



Ambient Light, Solar_UV_Index, IR and Proximity Sensor

Preliminary

with I2C digital interface

General Description

The ASR8600 is an integrated sensor of ambient light (ALS), Infrared light (IR), Solar_UV_Index (SUVI), and proximity sensing (PS). It provides innovative algorithms which can be friendly in application. ASR8600 is a perfect solution for light and PS sensing.

ASR8600 ALS/IR sensing offers ASC (Auto Scale Control) mode other than traditional manual mode. With ASC mode, ASR8600 can automatically adjust the sensing range to the best resolution according to various light intensity. User just simply needs to read the measured light data in accuracy without any other setting. The ASC output data is in dynamic range of 16 bits with 12 bits resolution. And under high intensity mode sensing (AI_H mode), the sensing intensity range can be up to 400K lux. The Solar_UV_Index is sensing by 8 bits output without any manual mode option.

User can combine ASR8600 with LED or LD (Laser Diode) to do PS sensing, detecting the presence of nearby object to avoid any physical contact. The spectrum of LED/LD light source could be IR or Green selected by customer using user command. The driving current and pulse time of LED/LD is widely optional according to the distance to be detected.

To cancel the PS optical crosstalk from overlay reflection, ASR8600 offers a PS Offset cancellation function to easily cancel system internal reflection. After this cancellation, ASR8600 can still keep full 8 bits (256 steps) dynamic range of PS output, so that user has no need to modify the PS threshold setting.

ASR8600 also offers PS Auto Trim function if user requires a precise proximity distance to be detected in application. The PS Auto Trim function can automatically set optimized gain value in chip according to the distance between the preset object and chip, and the PS Trim value could be easily read out through user command, once the trim operation is done.

Applications

- Notebook / Monitor
- Smart phone (touch screen disable and backlight control)
- LCD display (backlight control)
- Table PC
- PDA
- Presence Detection
- Industrial sensor

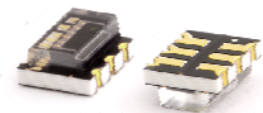
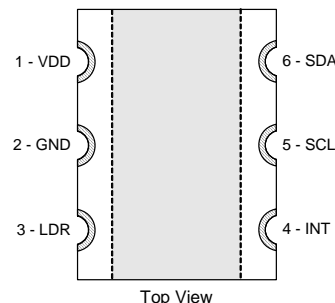
Ordering Information

Part Number	Temp. Range	Package & Size	Packing	Lead-Free/RoHS
ASR8600-N	-40°C ~ +85°C	6pin OCDFN (2mm x 2.5mm x 1.1mm)	Tape and Reel (3,000/reel)	Compliant

Features

- Ambient Light, Solar_UV_Index, IR and Proximity Sensor
- Ambient Light (ALS) / IR Sensing
 - ALS closes to human-eye response (UV/IR rejection)
 - IR detecting spectrum in range of near Infrared
 - 12 bits resolution with gain and integration time setting
 - ASC model with 16 bits dynamic range
 - Dynamic rang up to 400K lux under high intensity mode
 - Programmable high/low threshold interrupt
- Solar_UV_Index Sensing
 - CIE Erythral Action Spectrum weighted
 - 11 indexes calculated by 8 bits dynamic output data
- Proximity Sensing (PS)
 - Selectable light source of IR or Green
 - Wide range driving current of LED/LD, 2.5mA~300mA
 - Changeable PS pulse time from 0.05ms to 6.4ms
 - 8 bits effective counts
 - Programmable high/low threshold interrupt
 - PS Offset to cancel crosstalk without dynamic range loss
 - PS Auto Trim function for precise distance detection
- User trimming is capable for overlay correction
- I2C digital Interface up to 400KHz with Interrupt Pin
- Wait-time range from 0 to 7 seconds to save power
- 50/60Hz flicker noise rejection
- VDD = 2.5V to 3.6V
- Temperature compensation : -40°C to +85°C
- Low Power consumption I_{ALS}~17uA, I_{PS}~20uA
- Package option
 - 6-pin OCDFN (2mm x 2.5mm x 1.1mm)
 - All Pb-free (Lead-free) Products are RoHS2.0 Compliant

Pin Assignment



1	VDD Power	4	Interrupt
2	Ground	5	I2C Clock
3	LED Driving Port	6	I2C Data