

PIN DESCRIPTIONS			
PIN ASSIGNMENT	SYMBOL	TYPE	FUNCTION
1	V _{DD}	-	Power supply input
2	SCL	I	I ² C digital bus clock input
3	GND	-	Ground
4	IR ANODE	I	Anode for IRED
5	IR CATHODE	I	Cathode (IRED) connection
6	LDR	I	IRED driver input
7	INT	O	Interrupt pin
8	SDA	I / O (open drain)	I ² C data bus data input / output

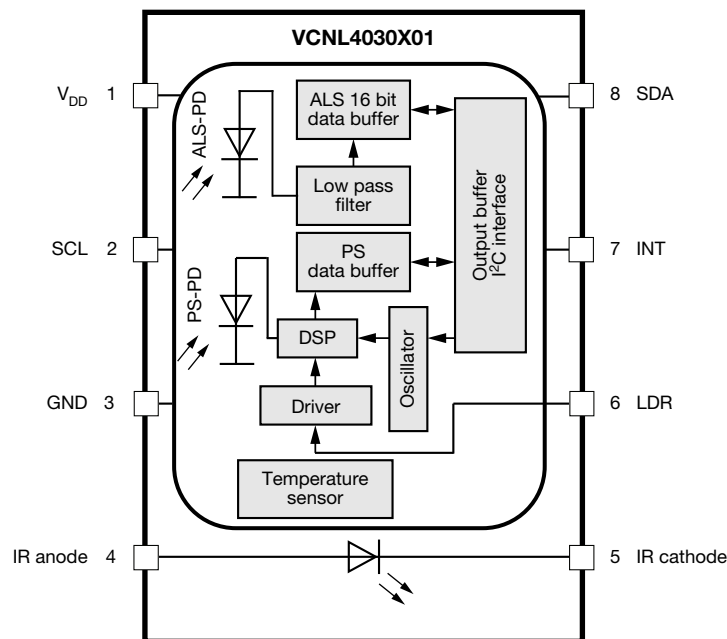
BLOCK DIAGRAM


Fig. 1 - Detailed 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 current	Excluded LED driving	I_{DD}	-	300	-	μA	
	Light condition = dark, $V_{DD} = 3.3\text{ V}$	$I_{DD}(\text{SD})$	-	0.2	-	μA	
I ² C supply voltage		$V_{PULL\ UP}$	1.8	-	5.5	V	
ALS shut down	ALS disable, PS enable	I_{ALSSD}	-	200	-	μA	
PS shut down	ALS enable, PS disable	I_{PSSD}	-	260	-	μA	
I ² C signal input	Logic high	$V_{DD} = 3.3\text{ V}$	V_{IH}	1.55	-	-	V
	Logic low		V_{IL}	-	-	0.4	
	Logic high	$V_{DD} = 2.6\text{ V}$	V_{IH}	1.4	-	-	V
	Logic low		V_{IL}	-	-	0.4	
Peak sensitivity wavelength of ALS		λ_p	-	550	-	nm	
Peak sensitivity wavelength of PS		λ_p	-	850	-	nm	
Full ALS counts	16-bit resolution		-	-	65 535	steps	
Full PS counts	12-bit / 16-bit resolution		-	-	4096 / 65 535	steps	
ALS sensing tolerance	White LED light source		-	-	± 10	%	
Detectable intensity	Minimum	ALS_IT = 800 ms, 1 step ⁽¹⁾⁽²⁾	-	0.004	-	lx	
	Maximum	ALS_IT = 50 ms, 65 535 step ⁽¹⁾⁽²⁾	-	16 768	-		
ALS dark offset	ALS_IT = 50 ms, normal sensitivity ⁽¹⁾		0	-	3	steps	
PS detection range	Kodak gray card		0	-	300	mm	
Operating temperature range		T_{amb}	-40	-	+105	$^{\circ}\text{C}$	
LED_Anode voltage			-	-	5.5	V	
IRED driving current	⁽³⁾		-	200	-	mA	

Notes

- ⁽¹⁾ Test condition: $V_{DD} = 3.3\text{ V}$, temperature: $25\text{ }^{\circ}\text{C}$
- ⁽²⁾ Maximum detection range to ambient light can be determined by ALS refresh time adjustment and two sensitivity bits (ALS_HD and ALS_NS). Refer to table "ALS Resolution and Maximum Detection Range"
- ⁽³⁾ Programmable between 50 mA and 200 mA; based on IRED on / off duty ratio = 1/40, 1/80, 1/160, and 1/320