Cypress Controllers Enable Mobile POS Device with Touch-Sensing PIN Entry

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Cypress Semiconductor [1] (San Jose, CA) recently announced that Ezetap [2]is using Cypress' CapSense Express controllers in the capacitive-touch-based PIN-pad in its new MPOS device. The CY8CMBR2016 matrix keypad solution provides the Ezetap MPOS device with a durable user interface, helping it to pass all of the stringent EMVCo and Payment Card Industry (PCI) global certifications required for PIN entry devices.

Consumer electronics and home appliances have rapidly been transitioning from mechanical buttons to capacitive touch controls. However, the payments industry has been slow to move from traditional, expensive mechanical keypads — which are made secure through additional physical and logical barriers around the keypad — given the tight security required when customers enter their debit or credit card PIN. The EMV and PCI certifications are extremely strict due to the need to protect customer PINs against a broad range of attacks, while ensuring compatibility across a range of payment cards. Devices must pass more than 5,000 protocol, firmware, and security tests — typically taking about two years. With the reliable, easy-to-use CapSense Express Mechanical

Button Replacement (MBR) solution, Ezetap was able to go from concept to certification to manufacturing in less than a year.

Controllers in the CapSense Express MBR family leverage Cypress' SmartSense auto-tuning algorithm, which eliminates the requirement for manual system tuning and maintains optimal button performance during run-time.

The CapSense Express Mechanical Button Replacement (MBR) family includes the CY8CMBR2016 matrix keypad solution, the CY8CMBR2x10 ten-button controllers and the CY8CMBR2044 four-button hardware configurable device.

Features:

- Supply current in run mode of 15 uA per button.
- 100 nA Deep-Sleep mode.
- Range of 1.71 to 5.5 V.
- Ideal for a wide range of regulated and unregulated battery applications.
- Operates from a single coin cell battery.
- Robust sensing in noisy environments using Cypress's patented CapSense Sigma Delta (CSD) sensing method, ensuring superior immunity to conducted and radiated noise.
- Integrated voltage regulator to address power supply noise as well as filters for any spurious noise.

The MBR family's SmartSense auto-tuning dynamically optimizes the capacitive baseline and detection threshold for each button. The algorithm adjusts for the optimal capacitance sensing range at power-up and during run-time as environmental conditions change, including noise, temperature, and humidity. Eliminating the need to tune is a significant advantage for large and small manufacturers alike, as it saves engineering time and yield loss that can occur with even slight variations in manufacturing tolerances. This savings is greatly multiplied for customers with a global factory footprint and multi-sourced supply chain. SmartSense auto-tuning can eliminate the need for additional test steps required by competing solutions to address manufacturing variations in PCBs and overlays.

For more information, please visit www.cypress.com [1] and www.ezetap.com [2]

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[1] http://www.cypress.com
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