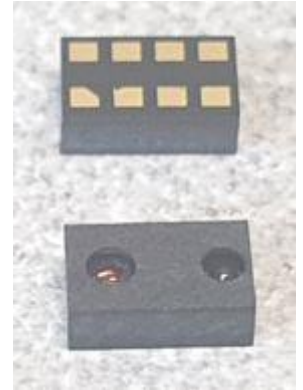


1. Features

- Full proximity sensor feature in tiny package size
 - 4.0mm x 2.4mm x 1.35mm
 - 16-bit ADC
 - Integrated 850nm 210mw VCSEL
- Programmable Proximity Detection and Interrupt
 - Programmable ADC, LED driver parameters
 - Programmable Interrupt generation conditions
- I2C Interface Compatible
 - Up to 400kHz (I2C Fast Mode)
 - OTP select able device address. : 0x39, 0x3D (7bit)
 - I2C H-level range: 1.8V to 5V
- Power Management
 - Supply voltage range: 2.5V to 5V
 - Low Power 1uA Sleep State
 - 70uA Wait State with Programmable Wait Time

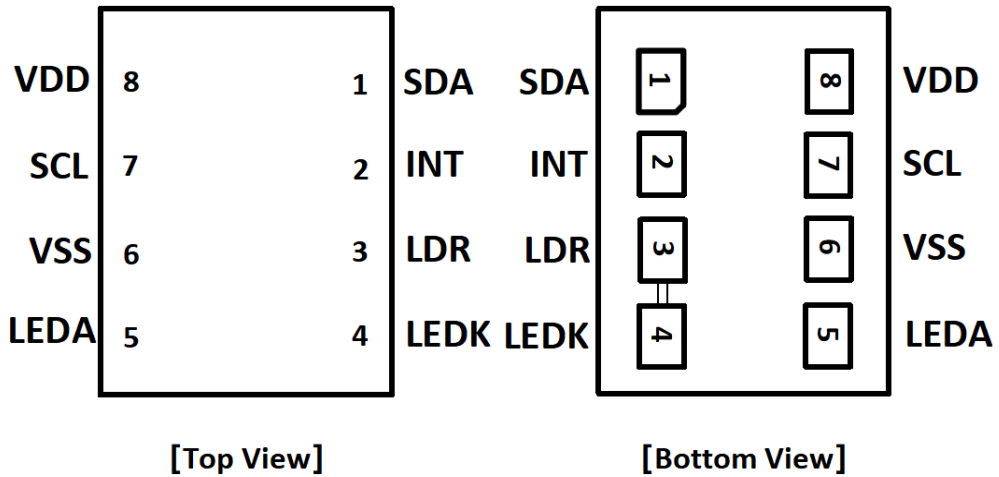


2. Applications

- Contact less devices (dispenser, thermometer)
- TWS(True Wireless Stereo) blue tooth headset
- Other wearable devices

PRODUCT SUMMARY				
Operating Voltage Range [V]	No. of Connection	I2C BUS Voltage Range [V]	LED PULSE Current [mA]	Output Resolution [bit]
2.5 to 5	5	1.8 to 5	5 to 125	16

3. Pin Configuration and Functions



Pin Functions

PIN No	PIN Name	TYPE	DESCRIPTION
1	SDA	I/O	I2C serial data input/output terminal
2	INT	O	Interrupt - open drain (active low)
3	LDR	O	Proximity IR LED controlled current sink driver
4	LEDK	O	Vcsel Diode Cathode
5	LEDA	I	Vcsel Diode Anode
6	VSS	G	Supply Ground
7	SCL	I	I2C serial clock input terminal
8	VDD	P	Supply voltage

4. Specifications

4.1 Absolute Maximum Ratings

SYMBOL	PARAMETER	MIN	MAX	UNIT
VDD	Power Supply Voltage	-0.3	6	V
V _{in}	Input Voltage	-0.3	VDD	V
V _{out}	Output Voltage	-0.3	VDD	V
T _j	Junction Temperature	-40	125	°C

4.2 ESD Ratings

SYMBOL	PARAMETER	VALUE	UNIT
VESD	Human-Body Model (HBM)	+/- 2000	V
	Machine Model (MM)	+/- 200	

4.3 Recommended Operating Conditions

SYMBOL	PARAMETER	MIN	TYP	MAX	UNIT
VDD	Power Supply Voltage	2.5	3.0	5	V
V _{in}	Input Voltage	0		VDD	V
V _{out}	Output Voltage	0		VDD	V
TA	Operating ambient temperature	-40		85	°C

4.4 Electrical Characteristics (VDD = 3V, Ta = 25°C)

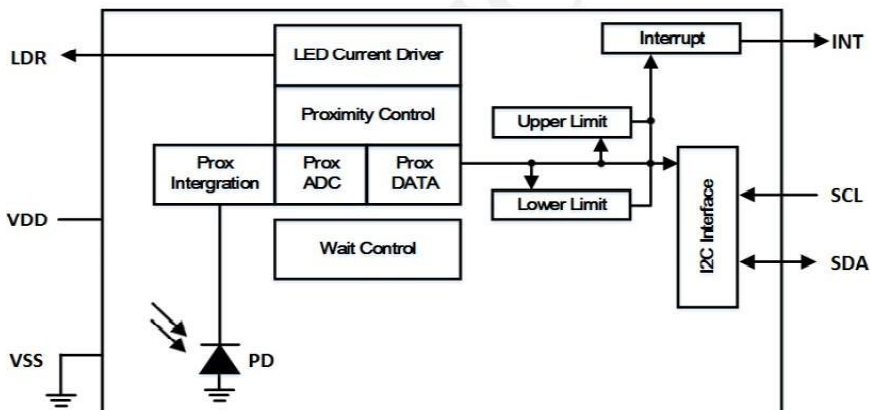
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Current	Active – LDR pulses off		265		uA
	Wait state		55		
	Sleep state		1	10	
	PWIDTH =17.4us, PPULSE=1, PDRIVE=5mA, PTIME=185us, WTIME=4.07ms			75	
Max. Supply Current	PWIDTH =4.4ms, PPULSE=255, PDRIVE=5mA,		2.647		mA
INT, SDA output low voltage	3mA sink current	0		0.4	V
	6mA sink current	0		0.6	
Low Level Input Voltage				0.3VDD	V
High Level Input Voltage		0.7VDD			V

4.6 Proximity Characteristics (VDD = 3V, Ta = 25°C, PEN = 1)

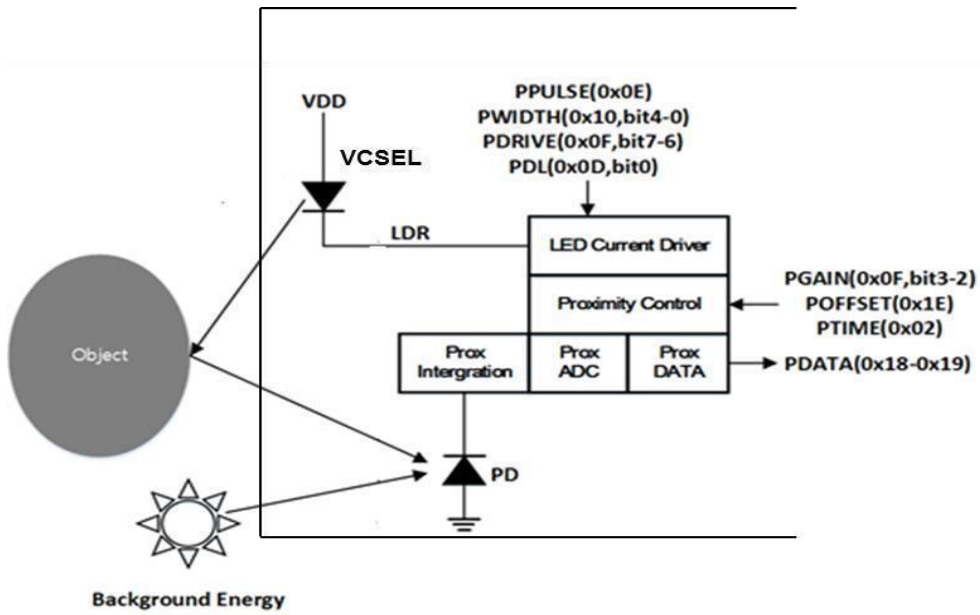
PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Prox. Full count value					65535	counts
LED drive current	PDH = 0	PDRIVE = 0		125		mA
		PDRIVE = 1		100		
		PDRIVE = 2		75		
		PDRIVE = 3		50		
LED drive current	PDH = 1	PDRIVE = 0		12.5		mA
		PDRIVE = 1		10		
		PDRIVE = 2		7.5		
		PDRIVE = 3		5		
Prox. offset	PDRIVE = 0				4	counts

4.7 Electro-Optical Characteristics

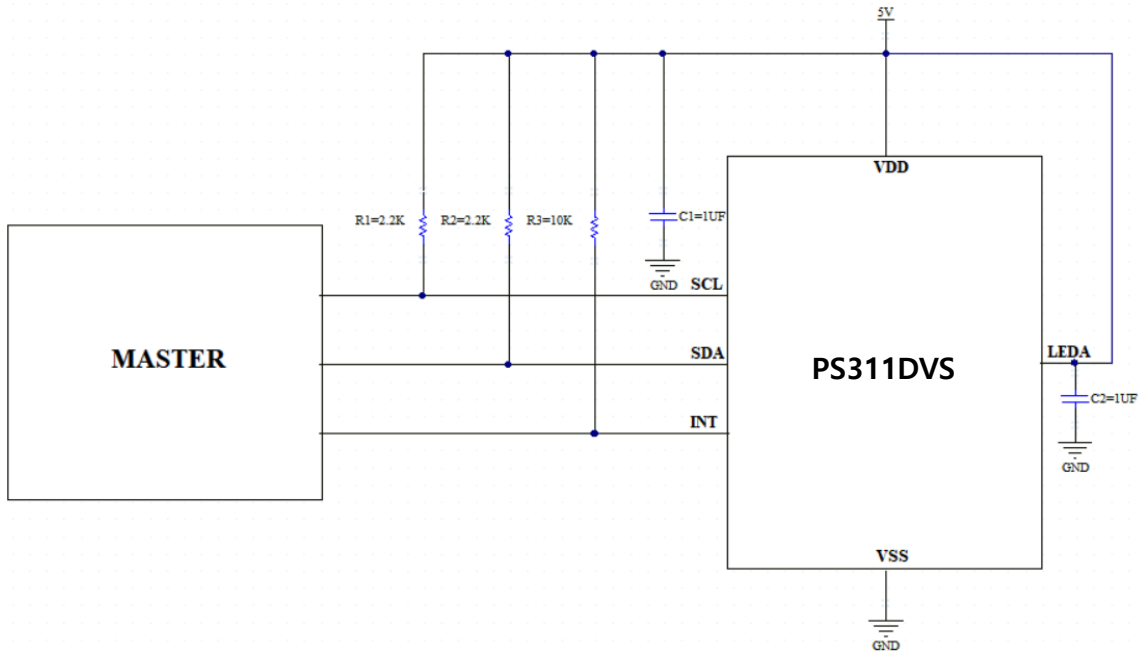
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Optical Output Power	CW, 7.0mA 25°C	5	6	-	mW
Operating Current	CW, 25°C	-	7	-	mA
Power Conversion Efficiency	CW, 7.0mA 25°C	38	41	-	%
Wavelength	CW, 7.0mA 25°C	930	940	950	



<Functional Block Diagram>



<Proximity Detection>



5. Package Dimension

Units [mm]

