

Product Document



Product Brief

PB000132

TMD2755

ALS + Proximity Sensor Module

1 General Description

The TMD2755 features proximity detection and digital ambient light sensing (ALS). The extremely narrow 1.1mm module incorporates an IR VCSEL and factory calibrated VCSEL driver. The proximity detection feature provides object detection (e.g. mobile device screen to user's ear) by photodiode detection of reflected IR energy (sourced by the integrated VCSEL). Detect/release events are interrupt driven, and occur when proximity result crosses upper and/or lower threshold settings. The proximity engine features a wide range offset adjustment to compensate for unwanted IR energy reflection at the sensor. Proximity results are further improved by automatic ambient light subtraction. The ALS and IR photodiodes have dedicated data converters producing 16-bit data. This architecture allows applications to accurately measure ambient light which enables devices to calculate illuminance to control display backlight.

2 Key Features

Figure 1:
Added Value of Using TMD2755

| Benefits | Features |
|--|--|
| Optimized for narrow bezel mobile phones | Small narrow 1.1mm x 3.25mm x 0.60mm module |
| Reduced power consumption | <ul style="list-style-type: none">• 1.8V power supply with 1.8V I²C bus• Sleep mode (0.7µA)• VCSEL IR emitter |
| Enabled superior proximity detection | <ul style="list-style-type: none">• Integrated factory calibrated 940nm IR VCSEL• Crosstalk and ambient light cancellation• Wide configuration range |

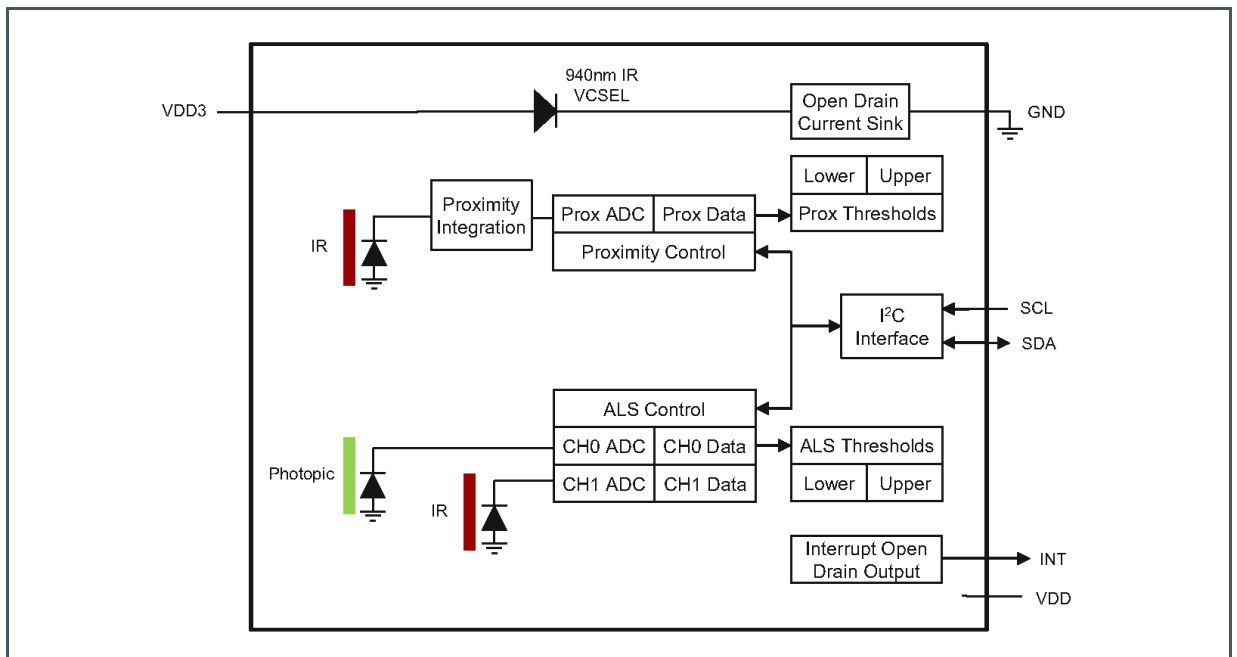
| Benefits | Features |
|--------------------------------|--|
| Accurate ambient light sensing | <ul style="list-style-type: none"> • High sensitivity • 2 channels (photopic ALS + IR) • Programmable gain and integration time |
| Industrial design flexibility | Offset emitter/detector package design |

3 Applications

- Mobile phone display management
- Mobile phone user proximity detection

4 Block Diagram

Figure 2:
Functional Blocks of TMD2755



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