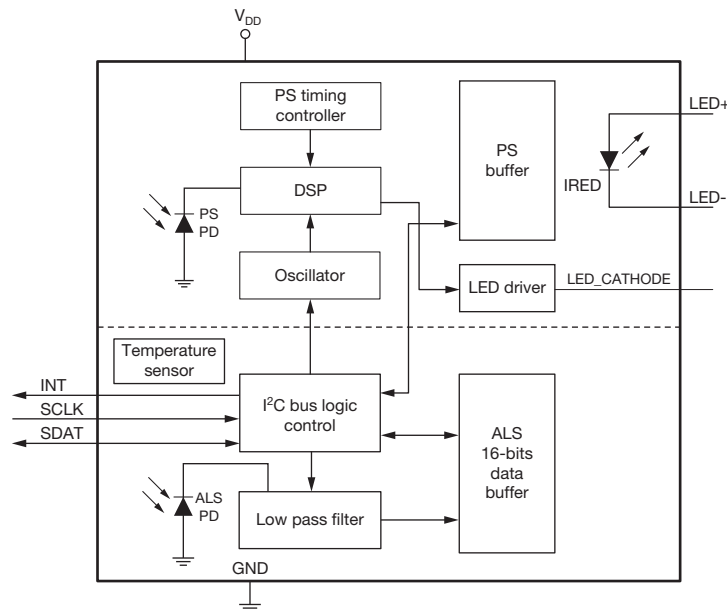


BLOCK DIAGRAM


BASIC CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Supply voltage		V_{DD}	2.5	-	3.6	V	
Supply voltage for IRED		V_{IRED}	3.8	-	5.5	V	
Supply current	Excluded LED driving	I_{DD}	-	350	-	μA	
Shutdown current	Light condition = dark, $V_{DD} = 3.3\text{ V}$	$I_{DD}(\text{SD})$	-	0.2	-	μA	
ALS shut down	ALS disable, PS enable	I_{ALSSD}	-	300	-	μA	
PS shut down	ALS enable, PS disable	I_{PSSD}	-	213	-	μA	
I ² C signal input	Logic high	$V_{DD} = 3.3\text{ V}$	V_{IH}	1.5	-	-	V
	Logic low		V_{IL}	-	-	0.8	
	Logic high	$V_{DD} = 2.6\text{ V}$	V_{IH}	1.4	-	-	V
	Logic low		V_{IL}	-	-	0.6	
Peak sensitivity wavelength of ALS		λ_p	-	550	-	nm	
Peak sensitivity wavelength of PS		λ_{pps}	-	940	-	nm	
Full ALS counts	16-bit resolution		-	-	65 535	steps	
Full PS counts	12-bit / 16-bit resolution		-	-	4095 / 65 535	steps	
Detectable intensity	Minimum	$IT = 400\text{ ms}$, $V_{DD} = 3.3\text{ V}$, 1 step ⁽¹⁾⁽²⁾	-	0.003	-	lx	
	Maximum	$IT = 50\text{ ms}$, $V_{DD} = 3.3\text{ V}$, 65 535 steps ⁽¹⁾⁽²⁾	-	1573	-		
ALS dark offset	$IT = 50\text{ ms}$, $V_{DD} = 3.3\text{ V}$, normal sensitivity ⁽¹⁾		0	-	3	steps	
Operating temperature range		T_{amb}	-40	-	+85	$^{\circ}\text{C}$	
IRED driving current	⁽³⁾		-	-	800	mA	

Notes

- (1) Light source: white LED
- (2) Maximum detection range to ambient light can be determined by ALS refresh time adjustment. Refer to table 17 "ALS Resolution and Maximum Detection Range"
- (3) Based on IRED on / off duty ratio = 1/160, 1/320, 1/640, and 1/1280. The circuitry should use an external MOSFET as shown with Fig.11. Please see also the Application Note "Designing the VCNL4200 into an Application" (www.vishay.com/doc?84327)

