Design Support and Resources

**PSoC and EZ-Color Development Software Online**
All PSoC development software tools are available for download online. For PSoC Express, visit www.cypress.com/psocexpress. For PSoC Designer visit www.cypress.com/psocdesigner. For PSoC Programmer visit www.cypress.com/psocprogrammer.

**EZ-Color Data Sheets and Application Notes**
For all EZ-Color device data sheets and detailed application notes, many with complete starter projects, visit www.cypress.com/ez-color. For data sheets, select **Products**, and then select an EZ-Color part. For application notes, select **Support → Application Notes**.

**EZ-Color Device Selector Guide**
For a list of all EZ-Color devices, visit www.cypress.com/ez-color and select **Products**.

**EZ-Color Development Tools Selector Guide**
For a description of EZ-Color development tools visit www.cypress.com/ez-color, select **Support → Software Development Tools**.

**EZ-Color On-Demand Training**
Visit www.cypress.com/training to engage in on-demand self-paced EZ-Color product and development software training. Learn to design EZ-Color like the pros, at the introductory, intermediate, and advanced knowledge levels.

**EZ-Color On-Site Training**
Email training@cypress.com to enquire about EZ-Color in-person training seminars at a location near you. Learn design basics, tips, and tricks from the pros to become an EZ-Color design expert.

**Online Technical Support**
For knowledge base articles, customer forums, and online application support, visit www.cypress.com/support.
The evolution of traditional lighting towards solid state lighting enables the design and adoption of intelligent lighting. Cypress Semiconductor introduces the CY3269N Lighting Starter Demonstration Kit leveraging two key Cypress technologies for development of intelligent LED lighting fixtures. At the simple touch of a finger, users can illuminate anything from an entire room to a large architectural lighting display with warm, neutral, or cool white light of variable color temperature. Users can create rich and vibrant colored light to set moods, accents, and customize the overall feel of any venue with little effort.

The CY3269N Lighting Starter Demonstration Kit showcases two world-leading Cypress technologies: EZ-Color™ and CapSense™, which enable tunable white light control, color mixing, and capacitive touch sensing. The intuitive interaction between people and light is more seamless than ever.

6. Call to Action

- Learn more about CapSense online at http://www.cypress.com/capsense/.
- Learn more about EZ-Color online at http://www.cypress.com/ez-color/.
1. Review Kit Contents

The CY3269N board is preprogrammed and no additional software or firmware is needed to run the demonstration.

Demo Operation

- Insert the 9V battery (provided).
- Place your finger inside the color gamut to demonstrate mixed light from the RGB LED.
- Place your finger on the slider to adjust the intensity of the LED.
- To put the board in “sleep” while powered, press the circular emblem to the left of CapSense logo indicated button on the touchpad itself.

2. CapSense Technology

A single CapSense device can replace dozens of mechanical switches and controls with a simple touch-sensitive interface. CapSense-based “button” and “slider” controls are more reliable than their mechanical counterparts because they are not prone to the environmental wear and tear that affects exposed buttons and switches. Cypress has garnered hundreds of CapSense design wins worldwide in applications that include mobile handsets, portable media players, white goods, computers, printers, and automotive successes, among others.

Capacitive sensing is fast becoming the solution for front-panel display and media control applications. Increased durability, decreased bill of materials (BOM), and a clean, minimalist appearance make this elegant interface attractive to a wide range of designs. With Cypress’ CapSense interface, a finger on the interface forms an electrical connection with embedded sensors. This works with a PSoC device to translate data about the finger's presence into various system control functions. The sensor itself is only a copper pad on the PCB, not an actual component.

Cypress’ CapSense solution offers system designers many advantages over capacitive sensing products built around modules and subassemblies. Some of the advantages are increased flexibility, reduced board space, and lower cost. Due to the unique PSoC architecture, designers can easily integrate multiple functions (for example, LCD displays), besides capacitive sensing.
The PSoC CapSense solution delivers the following benefits:

- Easy communications using either I2C, SPI, or USB interfaces
- Implement touchpad (x-y matrix) and linear slider applications with the same device
- Quick design changes using flash-based PSoC architecture

In addition, users can complete CapSense designs quickly and easily using pre-configured and verified “user modules” within Cypress’ PSoC Designer™ 4.4 Integrated Design Environment (IDE), and experience real-time sensor tuning and monitoring with PSoC Express™ visual embedded system design tool. Learn more about CapSense online at www.cypress.com/capsense.

3. EZ-Color Technology

LED lighting design needs a complex set of calculations with custom firmware to deliver consistent color or consistent white light. The biggest two problems that LED lighting engineers face are having to account for differing LED performance specifications based on manufacturing bins and the LEDs’ degradation (such as output flux, wavelength, and so on) over different temperatures. With PSoC Express, designers simply select a color from a gamut presented on-screen. Preloaded manufacturers’ bin specifications and a choice of temperature or optical feedback algorithms are automatically applied to the selected design and programmed into the EZ-Color Controller. This can save anywhere from weeks to months of design time for a complex design.

EZ-Color LED controllers can support up to 16 LED strings, compared to four or five strings for competitive devices. The additional strings can mean saving dozens or even hundreds of controllers in large designs, cutting design complexity, power consumption, and board space. The EZ-Color LED controllers are powered by Cypress patent pending PrISM™ (Precise Illumination Signal Modulation) technology. The PrISM modulation technology significantly reduces low-frequency flicker and radiated electromagnetic interference (EMI), which are common problems in LED lighting designs. Designers also have the flexibility to add more functionalities to the EZ-Color controllers, including battery charging, motor control, thermal feedback, programmable control gear, and other features. Learn more about EZ-Color online at www.cypress.com/ez-color.

4. Block Diagram

[Image of block diagram showing LED channels, EZ-Color controller, CapSense array, and multi-chip LED]
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Getting Started

1. Review Kit Contents
2. CapSense Technology
3. EZ-Color Technology
4. Block Diagram
5. Board Layout
6. Call to Action

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WARNING: HIGH BRIGHTNESS LEDs CAN CAUSE PERMANENT EYE DAMAGE!
Do not look at the LEDs if they are not covered by the protective enclosure. The LEDs illuminate at a very high intensity and can cause permanent eye damage if they are viewed without the protective enclosure.

6. Call to Action

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