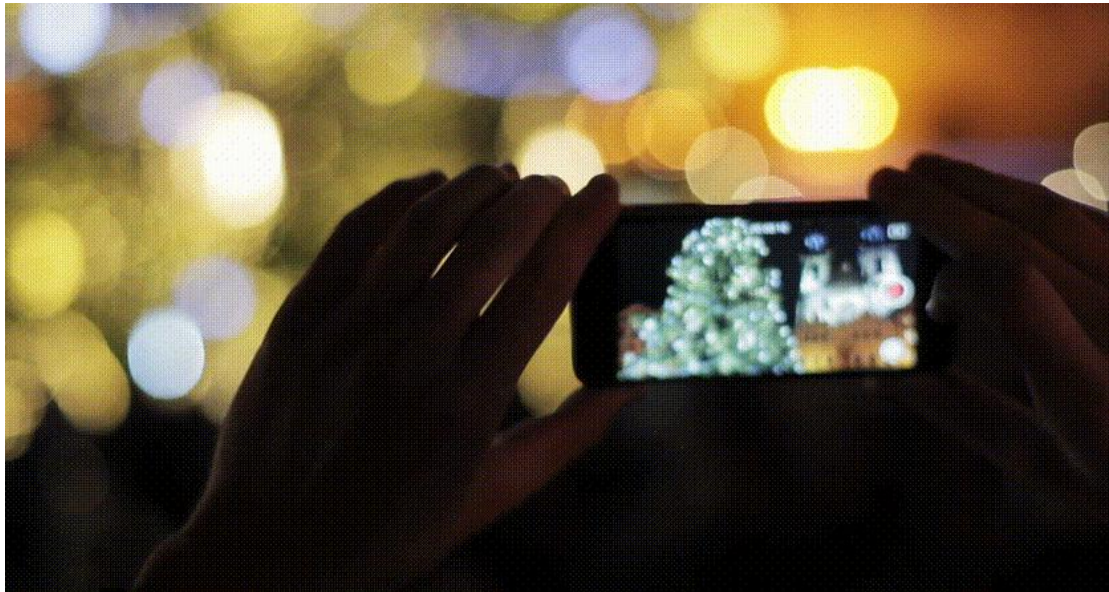


The first haptic solid-state button in the smart phone industry takes the haptic feedback actuator as the core component and utilizes the piezoelectric haptic feedback technology to reproduce the real sense of touch for the cell phone buttons through the physical principle of positive and negative piezoelectric effect. When a driving voltage is applied to the haptic feedback actuator, the product deforms, so it causes vibration within a limited range, replacing the old mechanical button interface with high-resolution localized haptic buttons, and reshaping the interaction of the cellphone's side buttons.



Haptic solid-state buttons applying haptic feedback actuators can not only provide realistic tactile sensations similar to mechanical buttons for common smart phone interactions such as pressing, clicking, and swiping, but also provide a richer, more realistic, and more natural haptic experience for immersive interactions.

## Enjoy a richer, more realistic pressing sensation

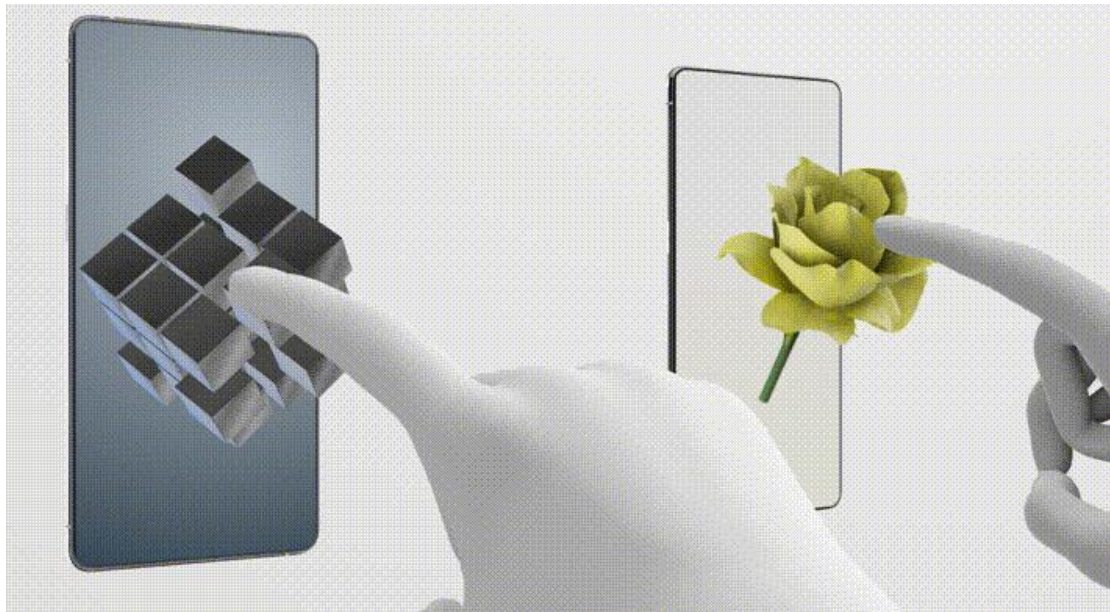


In terms of interaction design, haptic solid-state buttons applying haptic feedback actuators are able to reproduce the real tactile sensation of mechanical buttons, such as the feeling of pressing when performing simple operations such as turning on and off the phone.



The haptic solution also provides users with technically more difficult multilevel tactile sensations. For example, when focusing on the lens during a photo shoot, you can feel the same half-press focusing sensation as with a DSLR camera; and when grabbing a photo, you can experience the sensation of fully pressing the button. Such a rich, three-dimensional and realistic touch is unmatched by traditional mechanical buttons.

## Experience finer, more natural touch swipes



Haptic solid-state buttons that utilize piezoelectric haptic feedback technology to provide the tactile sensation of scrolling a mouse while surfing the web on a cell phone, mimicking the "click-click-click" sensation of a page scrolling on a fingertip. A haptic solution with a haptic feedback actuator as the core component can provide localized haptic limited to the buttons themselves, with a more subtle and natural feel than mechanical buttons.

If the technology is applied to the cell phone screen, it can make the screen interaction get rid of the single vibration effect, provide the haptic feedback effect required by different screen scenes, and improve the user experience.

## **Piezoelectric haptic feedback technology: a new direction for the consumer electronics industry**



Since the birth of the first smart phone, the cell phone industry has followed the interaction model of mechanical buttons. Haptic solid-state buttons utilizing piezoelectric haptic feedback technology enable the combination of a familiar, authentic haptic experience with new touch functionality, and will be the first innovative technology product to truly replace the mechanical

button interaction mode.



It's worth noting that the LG laptop Gram Style, which made a splash at CES 2023 in the US, also uses piezoelectric touch technology. The internal Piezo Haptic Actuator is only 0.3mm thick, preserving space for thin and light notebook designs. Highly sensitive actuators make notebook touches silky smooth and provide the ultimate in different levels of pressure touch. The "hidden" design of the inductive touch panel not only achieves a simplified and aesthetically pleasing industrial design, but the seamless structure also guarantees the high performance attributes of waterproof, dust prevention and anti-pollution.

In summary, in the past two years, piezoelectric touch and feedback technology has developed rapidly, is gradually becoming one of the leading technology direction of the consumer electronics industry technology development.

### **Advantages**

#### **Low power**

Haptic feedback actuators consume less energy than products with mechanical technology (e.g. strain, voice coil) and can be 10-13 times more energy efficient.

#### **Small size**

The product is small in size and supports channels design, allowing 4 channel buttons to be set up in a miniature package design.

#### **Reliable and durable**

The protection level of the product can reach IP68, highly waterproof, dust prevention, oil-proof

and pollution-proof.

### **Multiple interaction methods**

The product can realize **multiple** functions interaction, and provide area-specific haptic feedback for all kinds of gestures such as swiping, tapping, and touching, which helps the interaction function of smart phones to develop in the direction of being more comprehensive, more interactive, and more intuitive.

### **Aesthetic design**

By eliminating mechanical buttons and eliminating "raised" areas, the solution simplifies the industrial design and makes the lines of the machine smoother and more aesthetically pleasing.