

MT3102 is an advanced miniature optical light-to-digital converter, integrated with a proximity sensor and 940nm IR VCSEL. Customers can improve the system efficiency with the supported features and settings of module.

MT3102 incorporates photodiode, timing controller and ADC. The detect/release events can be interrupt driven, and occur when proximity result crosses upper and/or lower threshold settings.

MT3102 provides a wide range of offsets adjustment to compensate the unexpected IR energy reflection into the sensor, the proximity results are further improved by automatic ambient light elimination method. Besides, it employs a noise cancellation scheme to highly reject the unwanted ambient noise.

Wide operating temperature range:

-30°C~85°C

Built-in temperature compensation circuit and power on reset circuit

Ultra-low power consumption

1.8V power supply with 1.8V I²C bus

Total active current under 10µA@100ms (including VCSEL current)

Idle and sleep mode current: 0.7µA

Built-in VCSEL driver with flexible setting

VCSEL pulse width and count selection

VCSEL current: 7mA

Low noise design

High ambient light suppression

ADC resolution selectable for 16 bits

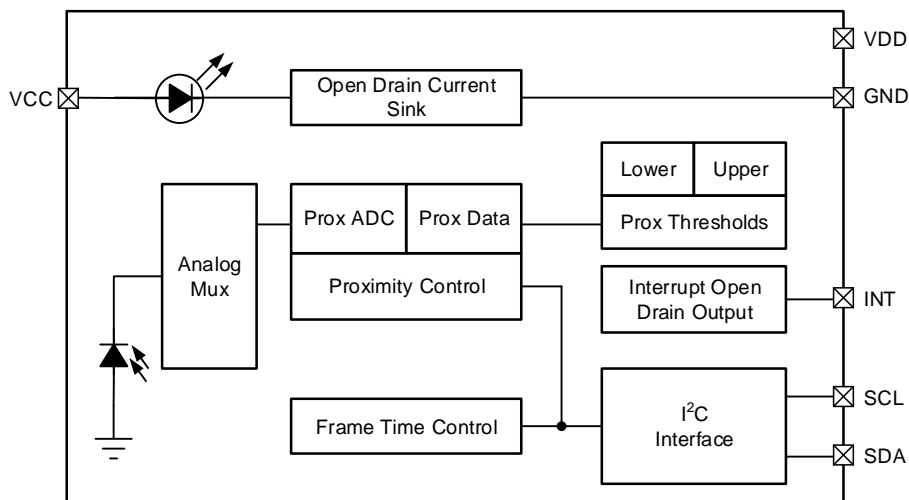
Lead-free package (RoHS compliant)

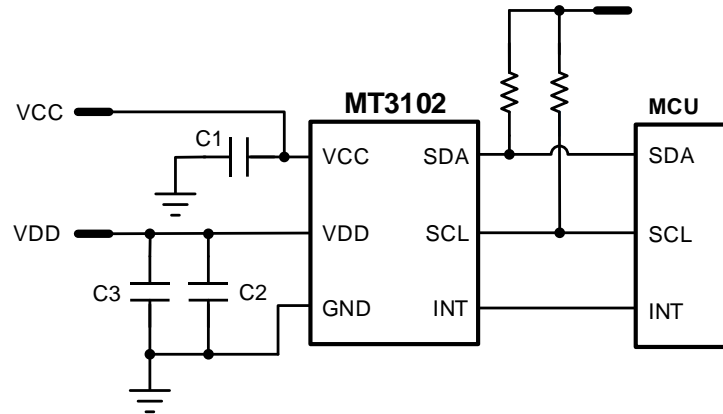
Dedicated optimized package design for small wearable devices

True-wireless stereo earbuds

Glasses

Watches





Corresponding bill of material (BOM) is shown below.

Component	Recommended Value	Condition/Range
R1, R2	1k Ω to 10k Ω	
C1, C3	1 μ F \pm 20%, X7R / X5R Ceramic	Close to the sensor as much as possible.
C2	0.1 μ F \pm 20%, X7R / X5R Ceramic	Close to the sensor as much as possible.

Note:

Selection of pull-up resistors value is dependent on the bus capacitance values.

INT pin is an Open Drain output. If no interrupt signal needed, the INT pin can connect directly to ground and won't have current leakage.