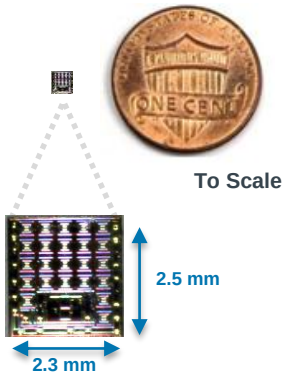
AS7221

Network- Enabled Smart Lighting Manager for variable CCT and spectrally tunable lights

General Description



AS7221 Smart Lighting Manager with integrated sensor

The AS7221 is Cognitive Lighting™ family of products enable lights to be "aware" adapting to their surroundings to autonomously manage lighting to meet esthetic, quality and energy efficiency needs. This network-enabled Smart Lighting Manager incorporates an embedded digital tri-stimulus true color nano-optic sensor providing direct CIE1931 XYZ and CIE 1976 u'v' coordinate mapping for closed-loop, autonomous adjustment of variable CCT and spectrally-tunable LED lamps and luminaires. Luminaire control is accomplished through 0-10V compatible dimming input, plus 3 direct PWM channels, one of which can be optionally enabled for 0-10V analog dimming output. Access to the simple text-based Smart Lighting Command Set is enabled by inclusion of a serial UART interface, which allows easy integration to standard network clients.

Built-in support for daylight harvesting is available with the addition of supported ams ambient light sensors, such as the TSL4531. Further IoT-connected sensor expansion is via the integrated I²C interface that is fully supported with bridge commands within the SLCS. The block diagrams of this device are shown in "AS7221 Block Diagrams" on page 2.

Key Benefits & Features

Benefits	Features
Accurate control of variable CCT and spectrally tunable lighting	XYZ tri-stimulus color sensing for direct translation to CIE 1931 standard observer color map
Automatic spectral and lumen maintenance over temperature and time	Autonomous color point and lumen output adjustment resulting in automatic spectral and lumen maintenance
Direct serial interface for connection to standard networks	Simple UART interface for connection to network hardware clients for protocols such as Bluetooth, WiFi and ZigBee
Simple lamp or luminaire configuration and commissioning using defined command set	Smart Lighting Command Set (SLCS) uses simple text-based commands to control and configure a wide variety of functions
Compatible with standard dimmer controls and occupancy sensors	Directly interfaces to 0-10V dimmer controls and standard occupancy sensors
Directly interfaces to LED driver via PWM	Built-in PWM generator to dim LED lamps and luminaires, 12-bit resolution for precise dimming down to 1%
Directly interfaces to ballast via 0-10V	0-10V analog output for control of conventional dimming ballasts in florescent and LED lamps
Small package, wide operating range	20-pin balls WLCSP package 2.3 x 2.5 x 0.4mm, -40°C to +105°C

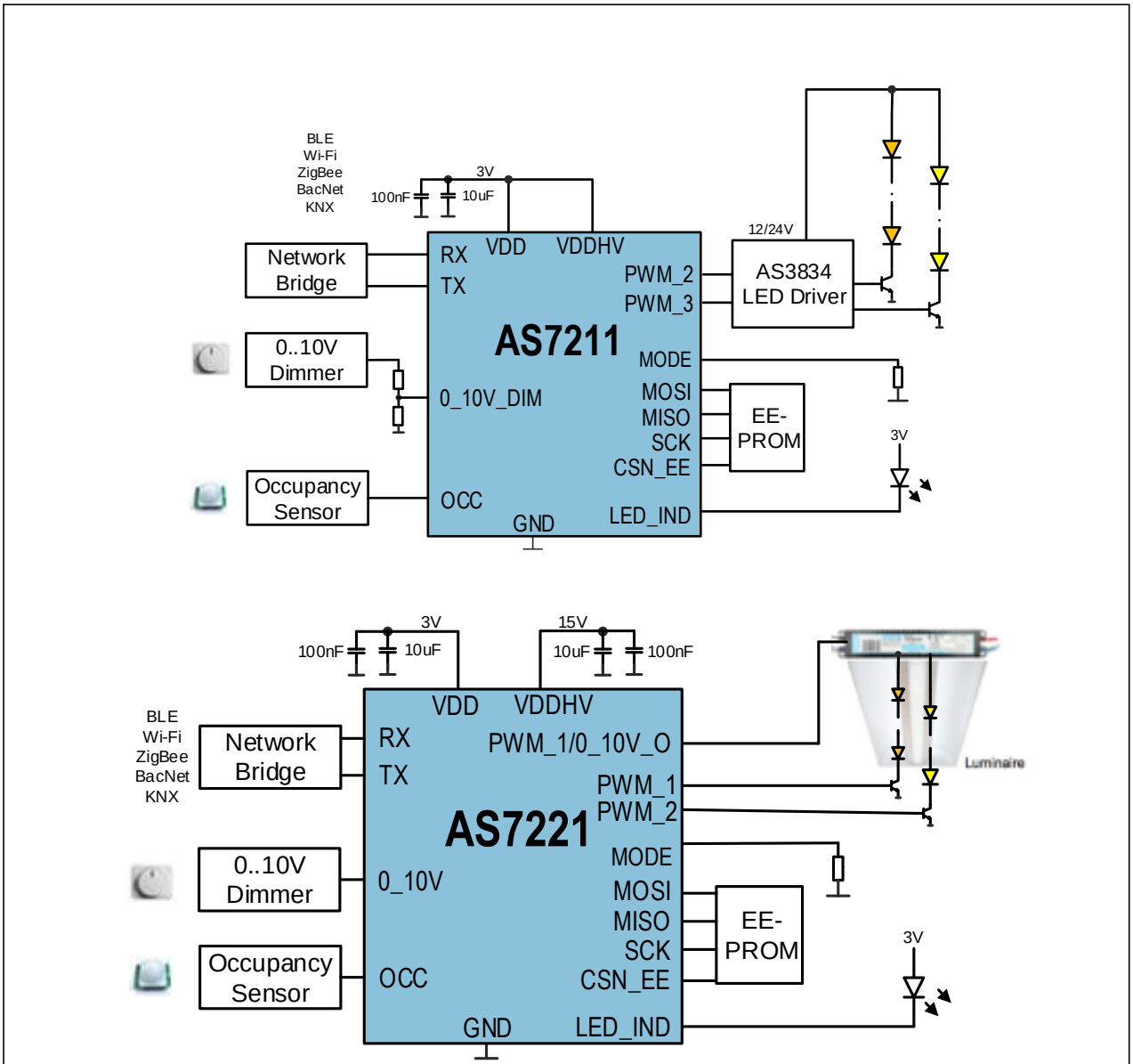
Applications

Autonomous, networked solid-state lighting manager for variable CCT and daylight harvesting

- Integrated smart lighting control of variable CCT white lighting solutions
- Luminaires intended to meet California Title 24 daylighting requirements
- Commercial, retail, and residential white/color changing LED lighting systems
- Networked lighting systems with IoT sensor expandability

Block Diagrams

The functional blocks of the AS7221 are shown below:



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